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대한악악면성형재건외과학회
KAMPRS
Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

The 60th
Congress of the Korean Association of
Maxillofacial Plastic and Reconstructive Surgeons
제60차 대한악안면성형재건외과학회 종합학술대회 및 정기총회

온라인 학술대회 e-Conference

New step for the next 60 years

November 4 (Thu) ~ 10 (Wed), 2021

Hosted by 대한악악면성형재건외과학회 KAMPRS Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Organized by 경희대학교 치과대학 구강악안면외과학 교실

Sponsored by KOFST 한국과학기술단체총연합회

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제60차
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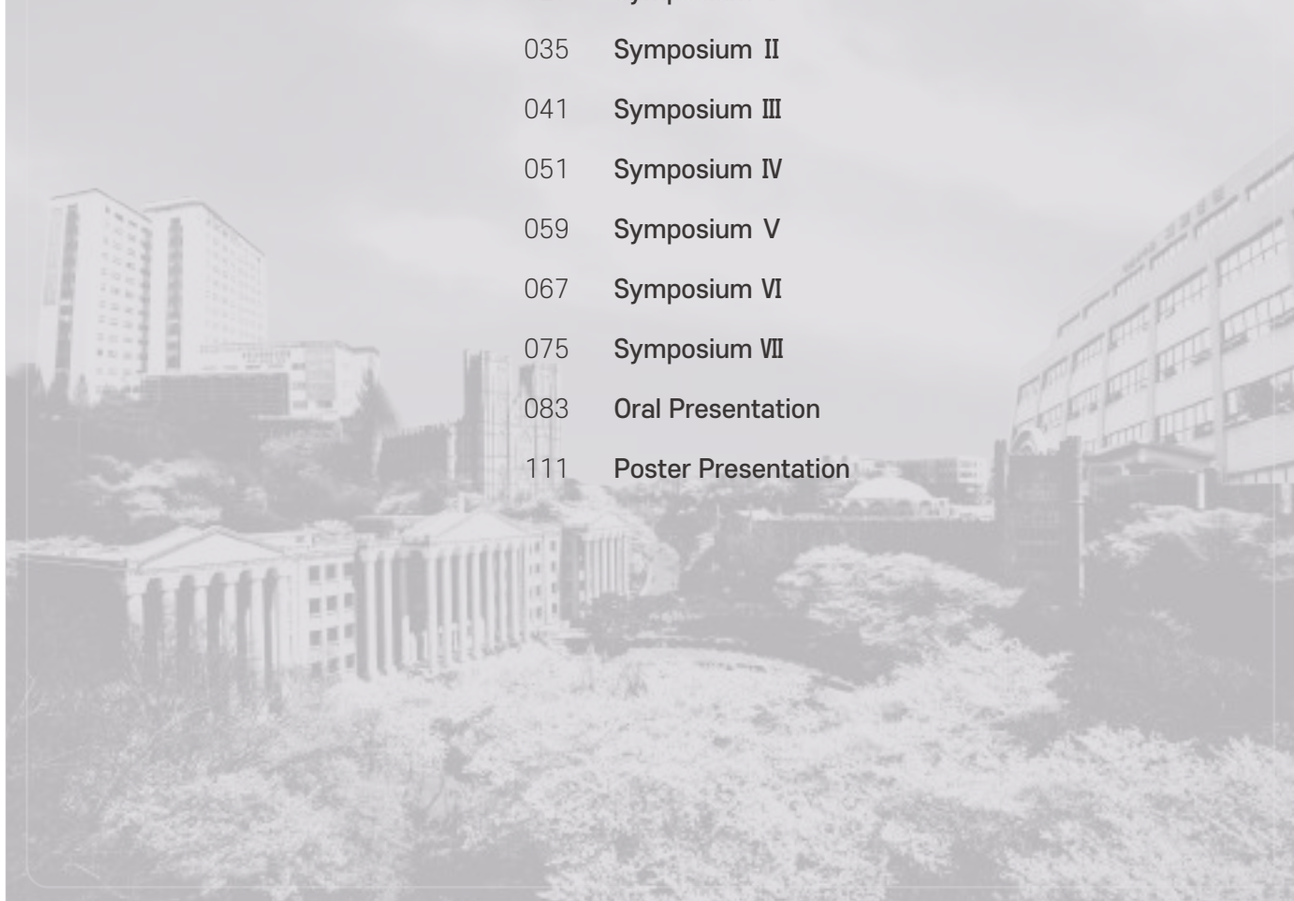
C O N T E N T S



학술대회장 인사말

존경하는 대한악안면성형재건외과학회 회원 여러분 안녕하십니까?

2021년 학술대회는 경희대학교 구강악안면외과학 교실에서 주관하여 개최하기로 하였습니다. 60년 역사를 축하하는 뜻깊은 학술대회를 개최하게 되어 무한한 영광으로 생각합니다. 좋은 기회를 주신 고승오 학회장님 및 임원님, 고문님, 회원 여러분께 감사드립니다.

우리 학회 60주년 생일과도 같은 뜻깊은 학술대회를 국내외 많은 분들을 초대하여 성대하게 열고 자축하는 행사로 개최하고 싶었으나 다만 유례없는 코로나 바이러스의 전세계적 유행과 더불어 국내 4차 재유행으로 인해 4단계 거리두기 격상, 대면모임 및 집합금지 등이 시행되는 국가적 위기 상황하에서 대면 학술대회 개최로 인한 감염 발생위험성이 높아 부득이 구강보건을 담당하는 회원님들의 감염예방을 위하여 비대면 학술대회로 개최하게 되었습니다. 회원님들의 많은 양해를 부탁드립니다.

이번 학술대회는 비록 온라인 학술대회이지만 지난 60년의 역사를 돌이켜 보며 우리 학회와 학문이 어디에 있는지를 생각해보고 앞으로 60년을 대비해 우리가 나아갈 방향에 대해 논의할 수 있는 학술대회로 만들고자 'New step for the next 60 years' 주제로 학술대회를 준비하였습니다. 온라인 학술대회이지만 국내외 저명한 석학들을 모시고 주제에 부합하는 많은 강연과 학술 교류의 장을 준비하였사오니 회원 여러분들의 많은 참여와 다양한 학술교류가 이루어지는 학술대회가 되었으면 합니다.

마지막으로 성공적인 학술대회의 개최 준비를 위하여 열과 성을 다해주신 경희대학교 구강악안면외과 교실원과 동문 여러분들께 감사드리며 학회장님 및 임원님, 고문님, 회원 여러분 건강에 유의하시고 건승하시기 바라며 하루 빨리 코로나 감염이 종식되어 대면 학술대회에서 만나 뵙기를 기원합니다.

2021. 11. 4

제60차 대한악안면성형재건외과학회 학술대회장 **지 유 진**

My dear members of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons (KAMPRS)!

Greetings from Yu-Jin Jee, Chairman of the 60th KAMPRS Congress 2021.

"The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons" will be organized by the Department of Oral and Maxillofacial Surgery in the School of Dentistry at Kyung-Hee University. It is an infinite honor to hold a meaningful Congress to celebrate 60 years of history. I would like to express my deepest thanks to president Seung-O Ko of the KAMPRS, directors, advisors, and members who have made this opportunity possible.

The KAMPRS 2021 Congress was originally scheduled to be held magnificently to celebrate a meaningful Congress such as the 60th Anniversary of our association by inviting many famous speakers from locally and abroad as an offline venue. However, as we prioritize the safety of participants, we have decided to conduct this year's Congress as an online 'Untact' meeting due to the unprecedented global pandemic of the COVID-19 and an upgraded social distancing rules such as the ban on face-to-face meetings and gatherings according to the fourth re-proliferation in Korea. We ask for your understanding.

Although it is an online 'Untact' Congress, we prepared an KAMPRS 2021 Congress under the theme of "New step for the next 60 years" to look back on the past 60 years, think about where our association and studies are and discuss our directions for the next 60 years. Also we have prepared many lectures and places for academic interchanges that match the theme with renowned speakers from locally and abroad. So we hope it will be a successful Congress where many members participate and various academic interchanges take place.

I would like to express my deep gratitude to the invited speakers from locally and abroad who prepared to give excellent lectures despite their busy schedules and to all members for their active participation. Lastly, I would like to thank the members of the Department of Oral and Maxillofacial Surgery in the School of Dentistry at Kyung-Hee University and many alumni who spared no effort in encouraging us to hold a successful Conference. Moreover, I hope president, advisors, executive directors, and all members of the KAMPRS take care of your health and stay healthy. The COVID-19 will be ended as soon as possible and meet you at the offline 'Ontact' Congress.

2021. 11. 4

Chairman of the 60th KAMPRS Congress and Regular Meeting 2021 **Yu-Jin Jee**

학회장 인사말

안녕하십니까? 대한악안면성형재건외과학회 회원 여러분!

유난히도 맑고 높은 가을 하늘 아래 2021년 대한악안면성형재건외과 종합학술대회를 경희대학교 구강악안면외과 주관하에 개최하게 되었습니다. 특히 이번 학술대회는 저희 학회 창립 60주년을 축하하는 자리이기도 합니다. 60년전 열악한 환경속에서 처음 시작하여 턱얼굴 분야의 진료 영역을 개척하고 진료와 교육, 봉사에 헌신하신 선학들과 그 뜻을 이어 지금의 우리 학회 모습이 되기까지 노력하신 회원님들의 노고에 감사드리고 새로운 도약의 60년을 약속하는 매우 뜻깊은 자리라고 생각합니다.

이번 학술대회의 대주제는 “Next step for the next 60 years”로 정하였습니다. 또한 학술프로그램은 4차 산업혁명시대에 발맞춘 다양한 3D 시뮬레이션을 포함하여 악교정수술, 임프란트골이식술, 구순구개열, 타액선질환, 악안면재건수술 등 저희 학회의 핵심 영역의 최신 지견을 다각적으로 다루고 있습니다.

안타깝게도 이렇게 뜻깊은 60주년을 기념하는 학술대회를 직접 여러 회원 여러분들과 만나서 축하하고 토론함과 동시에 친목의 시간을 갖는 성대하고 풍요로운 가을 축제로 개최할 수 없게 되었습니다. 그러나 비록 온라인으로 개최되는 학술대회이지만 더욱 적극적으로 참여하고 소통하는 학술교류의 장이 될 뿐 아니라 우리 학회의 창립정신과 그동안의 발자취를 되새기면서 앞으로 돌아올 우리들의 미래를 더욱 더 발전시킬 수 있도록 가슴 깊이 준비하는 기회가 되길 기원합니다.

이번 학술대회의 강연을 수락해주신 국내외 초청연자분들게 감사의 말씀을 드리고, 코로나19라는 어려운 환경속에서도 성공적인 학술대회를 위하여 최선을 다하여 준비해주신 지유진 학술대회장님과 조직위원회, 그리고 경희대학교 구강악안면외과 교실원 동문여러분들게 특별히 감사드립니다.

회원여러분!
언제나 적극적으로 학회일에 관심을 가지고 참여해 주시는 회원여러분들이 대한악안면성형재건외학회의 보석같은 주인공입니다. 항상 마음속 깊이 감사를 드리고 있습니다. 회원여러분들의 건강과 행복을 기원하며 하루빨리 건강한 모습으로 다시 만날 수 있는 날을 기다리겠습니다.

감사합니다.

2021. 11. 4
제60차 대한악안면성형재건외과학회 학회장 **고 승 오**

My dear members of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons (KAMPRS)!

Greetings from Seung O Ko, President of KAMPRS.

Under the unusually clear and high autumn sky, the KAMPRS 2021 Congress will be held under the supervision of the Department of Oral and Maxillofacial Surgery in the School of Dentistry at Kyung-Hee University. In particular, this year's Congress is also a place to celebrate the 60th Anniversary of our association's foundation. I think it is a very meaningful place to thank predecessor scholars who started 60 years ago in a poor environment and devoted themselves to treatment, education, and services for pioneering treatment field of Maxillofacial areas and the members who have worked hard to become our association today.

The main theme of this congress is "Next step for the next 60 years." In addition, the Congress program covers the latest knowledge of our association's core areas, including various 3D simulations, bone graft for implant, cleft lip and palate, salivary gland disease, and Maxillofacial reconstruction surgery in line with the era of the 4th industrial revolution.

Unfortunately, such a meaningful 60th Anniversary Congress cannot be held as a grand and abundant autumn festival where we directly meet and celebrate and discuss with many of members at the same time. However, although it is an online 'Untact' Congress, I hope it will not only be an academic interchanging place for more active participation and communication, but also an opportunity to prepare for developing our future by focusing on the founding spirit of our association and reflecting on its history.

I would like to express my sincere thanks to the invited lecturers, local and international, who agreed to give their time despite the difficult circumstances, and especially to express my gratitude to Chairman Yu-Jin Jee of the KAMPRS 2021 Congress, Organizing Committee members, and the members of the Department of Oral and Maxillofacial Surgery in the School of Dentistry at Kyung-Hee University who did their best to help for the success of the KAMPRS Congress amid the national confusion caused by COVID-19.

Dear Members!
Members who are always interested in and participate actively for the association are jewels of the KAMPRS. I'm always deeply grateful for you. I wish you good health and happiness, and I look forward to the day when we can meet again in good health as soon as possible.

Thank you.

2021. 11. 4
President of KAMPRS **Seung O Ko**

축사

안녕하십니까? 대한치의학회 회장 김철환 교수입니다.

'제 60차 대한악안면성형재건외과학회 종합학술대회' 행사를 진심으로 축하드립니다.
대한치의학회는 대한민국 치의학계의 학문적 그리고 임상적 발전을 위해 2002년에 발족된 후, 현재 보건복지부 산하 사단법인체로서, 정관 목적사업과 37개 전문회원학회들과 함께 치의학 발전을 위해 노력하고 있습니다.

저 개인적으로는 대한악안면성형재건외과학회의 한사람의 회원으로서, 또 회무에 참여한 임원진을 경험한 사람으로서, 대한악안면성형재건외과학회가 60년 동안 걸어온 선도적인 학문연구와 이를 기반으로 한 임상적용을 통해 국민의 건강과 보건 향상에 부단히 공헌해 온 사실을 잘 알고 있습니다. 특별히 과학적 연구와 의료 활동을 통해 굳건한 임상적 이해를 다지고 이를 바탕으로 악안면성형재건외과학 분야의 진단과 치료로 있어 근거 기반의 국제수준의 의료를 선도하고 있음을 의료계의 한 사람으로서 자랑스럽게 생각합니다.

매년 가을 개최되는 정기 학술대회 및 정기총회는 악안면 분야의 성형 재건분야를 전공한 의료인, 학자 및 스텝, 관련업체 종사자들에게 최적화된 학술 프로그램과 기자재 전시회 등 풍성한 행사로 매년 가을에 열리는 축제로 자리매김하고 있습니다. 이번 '60차 대한악안면성형재건외과학회 종합학술대회'는 경희대학교 치과대학 구강악안면외과학 교실의 주관하에 개최하게 되어 큰 영광으로 생각합니다. 이번 학술대회는 COVID-19 로 인한 국내의 4차 재유행이 발생하게 되어, 주최측의 고심 끝에 작년과 동일하게 전면 온라인 학술대회로 진행하기로 확정하였다고 들었습니다. 이에 행사장 운영과 참가자 행사 모임이 없는 온라인 비대면 학술대회의 형태로 진행하게 되었고, 오는 11월 4일부터 7일간 온라인으로 참여하는 학술대회로서 전문 학술분야의 기초부터 앞으로 나아갈 방향에 대해 논의할 것입니다. 온라인으로 진행할 수밖에 없는 현실이 아쉽기도 하지만 '뉴노멀'시대에 맞춰 빠르게 변화하고 있는 사회에 적응하는 것도 4차산업 혁명의 대전환기에 발맞추어 발전하는 것으로 생각됩니다.

바쁘신 중에서도 훌륭한 강의를 해주시는 국내외의 초청 연자 분들과 적극적으로 참여해 주시는 회원 분들께 깊은 감사의 인사를 드립니다. 더불어 성공적인 학술대회가 개최될 수 있도록 준비해주신 지유진 학술대회장님과 조직위원회 위원분들, 경희대학교 치과대학 구강악안면외과학 교실원 여러분들께도 감사의 마음을 전합니다. 아울러, 그동안 2년동안 대한악안면성형재건외과학회를 이끌어 오신 고승오 학회장님과 회원들의 권익과 학회발전을 함께 견인해 오신 임원진들의 그동안의 노력에 고개 숙여 감사를 드립니다.

앞으로도 대한치의학회는 대한악안면성형재건외과학회의 활동을 적극 지원하면서 또 대한악안면성형재건외과학회와 함께 국민 건강 증진을 위한 실효성 있는 정책 개발과 개선방안 마련을 위해 최선의 노력을 다하겠습니다. 다시 한 번 '제60차 대한악안면성형재건외과학회 종합학술대회' 개최를 축하드립니다.

감사합니다.

2021. 11. 4
대한치의학회 회장 **김 철 환**

안녕하십니까? 경희대학교 의무부총장 겸 의료원장 김기택입니다.

올해는 대한악안면성형재건외과학회가 60주년이 되는 뜻깊은 해입니다. 먼저, 훌륭한 역사를 만들어 내신 학회 회원 여러분께 진심으로 축하의 인사를 드립니다.

60주년을 맞이하여 경희대학교 구강악안면외과학교실 주관으로 학술대회(대회장 지유진 강동경희대학교병원 치과병원장)를 개최하게 되어 경희대학교 의무부총장으로서 너무나 영광스럽게 생각합니다.

초대회장님이신 오재인 교수님을 필두로 시작된 대한악안명성형재건외과학회는 그 동안에 수 많은 업적을 세웠습니다. 이는 학회의 교수님들, 전공의 선생님들, 그리고 관련 분야에 계신 모든 분들께서 악안면영역 분야의 발전을 위해 끊임없이 연구해 오신 노력 덕분일 것입니다. 지금까지 해오신 업적이라면 앞으로의 60년, 100년에 더욱 위대하고 훌륭한 업적을 이루실 것이라 생각됩니다.

COVID-19 속에서도 어느 학술대회 보다 더욱 훌륭한 대회를 만들기 위해 노력해주신 지유진 교수님과 구강악안면외과학교실원 여러분께 감사드립니다. 그리고 학회를 빛나게 장식해 주시기 위해 시간을 내어주신 연자 및 좌장 선생님들께도 감사의 인사를 드립니다.

다시 한 번 대한악안면성형재건외과학회의 60주년을 진심으로 축하드리며, 고승오 학회장님과 회원 여러분, 그리고 관련 분야의 모든 분들의 건강과 행복이 가득하시기를 기원하겠습니다.

감사합니다.

2021. 11. 4
경희대학교 의무부총장 & 의료원장 **김 기 택**

Class	Topic	Speaker
Invited Lecture Ⅰ	New treatment for osteoporosis and osteonecrosis of the jaw	Prof. Deog-Yoon Kim (Kyung-Hee University)
Invited Lecture Ⅱ	Clinical application of Chinese customized 3D-printed total temporomandibular joint prostheses	Prof. Shanyong Zhang (Shanghai Ninth People's Hospital)
Invited Lecture Ⅲ	New step for the next 60 years	Prof. Masayuki Takano (Tokyo Dental College)
Invited Lecture Ⅳ	Clinical applications and global status of patient-specific medical devices	Ph.D. Guk-Bae Kim (ANYMEDI Inc., CEO)
Invited Lecture Ⅴ	Role of 3D planning of microvascular grafts for oral reconstruction	Prof. Bilal Al-Nawas (Johannes Gutenberg University)
Symposium Ⅰ - Digital Guide Implant -	Implant surgery for edentulous patient using 3D guide system	Prof. Hwi-Dong Jung (Yonsei University)
	Clinical tips compared to the conventional methods, fabrication of accurate digital surgical guide for implant placement and how to overcome inaccurate surgical guide	Dr. Jong-Yub Kim (Boston SMart Dental)
	Need-to-knows about digital transformation in implant dentistry: what's all the hype?	Prof. Jang-Hyun Paek (Kyung-Hee University)
Symposium Ⅱ - 3D simulation -	Optimized algorithm for maxillo-mandibular reconstruction using 3D simulation	Prof. Jung-Woo Lee (Kyung-Hee University)
	Improvement of practicality in the 3D simulation for orthognathic surgery and maxillofacial reconstruction-Importance of clinical data, 3D printing and algorithm	Prof. Jun-Young Paeng (Samsung Medical Center)
Symposium Ⅲ - Bone Graft for Implant -	Considerations for anterior implant with a narrow bone width	Dr. Jun-Hyouk Shin (Digital ART Dental Clinic)
	Computer Assisted Ridge splitting technique of narrow ridge	Prof. Seong-Yong Moon (Chosun University)
	Overcome narrow ridges with Narrow diameter implants (NDIs) and its mechanical and biological considerations	Prof. Jin-Woo Kim (Ewha Womans University)
	Sausage technique for narrow ridge	Prof. Jun-Ho Jung (Kyung-Hee University)
Symposium Ⅳ - Cleft Lip and Palate -	Correction of secondary cleft lip nasal deformities	Prof. Hong-Ju Park (Chonnam National University)
	Cleft rhinoplasty: Primary or Secondary	Prof. Young-Wook Park (Gangneung-Wonju National University)
	Secondary correction of cleft lip nasal deformity	Prof. Jin-Young Choi (Seoul National University)
Symposium Ⅴ - Orthognathic Surgery -	Solving complication of orthognathic surgery for class II patients	Prof. Norie Yoshioka (Okayama University Hospital)
	Orthognathic surgery for the patient with Osteoarthritis of TMJ	Prof. Bu-Kyu Lee (Asan Medical Center)
	Orthodontic strategy for minimally invasive surgery	Prof. Yoon-Jeong Choi (Yonsei University)
Symposium Ⅵ - Salivary Gland Disease -	CeO2/Mn3O4 Nanocrystals as an Enhanced Antioxidant for Radioprotection	Prof. Kyung-Pyo Park (Seoul National University)
	Modern management of salivary gland stone	Prof. Jeong-Kyu Kim (Catholic University of Daegu)
	Management of Sjogren's syndrome using sialendoscopy	Prof. Sang-Ho Jun (Korea University Anam Hospital)
Symposium Ⅶ - Maxillofacial Reconstruction -	Microsurgery and free vascularized fibular graft in Maxillofacial reconstruction	Prof. Duke-Whan Chung (Kyung-Hee University)
	Present status of oro-facial reconstruction using lateral arm free flap	Prof. Jong-Ho Lee (Seoul National University)
	Guidance for maxillofacial reconstruction surgery for trainees	Prof. Jae-Yeol Lee (Pusan National University)

일반 연제 구연 및 포스터 발표 안내

구연 발표 (Oral Presentation)

① 일반 구연 발표는 약 8분입니다.
② 우수 발표자에게는 심사 후 학술상 시상 예정입니다.

*** 수상자 발표**
일시 2021년 11월 10일 (수) 오후 12시
장소 악성학회 홈페이지 (kamprs.or.kr)

*** 구연 발표 심사위원 명단**

이름	소속
권용대	경희대학교 치과병원 구강악안면외과
박관수	인제대학교 상계백병원 구강악안면외과
오주영	경희대학교 치과병원 구강악안면외과
김용덕	부산대학교 치과병원 구강악안면외과
서병무	서울대학교 치과병원 구강악안면외과

"심사를 맡아 주신 심사위원님들께 감사드립니다."

e-포스터 발표 (e-Poster Presentation)

① **e-포스터 게시 시간** 2021년 11월 4일 (목) 09시 ~ 10일 (수) 24시
② **e-포스터 운영 장소** http://www.kamprs.com/sub/poster_exhibition.php
③ 포스터 심사는 두 차례 진행될 예정이며, 1차 심사 후 우수 선정자에 한해 Q&A 심사가 진행될 예정입니다.
④ 우수 발표자에게는 학술상 시상 예정입니다.

*** 수상자 발표**
일시 2021년 11월 10일 (수) 오후 12시
장소 악성학회 홈페이지 (kamprs.or.kr)

*** 포스터 발표 심사위원 명단**

이름	소속
김문영	단국대학교 치과병원 구강악안면외과
김진욱	경북대학교 치과병원 구강악안면외과
박진후	연세대학교 치과대학병원 구강악안면외과
정준호	경희대학교 치과병원 구강악안면외과
한세진	단국대학교 치과병원 구강악안면외과
김좌영	한림대학교 강남성심병원 구강악안면외과
박주영	서울대학교 치과병원 구강악안면외과
정승곤	전남대학교 치과병원 구강악안면외과
정휘동	연세대학교 용인세브란스병원 구강악안면외과
홍성옥	강동경희대학교 치과병원 구강악안면외과

"심사를 맡아 주신 심사위원님들께 감사드립니다."

Invited Lectures

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Invited Lecture Ⅰ

Speaker Prof. Deog-Yoon Kim

Affiliation Department of Endocrinology, Kyung-Hee University Hospital

Topic New treatment for osteoporosis and osteonecrosis of the jaw

Invited Lecture Ⅱ

Speaker Prof. Shanyong Zhang

Affiliation Ninth People's Hospital, College of Stomatology, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Topic Clinical application of Chinese customized 3D-printed total temporomandibular joint prostheses

Invited Lecture Ⅲ

Speaker Prof. Masayuki Takano

Affiliation Department of Oral and Maxillofacial Surgery, Tokyo Dental College

Topic New step for the next 60 years

Invited Lecture Ⅳ

Speaker Ph.D. Guk-Bae Kim

Affiliation ANYMEDI Inc., CEO

Topic Clinical applications and global status of patient-specific medical devices

Invited Lecture Ⅴ

Speaker Prof. Bilal Al-Nawas

Affiliation Chairman of the Clinic for Oral and Maxillofacial Surgery, Plastic Surgery University Medical Center of the J. Gutenberg University

Topic Role of 3D planning of microvascular grafts for oral reconstruction

New treatment for osteoporosis and osteonecrosis of the jaw

Deog-Yoon Kim
Department of Endocrinology,
Kyung-Hee University Hospital

The prevalence of osteoporosis and osteopenia among adults 50 years or older in South Korea were 22.4% and 47.9%, respectively; therefore, nearly 1 of 5 and 1 of 2 Korean adults had osteoporosis and osteopenia, respectively. The prevalence of osteoporosis in men was one fifth that in women, but the prevalence of osteopenia was similar between men and women. The prevalence of osteoporosis was increasing with age, and 68.5% of women aged 70 years or older had osteoporosis. The number osteoporotic fracture has gradually increased since 2008 and was stationary after 2013. But the number of patients has continued to grow due to the aging of the population. Fractures cause pain and motor disorder for the patients, and reduce the quality of life, placing a huge burden on society and the economy. The mortality rate after hip fracture in the first 12 months is 15.6%, and increase with age. Therefore, osteoporosis should be treated before fracture occurs, but 4 of 10 patients did not access medical services for osteoporosis. Seven of 10 female patients and 8 of 10 male patients with osteoporosis did not take anti-osteoporosis medication. Furthermore, with ongoing reports of osteonecrosis of jaw(ONJ), there has been a decline in the use of bisphosphates which had been the most widely prescribed anti-osteoporosis medication. Drug holiday is recommended to the patients with long-term use of bisphosphonates and relatively low risk of fracture. Recently another anti-resorptive agent, denosumab has been widely used in Korea. The use of denosumab is also associated with an increased risk of developing ONJ. According to the recent guideline for the management of patients with low, high and very high risk of osteoporotic fractures, trend of anti-osteoporotic medication has been changed. More rapid and greater fracture risk reduction can be achieved with anabolic agents such as teriparatide or romosozumab in patients with very high fracture risk.
With introduction of new anti-osteoporotic drugs and new strategy for the treatment of osteoporosis, further studies will be needed to identify the risk factors and also to establish guidelines for the prevention of MRONJ.

Curriculum Vitae

Current Position and Title

Director, Office of Deliberation and coordination, Kyung Hee University Medical Center
Director, Osteoporosis Clinic, Department of Endocrinology, Kyung Hee University Hospital
Head, Department of Nuclear Medicine, Kyung Hee University Hospital
Chairman, the Korean Society of Bone and Mineral Research (2020.1-2021.12)
Vice President, the Korean Society of Sarcopenia (2020.1-2021.12)
Member, American Society of Bone and Mineral Research

Education and Training

1980-1986	Kyung Hee University School of Medicine, SEOUL, KOREA (M.D. license ; 29987)
1986-1990	Resident, Department of Internal Medicine, Kyung Hee University Hospital, SEOUL, KOREA
1990	Fellow, Department of Nuclear Medicine, Seoul National University Hospital, SEOUL, KOREA

Carrier

1991-1999	Instructor of Kyung Hee University Medical Center
1999-2001	Assistant Professor of Kyung Hee University School of Medicine
2002-2006	Associate Professor of Kyung Hee University School of Medicine
2007-Present	Professor, Department of Nuclear Medicine and Endocrinology, Kyung Hee University School of Medicine, SEOUL, KOREA

Clinical application of Chinese customized 3D-printed total temporomandibular joint prostheses

Shanyong Zhang
Ninth People's Hospital, College of Stomatology, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Purpose
Temporomandibular joint (TMJ) diseases are highly prevalent in China. However, no commercialized custom-made prostheses are available now. This study introduces a three-dimensionally (3D) printed customized total TMJ prosthesis manufactured by a standardized workflow.

Methods
Consecutive patients with end-stage TMJ diseases were recruited from Jan 2018 to Sep 2018. The computed tomography (CT) data for patients were obtained and transformed into the Mimics 18.0 software preoperatively for designing of prostheses and digital templates. 3D printing, friction spot welding and computer-assisted manufacture (CAM) were used to fabricate different components of the prosthesis. The clinical and radiographic evaluations were performed postoperatively.

Results
A series of 9 patients were included. All the prostheses were placed smoothly and fixed stably during surgical procedure. Without severe postoperative complications, all patients exhibited significant improvements in maximum mouth opening, pain, diet, and mandibular function, with good facial symmetry. For the whole prosthesis, the average mean deviation was 0.432 mm (range: from 0.279 to 0.561 mm).

Conclusions
This study suggests that Chinese customized 3D-printed total TMJ prostheses produces excellent short-term clinical outcomes, with high accuracy in implantation.

Curriculum Vitae

Professor Shanyong Zhang, born on February 22, 1972, is the deputy chief of Department of Oral Surgery in Shanghai 9th People's Hospital. He is also the director of Teaching and Research of the Department of Oral and Maxillofacial Surgery in Shanghai 9th People's Hospital. As a MD jointly trained by Vienna Medical University and Shanghai Jiaotong University, he visited Baylor University Medical Center and received training with the guidance of Professor Larry Wolford in 2010, specialized in the temporomandibular joint (TMJ) surgery with dentofacial deformity (including alloplastic total TMJ replacement surgery).

Prof. Zhang is the standing committee member of Chinese society of TMD (Temporomandibular Disorders) & Occlusion of CSA; board member of China Clinical Translational Medicine Industry Society of Health Industry (CCTMIS); expert board member of Stomatologist Qualification Examination of the National Medical Examination Center; Standing Committee Member of Basic Science of Stomatology Committee of Shanghai; Member of International Association of Oral and Maxillofacial Surgeons (IAOMS).

Professor Zhang is an expert in TMJ surgery, dental alveolar surgery and minimal invasive surgery, including diagnosis and treatment of temporomandibular disorders, osteoarthrosis, ankylosis, complex condylar fracture and neoplasm in TMJ. The joint-jaw-occlusion combined therapy is one of his special skills. Recently, he is mainly focused on the **development and clinical application of Chinese custom-made total TMJ prostheses**, which has exceeded the standards of its international counterparts. For fundamental research, he is also proficient in **nanomedicine for osteoarthritis, dental alveolar regeneration and nanoscale modification of dental implant surface**.

As the first author or the corresponding author, Professor Zhang has published more than 170 papers, 75 of which were indexed by SCI. In the recent years, he has won 8 important prizes including the Second Prize of the Ministry of Education of Science and Technology Progress (the first order); Shanghai Outstanding Invention Gold Award (the first order); the first Prize of Progress Award of Science and Technology Ministry of Shanghai (the third order); the Second Prize of the Ministry of Education of Science and Technology Progress (the second order); the Second Prize of National scientific and technological progress (the fourth order). He has been authorized for 20 patents and participated in editing 9 books. As the principal investigator of more than 30 national and municipal projects, including 3 projects sponsored by the National Natural Science Foundation of China, he has won Shanghai Pujiang Talent Program; the first board of high-altitude research physicians "Double Hundred Talents Program"; New Hundred Talents Program of SHSMU.

New step for the next 60 years

Masayuki Takano
Department of Oral and Maxillofacial Surgery,
Tokyo Dental College

First, I celebrate the 60th anniversary of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons. During this era, it has been 20 years since we started a sisterhood relationship with our academic society, the Japanese Society of Jaw Deformity. In 20 years, we have undergone various exchanges, which is also a process of progress in oral and maxillofacial surgery and treatment of jaw deformities.

During this period, the biggest alteration of our ground is the unbelievable advancement of digital technology. This renovation has significantly changed the way of diagnosis and treatment planning. The advances in digital technology have significantly changed our capabilities. For example, in the diagnosis of jaw deformity, the conventional hand-drawn cephalometric analysis is performed by digital analysis using PCs, and further, three-dimensional analysis based on CT data is achieved. And the flow of surgery is being established, such as making a three-dimensional surgery planning, performing it as planned using bone-cutting guides, and fixed with customized plates for each patient. Further attempts have been made to use intraoperative navigate devices and HoloLens in order to perform surgery accurately. With such technology, data is exchanged online at anytime and anywhere, and medical cooperation is not limited to a small domestic area, but in the extreme, it can be spread ing on a global scale in short time.

The computer technology is evolving at an accelerating pace, and some scientists say that by 2045, computers will reach “Singularity” that surpasses the human brain. Under such circumstances, it is difficult to accurately predict 60 years from now, but there is no doubt that collaboration between members of both society will create a new future. We hope that our 20-year relationship and friendship will continue beyond the newfangled technology.

Curriculum Vitae

Current Position and Title

Professor and Head of Department of Oral and Maxillofacial Surgery, Tokyo Dental College
Vice President of Tokyo Dental College Suidobashi Hospital

Professional Education

1976-1982	Tokyo Dental College, DDS
1982-1986	Tokyo Dental College Graduate School PhD course

Professional Experience

1987-1992	Teaching Assistant, 1st Dept. of OMFS, Tokyo Dental College
1992-1998	Assistant Professor, 1st Dept. of OMFS, Tokyo Dental College
1998-2013	Associate Professor, Dept. of OMFS, Tokyo Dental College
2010-2013	Head of OMFS, Tokyo Dental College Suidobashi Hospital
2010-	Vice President, Tokyo Dental College Suidobashi Hospital
2013-2020	Professor, Tokyo Dental College Suidobashi Hospital
2020-	Professor and Head, Dept. of OMFS, Tokyo Dental College

Position Held in Scientific and Professional Organizations

Delegates of Japanese Society of Oral and Maxillofacial Surgeons
Delegates of Japanese Society of Oral Oncology
Delegates of Japanese Society of Oral Diagnosis/ Oral Medicine
Delegates of Japanese Academy of Maxillofacial Implants
Director board of Advanced Digital Technology in Head and Neck
President of Japanese Society of Advanced Digital Technology in Head and Neck
Faculty of AOCMF Japan
President of Japanese Society for Jaw Deformities
Board-certified specialists Instructor of Japanese Society of Oral and Maxillofacial Surgeons

Clinical applications and global status of patient-specific medical devices

Guk-Bae Kim
ANYMEDI Inc., CEO

The advent of 3D printing (3DP) technology, sometimes called rapid prototyping, has enabled the creation of a tangible and complex 3D object that goes beyond a simple 3D-shaded visualization on a flat monitor. Due to the hardness of most 3D printable materials, 3DP machines have been used in hard tissue applications since the early 2000s. Recently developed multi-materials for 3DP including metal have been extensively applied in a variety of medical applications such as surgical simulators (phantoms), which can be pre-rehearsed for high-risk surgery, surgical guides that can be guided in the operating room by 3D modeling-based planning, and recon structive prostheses that can be inserted as planned by 3D modeling.

The present presentation will introduce various clinical applications using 3D printing technology. What should be noted here is the difficulty in the production process. Because these services are essentially on-demand production, order production systems and modeling (full/half) automation are key skills. The order production system consists of the following: Order - Upload Medical Images - Anonymizing Images - Modeling of Implementation of Surgical Plans - Revising the modeling results - Final Modeling - STL Format Transfer - (on-site 3D Printing) - (Applicable to Surgical Field). All of this must be done through communication with the clinicians, so that without a complete understanding of the clinical site and the physiology of the medical profession, service is impossible. The technical skills of modeling automation for customized medical devices are divided into 1) Standardization/Homogenization of Medical Images, 2) Image Segmentation using Image-Process or Deep Learning, and 3) CAD(computer aided design) Automation.

Even though there has been a substantial increase in the number of 3DP medical applications, there are still some major limitations, such as those associated with the technology and the time and cost of manufacturing 3D phantoms. Development and optimization of the entire procedure, from image acquisition to 3DP fabrication, are required for personalized treatment, even in emergency situations

Curriculum Vitae

Current Position and Title

ANYMEDI Inc., CEO (애니메디솔루션㈜ 대표이사)
現 대한 3D프린팅 융합의료학회 교육이사
現 의료기기산업협회 4차산업특별위원회 위원

Education

03 Mar. 2003- 16 Aug. 2007	POSTECH(포항공과대학교), Pohang, Republic of Korea Ph.D. degree in Mechanical Engineering
02 Mar. 2001- 19 Feb. 2003	POSTECH(포항공과대학교), Pohang, Republic of Korea M.S. degree in Mechanical Engineering
04 Mar. 1996- 14 Feb. 2001	POSTECH(포항공과대학교), Pohang, Republic of Korea B.S. degree in Mechanical Engineering

Work Experience

10 Jan. 2017- Present	ANYMEDI Inc., (애니메디솔루션㈜), Seoul, Republic of Korea CEO
28 Apr. 2014- 31 Dec. 2016	Asan Medical Center (서울아산병원), Seoul, Republic of Korea Post-doc research fellow
10 Oct. 2011- 20 Jan. 2014	Interaction and robotics research center, KIST(한국과학기술연구원), Seoul, Republic of Korea Post-doc research fellow
01 Mar. 2008- 30 Sep. 2011	Center for Neural Science, KIST(한국과학기술연구원), Seoul, Republic of Korea Post-doc research fellow
17 Aug. 2007- 28 Feb. 2008	System Bio-Dynamics National Core Research Center, POSTECH, Pohang, Republic of Korea Post-doc research fellow
Nov. 2005- Feb. 2006	Center for X-ray Optics, Lawrence Berkeley National Laboratory, U.C. Berkeley, CA, USA Research Scholar

Role of 3D planning of microvascular grafts for oral reconstruction

Bilal Al-Nawas
Chairman of the Clinic for Oral and Maxillofacial Surgery, Plastic Surgery
University Medical Center of the J. Gutenberg University

Bony reconstruction using microvascular flaps has become a standard in oncologic maxillofacial research. Fibula, scapula and iliac crest have their respective indications for both primary or secondary reconstruction. Some years ago secondary reconstructions have been introduced using 3D planning to 1) reduce surgery time and 2) increase precision. For this option from virtual planning up to printed models or even individual plates have been developed. The shortcoming is a prolonged pre-OP planning time limiting the use to secondary reconstructions. In primary reconstructions of oncologic defects in house procedures have to be used. These procedures now allow a 100% planning of all bony reconstructive situations. Recent aspects include integration of dental reconstructions (backward planning), integration of interdisciplinary team members, patient education, ultrasound identification of perforator vessels. In future virtual and augmented reality will help to reduce the planning time.

Curriculum Vitae

Current Position and Title

Chairman of the Clinic for Oral and Maxillofacial Surgery, Plastic Surgery, University Medical Center of the J. Gutenberg University

Education

Study of Medicine and Dentistry in Frankfurt/M., Saarbrucken and Zurich.
1993 Licensure and Doctoral Thesis in Dentistry
1996 Licensure as Medical Doctor
1997 Doctoral Thesis in Medicine
2004 Habilitation and Venia legendi (“PhD”) in Oral and Maxillofacial Surgery

Current Academic Positions

Full Professor and Chairman of the Clinic of Oral and Maxillofacial Surgery, Plastic Surgery of the University Medical Center Mainz.
Adjunctive Associate Professor of Kyung Hee University School of Dentistry, Seoul, Korea

Selected Positions and Functions

Editor in Chief of Journal of Dental Implantology
Editorial Board International Journal of Implant Dentistry
Member of the Osteology Expert Council
Officer for Hygiene and QM of the German Society of Oral and Maxillofacial Surgery (DGMKG)
Board Member, Fellow, Education Delegate Germany and Member of the Research Committee of the International Team of Implantology (ITI)
Secretary General of the German Society of Implantalogy (DGI)
Past President of the International Association of Dental Anesthesiaology Societies (IFDAS)

Symposium Ⅰ

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium Ⅰ-1

Speaker Prof. Hwi-Dong Jung

Affiliation Department of Oral and Maxillofacial Surgery, College of Dentistry, Yonsei University, Seoul, Korea

Topic Implant surgery for edentulous patient using 3D guide system

Symposium Ⅰ-2

Speaker Dr. Jong-Yub Kim

Affiliation Boston SMart Dental, Seoul, Korea

Topic Clinical tips compared to the conventional methods, fabrication of accurate digital surgical guide for implant placement and how to overcome inaccurate surgical guide

Symposium Ⅰ-3

Speaker Prof. Jang-Hyun Paek

Affiliation Department of Prosthodontics, School of Dentistry, Kyung-Hee University, Seoul, Korea

Topic Need-to-knows about digital transformation in implant dentistry: what's all the hype?

Implant surgery for edentulous patient using 3D guide system

Hwi-Dong Jung
Department of Oral and Maxillofacial Surgery, College of Dentistry,
Yonsei University, Seoul, Korea

While the continuous development of dental treatment procedures, the rate of tooth loss has greatly decreased. However, dental caries and periodontal disease have not yet been conquered, there are many cases of tooth loss yet. In addition, the increase in life expectancy is directly or indirectly related to tooth loss, so the frequency of tooth loss is increasing with the aging population.

The success rate of dental implants has dramatically increased due to the overall academic improvement of dental implant design, implant surface management, surgical instrument, and the surgical skills. However, the primary determinants that can predict the success are the clinician's surgical skill, amount and shape of the remained alveolar bone, and the patient's general condition. In the case of full edentulous patients, a large amount of alveolar bone is absorbed due to prolonged tooth loss, which limits the prosthetic process using dental implants. Methods using techniques such as 3D simulation surgery and CAD/CAM derived methods have been applied to the treatment of these patients and are known to be advantageous in securing good results. In this presentation, we will learn about the 3D guide systems for edentulous patients and discuss the pros and cons of the simulation method for implant surgery using 3D guide systems.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, College of Dentistry, Yonsei University

Education

2011-2015	Ph.D, Yonsei University College of Dentistry
2006-2008	MSD, Yonsei University College of Dentistry
1998-2004	DDS, Yonsei University College of Dentistry

Major Carriers

2018-	Associate Professor, Yonsei University College of Dentistry
2018-2019	Visiting Scholar, Dept. of Biomedical Engineering, UAB, AL, USA
2014-2018	Assistant Professor, Yonsei University College of Dentistry
2012-2014	Clinical Assistant Professor, Yonsei University College of Dentistry
2011-2012	Fellow, Yonsei University College of tistry

Clinical tips compared to the conventional methods, fabrication of accurate digital surgical guide for implant placement and how to overcome inaccurate surgical guide

Jong-Yub Kim
Boston SMart Dental, Seoul, Korea

Recently, CBCT scanning has become popular, and implant planning using CBCT data is also becoming common procedures. Through these data, clinicians can easily attempt so-called, 'digital guide implant surgery' that helps to place dental implants in the desired or planned location.
Are these digital guided implant placement always accurate? The answer is 'No'.
Errors can occur every single steps, and the critical problem is that these errors accumulate and become bigger and bigger. Errors can occur from the CT scan stage, the process of impression making or intra-oral scanning, during the data merging the process, and during post-processing of the 3D printing. Errors may occur even during implant placement using digital guides, and there are also things to be checked during surgery.
First of all, any digital guide must be stable during drilling in the oral cavity.
Even it is necessary to check during the process of the implant placement at each important stage.
Digital guide implant surgery is not 'a magic thingy' and can be used better after to understand its errors, limita tions, problems.
In this presentation, I will discuss how to fabricate, design and use the digital implant guide accurately and also I'd like share cases that I learn from trial and errors.

Curriculum Vitae

Dr. Jongyub Kim graduated from Dan-kook University Dental School in 1996, where he also completed oral and maxillofacial surgery residency from 1996 to 2000. He pursued further academic career that he had specialty training in postdoctoral prosthodontics at Boston University, Henry M. Goldman school of Dental Medicine from 2004 to 2007. Upon graduation, Dr. Kim went for teaching in postdoctoral prosthodontics and implantology at Boston University for a year as a clinical faculty.
Dr. Kim has double specialties. He is both a Korean Board-certified Prosthodontist and a Korean Board-certified Oral & Maxillofacial Surgeon.
Currently, he is serving as a board member of Korean Academy of Dental Science, Korean Academy of Prostho-dontics, Korean Academy of Oral and Maxillofacial Implantology, Korean Academy of Digitalized Dentistry, and so on. He is also working as an adjunct professor of Catholic university medical school, Dan-kook university dental school, Ehwa women's university medical school, Korea university medical school, etc.
He in one of a co-authors of 'Minimally Invasive Sinus Surgery (Well publishing)' published in 2016 and 'Guideline of Digital Dentistry (Quintessence Publishing) published in 2019. Also, he has published several clinical articles.
Dr. Kim is a lecturer who is active both domestically and internationally.

Need-to-knows about digital transformation in implant dentistry: what's all the hype?

Jang-Hyun Paek
Department of Prosthodontics, School of Dentistry,
Kyung-Hee University, Seoul, Korea

Digital protocols are increasingly influencing prosthodontic treatment concepts. Implant-supported single-unit and short-span reconstructions will benefit mostly from the present digital trends. In these protocols, implant prosthesis can be created based on data obtained from an intraoral scan followed by virtual design and production, without the need of a physical master cast. The dimensions of the supra-implant soft-tissue architecture can be calculated in advance of implant placement, according to the morphologic copy, and consequently are individualized for each patient.

All these technologies have to be considered before implementing new digital dental workflows in daily routine. The correct indication and application are prerequisite and crucial for the success of the overall therapy, and, finally, for a satisfied patient. This includes a teamwork approach and equally affects the clinician, the dental assistant and the technician as well. The digitization process has the potential to change the entire dental profession. The major benefits will be reduced production costs, improvement in time efficiency and fulfilment of patients' perceptions of a modernized treatment concept.

Moreover, intraoral scanning protocol has been simple and accurate. The powerful combination of intraoral scanning and CBCT will provide the simple and accurate solution for clinicians.

Curriculum Vitae

Current Position and Title

Department of Prosthodontics, School of Dentistry, Kyung-Hee University
Member of American College of Prosthodontists
Member of Academy of Osseointegration

Education

2010-2013	Ph.D, Kyung Hee University, School of Dentistry, Seoul, Korea
2007-2010	MSD, Columbia University, College of Dental Medicine, New York, USA
2006	DMD, Kyung Hee University, School of Dentistry, Seoul, Korea

Major Carriers

2020-	Associate Professor, Kyung-Hee University School of Dentistry
2017	Diplomate (American Board of Prosthodontics)
2014-2020	Assistant Professor, Kyung-Hee University School of Dentistry
2013-2014	Clinical Assistant Professor, Kyung-Hee University School of Dentistry

Symposium II

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium II-1

Speaker Prof. Jung-Woo Lee

Affiliation Department of Oral and Maxillofacial Surgery, School of Dentistry, Kyung-Hee University, Seoul, Korea

Topic Optimized algorithm for maxillo-mandibular reconstruction using 3D simulation

Symposium II-2

Speaker Prof. Jun-Young Paeng

Affiliation Department of Oral and Maxillofacial Surgery, Samsung Medical Center, Seoul, Korea

Topic Improvement of practicality in the 3D simulation for orthognathic surgery and maxillofacial reconstruction - Importance of clinical data, 3D printing and algorithm

Optimized algorithm for maxillo-mandibular reconstruction using 3D simulation

Jung-Woo Lee
Department of Oral and Maxillofacial Surgery, School of Dentistry,
Kyung-Hee University, Seoul, Korea

3차원 시뮬레이션 기술과 3차원 프린팅은 이미 기초과학, 산업 뿐 아니라 의학계열에서 적용이 대중화되었고, 특히, 구강악안면외과 분야에서는 하악골 재건 수술의 어려움을 극복하기 위하여 3차원 수술 시뮬레이션 기술과 수술 가이드가 도입된지 10여년이 되었다. 하악골 재건술에서 수술 시뮬레이션, 수술가이드를 이용하는 것은 정확하고, 빠른 수술이 가능하다라는 결론이 문헌적으로 여러 곳에서 증명되었고, 그 결과 2021년 4월 신의료기술로 인정받았다. 현재의 연구 이슈는 재발 예방을 위한 병소의 정확한 절제 뿐 아니라 환자의 기능, 심미적인 결과를 위한 3차원 시뮬레이션, 3차원 프린팅을 위한 수술 가이드 그리고 환자맞춤형 임플란트들이 소개되고 있다. 수술 시뮬레이션과 수술가이드 제작은 많은 비용과 시간이 소요되는 과정으로 대형 기업을 중심으로 발전, 공급되어 왔지만, 지식 공유, 특허 소멸 등의 환경으로 임상의들이 직접 수술 시뮬레이션, 수술가이드 디자인, 가이드 출력들을 하는 보고가 늘어가고 있다.
본 발표에서는 구강악안면외과 영역, 특히 악안면재건 영역에서 3차원 시뮬레이션, 그리고 3차원 프린팅 기술이 10여년간 어떻게 발전되어 왔는지와 및 그 한계점에 대해 연구논문과 발표자의 경험을 바탕으로 다루고자 한다. 그리고, 환자를 진단하고, 치료하며, 최적의 치료결과를 얻을 수 있도록 지속적으로 개발 및 개선 중인 경희대학교 치과대학의 프로토콜에 소개하고자 한다.

This research was supported by a grant of the Korea Health Technology R&D Project through the Korea Health Industry Development Institute (KHIDI), funded by the Ministry of Health & Welfare, Republic of Korea (grant number : HI14C1324).

Curriculum Vitae

Current Position and Title

Assistant Professor, Department of Oral & Maxillofacial Surgery, School of Dentistry, Kyung-Hee University, Seoul, Korea

Education

Kyung-Hee University, School of Dentistry, DMD board
Kyung-Hee University Graduate School, Oral and maxillofacial surgery, MSD
Kyung-Hee University Graduate School, Oral and maxillofacial surgery, PhD

Professional Affiliations

Clinical fellowship, Seoul National University Dental Hospital
Clinical assistant professor, Kyung Hee University Dental Hospital
Associate professor, Kyung Hee University
Chair, Oral cancer center, Kyung Hee Humanitas Cancer Hospital

Academic Interests

Microneurovascular reconstruction of the maxillofacial area
Regenerative medicine using printing technology
AI for medical application

Improvement of practicality in the 3D simulation for orthognathic surgery and maxillofacial reconstruction -Importance of clinical data, 3D printing and algorithm

Jun-Young Paeng
Department of Oral and Maxillofacial Surgery, Samsung Medical Center, Seoul, Korea

Virtual planning, based on three-dimensional (3D) image planning systems, is used imcreasinglyu for preoperative planning of orthognathic surgery and maxillofacial reconstructive surgery. Commercially available software packages provide conveniwnt tools for 3D measurements, viertual osteotomy, bone segment repositioning, and soft tissue prediction. In this computer-assisted surgical simmulation(CASS) can be applied through the splint or guide which was fabricated with computer-aided design and computer-aided manufacture(CAD/CAM). The studied focused mainly on bimaxilary osteotomy, small numbers on genioplasty and scarcely on segmental surgery.

The final occlusion and the amount of surgery is still being determnined by the operator depending on the experience, conventional analysis, or final occlusion and soft tissue assessment. In the reconstruction guide preparation, skin and vascular pedicle sould be considered for the position and direction of reconsturction body. The operators have to lead the planning procedures on the software and feedback to the engineers properly. Usually the planning doesn't have much times because the 3D prining needs time and confirmation before the fianl prining.

In this symposium, the current general process of CASS, CAD/CAM , and 3D prining will be reviewed and the importance of clinical data and planning algorithm for the improvement in the clinical application.

Curriculum Vitae

Current Position and Title

Clinical Professor, Department of Oral & Maxillofacial Surgery, Samsun Medical Center, Seoul, Korea

Academic Records

1990-1996	College of Dentistry, Seoul National University, D.D.S
1997-1999	Graduate School, Seoul National University, M.S.D.
2003-2005	Graduate School, Seoul National University, Ph.D.

Professional Records

1996-2000	Resident, Dept. of Oral & Maxillofacial Surgery, Seoul National University Dental Hospital.
2001	MINURSO, UN Peace Keeping Operation in Morocco.
2001-2003	The Armed Forces Capital Hospital, Korea.
2003-2006	Fellow, Dept. of Oral & Maxillofacial Surgery, Seoul National University Dental Hospital.
2006-2007	Visiting Researcher, Oral and Maxillofacial Reconstructive Surgery, Kyushu Dental College, Japan.
2007-2010	Assistant Professor, Department of Oral and Maxillofacial Surgery, College of Dentistry, Wonkwang University.
2010-2012	Clinical Associate Professor, Department of Oral and Maxillofacial Surgery, Samsung Medical Center, Sungkyunkwan University, Seoul, Korea.
2013-2018	Assistant Professor, Department of Oral and Maxillofacial Surgery, Kyungpook National University, Daegu, Korea.
2018-	Clinical Professor, Department of Oral and Maxillofacial Surgery, Samsung Medical Center, Sungkyunkwan University, Seoul, Korea.

Symposium Ⅲ

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium Ⅲ-1

Speaker Dr. Jun-Hyouk Shin

Affiliation Digital ART Dental Clinic, Busan, Korea

Topic Considerations for anterior implant with a narrow bone width

Symposium Ⅲ-2

Speaker Prof. Seong-Yong Moon

Affiliation Department of Oral and Maxillofacial Surgery, College of Dentistry, Chosun University, Gwangju, Korea

Topic Computer Assisted Ridge splitting technique of narrow ridge

Symposium Ⅲ-3

Speaker Prof. Jin-Woo Kim

Affiliation Department of Oral & Maxillofacial Surgery, Ewha Womans University Medical Center, Mokdong Hospital, Seoul, Korea

Topic Overcome narrow ridges with Narrow diameter implants (NDIs) and its mechanical and biological considerations

Symposium Ⅲ-4

Speaker Prof. Jun-Ho Jung

Affiliation Department of Oral & Maxillofacial Surgery, School of Dentistry, Kyung-Hee University, Seoul, Korea

Topic Sausage technique for narrow ridge

Considerations for anterior implant with a narrow bone width

Jun-Hyouk Shin
Digital ART Dental Clinic, Busan, Korea

Although I have more than 20 years of experience as a dentist, anterior implants have always been one of the most difficult treatment. The reason is that, unlike the posterior part, not only a function, but also aesthetic aspects should be considered for the anterior implant. Moreover, no matter how well the bone graft is done, the changes due to aging of the host factor cannot be avoided, so this should also be considered. And the criteria for the success of the treatment can be different depending on the experience and viewpoint of the operator. Judging from my experience, it is important for the treating dentist to know his or her treatment for final result through a long experience. It is thought that the most important factor in determining the success of treatment is that the limitations and disadvantages should be sufficiently discussed with the patient before treatment. Therefore, I intend to inform you how to communicate more specifically and directly with patients for successful treatment of anterior implants.

Curriculum Vitae

He is the principal dentist @ Digital ART dental clinic in Busan, Korea and The director of the Korean Academy of Esthetic Association. Shin graduated Graduated from Busan National University of Dental College and post graduate school in 1998 and was an adjunct professor.

He has been invited to present in:
The American Academy of Cosmetic Dentistry (AACD) Feb 2016
The 2nd International Academy for Digital Dental and Medicine (IADDM) Sep 2016
The American College of Prosthodontics Society (ACP) Oct 2016
IDS-International Dental Show 2013, 2015, 2017, 2019, 2021
1000 Club Meeting in Zurich Sep 2019
Turkish Academy of Esthetic Dentistry (EDAD) Oct 2020

Computer Assisted Ridge splitting technique of narrow ridge

Seong-Yong Moon
Department of Oral and Maxillofacial Surgery, College of Dentistry,
Chosun University, Gwangju, Korea

Oral and maxillofacial surgery has undergone a technological revolution over the past several decades, from computer guided surgery to image-guided navigation. Ridge splitting technique used to narrow alveolar ridge bone for implantation. This technique is well reported for management of inadequate ridges as a surgical resolution for dental implantation with favorable outcomes, however, still the accuracy of both split osteotomy and implant placement is not well performed as this is a clinician dependent procedure based on the surgical experience and skills. Nowadays, CT-guided implant surgery is popular for optimal positioning of implant. In this presentation, I would like to introduce the various ridge splitting technique and combination with CT-guided surgery.

Curriculum Vitae

Current Position and Title

Department of Oral and Maxillofacial Surgery, College of Dentistry, Chosun University

Education & Experience

2002	DDS in College of dentistry, Chosun University
2006	MSD in Oral and Maxillofacial Surgery, College of Dentistry, Chosun University
2013	Ph.D in Oral and Maxillofacial Surgery, School of Dentistry, Chonnam National University

Professional Affiliations

2002-2006	Postgraduate Program. Department of Oral and Maxillofacial Surgery, Chosun University Dental Hospital, Gwangju, Korea
2006-2007	Fellowship. Department of Oral and Maxillofacial Surgery, Chosun University Dental Hospital, Gwangju, Korea
2007	Chang-Gung Memorial Hospital, Taipei, Taiwan: Short Term Visiting
2010	MD Anderson Cancer Center, Houston, TX, USA : Short Term Visiting
2011	Dept. of Dentistry, National Taiwan University Hospital, Taipei, Taiwan.
2007-2013	Assistant Professor, Dept. of Oral and Maxillofacial Surgery, Chosun University Dental School, Gwangju, Korea
2013	Director, Dept. of Oral and Maxillofacial Surgery
2013-2014	Visiting Professor, Peking University Stomatology, Beijing, China
2013-2017	Associate Professor, Dept. of Oral and Maxillofacial Surgery, Chosun University Dental School, Gwangju, Korea
2016-2017	Director of Education and Research Center, Chosun University Dental Hospital, Gwangju, Korea
2014-	Director, Oral Cancer Center, Chosun University Dental Hospital, Gwangju, Korea
2017	Professor, Dept. of Oral and Maxillofacial Surgery, College of Dentistry, Chosun University, Gwangju, Korea
2018-	Director, Virtual reality educational center, Chosun University, Gwangju, Korea

Overcome narrow ridges with Narrow diameter implants (NDIs) and its mechanical and biological considerations

Jin-Woo Kim
Department of Oral & Maxillofacial Surgery, Ewha Womans University Medical Center, Mokdong Hospital, Seoul, Korea

Narrow diameter implants (NDIs) have been indicated for specific clinical situations, such as narrow alveolar ridges, reduced mesiodistal and interradicular space. In these situations, they are supposed to avoid staged aumentative procedures prior to the implant placement and has some advantages; Can keep vital structures and vascularization and maintatin sufficient bone. Recent 2018 ITI consensus indicated that NDIs over 2.5mm showed over 97% survival rates with mini-implant (<2.5mm) of 94.7% survival rates. Although recent several systematic reviews demonstrate that survival rates of NDIs are similar to standard diameter implants (SDIs), unavoidable vulnerablity of narrow nature should be considered.
In this lecture, brief introduction of NDIs classification, indication, and recent systemative reviews would be covered. And mechnical considerations - fracture of NDIs and stress distribution, and biological and esthetic considerations - profile and peri-implantitis - would be followed.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, Ewha Womans University Medical Center, Mokdong Hospital

Education

2002-2008	D.D.S., College of Dentistry, Yonsei University, Seoul, Korea
2009-2011	M.S.D., Graduate School of Dentistry, Department of Oral and Maxillofacial surgery, Yonsei University, Seoul, Korea
2012-2015	Ph.D., Graduate School of Dentistry, Department of Oral and Maxillofacial surgery, Yonsei University, Seoul, Korea

Professional Career

2008-2012	Trainee, Dept. of Oral and Maxillofacial Surgery, Ewha Womans University Mokdong Hospital, Seoul, Korea
2012-2014	Clinical Fellow, Dept. of Oral and Maxillofacial Surgery, Ewha Womans University Medical Center, Seoul, Korea
2014-2019	Clinical Assistant Professor, Dept. of Oral and Maxillofacial Surgery, Ewha Womans University Medical Center, Seoul, Korea
2019-2021	Assistant Professor, Dept. of Oral and Maxillofacial Surgery, College of Medicine, Ewha Womans University, Seoul, Korea
2021-	Associate Professor, Dept. of Oral and Maxillofacial Surgery, College of Medicine, Ewha Womans University, Seoul, Korea
2010	Visiting Scholar, Dept. of Oral and Maxillofacial surgery, University of Minnesota, MN, USA
2012	Visiting Scholar, Dept. of Oral and Maxillofacial surgery, Div. I Tykyo Medical & Dental University, Tokyo, Japan
2014	Visiting Scholar, Dept. of Oral and Maxillofacial surgery, Shanghai Jiaotong University 9th People's Hospital, China (NRF)
2018	Visiting Scholar, Dept. of Oral and Maxillofacial surgery, Technical University of Munich, Germany (NRF)

Sausage technique for narrow ridge

Jun-Ho Jung
Department of Oral & Maxillofacial Surgery, School of Dentistry,
Kyung-Hee University, Seoul, Korea

Implant surgery has now become commonplace for dental practitioners. Given that elderly patients are increasing and more willing to have implant prothesis rather than denture, clinically challenging situations are frequently encountered due to the narrow alveolar bone ridge. Since prof. Urban introduced the sausage technique, it has been appealing to many practitioners throughout the world. It overcomes a shortcoming of traditional GBR technique using bone substitute and resorbable membrane, and technically not difficult to accustom when compared to autogenous block bone graft or ridge splitting procedure. In this session, I am going to introduce the sausage technique and discuss its advantages in implant dentistry along with clinical cases.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, School of Dentistry, Kyung-Hee University

Education

경희대학교 치과대학 학사
경희대학교 대학원 치의학과 석사
Johannes Gutenberg University Mainz 치의학 박사

Professional Career

경희대학교 치과대학병원 구강악안면외과 전공의
구강악안면외과 전문의
대한악안면성형재건외과학회 인정의
국군고양병원 구강악안면외과 과장
Johannes Gutenberg University 대학병원 악안면외과 clinical & research fellow
International team for Implantology (ITI) Scholarship
International team for Implantology (ITI) Fellow
국제구강악안면외과 전문의 (FIBCSOMS)
경희대학교 치과대학병원 임상조교수
경희대학교 치과대학 조교수

Academic Activities & Professional Membership

대한구강악안면외과학회 정회원
대한악안면성형재건외과학회 정회원, 인정의
International team for Implantology (ITI) Fellow
European Association for Osseointegration (EAO) member
대한스포츠치의학회 이사

Symposium Ⅳ

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium Ⅳ-1

Speaker Prof. Hong-Ju Park

Affiliation Department of Oral and Maxillofacial Surgery, School of Dentistry, Chonnam National University, Gwangju, Korea

Topic Correction of secondary cleft lip nasal deformities

Symposium Ⅳ-2

Speaker Prof. Young-Wook Park

Affiliation Department of Oral and Maxillofacial Surgery, College of Dentistry, Gangneung-Wonju National University, Gangneung, Korea

Topic Cleft rhinoplasty: Primary or Secondary

Symposium Ⅳ-3

Speaker Prof. Jin-Young Choi

Affiliation Department of Oral and Maxillofacial Surgery, School of Dentistry, Seoul National University, Seoul, Korea

Topic Secondary correction of cleft lip nasal deformity

Correction of secondary cleft lip nasal deformities

Hong-Ju Park
Department of Oral and Maxillofacial Surgery, School of Dentistry,
Chonnam National University, Gwangju, Korea

TThe patients with cleft lip are born with the deformities of upper lip and nose. The lip tubercle is displaced upward and medially with defective philtral ridge because orbicularis oris muscle discontinuous and pull the medial element of the lip laterally in patients with unilateral cleft lip. Also, in these patients, the lip element of involved site usually shows hypoplastic and short. The columella is deviated to the normal side and short and, lower lateral cartilage is flattened with lower position than the normal side. In the patients with bilateral cleft lip, premaxillary element is only bone with skin and mucosa. Orbicularis oris muscle is absence. The most serious problem with bilateral cleft lip and palate is the protruded premaxilla anteriorly. Both lateral alar cartilage is flattened symmetrically.
The final purpose of the operation for the patient with cleft lip and palate is reconstruction of the lip and nose to a normal anatomy. After operation, However, many patients have still some deformities on their lip and nose, which look like primary deformities. Rhinoplasty during primary repair of cleft lip is still controversial. The esthetics of the lip and nose is very important for normal social life, especially as a child. So it is need to correct scars, deformities of the lip and nose in a childhood. Before enter the elementary school.
In this presentation, I will discuss about the time and methods to correct the secondary cleft lip and nasal deformities.

Key word : secondary cleft lip nasal deformities.

Curriculum Vitae

Current Position and Title

Professor, Department of Oral and Maxillofacial Surgery, School of Dentistry, Chonnam National University, Gwangju Korea
Director, Chonnam National University Dental Hospital
Director of scientific affair, KAOMS
Executive committee member, ACOMS
Chairman of scientific committee, Organizing committee of ACOMS 2022

Education and Training

1995 DDS Degree, College of Dentistry, Chonnam National University, Gwangju, Korea
2002 PhD Degree, Chonnam National University Graduate School, Gwangju, Korea

Carrier

2010 Clinical fellowship, Department of Oral and Maxillofacial Surgery, Freiburg University, Germany
2011 Visiting Professor, MD Anderson Cancer Center, Houston, Texas, USA
2017 Clinical fellowship, Boston Children's Hospital

Cleft rhinoplasty: Primary or Secondary

Young-Wook Park
Department of Oral and Maxillofacial Surgery, College of Dentistry,
Gangneung-Wonju National University, Gangneung, Korea

Cleft patients who have a gap in primary palate reveal so called “cleft nasal deformity”. Therefore, the cleft nasal deformity (CND) is congenitally present and changed with the effect of patients' facial growth. Sometimes the CND is aggravated by iatrogenic surgical injries or scarring from preceded surgeries. So, it is very challenging to correct this complicated CND in spite of repeated surgical intervention.
The severity of the CND is usually dependent of the severity of cleft itself. And the CND in patients with a unilateral cleft is clinically different from the CND related with a bilateral cleft. Usually, the CND affects the skin, nasal cartilage, mucosa, and the skeletal platform of the nose, which causes very complex dysmorphia on nose. Today, lots of surgical modalities have been introduced, but no one surgical technique is accepted “gold standard” for cleft rhinoplasty. So, maxillofacial plastic and reconstructive surgeons need to achieve the most effective protocol for the patients with CND by reviewing the current surgical modalities and combining them with their-own clinical experiences.
In this presentation, I'd like to focus on; a primary cleft rhinoplasty which minimizes the need for a intermediate cleft rhinoplasty and; a definitive cleft rhinoplasty by structural component grafting using rib cartilage.

Curriculum Vitae

Current Position and Title

Head & Professor in department of Oral & Maxillofacial Surgery, College of Dentistry, Gangneung-Wonju National University, Gangneung, Korea
Honorary President, The Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Education

1987	DDS, College of Dentistry, Seoul National University
1990	MSD, Graduate School of Seoul National University
1997	PhD, Graduate School of Seoul National University

Carrier

1997-	Assistant Professor, Associate Professor, Professor in Oral & Maxillofacial Surgery, College of Dentistry, Gangneung-Wonju National University
2003-2004	Postdoctoral Research Fellow, Department of Head & Neck Surgery, The University of Texas MD Anderson Cancer Center, U.S.A.
2007-2013	Director, Gangneung-Wonju National University Dental Hospital
2011-2012	Congress Chairman, The 53rd Congress of the Korean Association of Oral & Maxillofacial Surgeons
2017-2019	President, The Korean Association of Maxillofacial Plastic and Reconstructive Surgeons
2018-2020	Dean, The College of Dentistry, Gangneung-Wonju National University
2019-2021	President, Korean Cleft Lip and Palate Association

Secondary correction of cleft lip nasal deformity

Jin-Young Choi
Department of Oral and Maxillofacial Surgery, School of Dentistry,
Seoul National University, Seoul, Korea

One of the most challenging procedures in cleft lip and palate related surgery is the correction of the cleft lip nasal deformity. Cases differ widely in terms of whether they are associated with unilateral or bilateral cleft lips, depending on the severity of the clefting. It is very important to analyse where and how much deformity in nasal anatomical structure of the patients exist to correct nasal deformity. With that in mind, an individualized approach approapriate to the patients deformity should be adopted in each case. The basic techniques for the correction of cleft lip nasal deformities are as follows.

1. Symmetrical positioning of alar cartilage and dome
2. Cartilage graft for
   • Increasing projection and symmetry
   • Comouflage residual asymmetry
3. Septoplasty, nasal osteotomy for
   • Correction of septal deviation
4. Cartilage, bone graft for
   • Profile deficiency, depression, irregularity

Also the patients with cleft lip nasal deformities may have problems which patients without cleft lip nasal deformities have in Asian country such as dorsal augmentation or tip projection. Rhinoplasty should be done considering not only cleft lip nasal deformity but also nasal aesthetics. In this presentation, the anatomy of nose, basic rhinoplastic techniques, implant materials, its applications focusing on my favorite techniques will be introduced and discussed.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, School of Dentistry, Seoul National University, Seoul, Korea

Education

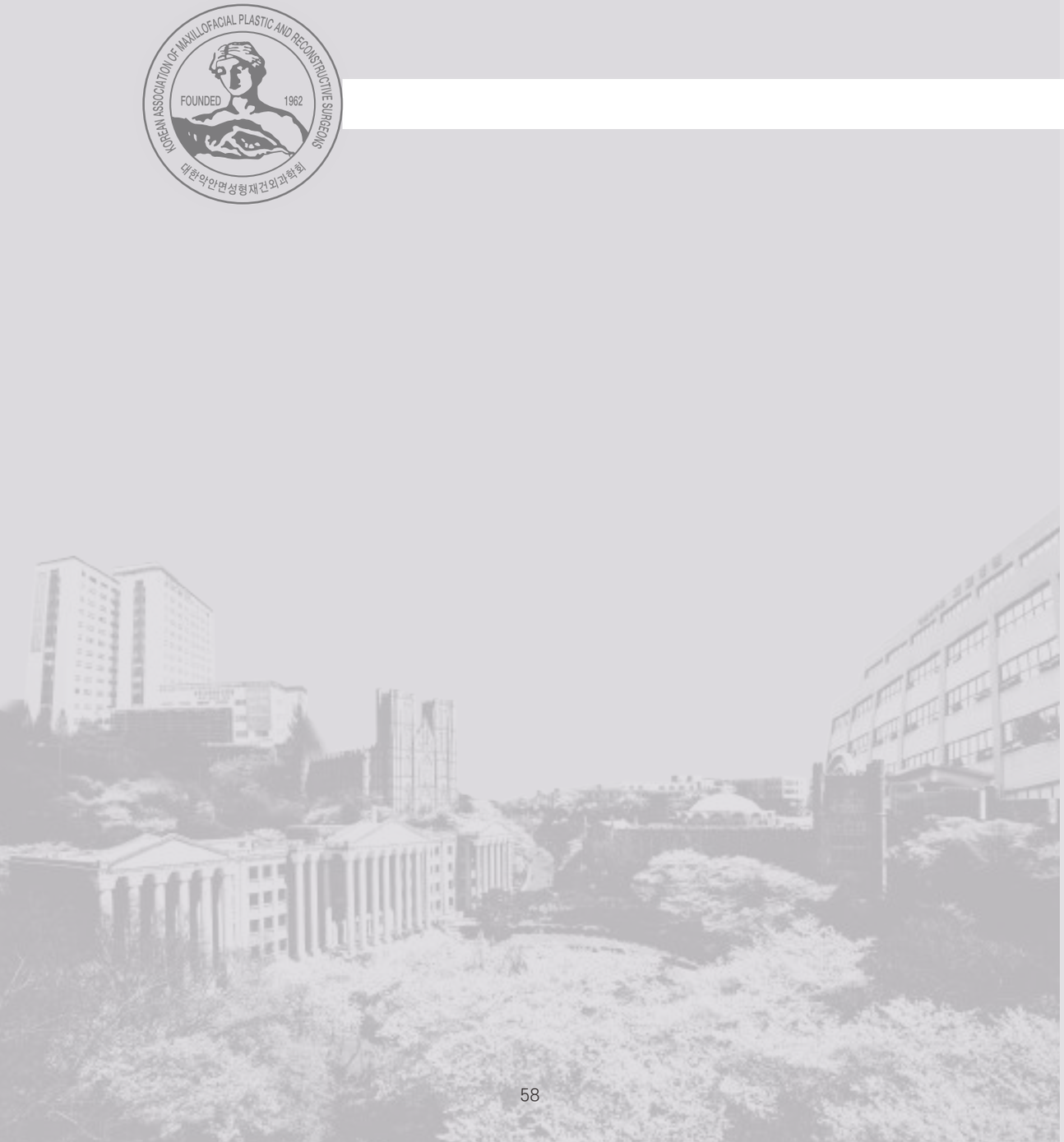
1985	Doctor of Dental Surgery, Seoul National University (DDS)
1988	Internship and Residency in Oral and Maxillofacial Surgery, Seoul National University Hospital
1992	Master of Science in Dentistry, Seoul National University Graduate School
1997	Medical Doctor in Medical School of Georg-August University in Goettingen, Germany (MD)
1998	Ph D. Georg-August University in Goettingen, Germany

Professional Career

1998-	Lecturer, Assistant professor, Associate professor, Professor in Department of Oral and Maxillofacial Surgery, School of Dentistry, Seoul National University
2005-2009	Director in Dentofacial Deformity Clinic in Seoul National University Dental Hospital
2011-2013	Director in Dept. of Oral &Maxillofacial Surgery, School of Dentistry, Seoul National University & Seoul National University Dental Hospital
2013-2013	Visiting professor, Sleep Center in Stanford University Hospital
2017-2019	Director in Dept. of Oral &Maxillofacial Surgery, School of Dentistry, Seoul National University & Seoul National University Dental Hospital
2017-2017	Visiting professor, Maaya Center for Craniofacial Deformity in BGS Global Hospital in Bangalore, India
2018-	Honorary professor, Tashkent State Dental Institute, Uzbekistan
2019-	Director in Orthognathic-Facial Contouring Surgery Center, Seoul National University Dental Hospital
2019-	Director in Maxillofacial Deformity Clinic, Seoul National University Dental Hospital

Academic Activities & Professional Membership

President, Korean Society of Maxillofacial Aesthetic Surgeons
President, Asian Pacific Association of Maxillofacial Aesthetic Surgeons
Former President, Korean Association of Dental Sleep Medicine
Former President, Korean Association of Cleft Lip and Palate
Trust board in ICPF (International Cleft Palate Foundation)



Symposium V

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium V-1

Speaker Prof. Norie Yoshioka

Affiliation Department of Oral and Maxillofacial Surgery, Dentistry and Pharmaceutical Sciences, Okayama University Graduate School of Medicine, Japan

Topic Solving complications of orthognathic surgery for class II patients

Symposium V-2

Speaker Prof. Bu-Kyu Lee

Affiliation Department of Oral and Maxillofacial Surgery, Asan Medical Center, College of Medicine, Ulsan University, Seoul, Korea

Topic Orthognathic surgery for the patient with osteoarthritis of TMJ

Symposium V-3

Speaker Prof. Yoon-Jeong Choi

Affiliation Department of Orthodontics, Yonsei University College of Dentistry, Seoul, Korea

Topic Orthodontic strategy for minimally invasive surgery

Solving complications of orthognathic surgery for class II patients

Norie Yoshioka
Department of Oral and Maxillofacial Surgery, Dentistry and Pharmaceutical Sciences, Okayama University Graduate School of Medicine, Japan

Surgical techniques and perioperative management of surgical orthodontic treatment for patients with jaw deformities have been established at present, and we have provided the treatment to most patients successfully so far. However, we often have a situation to select more complicated orthognathic surgery in order to address increasing the number of patients to be treated with medical attention or the diversification of patients' requests for treatment. Since we experienced the first case of mandibular prognathism in 1984, we have treated jaw deformity patients, and the number of patients reached more than 1200 cases so far. Recently, we perform 60-80 orthognathic surgery excluding hardware removal in a year. In the past year or two, the number of patients seeking orthognathic treatment has been increasing, perhaps due to corona pandemic, and the number of patients with jaw deformities has been also increasing.

The major complications of orthognathic surgery are classified as intraoperative and postoperative. The former includes massive bleeding, unfavorable fractures, nerve injury or dental root and mucosal damage, and the later includes surgical site infection, temporomandibular joint symptoms, osteosynthesis failure, mucosal necrosis, bone or dental root exposure, and relapse. Regarding complications specified with skeletal II patients, we encounter injury of dental root or mucosa during segmental osteotomy for maxillary prognathism, damage to the descending palatine artery during posterior and superior movement of the maxilla. We sometimes face to relapse after the surgery, or idiopathic/progressive condylar resorption in mandibular retrognathia.

In this lecture, we would like to discuss the treatment of skeletal class II patients by showing our cases, as well as discussing the planning of treatment, surgical tips for safe surgery and postoperative stability.

Curriculum Vitae

Current Position and Title

Department of Oral and Maxillofacial Surgery, Dentistry and Pharmaceutical Sciences, Okayama University Graduate School of Medicine
Division of Oral and Maxillofacial Surgery, Okayama University Hospital

Education & Experience

1993-1999	Okayama University Dental School
1999-2003	Okayama University Graduate School of Dentistry

Research History

2020-	Assistant professor, Okayama University Hospital, Division of Oral and Maxillofacial Surgery
2005-2020	Assistant professor, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of Oral and Maxillofacial Surgery
2005-2007	Postdoctoral research fellow, Harvard Medical School, Department of Pathology
2003-2005	Assistant professor, Okayama University Dental School Hospital

Qualified Certification

Japanese Board-Certified Specialist in Oral and Maxillofacial Surgery
Fellow of the International Board for the Certification of Specialists in Oral and Maxillofacial Surgery (FIBC-SOMS)
General Clinical Oncologist by Japanese Board of Cancer Therapy

Orthognathic surgery for the patient with osteoarthritis of TMJ

Bu-Kyu Lee
Department of Oral and Maxillofacial Surgery,
Asan Medical Center, College of Medicine, Ulsan University, Seoul, Korea

Temporomandibular joint disorders(TMDs) is a representative intractable and chronic dental disease that is usually accompanied by pain, limited opening, and noise in the temporomandibular joint(TMJ). Physiological, social and emotional factors could contribute to the progression of TMDs, and the final form of TMDs is temporomandibular joint osteoarthritis(TMJ OA). TMJ OA causes a significant decrease in the function of the TMJ and it also causes joint resorption and deformity of the jaw. A large number of patients with jaw deformity are accompanied by several stages of TMJ OA. Orthognathic surgery usually corrects the deformed jaw position through a mandibular osteotomy and LeFort I osteotomy. The new positional change of the jaw may affect the pressure and tension state of masticatory muscles, TMJ, and other soft tissues surrounding it, and as a result, may directly affect the condition of TMJ OA. Therefore, in particular, patients with moderate to severe TMJ OA accompanied by progressive inflammation of the TMJ need to be more careful from the planning stage of orthognathic surgery because symptoms of TMJ OA may worsen after orthognathic surgery resulting it devastating post-operative jaw condition. Therefore, in this presentation, I would like to discuss the considerations and countermeasures for safe and effective orthognathic surgery for patients with TMJ OA.

Curriculum Vitae

Current Position and Title

Department of Oral and Maxillofacial Surgery, Asan Medical Center, College of Medicine, Ulsan University, Seoul, Korea

Education & Experience

1986-1992	서울대학교 치과대학 졸업
1992-1996	서울대학교 병원 구강악안면외과학 교실 전공의 (석, 박사)
2000-2002	독일 에어랑겐 대학(Universitat Erlangen, Germany) 전임의 (독일학술교류처 DAAD 장학생)
2009-2011	미국 웨이크 포레스트대학 재생의학연구소(WFIRM) 연구원
2017-2020	대한치과의사협회 학술이사
2017-2020	대한치의학회 학술이사
2017-2020	사단법인 대한턱관절협회 회장

Major Careers

2002-현재	울산대학교 의과대학, 서울아산병원 구강악안면외과 교수
2012-현재	서울아산병원 아산생명과학연구원 의공학연구소 의료재료개발단장
2016-현재	한국조직공학 재생의학회(KTERM) 학술이사(전), 기획위원회 부위원장(현)
2016-현재	보건복지부 한국보건의료원(NECA) 신의료기술 평가위원회 평가위원
2016-현재	대한인공치아골유착학회 부회장
2018-현재	아시아 구강악안면외과학회 상임이사
2018-현재	대한진단검사치의학회 부회장
2018-현재	대한스포츠치의학회 부회장
2019-현재	대한악안면성형재건외과학회 정보통신위원회 위원장
2020-현재	대한구강악안면외과학회 총무이사
2020-현재	2022 아시아구강악안면외과 종합학술대회 조직위원회 사무총장
2021-현재	2022 아시아태평양 조직공학 재생의학 종합학술대회 조직위원

Orthodontic strategy for minimally invasive surgery

Yoon-Jeong Choi
Department of Orthodontics,
Yonsei University College of Dentistry, Seoul, Korea

Orthognathic surgery can correct dentofacial deformity, while most patients would hesitate it because of surgical morbidity and financial burden. Since orthodontic miniscrews were introduced, the range of orthodontic tooth movement has been expanded, which enables to minimize orthognathic surgery with proper orthodontic treatment. The presentation will show orthodontic strategy for minimally invasive surgery focusing on facial asymmetry and anterior open-bite. The molar intrusion to correct canting of the occlusal plane or anterior open-bite will be presented in terms of diagnosis, treatment consideration, and stability. The stability of anterior open-bite treatment will be compared between orthognathic surgery and orthodontic camouflage, which may give clinical insights to the audience.

Curriculum Vitae

Current Position and Title

Associate Professor, Department of Orthodontics, Yonsei University College of Dentistry
Vice Dean of Student Affair

Academic Education

2006-2009	PhD, Graduate School of Dentistry, Yonsei University, Seoul, Korea
2003-2005	MS, Graduate School of Dentistry, Yonsei University, Seoul, Korea
1996-2002	DDS, School of Dentistry, Yonsei University, Seoul, Korea

Academic History

2002-2006	Residency, Yonsei University Dental Hospital, Department of Orthodontics
2008-2015	Fellow, Clinical Assistant Professor, Gangnam Severance Hospital
2015-	Assistant & Associate professor, School of Dentistry, Yonsei University College of Dentistry

Symposium VI

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium VI-1

Speaker Prof. Kyung-Pyo Park

Affiliation Department of Physiology, School of Dentistry, Seoul National University and Dental Research Institute, Seoul, Korea

Topic CeO2/Mn3O4 Nanocrystals as an Enhanced Antioxidant for Radioprotection

Symposium VI-2

Speaker Prof. Jeong-Kyu Kim

Affiliation Department of Otolaryngology-Head and Neck Surgery, Catholic University of Daegu, Daegu, Korea

Topic Modern management of salivary gland stone

Symposium VI-3

Speaker Prof. Sang-Ho Jun

Affiliation Department of Oral & Maxillofacial Surgery, Korea University Anam Hospital, Seoul, Korea

Topic Management of Sjogren's syndrome using sialendoscopy

CeO2/Mn3O4 Nanocrystals as an Enhanced Antioxidant for Radioprotection

Kyung-Pyo Park
Department of Physiology, School of Dentistry,
Seoul National University and Dental Research Institute, Seoul, Korea

Nanomaterials with antioxidant properties are promising for treating reactive oxygen species (ROS)-related diseases. However, maintaining efficacy at low doses to minimize toxicity is a critical for clinical applications. Tuning the sur face strain of metallic nanoparticles can enhance catalytic reactivity, which has rarely been demonstrated in metal oxide nanomaterials. Here, it is shown that inducing surface strains of CeO2/Mn3O4 nanocrystals produces highly catalytic antioxidants that can protect tissue-resident stem cells from irradiation-induced ROS damage. Manganese ions deposited on the surface of cerium oxide (CeO2) nanocrystals form strained layers of manganese oxide (Mn3O4) islands, increasing the number of oxygen vacancies. CeO2/Mn3O4 nanocrystals show better catalytic activity than CeO2 or Mn3O4 alone and can protect the regenerative capabilities of intestinal stem cells in an organoid model after a lethal dose of irradiation. A small amount of the nanocrystals prevents acute radiation syndrome and increases the survival rate of mice treated with a lethal dose of total body irradiation.

Acknowledgments :
This study was supported by a National Research Foundation of Korea grant, NRF-2018R1A2B3005113 at Seoul National University.

Curriculum Vitae

Current Position and Title

Department of Physiology, School of Dentistry, Seoul National University and Dental Research Institute, Seoul, Korea

Education & Experience

1981	DDS, School of Dentistry, Seoul National University
1990	PhD, Graduate School of Seoul National University
1990-1995	Institute of Asan Life Sciences, Senior Research Scientist
1992-1993	Post. Doc., School of Biological Sciences, University of Manchester, UK
1998-2000	Research Associate, School of Biological Sciences, University of Manchester, UK
2004-2010	Editor in Chief of Korean J Physiol & Pharmacol
2007-2008	Honorary visiting scholar, Flinders Medical Center, Australia
2007-2009	The President of the Korean academy of Oral Biology
2008-2017	Director in ODRCE, SNU
2016-2018	The President of the Korean Dental Science Society Association
2017-2018	The President of the Korean Physiological Society

Modern management of salivary gland stone

Jeong-Kyu Kim
Department of Otolaryngology-Head and Neck Surgery,
Catholic University of Daegu, Daegu, Korea

Salivary gland diseases are relatively common. The most frequent non-neoplastic salivary disorder is obstructive sialadenitis, salivary stone (sialolithiasis) is the main cause of obstructive salivary diseases. Patients with salivary stone present typically recurrent painful pre-prandial swelling of the involved gland. Salivary stone affects the submandibular gland in 80-90% of cases, and the parotid gland in 5-10% of cases. Traditionally, the choice of surgical treatment for salivary stones has been determined by their location and palpability. Transoral removal is more suitable for the stone that are palpable or no more than 2cm from the ostium of the salivary duct. Resection of salivary gland was often required for the stones located in the proximal duct or glandular parenchyma. Recently minimally invasive techniques including ultrasound guided transoral surgery, lithotripsy, and sialendoscopy has been developed and proven their efficacy in gland-preserving management of salivary stones.
This presentation will highlight modern gland preserving managements of salivary gland stones including transoral surgery, ultrasound guided surgery, sialendoscopy and combined approach.

Curriculum Vitae

Current Position and Title

Department of Otolaryngology-Head and Neck Surgery, Catholic University of Daegu

Educational Background & Professional Experience

2004-	Professor, Catholic University of Daegu
2003-2004	Fellows, Kyungpook National University Hospital
2000-2003	Navy doctor, Lieutenant
1995-2000	Intern/Resident, Kyungpook National University Hospital
1989-1995	Kyungpook National University School of Medicine

Societies

Korean Society of Otolaryngology-Head & Neck Surgery
Korean Society of Head and Neck Surgery
The Korean Society for Head and Neck Oncology
Korean Society of Clinical Oncology
Korean Medical Association
Korean Society of Ultrasound Medicine
Asian Society of Head and Neck Oncology

Research Interests

Clinical application of Head and Neck Ultrasound
Obstructive salivary gland disease and sialendoscopy

Management of Sjogren's syndrome using sialendoscopy

Sang-Ho Jun
Department of Oral & Maxillofacial Surgery,
Korea University Anam Hospital, Seoul, Korea

Sjogren's syndrome is one of the most common autoimmune diseases and incurable diseases that are difficult to treat. It can appear alone or as secondary Sjogren's syndrome in association with other autoimmune diseases. Sjogren's syndrome does not increase the patient's risk of death, but due to the lack of secretion of saliva and tears, dry mouth can cause various oral diseases, including dental caries and periodontal diseases, and may also be accompanied by loss of taste or burning mouth syndrome. In addition, it is a disease that greatly reduces the quality of life for patients, such as waking up during sleep or tingling of the eye surface, causing discomfort in daily life, and in severe cases, depression due to stress.

According to a recent study, after Sialendoscopy (salivary gland endoscopy), dry mouth caused by Sjogren's syndrome was alleviated and the function of the salivary glands was improved. Salivary gland endoscopy is a method of diagnosing and treating salivary gland-related diseases by physically dilating the duct of the salivary gland, which is less than 1 mm, and inserting an endoscope with a diameter of about 1 mm. Salivary gland endoscopy is performed by inserting an endoscope into the salivary gland tube and directly viewing the salivary gland tube, so it is possible to accurately diagnose salivary gland disease. have. The reason that salivary gland endoscopy is effective for the treatment of dry mouth is that it can make salivation more smooth by widening the narrowed salivary gland duct and removing foreign substances. It stimulates the tissues and helps to facilitate recovery.

In this lecture, I will give a lecture on how to manage Sjogren's syndrome Pt's dry mouth through salivary duct endoscopy and how to reduce and relieve patient's symptoms.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, Korea University Anam Hospital, Seoul, Korea

Education

D.D.S. / Dankook University School of Dentistry, Cheonan, Korea
M.S. / Korea University Graduate School of Clinical Dentistry, Seoul, Korea
Ph.D. / Korea University Graduate School of Medicine, Seoul, Korea

Major Careers

Residency & OMFS Specialist / Dept. of oral & maxillofacial surgery, Korea university medicine, Seoul, Korea
Visiting researcher / Keio University school of medicine, Tokyo, Japan
Research fellow / Harvard medical school & Children's Hospital Boston, Boston, USA
Visiting professor / Harvard school of dental medicine, Boston, USA

Symposium Ⅶ

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Symposium Ⅶ-1

Speaker Prof. Duke-Whan Chung

Affiliation Department of Orthopaedic Surgery, Kyung-Hee University Hospital, Kyung-Hee University School of Medicine, Seoul, Korea

Topic Microsurgery and free vascularized fibular graft in Maxillofacial reconstruction

Symposium Ⅶ-2

Speaker Prof. Jong-Ho Lee

Affiliation Department of Oral & Maxillofacial Surgery, School of Dentistry, Seoul National University, Seoul, Korea

Topic Present status of oro-facial reconstruction using lateral arm free flap

Symposium Ⅶ-3

Speaker Prof. Jae-Yeol Lee

Affiliation Department of Oral & Maxillofacial Surgery, School of Dentistry, Pusan National University, Pusan, Korea

Topic Guidance for maxillofacial reconstruction surgery for trainees

Microsurgery and free vascularized fibular graft in Maxillofacial reconstruction

Duke-Whan Chung
Department of Orthopaedic Surgery, Kyung-Hee University Hospital,
Kyung-Hee University School of Medicine, Seoul, Korea

재건술에서의 공여부(donor)로써 비골(fibular)은 공여부의 이환(donor site morbidity)이 적고, 혈관을 부착한 장골(long bone)을 얻을 수 있어 유용하며 흔히 이용되는 공여부이다. 비골의 이식은 크게 미세수술(Microsurgery) 술기를 요하지 않는 혈관을 분리하지 않고 같은 쪽 다리에서 주변 조직으로 옮기는 방법과 미세수술 술기를 요하는 혈관을 분리한 후 인체의 떨어져 있는 부위에서 다른 혈관에 문합하는 유리 생비골 이식(free vascularized fibular graft)로 나눌 수 있다. 비골을 이용한 악안면 재건술은 다리에서 떨어져 있어 후자에만 해당하기 때문에 미세수술 술기가 필수적이다.

Ⅰ. Microsurgical technique

1. **수술기구:** 섭자(Jeweler's Forceps) / 지침기(Needle holder) / 가위(Scissors) / 혈관 겸자(microvascular Clamp) / 미세 봉합사(Micro-sutures) / 수술 현미경(Operating microscope)
2. **미세 수술 시 자세 및 기본 기술:** 손가락만 움직일 수 있게 지지되는 편안한 자세 / 술전 및 수술중 점검 / 바늘 잡기 / 바늘 뜨기 / 매듭 만들기
3. **혈관 문합의 실제**
   가. 문합부 혈관 준비 : 혈전 제거 / 외막(adventitia) 정리 / 끝의 변연 절제 / 직경 확장 / 접근
   나. 혈관 문합 : 기본 단단 문합(End to end anastomosis) – 120도 간격, 180도 간격 / 후방 벽 우선 봉합 방법(back wall first technique) / 뒤집기 방법(flipping technique) / 단측 문합(end to side anastomosis)
   정맥 문합 시 유의 사항
   다. 문합 후 혈관 개존 평가

Ⅱ. Free vascularized fibular graft

1. **장점 / 합병증**
2. **혈액 공급의 해부학:** 영양동맥(Neurtrient artery) = 비골동맥(peroneal artery) / Periosteum을 통한 blood supply
   Anterior tibial artery Ⅱ→ Epiphyseal artery → Fibuar 의 proximal
3. **Surgical approach:** Fibular harvest에는 Prone이 편하나, 악안면 성형에서는 semi-lateral positon
4. **Osteoseptocutaneous free flap:** Fibular 와 주변 피부를 동시에 사용하는 이식
   Monitoring flap으로 사용 : 피부가 살아있으면 뼈도 살아 있다.
5. **Musculocutaneous flap:** Lateral Soleus muscle 사용 / 채워야 할 defect가 큰 공간일 때
6. **Double Barreled Graft:** 2배의 굵기를 얻을 수 있다. / Periostial blood supply (periosteal sleeve)를 보존해야 한다.
7. **Longitudinal partial graft:** Donor site morbidity가 적다. / Periostial blood supply (periosteal sleeve)를 보존해야 한다. / Surgical tip : periosteal sleeve로 fibular를 감싸서 꿰맨다.
8. **Proximal Epiphysis and Metaphysis Transplantation**
   Articular cartilage와 성장판(epiphysis)을 동시에 이식이 가능함
   Blood supply : Anterior tibial artery Ⅱ→ Epiphyseal artery → Fibuar 의 proximal

Curriculum Vitae

Current Position and Title

Department of Orthopaedic Surgery, Kyung-Hee University Hospital, Kyung-Hee University School of Medicine

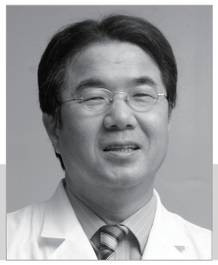
Education and Experience

경희대학교병원 정형외과 교수
경희대학교병원 정형외과 주임교수 및 과장 역임
경희대학교병원 연구부장
미국 루이빌의대 수부외과 연구원
미국 하버드의대 정형외과 연구원
블란서 낭시의대 연구원
프랑스 Nancy의대 방문연구원
Zurich의대 방문 교수

Academic Activities & Professional Membership

대한수부외과학회 이사 및 편집위원장
대한미세수술학회 이사 및 편집위원
대한스포츠의학회 분과 전문의
대한류마티스학회 감사(이사 역임)
대한정형외과학회 편집위원
대한골절학회
대한정형외과 스포츠의학회(총무이사 역임)
한국배상의학회 회원
국제 수부외과 학화 연맹 한국대표
미국 수부외과 학회 회원(ASSM)
미국 미세재건외과 학회회원
미국수부학회회원
미국 하버드의대 Hand Club 회원
SICOT(국제 정형외과 학회)회원
아세아 태평양 지역 수부외과 학회 연맹

Present status of oro-facial reconstruction using lateral arm free flap



Jong-Ho Lee
Department of Oral & Maxillofacial Surgery, School of Dentistry,
Seoul National University, Seoul, Korea

Introduction
Lateral arm free flap(LAFF) has not been used frequently due to the lack of surgical experience, difficulty in harvesting flaps, and the small vessel size, short pedicle. Since it was first introduced by Song et al. in 1982, LAFF was used to the head and neck area with the following advantages; Color coordination with surrounding tissues, less hair, and well compartmentalized fat to maintain volume, donor nerves allow for nerve grafts in case of sacrificing the facial or lingual nerves, primary closure of the donor site and fewer complications. In this symposium, LAFF reconstruction status and the advantages of the flap will be discussed by analyzing our 120 cases.

Patients and methods
LAFF reconstruction performed by a single surgeon in the Department of Oral and Maxillofacial Surgery at Seoul National University Dental Hospital from 1998 to July 2021 was reviewed. Sex, age, diagnosis, site, recipient artery, rate of skin graft, flap survival rate, etc. were analyzed.

Results
Total 120 cases of flap reconstruction(119 patients) were performed in SNUDH. The number of cases has been increasing over the past five years, and has increased significantly from 2020, accounting for 48.3% of the total cumulative number of cases, with 33 cases in 2020 and 25 cases by July 2021. The most common diagnosis was squamous cell carcinoma with 66 cases (83.5%), followed by buccal mucosa 25 cases (32.1%), mandible 24 cases (30.8%), tongue 19 cases (24.4%). There was also one case of extraoral reconstruction and two cases of intraoral approach reconstruction. Skin grafts were performed in 31.6% of the total, and lingual nerve repair with PCNF was performed in 10 cases. The flap survival rate was 97.5% and there were 3 cases of failure.

Conclusion
Our LAFF experience is meaningful not only because it is the second-largest cases as a single operator after 210 cases of Marques in 2008, but also has a high success rate. The flap survival rate was 97.5%, which is higher than Marques (95.7%) and the flap survival rate for 429 cases (96.3%) analyzed by KANG (2018). In recent years, the number of LAFF cases has been increasing because the radial forearm flap cases, which were previously commonly used, have gradually shifted to the LAFF cases. In SNUDH, LAFF is now mainly used in areas such as the tongue and buccal cheek, because it has excellent volume retention and fewer complications at the donor site. Moreover, LAFF is differentiated in that both a vascularized nerve graft and a free nerve graft are possible. And since there are lower donor site morbidity, it contributes to improving the patient's quality of life after surgery. In this symposium, the indications for LAFF are summarized and presented with the video of LAFF harvesting.

Curriculum Vitae

Dr Lee completed his dental education at the School of Dentistry, Seoul National University in 1982 and trained at the Department of Oral and Maxillofacial Surgery, Seoul National University Hospital and military field hospital in Korea till 1988.

He has written a PhD thesis in Dentistry 1992 about “Assessment of capillary blood flow and histologic study of neovascularized bone flaps using interpositional vein graft as pedicles” and was subsequently appointed as an Associate Professor at the Chonnam University Hospital(1998-1996) and Professor at Seoul National University (1996-present).

Presently Dr Lee practices as a specialist of oncology-reconstruction and director at the Oral Cancer Center, Clinical Trial Center and Department of Oral and Maxillofacial Surgery, Seoul National University, Korea. Dr Lee has served a visiting Professor for a year in the Department of Maxillofacial and Plastic Surgery, Eberhardt Karls Universitaet Tuebingen, Germany. He also served as a research Fellow at the Laboratory for the Study of Skeletal Disorders and Rehabilitation, Children's Hospital, Harvard Medical School, USA. Dr Lee is also a Director of AOCMF Fellowship Center, Honorable President of Korean Association of Oral and Maxillofacial Surgeons (KAOMS), President of Korean Academy of Dental Science(2017-2020), and Member of The National Academy of Science, Republic of Korea(2017-life time).

Dr Lee has lectured internationally, has over 450 Publications. His clinical and research interests include peripheral nerve regeneration, bioresorbable metals, micro-reconstruction of maxillofacial region.

Guidance for maxillofacial reconstruction surgery for trainees

Jae-Yeol Lee
Department of Oral & Maxillofacial Surgery, School of Dentistry,
Pusan National University, Pusan, Korea

Reconstruction of maxillofacial defects after surgery is one of the main challenges facing the maxillofacial surgeon. Such complex defects require both functional and esthetic reconstruction that enable patients to return to social life under optimal conditions with fast recovery.
Maxillofacial reconstruction has advanced considerably, with the incorporation of free flaps and virtual planning, which makes it possible to perform customized reconstruction to the defect.
However, widespread use of free flaps has raised issues regarding how to educate trainees to become competent maxillofacial reconstruction surgeons. As multidisciplinary abilities are necessary to perform free flap surgeries, including reasonable judgment for planning, comprehension of multidimensional dissection, hand - eye coordination for microsurgical anastomosis, and proper flap inset, flap monitoring, there is a steep learning curve to achieving successful free flap outcomes.
For this symposium, I will be presenting a stepwise guidance to becoming reconstruction surgeon, basic principles, monitoring methods and other considerations, with clinical cases.

Curriculum Vitae

Current Position and Title

Department of Oral & Maxillofacial Surgery, School of Dentistry, Pusan National University
ITI(International Team for Implantology) Fellow

Education & Experience

2003	DDS, Collage of Dentistry, Pusan National University
2013	PhD, Department of Oral & Maxillofacial Surgery, Pusan National University

Post-graduate Courses

2003-2007	Intern & residentship, Department of Oral & Maxillofacial Surgery, Pusan National University Hospital
2007-2010	Naval surgeon, ROK Navy
2010-2014	Clinical Fellow & Professor, Department of Oral & Maxillofacial Surgery, Pusan National University Hospital
2014-	Assistant & Associate professor, Department of Oral & Maxillofacial Surgery, School of Dentistry, Pusan National University
2015	Visiting scholar, Department of Oral & Maxillofacial Oncology, Kyushu University, Japan
2017-2018	Visiting scholar, Department of Oral & Maxillofacial Surgery, UCLA, USA
2019	Visiting scholar, Department of Oral & Maxillofacial Surgery, Peking University, China

제60차
대한악안면성형재건외과학회
종합학술대회 및 정기총회

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

Oral Presentation

Trauma

01-01

외상으로 울산대학교병원 응급실에 내원한 환자에 대한 임상적 연구
손나리
울산대학교 의과대학 울산대학교병원 구강악안면외과학 교실
Clinical study of patients who visited the emergency room of Ulsan University Hospital due to trauma
Na-Ri Son
Department of Oral and Maxillofacial Surgery, University of Ulsan Hospital, University of Ulsan College of Medicine

01-02

구강악안면외과 영역에서의 맞춤형 금속판을 이용한 관혈적 정복술 및 내고정술 사례 보고
조란영
한림대학교 의과대학 구강악안면외과학 교실
Case Report of Open Reduction and Internal Fixation using Customized Plate in Oral maxilloficial Srugery
Ran-Yeong Cho
Department of Oral and Maxillofacial Surgery, Dentistry, Hallym University College of Medicine

Orthognathic Surgery

02-01

턱교정 수술에서 머신 러닝을 이용한 수술 정확도 예측
오현준
서울대학교 치과병원 구강악안면외과
Machine Learning Based Surgical Accuracy Prediction for Orthognathic Surgery
Hyun Jun Oh
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

02-02

하악골 전진을 위한 적절한 수술 방법은?: SSRO, inverted-L, total joint replacement
맹지연
서울대학교 치과병원 구강악안면외과
Appropriate surgical technique for mandibular advancement: SSRO, inverted-L osteotomy, total joint replacement
Ji Youn Maeng
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

02-03

악교정 재수술을 위해 내원한 환자들에 대한 임상적 고찰
김시영
서울대학교 치과병원 구강악안면외과
Clinical review of patients who visited for orthognathic reopertation
Ci Young Kim
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

02-04

골격성 III급 부정교합 환자에서의 투명 악교정 수술: 생분해성 시스템과 하악골 상행지 수직골절단술 1,035례의 보고
박지호
연세대학교 치과대학병원 구강악안면외과
Transparent Orthognathic Surgery in Skeletal Class III Patients: Single Surgeon's experience involving 1,035 operation using biodegradable system and intraoral vertical ramus osteotomy
Jiho Park
Department of Oral and Maxillofacial Surgery, College of Dentistry, Yonsei University

02-05

이부 비대칭을 가진 환자에서 이부 성형술의 비대칭의 개선효과와 생분해성 고정의 안정성
김지홍
연세대학교 치과대학병원 구강악안면외과
The effect of lateral shift genioplasty in chin asymmetry patients and stability of biodegradable fixation
Jihong Kim
Department of Oral and Maxillofacial Surgery, Yonsei University College of Dentistry

Tumor & Reconstruction

03-01

후구치 삼각융기에서의 편평상피암종의 치료 후 결과에 대한 체계적 문헌 고찰
김원용
단국대학교 치과대학병원 구강악안면외과
A systematic review of therapeutic outcomes following treatment of squamous cell carcinoma of the retromolar trigone
Won-Yong KIM
Department of Oral and Maxillofacial Surgery, College of Dentistry, Dankook University

03-02

비골 유리 피판 재건술에서 고전적인 매뉴얼 방식과 3D 골절단 가이드를 이용했을 때 하악과두의 위치 변화 비교
장훈
부산대학교 치의학전문대학원 구강악안면외과학 교실
Comparison of changes in condylar position between the conventional manual method and 3D osteotomy guide in fibula free flap
Hun Jang
Department of Oral and Maxillofacial Surgery, School of Dentistry, Pusan National University

03-03

구강악안면영역에서 발생한 림프종의 치료와 경과관찰
김훈민
울산대학교 의과대학 울산대학교병원 구강악안면외과학 교실
Treatment and follow-up of lymphoma in the oral & maxillofacial area
Hoon-Min Kim
Department of Oral and Maxillofacial Surgery, Ulsan University Hospital, University of Ulsan College of Medicine

03-04

림포마의 구강악안면외과적 접근: 6명 환자들의 조기진단 및 경과관찰을 바탕으로 한 증례보고
이파란
서울대학교 치과병원 구강악안면외과
Lymphoma management in maxillofacial department ; early diagnosis and follow up in 6 patients
Pa Ran Lee
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

03-05

구강 세균 마이크로바이옴과 치성각화낭종 발생의 연관성에 관한 연구
최용석
국립암센터 구강악안면외과
Differences in oral bacterial microbiome is associated with development of odontogenic keratocyst in jaws
Yong-Seok Choi
Department of Oral and Maxillofacial Surgery, National Cancer Center

03-06

구강편평상피세포암에서의 외과적 절제연에 대한 고찰
조성지
서울대학교 치과병원 구강악안면외과
Literature review : Surgical margin of Oral Squamous cell Carcinoma
Seongji Cho
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

Implant

04-01

SCRP대 CRP : 상악 소구치에서 더 적절한 보철물에 관한 연구
박동욱
서울대학교 보라매병원 구강악안면외과
SCRP versus CRP: Which is More Appropriate for the Upper Premolar Area?
Dong Uk Park
Department of Oral and Maxillofacial Surgery, SMG-SNU Boramae Medical Center

04-02

실패한 임플란트의 후향적 분석
이진호
울산대학교 의과대학 울산대학교병원 구강악안면외과학 교실
Analysis of removed dental implants: a retrospective clinical study

Jin-Ho Lee
Department of Oral and Maxillofacial Surgery, University of Ulsan Hospital, University of Ulsan College of Medicine

04-03

발치 후 임플란트 즉시 식립과 동시에 시행한 lateral sinus augmentation

곽현진
동아대학교병원 구강악안면외과

Immediate implant placement following tooth extraction with simultaneous lateral sinus augmentation

Hyun-Jin Kwak
Department of Oral and Maxillofacial Surgery, College of Medicine, Donga-A University

TMJ

05-01

하악골 전방이동술 후 관절강세정술 시행 여부에 따른 하악과두의 흡수 양상 비교평가

최유미
경희대학교 대학원 치의학과 구강악안면외과학 전공

Three-dimensional assessment of condylar head resorption according to TMJ arthrocentesis after mandibular advancement surgery

Yumi Choi
Department of Oral and Maxillofacial Surgery
Dentistry Graduate School, Kyung Hee University

05-02

교근 위축 환자의 임상 검사의 신뢰성 평가: 초음파 및 자기공명영상을 이용한 교근 두께 측정에 근거한 평가

김성민
연세대학교 치과대학 구강악안면외과학 교실
(강남세브란스병원)

Evaluation of reliability of clinical examination of patients with masseter muscle atrophy: an evaluation based on measurement of masseter muscle thickness using ultrasound and magnetic resonance imaging

Sung Min Kim
Department of Oral and Maxillofacial Surgery, Gangnam Severance Hospital, Yonsei University College of Dentistry

05-03

한국인을 대상으로 한 측두하악관절강 세척술의 자입점에 대한 연구

Atapol Yongvikul
연세대학교 치과대학 구강악안면외과학 교실
(강남세브란스병원)

Needle orientation for temporomandibular joint arthrocentesis in Koreans

Atapol Yongvikul
Department of Oral and Maxillofacial Surgery, Gangnam Severance Hospital, Yonsei University College of Dentistry

Basic Research

06-01

정맥채혈 시뮬레이터의 효용성 평가

최준석
조선대학교 치의학전문대학원 구강악안면외과학 교실

Efficacy evaluation of venous blood sampling simulator

Jun-Seok Choi
Department of Oral and Maxillofacial Surgery, School of Dentistry, Chosun University

Dentoalveolar Surgery

07-01

턱뼈의 낭성 병변 적출 결손부의 자발적인 골재생 평가

구정귀
연세대학교 치과대학 구강악안면외과학 교실
(강남세브란스병원)

Volumetric analysis of spontaneous bone healing after jaw cyst enucleation

Jeong-Kui KU
Department of Oral and Maxillofacial Surgery, Gangnam Severance Hospital, Yonsei University College of Dentistry

07-02

연령별 하악 제 3 대구치 발치의 원인 및 합병증에 대한 분석

고지훈
연세대학교 치과대학 구강악안면외과학 교실
(강남세브란스병원)

Analysis of the Causes and Complications of Mandibular third molar extractions according to age

Ji-Hoon KO
Department of Oral and Maxillofacial Surgery, Gangnam Severance Hospital, Yonsei University College of Dentistry

07-03

Alveolar antral artery의 위치, 직경, 발견 빈도에 대한 예비연구

정성영
서울대학교 치과병원 구강악안면외과학 교실

Prevalence, diameter, position and location of alveolar antral artery: preliminary study

Sung-Young Jung
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

Deformity

08-01

환자맞춤형 보형물을 사용한 안면골 결손의 수복

하성호
서울대학교 치과병원 구강악안면외과학 교실

Restoration of Facial Bone Defect using Patient-Specific Implant

Sung-Ho Ha
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

08-02

2차 구순열비변형 환자의 비익연절개를 통한 교정술 증례보고

김혜진
전남대학교 치의학전문대학원 구강악안면외과학 교실

Secondary cleft lip nasal deformity correction via alar rim incision: A case report

Hye Jin Kim
Department of Oral and Maxillofacial Surgery, School of Dentistry, Chonnam National University

08-03

악안면영역의 정맥 기형에 따른 다양한 치료 접근방법

이원욱
서울대학교 치의학대학원 구강악안면외과

Various management options of venous malformation in the maxillofacial region

Won-Uk Lee
Department of Oral and Maxillofacial Surgery, School of Dentistry, Seoul National University

08-04

사체연골을 이용한 비성형술

윤석민
국립암센터 구강종양클리닉

Rhinoplasty using Cadaveric cartilage

Suk-Min Youn
Division of Oral Oncolgy, National Cancer Center

08-05

폐쇄성 수면무호흡증 환자에게 시행된 약물유도 수면내시경검사 결과 분석

오지석
서울대학교 치과병원 구강악안면외과

Analysis of DISE in OSA patients

Ji-Seok Oh
Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital

Infection

09-01

진행된 병기의 약물 유도성 악골 괴사증 환자에게서 비스포스포네이트 경구 투여 및 정주 투여가 파골세포 형성에 미치는 영향 비교

강은성
단국대학교 치과대학병원 구강악안면외과

Comparison of the Effect of Oral Versus Intravenous Bisphosphonate Administration on Osteoclastogenesis in Advanced-Stage Medication-Related Osteonecrosis of the Jaw Patients

Eun-Sung Kang
Department of Oral and Maxilofacial Surgery, Dankook University Dental Hospital

09-02

강남세브란스병원 구강악안면외과에 내원한 구강악안면부 근막간극 농양 환자의 분석

정준호
연세대학교 치과대학 구강악안면외과학 교실
(강남세브란스병원)

Analysis of Patients Visiting Gangnam Severance Hospital Due to Abscess in Fascial Spaces

Joon-Ho Jung
Department of Oral and Maxillofacial Surgery, Gangnam Severance Hospital, Yonsei University College of Dentistry

Trauma

01-01

Clinical study of patients who visited the emergency room of Ulsan University Hospital due to trauma

Na-Ri Son[1*], Jin-ho Lee[1], Hoon-min Kim[1], Se-jeong Lim[1], Yoon-Hwan Ahn[2], Chan-Woo Jeong[2], Jae-Il Lee[2], Iel-Yong Sung[1], Jang-Ho Son[1], Yeong-Cheol Cho[1]

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[2] Department of Advanced General Dentistry, University of Ulsan Hospital, University of Ulsan College of Medicine

Introduction
The purpose of this study is to analyze the causes of trauma by examining patients who visited the emergency room of Ulsan University Hospital over the past 5 years, and to study ways to reduce trauma.

Method
From January 2016 to December 2020, 7,144 patients with facial lacerations and facial bone fractures who visited the emergency room of Ulsan University were treated or operated at department of Oral and Maxillofacial Surgery. The patients were classified based on the medical records of their visit to the emergency room of Ulsan University Hospital. Age according to medical records. According to medical records, age, sex, cause, fracture and soft tissue damage were classified and analyzed.

Result
The number of patients increased from 2016 to 2019, but in 2020 showed a decreasing trend compared to the previous year, And the male to female ratio of all patients was 3.0:1. When analyzed by patient age, pediatric patients under the age of 10 had the highest proportion of trauma patients.(33.8%). When classified by month, the highest number of patients was in October and the lowest in February. As for the cause of trauma, falls were the most common (54.6%). Also Facial lacerations were the most frequent, followed by nasal fractures, orbital fractures, mandibular fractures, and ZMC fracture

Conclusion
It is possible to analyze the aspects of trauma patients who visited the emergency room of Ulsan University Hospital, and based on this, it is possible to find a preventive plan and to reduce preventable trauma.

01-02

Case Report of Open Reduction and Internal Fixation using Customized Plate in Oral maxilloficial Srugery

Ran-Yeong Cho[1,2,3], Won-Seok Jang[1,2,3], Seoung-Won Cho[1,2,3], Hyo-Geun Choi[4,5,6], Sangmin Yi[1,2,3,4], Soo-Hwan Byun[1,2,3,4] and Byoung-Eun Yang[1,2,3,4]

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[2] Department of Oral & Maxillofacial Surgery Dentistry, Hallym Uiversitiy, Sacred Heart Hospital
[3] Graduate School of Clinical Dentistry, Hallym University
[4] Research Center of Clinical Dentistry, Hallym University Clinical Dentistry Graduate School

With the development of CT, 3D scan, and 3D printing technologies, orthognathic surgery is being performed through surgical guides such as FaceGide and customized metal plates. On the other hand, in the case of open reduction and internal fixation patients, Bone reduction is being performed thorugh intermaxillary fixation based on maximum intercuspal position for the first step, and then the surgeon bends the ready-made small metal plate to fix the bone. However, this method can be time-consuming and inaccurate, and bending a small metal plate is inconvinient. In order to overcome this shortcoming, this study was initiated based on the fact that after reduction of the bone with preoperative virtual surgery, patient-customized surgical guides and metal plates can be produced using this data to reduce surgical time.

In this study, CBCT was first taken. After performing a virtual reduction based on the CT image, a customized metal plate for each patient was produced accordingly, and a open reduction and internal fixation was performed using this. A total of three patients were participated, and occlusal measurements were performed with T-scan through regular follow-up observation.

The first patient was a 65-year-old man with fracture of the parasymphysis, a Z-shaped metal plate was applied on the fracture line. The second patient was a 33-year-old woman with parasymphysis fracture and mandibular condyle fracture, a Z-shaped metal plate was applied on the parasymphsial fracture line. Both patients showed acceptable occlusion and healing after three month follow-up. The third patient was a 19-year-old male, who had fractures at the mandibular subcondyle and parasymphysis, and customized metal plate, which is surrounding the posterior line of ramus of mandible, was applied. After one month of follow-up, it showed acceptable occlusion and healing.

According to the above results, the above surgical method appears to have stable results in the occlusaion and healing aspects of the patient, and need further research.

Orthognathic Surgery

02-01

Machine Learning Based Surgical Accuracy Prediction for Orthognathic Surgery

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Introduction
The purpose of this study was to improve surgical accuracy in orthognathic surgery using virtual surgical planning by predicting the accuracy with a machine learning technique.

Method and materials
This study evaluated skeletal class III patients, treated with bi-maxillary surgery by one operator. Superimposition of pre-operative and post-operative three-dimensional images was performed. Surgical accuracy in four anatomic locations including maxilla, mandibular distal segment, and, mandibular right and left proximal segments was analyzed.
Random forest algorithm was employed as a supervised learning method among machine learning approaches. The data set of 52 patients was split into a training set of 35 patients and a test set of 17 patients. Differences between actual errors and predicted errors were measured along with the importance of predictor variables.

Results
Prediction accuracy was 0.59 mm in maxilla, 0.90 mm in mandibular distal segment, 0.42 mm and 0.51 mm in mandibular right and left proximal segments, respectively. The most important predictor was a maxillary anteroposterior planned-distance for a maxillary anteroposterior error and mandibular proximal segments. The most important predictor was a mandibular vertical planned-distance for a mandibular vertical error.

Conclusion
Accuracy prediction using machine learning was reliable as the mean error was less than 1 mm. According to the importance of the predictor variables, considering the movement pattern of the bone segments which significantly affect the surgical error can contribute to improving the surgical accuracy.

02-02

Appropriate surgical technique for mandibular advancement: SSRO, inverted-L osteotomy, total joint replacement

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Mandibular advancement is a surgical technique that can be considered in skeletal II or obstructive sleep apnea (OSA) patients. In treatment of OSA, maxillomandibular advancement (MMA) is an effective way to expand the upper airway as well as improve esthetic appearance.

In cases where MMA is indicated, SSRO is commonly sufficient for mandibular advancement. However, inverted-L osteotomy or total joint replacement may be more appropriate than SSRO in some cases. In this presentation, we intend to examine the indications for each procedure along with a literature review.

02-03

Clinical review of patients who visited for orthognathic reopertation

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Introduction
Orthognathic surgery is performed to address facial balance and improve occlusion, and airway through jaw repositioning. According to previous literatures, High rates of patient satisfaction and a positive effect on their quality of life after orthognathic surgery. On the other hand, there are cases where reoperation is performed due to complications or dissatisfaction with the results of the surgery. The purpose of this presentation is to analyze, organize, and review the patients who came for orthognathic reoperation.

Case series
Between October 2015 and September 2021, 30 patients who visited the out-patient clinic for orthognathic reoperation after previous orthognathic surgery were included. The average age was 28.4 years, and the gender was 24 females and 6 males. Dissatisfaction with the appearance was the most common reason for reoperation by 16 out of 30 (53.3%), followed by breathing-related discomfort (33.3%), malocclusion (23.3%), and temporomandibular joint discomfort (16.7%), and finally other side effects (10.0%). Of these, 13 patients (43.3%) had actual reoperation. 9 cases were complete revision surgery using maxillary and mandibular osteotomy, 2 cases of reconstruction to repair the defect, 1 case of re-fixation, and 3 cases of relatively minor corrective/revision surgery.

Discussion and conclusion
Facial appearance is an important factor influencing the postoperative satisfaction of patients, and as aesthetic requirements increase in recent years, the number of patients who want orthognathic surgery for facial aesthetics is increasing. In the past, since reoperation is more difficult than primary operation, it was often performed to solve postoperative complications. However, patients' subjective opinions and esthetic requirements are often the reasons for reoperation because patient's satisfaction is considered important. Therefore, it is important to set realistic treatment objects through sufficient communication with patients and to approach carefully through accurate analysis and evaluation.

02-04

Transparent Orthognathic Surgery in Skeletal Class III Patients: Single Surgeon's experience involving 1,035 operation using biodegradable system and intraoral vertical ramus osteotomy

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From 2005 to 2021, we analyzed 1,035 cases of orthognathic surgery using biodegradable plates at the Department of Oral and Maxillofacial Surgery in various ways, Yonsei University Dental College hospital, for 16 years. All medical records were checked, and the year, age, sex, surgical procedure, operating time, and estimate blood loss were analyzed retrospectiverly. Previous surgical history and postoperative complications were investigated. In addition, previous papers about stability in surgery using biodegradable system were reviewed. Efficiency with respect to cost and time in domestic standards was investigated. For implant surgery with sinus lift (lateral approach), the patient's plate from which was removed 1 year and 3 months after orthognathic surgery was taken using a Scanning Electron Microscope (SEM). Through the above study, the following results were obtained.
1. According to the gender of the patients, the

number of cases was almost the same for males and females, 520 and 515, respectively, with 63.2% in their twenties and 31.1% in their teens.

2. After counting the operating time and estimate blood loss, linear regression analysis was performed, and the average operating time and blood loss decreased with time. ($p<0.001$)

3. The surgical cost was higher in the case of using the biodegradable system than in the case of using the titanium system at Yonsei University dental college hospital. However, when considering 2nd surgery, the use of biodegradable plates was more economical.

4. Complications caused by the biodegradable system were minor: screw fracture in 2 cases, inflammation or foreign body reaction in 25 cases, symptomatic maxillary sinusitis in 7 cases, and palpability in 4 cases.

5. Using a scanning Electron Microscope (SEM), the surface of the plate after 1 year and 3 months was observed in vivo, and it was confirmed that absorption was taking place.

Through the above results, Transparent orthognathic surgery using a biodegradable system and Intraoral vertical ramus ostetomy(IVRO) was sufficiently stable. In addition, it was confirmed that it can give satisfaction to the patient because it is not visible at all on the radiograph, and it is effective in terms of time and cost for the patient because there is no need to remove the metal plate through the secondary operation. The Department of Oral and Maxillofacial surgery at Yonsei University was able to establish a consensus on transparent orthognathic surgery using a biodegradable system through 1,035 operation over about 16 years.

02-05

The effect of lateral shift genioplasty in chin asymmetry patients and stability of biodegradable fixation

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1. Advancement genioplasty alone or advancement genioplasty and chin shaving surgery with biodegradable fixation, landmarks coordinate value difference in T1, T2 period were not statistically significant. ($p>0.05$)
(T1: Time between before surgery and 1 month after surgery, T2: Time between before surgery and 1 year after surgery)

2. Advancement genioplasty and lateral movement genioplasty with biodegradable fixation, landmarks coordinate value difference in T1, T2 period were not statistically significant. ($p>0.05$)
(T1: Time between before surgery and 1 month after surgery, T2: Time between before surgery and 1 year after surgery)

3. Compared to the group of patients who underwent orthognatic surgery and advancement genioplasty due to facial asymmetry, the rate of being diagnosed with asymmetry of the mandibular bone itself was higher in the group of patients who underwent additional lateral movement genioplasty (Group A 83.4%, Group B 7.7%, Group C 37.5%)

4. When measuring the amount of asymmetry for before and one year after surgery, lateral movement genioplasty's effect was statistically significant. ($p<0.05$)

Through the above results, when it is difficult to obtain complete improvement of asymmetry only with the reposition of the maxillary bone due to the presence of asymmetry in facial asymmetry patients, chin shaving surgery or lateral movement genioplasty can be performed according to the amount of mandibular asymmetry. Lateral movement genioplasty was performed when the amount of asymmetry in the mandibular bone was bigger, and there was a statistically significant effect. In addition, all patients who underwent lateral movement genioplasty were also underwent advancement genioplasty. Even though there were more three-dimensional movements, fixation with biodegradable materials was stable. Accordingly, lateral movement genioplasty can be an effective surgical method in correcting mandibular asymmetry and fixation with biodegradable materials is stable. So, it is not required to remove the metal plate secondarily.

Tumor & Reconstruction

03-01

A systematic review of therapeutic outcomes following treatment of squamous cell carcinoma of the retromolar trigone

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Squamous cell carcinoma (SCC) of the retromolar trigone (RMT) is a rare but potentially fatal disease that carries a poor prognosis due to its unique anatomic position. RMT SCCs tend to spread to vital nearby structures, including the tonsillar pillar, masticatory muscles, and underlying mandibular bone, even in their early stages, and aggressive treatment is often warranted. This systematic review appraises and qualitatively analyzes all available literature regarding the survival outcomes and prognosis of RMT SCC. Four databases were searched to identify all eligible articles published since January 1980. Of the 1,248 studies, a total of 15 studies representing 4,838 cases met the inclusion criteria. The evaluated patients had a high rate of advanced tumor stage (T3 or T4: 61.4%), lymph node metastasis (38.8%), and mandibular bone invasion (24%) at the time of diagnosis. Aggressive surgical treatments such as lip-splitting (92%), segmental mandibulectomy (61.1%), radical neck dissection (44.1%), and reconstruction using free flaps (49.5%) was undertaken for 92% of the pooled patient population. The mean rates for local, regional, and systemic recurrence were 23.40%, 8.40%, and 8.50%, respectively. The mean 5-year overall survival rate was 38.90%. Osteonecrosis was noted in 11.6% of the 328 patients who received radiotherapy. In conclusion, RMT SCC is generally associated with high recurrence, low survival, and high postoperative complication rates. Early diagnosis and aggressive treatment are thus warranted. However, significant

methodological problems hamper current knowledge. Future studies of this topic that use randomized or cohort designs are thus needed.

03-02

Comparison of changes in condylar position between the conventional manual method and 3D osteotomy guide in fibula free flap

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Introduction
Osteotomy guide have been usefully used in reconstruction surgery for oral cancer with the development of 3D printers. The purpose of this study was to evaluate the stability of the mandibular condyle when 3D osteotomy guide were used in fibula free flap compared to conventional manual method.

Method and materials
A total of 10 patients who underwent fibula free flap reconstruction were analyzed from 2017 to 2021 in the department of oral and maxillofacial surgery of Pusan National University Dental Hospital. Five patients underwent surgery by manual method without the guide and others used 3D osteotomy guide. The position and angle of the mandibular condyle were analyzed before surgery(T0), immediately after surgery(T1) and 6 months after surgery(T2) using Invivo and all statistical values were analyzed using the Mann-Whitney test.

Results
Overall, the position of the mandibular condyle, the distance from the mandibular fossa and the amount of change in coronal angle were smaller when the 3D osteotomy guide was used. However, the axial angle change of the mandibular condyle was smaller in the conventional manual method. No statistical significance was found due to the limitation of the number of patients.

Conclusion
Due to the limited number of patients, more studies are needed from now on. However, the stability of the mandibular condyle tends to be higher when using the 3D osteotomy guide than the conventional manual method. However, the stability of the axial angle of the mandibular condyle tends to be lower than that of the reconplate when fixed by miniplate.

03-03

Treatment and follow-up of lymphoma in the oral & maxillofacial area

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Introduction
Lymphoma is divided into Hodgkin's lymphoma and non-Hodgkin's lymphoma, which accounts for less than 10% of all lymphoma in Korea, and has a better prognosis than non-Hodgkin's lymphoma. Most lymphoma is non-Hodgkin's lymphoma, and is divided into B cells, T cells, and NK cell neoplasms according to the origin of cancer cells. It is a malignant tumor that occurs in lymphocytes, and about 10% of all non-Hodgkin lymphomas occur outside the lymph nodes of the head and more than half of them occur in the palate and pharynx. Treatment is performed through complex chemotherapy rather than surgical methods. Treatment is different according to the type and progression of malignant lymphoma, and it is determined in consideration of pathological diagnosis or the patient's systemic condition.

Case report
In this case, clinical and radiographic tests and histological tests were performed on three patients who visited with palate swelling to diagnose lymphoma. All three cases were diagnosed with non-Hodgkin's lymphoma, and detailed diagnosis of MALT lymphoma, diffuse B-cell lymphoma, and burkitt's lymphoma. Patients are being treated through chemotherapy and radiation therapy by requesting hemato-oncology, and are showing good results.

Conclusion
Lymphoma proliferates very quickly and if proper treatment is not performed, the survival period cannot exceed 6 months, so accurate diagnosis early is very important. Differential diagnosis through incision biopsy is essential for proper treatment. Chemotherapy alone has reported a treatment rate of 80-90%. The prognosis is reported to be good, with a recurrence rate of about 30% after chemotherapy. Surgical treatment is contraindicated other than incisional biopsy for differential diagnosis, and chemotherapy or radiation therapy should be considered first. Since this disease rarely occurs in Asians, it is judged to be a valuable case and is introduced along with a review of the literature.

03-04

Lymphoma management in maxillofacial department ; early diagnosis and follow up in 6 patients

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Introduction
Lymphoma is the second most frequent malignant lesion in the oral cavity. Lymphoma is divided into Hodgkin and Non-Hodgkin, and 2~3% of Non-Hodgkin appear first in the oral cavity or in the jaw. Lymphoma causes jaw swelling, pain, ulceration, tooth mobility, periapical bone loss, and cervical lymphadenopathy. Although the epidemiology of lymphoma remains incompletely understood, EBV, HTV, HCV, Helicobacter pylori, rheumatoid arthritis, and Sjo¨gren's syndrome may act as risk factors.

Case report
We treat 6 patients diagnosed with lymphoma or who presented with related symptoms. Three out of six patients were referred to the oncologist after diagnosis and received appropriate treatment. The first patient was swelling of the right cheek, which was confirmed by biopsy as marginal zone B cell lymphoma. She was referred to the Hematology Oncology Department, received chemotherapy, and is currently undergoing clinical trials for lymphoid hyperplasia. The second patient, a 30-year-old male, complained of pain and numbness in the left mandibular angle. After PNS CT, he was referred to the emergency room for rule out leukemia. The patient is currently receiving appropriate chemotherapy for bucket lymphoma and is monitoring the progress after a bone marrow transplant. The third patient was an 85-year-old male who had HCV. He complained of swelling and pain in the right mandibular angle. Histological examination showed he was receiving chemotherapy for peripheral T-cell lymphoma. In common among patients, lab, PNS CT scan, and biopsy were performed within a short time after symptom onset, which enabled early diagnosis and treatment of lymphoma.

Conclusion
Lymphomas are divided according to their origins, such as T cells and B cells, and the treatment and prognosis vary greatly. In the case of Burkitt's lymphoma, it is an oncological emergency, and the mass grows very quickly, so if it is not diagnosed and treated in a timely manner, it poses a serious risk to life. This case deals with how various lymphomas including Burkitt's lymphoma were expressed in the head and neck and how they were diagnosed. Imaging diagnosis, such as PNS CT, and lymphoma detection through excisional/incisional biopsy are essential.

03-05

Differences in oral bacterial microbiome is associated with development of odontogenic keratocyst in jaws

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Introduction

Odontogenic keratocyst (OKC) is a benign pathologic lesion developed in jaws which was first reported by Philipsen in 1956. OKC has been of particular interest for oral and maxillofacial surgeons because of its benign but aggressive nature and high recurrence rate after surgical removal. Previous studies pointed out several histological and molecular factors associated with initial development and recurrence of OKC, such as intra-bony epithelial remnants, thin and fragile cystic wall, existence of daughter cysts, and expression of p53 related oncogenes. However, pathophysiology of OKC is still not clear, especially because of the unique clinical characteristics such as wide range of age distribution, site of occurrence and low relevance to developing tooth. Therefore, in this study we set up hypothesis that environmental factors can affect occurrence of OKC and aimed to present that the difference in oral bacterial microbiome is associated with development of OKC in jaws.

Method and materials

To analyze original proteins found in OKC tissue, clinic-pathologically confirmed OKC and dentigerous cyst (DC) tissues were obtained after surgery under approval of IRB at Seoul National University Dental Hospital. The cystic wall was washed rigorously, and protein lysate were made for protein array. Among the 2000 different human proteins, increased or decreased protein expression with statistically significance were analyzed in OKCs compared to DCs. The amount and location of the protein expression were confirmed with immunohistochemical staining in histological sections. To further analyze association of bacterial infection with immune cell related protein expression in OKC, bacterial 16s rRNA sequencing was performed and profile and taxonomy were compared between OKC and DC samples.

Results

The human protein array 2000 showed that seven proteins were over-expressed in OKC compared to DC and three of them were the surface proteins related to immune cell function. Those proteins were B2M, CD244 and TNFRSF9 (CD137) and the amount and location of their expression were confirmed with immunohistochemical staining. Interestingly, all samples of OKC and DC contained bacterial 16s rRNA and OKC retained certain bacteria such as Campylobacter which DC never showed. On the other hand, increased amount of Faecalibacterium and Bacteroides were found in DC compared to OKC.

Conclusion

Oral cavity is continuously exposed to the external threats and is one of the barrier tissues in our body. Therefore, immune homeostasis should be maintained by harmony of pro- and suppressive-immune reactions. This study confirmed the difference in oral bacterial microbiome between OKC and DC tissues for the first time. Those difference and microbiome disharmony might be associated with disease development in jaws, which will be a new paradigm in pathophysiology of oral diseases.

03-06

Literature review : Surgical margin of Oral Squamous cell Carcinoma

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Introduction

Oral squamous cell carcinoma (OSCC) is a malignant tumor accounting for more than 90% of oral cancers, and surgical resection is the preferred treatment option for oral squamous cell carcinoma. Local recurrence occurring after surgical resection is the cause of poor prognosis of OSCC. Local recurrence may be relate with lymph node extracapsular expansion, perineural invasion, and the size of the surgical margin. Several studies have been conducted on the size of the surgical margin, which is a surgical factor. However, while the established criteria for the surgical margin are ambiguous, most cases are defined uniformly without considering the characteristics that vary depending on the anatomical structure. Based on these problems, this study establishes the definition of surgical margin in OSCC based on previous literature, and proposes its aspects according to the anatomical structure.

Methods

The PRISMA 2009 guidelines were applied to this study, and the following suggestions were searched through PubMed. (October 2021)

(margin OR margins OR ((resection OR surgical) AND (margins OR margin))) AND ‘squamous cell carcinoma [Mesh]’ AND ‘Neck [Mesh]’ OR ‘Head[Mesh]’ OR ‘Tongue[Mesh]’ OR ‘retromolar[Mesh]’ OR ‘Lip [Mesh]’ OR ‘Palate [Mesh]’ OR ‘Mouth[Mesh]’ OR ‘ buccal [Mesh]’ OR ‘gingiva [Mesh]’)

Among these, papers containing the margins of oral cancer in the summary of the papers were included, and topics that did not fit into the search direction of this study, such as studies on oral cancer other than OSCC, and tools for evaluating surgical margins during surgery were excluded from the criteria.

Discussion and Conclusion

Seven papers that 4 papers were selected from 258 searched papers and 3 papers selected from review papers, were used for this study. Among them, three studies were conducted on the oral cavity, two studies on the tongue area, and two studies on the buccal mucosa. In several studies, the resection margin was classified based on a value smaller than 5 mm, which was previously suggested, and this is thought to be because the effect of adjuvant therapy after surgery and the worst pattern of invasion (WPOI) grade were low. In addition, OSCC at tongue region is known to be clinically pathologically poor, which can be viewed as the cause of anatomical features, and this anatomical location should be considered as an important factor in establishing surgical margins. Also, in the case of a lesion with a mixture of dysplastic lesions, if the dysplasia is severe, it is advantageous in terms of local recurrence to be included as a resection margin.

Implant

04-01

SCRP versus CRP: Which is More Appropriate for the Upper Premolar Area?

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Purpose
The purpose of this study is to evaluate whether SCRP or CRP is more suitable in the maxillary premolar area considering the angulation of abutment, the angulation of the implant fixture, and the alveolar bone morphology. Additionally, we attempt to investigate the anatomic factors that most influence the type of prosthesis used in the premolar region.

Method
Fifty-eight implant images out of 47 patients who had implants placed between January 2016 and December 2019, were assessed in the analysis. The inclusion criteria were as follows: simple implant, placement in the upper 1st and 2nd premolars area, treated final prosthesis. The exclusion criteria were as follows: treated ridge augmentation, treated ridge splitting, treated immediate implantation. Student's t-test, multiple logistic regression analysis was used.

Result
Among a total of 521 subjects, 47 patients (22 male and 25 female) met the inclusion criteria. The patients' ages ranged from 22 to 82 years (mean, 62.25 ± 13.44 years). The total number of implants included in this study was 58. Five factors were significantly different between the 1st and 2nd premolar areas: MW (P = .002), AW (P = .001), BAF (P = .05), RO (P < .001) and AO (P = .002). The mean difference of BAF between of the 1st and 2nd premolar area was 9.06°. There was a positive relationship between type of prosthesis and region of premolar (P = .031). The possibility of choosing CRP is higher in 1st premolar area than in 2nd premolar area. In comparisons of the predictors between SCRP and CRP, 4 factors were identified that correlated best as predictor variables of type of prosthesis: MW (P = .042), AW (P < .001), RO (P < .001) and RA (P < .001). In the multiple logistic regression model, RA showed significant statistical associations with type of prosthesis (P = .001). RA was significantly higher in CRP (OR = 1.885, 95% CI: 1.31 to 2.70). Overall predictive accuracy was 93.1%.

Conclusion
When planning implant treatment, clinicians should keep in mind that SCRP is not always feasible at the maxillary premolar area, especially in the first premolar area. If the difference in the angle between the axis of the prosthesis and the alveolar bone is large, the clinician must consider CRP in the implant treatment planning stage. Our results can be useful as a clinical reference when determining the choice of implant prosthesis between SCRP and CRP in the upper premolar area.

04-02

Analysis of removed dental implants: a retrospective clinical study

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Purpose
As the use of dental implant has increased recently, the removal of dental implants also increases. The aim of this study was to investigate the 5-year outcome of dental implants, and analyze the factors affecting the removal of implant.

Materials and Methods
We retrospectively analyzed 1350 implants in 898 patients who underwent implantation from January 2015 to June 2021 at Ulsan University Hospital. A 5-year cumulative survival rate of dental implants, and risk factors for implant failure were analyzed.

Results
The cumulative 5-year survival rate for the implants was 98.4%. The reasons of implant removal were peri-implantitis, implant fracture, and fail in osseointegration. As a prosthesis type, opposing dentition, with bone graft, there were 6 single types and 4 splint type, 6 natural dentition, 4 implants and there were 9 single types and 1 splint type, 9 natural dentition, 1 implant without bone graft.

Conclusion
Implants with a survival rate of 98.4% are not affected by most factors and show excellent survival rates.

04-03

Immediate implant placement following tooth extraction with simultaneous lateral sinus augmentation

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Background
Sinus augmentation is necessary when the residual bone height is insufficient in the posterior maxilla. Immediate implant placement after extraction has similar success rate to that for cases of delayed implant placement. Immediate implant placement following tooth extraction with lateral sinus augmentation will shorten the number of operations, treatment time and increase patient convenience.

Purpose
To evaluate the safety and efficacy of surgery through radiologic and clinical results for at least 1 year after loading in patients who underwent tooth extraction, implant placement, and lateral sinus augmentation at the same time.

Materials and methods
We retrospectively evaluated 35 implants placed in 25 patiensts. Preoperative and postoperative CBCT were compared and analyzed for residual bone height(RBH) and increased bone height(IBH), the initial torque value(ITV), and the implant stability quotient(ISQ). A comparative evaluation was performed between a 1-stage (non-submerged) group and a 2-stage (submerged) group. After loading for at least 1 year, clinical and radiological evaluations were performed to evaluate the survival rate.

Results
One of the 35 implants failed in osseointegration, and the remaining 34 showed successful results. The failure-free survival rate at 1 year was 97.06% (95% CI, 91.38-100%). The RBH ranged from 3.1 to 9.6 mm (mean, 5.62±1.68mm), and the IBH ranged from 3 to 15.3 mm (mean, 8.87±2.74 mm). Among the RBH, ITV, ISQ, treatment period, final bone height, and failure evaluation by stage of implant placement, only ISQ showed statistical significance between the groups (p<.001). A comparison of RBH, ITV, and ISQ, regardless of group, showed that each value tended to increase, but there were no statistically significant differences.

Conclusions
Immediate implant placement following tooth extraction with simultaneous lateral sinus augmentation can improve patient convenience by reducing surgical steps, and is considered reliable even though the procedures had been performed at the same time.

TMJ

05-01

Three-dimensional assessment of condylar head resorption according to TMJ arthrocentesis after mandibular advancement surgery

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Purpose

In some patients who underwent mandibular advancement surgery with skeletal class 2 malocclusion, side effects such as condylar resorption occurred. However, preventive treatment is lacking. For the development of prophylactic treatment, a relatively less invasive arthrocentesis that does not cause irreversible changes in the patient was prophylactically performed about 6 weeks after surgery.

The purpose of this study was to evaluate whether the case with prophylactic arthrocentesis had an effect on the resorption of the mandibular condyle compared with the case of mandibular advancement alone.

Patients and Methods

The NA group consisted of 8 condylars of 5 patients who underwent mandibular advancement surgery alone, and the 8 condylars of 5 patients who additionally underwent arthrocentesis were assigned as group AC. Condylar changes were evaluated at 1 month before surgery (T0), right after surgery (T1), 6 months after surgery (T2), and 1 year after surgery (T2). CBCT was based on computed tomography images. After reorienting the CBCT, volume boundaries were determined in 3D based on condylar landmarks using MIMICS and ON3D programs.

The patient's TMD pain change was based on the patient's statements in the chart.

Results and conclusion

1. In both groups, the volume of the condyle showed a tendency to decrease with time.

2. The amount of advancement was 1.69 mm for NC and 3.25 mm for AC, but the mandibular condyle volume decreased on average by 0.11 cc in the NC group and about 0.09 cc in the AC group.

3. In the evaluation of TMD pain, the AC group showed a decreasing trend and the NC group showed a tendency to increase.

From the above results, prophylactic arthrocentesis after mandibular advancement surgery is expected to be effective in reducing postoperative side effects by preventing resorption of the condylar and alleviating pain.

05-02

Evaluation of reliability of clinical examination of patients with masseter muscle atrophy: an evaluation based on measurement of masseter muscle thickness using ultrasound and magnetic resonance imaging

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Temporomandibular joint disorder (TMD) is a musculoskeletal disorder, and when examining patients, it is essential to evaluate not only the joint but also the masticatory muscles including the masseter. It is already known through many studies that the prevalence of TMD is high in patients with hypertrophic masseter muscles. However, there are few studies on patients with atrophic masseter muscle, which lacks understanding of the diagnosis and clinical application.

In the medical field such as rehabilitation medicine, many studies have shown that patients with muscular atrophy easily feel fatigued and feel muscle pain when they use their muscles repeatedly. In addition, related diagnosis and rehabilitation treatments are being actively carried out. Therefore, the authors think that study on muscular atrophy is needed in TMD patients.

This study was conducted with patients who visited the Department of Oral and Maxillofacial Surgery at Gangnam Severance Hospital from March 2021 to October 2021 and were diagnosed with temporomandibular joint disorder, who had clinical diagnosis, ultrasound examination, and MRI. Patients included in the study were classified into masseter muscle atrophy, hypertrophy, and normal range on clinical examination. For each group, the thickness of the masseter was measured on ultrasound and magnetic resonance imaging, and the measured values of each group were compared to see if there was a significant difference. The concordance between the case diagnosed as a masseter muscle atrophy in the measurement results and the case in the clinical examination diagnosed as masseter muscle atrophy was evaluated. In addition, to evaluate the applicability of the diagnosis of masseter muscle atrophy in clinical practice, the concordance of the diagnosis of masseter muscle atrophy by two oral and maxillofacial surgeons with different clinical experiences was also compared.

The authors intend to report on the repeatability of diagnosis and clinically realistic and diagnosable cases of masseter muscle atrophy patients through this study.

05-03

Needle orientation for temporomandibular joint arthrocentesis in Koreans

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Purpose

This retrospective study aimed to investigate the highest opportunity skin puncture point and needle orientation according to facial asymmetry and skeletal pattern in Koreans.

Materials and Methods

Computed tomography images of 136 patients were analyzed using three-dimensional analysis software. We investigated horizontal and vertical angles (angle to the coronal plane and to the sagittal plane, respectively) for needle orientation. Horizontal and vertical distances from the canthal-tragal line were investigated to determine skin puncture point. Depth (distance from the puncture point to the fossa) and canthal-tragal distance were also measured.

Patients were sub-classified according to skeletal class (class I, II, and III) and status of facial asymmetry. Reliability and comparative analysis were performed.

Results

The average injection points in all patients were 7.39±2.85 mm anterior to the tragus and 3.44±4.18 mm below the canthal-tragal line with an angle of 8.53±6.90° anteriorly and 32.26±7.23° superiorly. Regarding asymmetry, there was a statistical different in horizontal angle, vertical distance, depth, and canthal-tragal distance between the deviated and non-deviated sides. In particular, vertical distances were 4.44±4.66 mm and 2.59±4.11 mm in the

deviated and non-deviated sides, respectively, with a significant difference ($p<0.001$). However, there was no significant difference in skeletal classification between groups.

Conclusions
In radiologically closed-mouth position, the puncture point was closer to the tragus and lower than the conventional point. The puncture point in the deviated side should be considered more inferior than the non-deviated side in patients with asymmetry.

Basic Research
06-01

Efficacy evaluation of venous blood sampling simulator

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Introduction
Equipment for technical training is being developed a lot, but training is taking place on limited models in laboratory conditions, which may not provide sufficient experience to understand the clinical situation. Insufficient experience can cause problems in practice. In order to solve these difficulties, simulators that implement real situations and patient models are in the spotlight.
The purpose of this study is to evaluate the effectiveness of a virtual reality-based venous blood sampling simulator based on an real patient model.

Method and materials
For the anatomical model required for venous blood sampling, the anatomical structure is expressed through a 3D scan based on actual patient data, and the 3D model is reconstructed, and then the venous blood sampling is reproduced on the model. The process from initial patient preparation to post-blood sampling was included in the simulation. It was programmed to proceed to the next step only when the necessary procedures were performed by composing the step-by-step simulation into a game using Unity 3D.
After virtual reality simulation was conducted for a total of 20 dental students, the average score was calculated for each of 5 items and 15 questionnaires in the evaluation of resolution, accuracy, simulator evaluation, usability, and educational usefulness.

Results
After venous blood sampling simulator training for a total of 20 dental students, a questionnaire consisting of 15 questions was filled out with 3 questions in each of 5 items.
In the questionnaire, each score was expressed as mean ± standard deviation as very satisfied (5), satisfied (4), average (3), dissatisfied (2), and very dissatisfied (1).
The average score for three questions about resolution was 2.81 points, about accuracy was 3.15 points, about simulator evaluation was 2.95 points, about usability was 3.53, and about educational usefulness was 3.41.

Conclusion
The venous blood sampling simulator is considered to be useful because it can increase the immersion by using the virtual reality simulator in a reality, and can learn techniques without risk to the patient. It is thought that it will be easy for trainees to adapt to the clinical field because it is possible to create an environment similar to the real situation by using the simulator, and it is thought that it will be more useful because it is possible to learn repeatedly.

Dentoalveolar Surgery
07-01

Volumetric analysis of spontaneous bone healing after jaw cyst enucleation

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Introduction
The complete enucleation of cyst is the standard procedure with safe closure of the wound, which has been known little postoperative complications such as infection and incomplete bone healing. In terms of spontaneous bone regeneration with cyst enucleation, however, there is still no consensus considering several factors such as pre-operative size, age, gender, and jaw. This study aims to evaluate the spontaneous bone healing after the cyst enucleation according to a three-dimensional volumetric protocol with consider to the several factors

Methods
This retrospective study was conducted for the patients who received the cyst enucleation and underwent pre- and post-operative cone-beam computed tomography (CBCT) scan or multi-detector computed tomography (MDCT) from March 2011 to March 2021. The volumetric analysis was calculated healing ratio based on the pre-operative cyst and post-operative defect volumes, and performed to evaluate any differences according to the healing period (1 and 2 years), pre-operative cyst size (3cc), sex, age (30 years), and jaw.

Results
Forty-four patients (30 Male and 14 Female, average 40.7 ± 15.7 years) were included in this study. With regarding the healing period, the healing ratio was significantly lower during the first year (33.5 ± 32.8%) compared to the next year (74.5 ± 24.2%) and after the second year (74.2 ± 17.8%).

In thirty-three patients (22 Male and 11 Female, aged 40.7 ± 16.2 years), who had the long healing period (≥ 1 year, averaged 3.0 years), the healing ratio were 73.5 ± 20.6%. The healing ratio was not affected by the cyst size, age and jaw. However, female patients showed significantly higher bone healing ratio (84.0 ± 9.4%) than male patients (68.2± 22.7%, P=0.008) Although there were no significantly difference between the small (<3cc) and large (> 3cc) cyst in the healing ratio, however, the large cyst remained larger defect (1.64 ± 1.54 cc) than the remained defect of small cyst (0.43 ± 0.42 cc, P=0.006), in addition, the remained defect volume of the large defect is similar with the pre-operative small cyst volume (1.47 ± 0.72 cc).

Conclusion

Spontaneous bone healing ratio of the cystic defect was about 73.5% after 12 months regardless of the pre-operative cyst size, the healing period (> 2 years), age, and jaw. However, the large cyst (> 3cc) was remained large defect with similar to the small preoperative cyst size. In addition, male patients showed less healing ratio compared with female.

07-02

Analysis of the Causes and Complications of Mandibular third molar extractions according to age

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Extraction of an impacted third molar is one of the most common procedures in oral and maxillofacial surgery department. The chief complaint of patients undergoing third molar extractions vary and vary considerably with age.

For young patients in their 10s and 20s, there are a number of extractions that do not come with special pathological conditions, such as the purpose of preventing various diseases that may occur in the future, the difficulty of management, and the purpose of orthodontic teeth movement.

However, for elderly patients in their 40s and over, most of them come with their chief complaint of edema or pain, or with pathological findings such as caries or resorption of adjacent teeth, periodontitis, odontogenic cyst or odontogenic tumor. In addition, through previous studies, it is found that the morbidity of complications after extraction of the impacted third molar is higher in relatively elderly patients.

In this study, the causes of extraction of mandibular third molars according to age were investigated for patients of various age groups who underwent extraction of impacted mandibular third molar, and the correlation between the impaction pattern and position of the teeth and the relationship between the disease and the occurrence were analyzed.

07-03

Prevalence, diameter, position and location of alveolar antral artery: preliminary study

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The alveolar antral artery (AAA) is a dental branch of the posterior superior alveolar artery and anastomoses with the infraorbital artery in the lateral wall of the maxillary sinus This artery plays an important role in supplying blood to the Schneiderian membrane, the periosteum, and the anterior/lateral bony wall of the maxillary sinus. However, accident damage to these vessels during sinus lifting or maxillary sinusitis treatment such as modified endoscopic-assisted sinus surgery (MESS) or Caldwell-Luc operation may cause complications such as bleeding, perforation of the maxillary sinus membrane, and delay in operation

Therefore, in this study, the frequency, diameter, mediolateral position, and distance from alveolar crest of AAA were measured with paranasal computed tomography (PNS CT) in 50 patients (100 maxillary sinuses) who visited the Department of Oral and Maxillofacial Surgery at Seoul National University Dental Hospital. The relationship between those factors and residual alveolar bone height, dentate/edentulous and anteroposterior position is studied. Based on the distance measurements, the relationship between the presence of teeth and the amount of residual alveolar bone height in the first and second molars lesion was studied. In addition, we would like to emphasize the importance of AAA evaluation on preoperative CT.

Deformity

08-01

Restoration of Facial Bone Defect using Patient-Specific Implant

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Facial bone defects can be caused by a variety of causes, such as congenital anomalies due to genetic diseases, iatrogenic factors that occur during orthognathic surgery or facial contouring surgery, and bone defects due to trauma.

If the size of the bone defect is small, approximate restoration is possible using autologous bone or a ready-made product. But premanufactured prostheses of an appropriate size should be selected during the surgery and need to be carved before placing them. Consequentially, the prostheses are not passively fitted on the bone surface, and the gap is formed. Also, since prostheses are often placed based on the surgeon's tactile sense and experiences, there are possibilities of under-/overcorrection or malpositioning. Above all, restoration of large bone defects is impossible by using premanufactured prostheses.

In order to overcome the limitations of premanufactured prostheses, a patient-specific implant made with 3D printing technology was used for restoration of facial bone defects. Accurate contact with the bone surface was possible, and the surgeon was able to fabricate an implant with the desired thickness. In addition, the location of the drill hole for fixation the implant can be set before surgery, avoiding major anatomical structures such as the nerve canal, enabling more accurate and esthetic restoration.

Therefore, through this study, the cause of the surgery, the surgical process, and the materials used for the implants were reviewed for patients who underwent facial bone defect restoration through a patient-customized implant made with 3D printing technology at Seoul National University Dental Hospital.

08-02

Secondary cleft lip nasal deformity correction via alar rim incision: A case report

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Introduction

Still, secondary cleft lip nasal deformity correction remains difficult. Secondary cleft lip nasal deformity results in tissue deficiency including altered structures, scar tissue formation from previous operation presenting nasal tip deflection and malposition of alar cartilage. There were various attempts to correct the deformities and successful results were reported

Case report

Here this case describes the surgical correction via alar rim incision of a 6-year-old male patient with secondary cleft lip nasal deformity. The patient was referred from the department of neonatology to the department of Oral & Maxillofacial Surgery for evaluation and further treatment on his unilateral cleft lip and palate at after 4 day of birth. The hotz appliance and PNAM appliance were applied and Lip adhesion, cheiloplasty, palatoplasty were performed chronologically. Primary cleft lip and nasal deformity correction was done. As the patient presented the deflection of nasal septum to non-cleft side, short columella, alra base flaring on cleft side and asymmetrical nostrils, the secondary cleft lip and nasal deformity correction via alar rim incision was done.

Discussion

Early surgical correction may help increasing positive peer interactions and social developments in cleft children. The authors report a case of aesthetic rehabilitation using dissection of lower lateral cartilage and sutures via alar rim incision for secondary cleft lip nasal deformity patient at preschool age.

08-03

Various management options of venous malformation in the maxillofacial region

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Vascular malformation is classified according to an involved vessel type (including lymphatic) and flow rate of a vessel. Among those, venous malformation (VM) is the most occurring vascular malformation in a maxillofacial region. The incidence rate of VM is approximately 1/5,000 to 10,000 at birth, and prevalence rate is about 1%. Pathophysiology of VM has been studied, and embryological mutation of TIE-2 has been reported as a possible cause of such deformities. VM in maxillofacial region can be formed inside of a muscle (masseter muscle), maxilla, lip, tongue, buccal mucosa and so on. If it is located superficially, it is visible with bluish color; however, if it is not, it could not be detected until it grows in size. Many complications may arise from development of VM. Those include pain, ulcer, and bleeding as mild complications. Severe complications are invasion to neighboring tissues and death due to bleeding and suffocation. Unready intervention may worsen the disease progression, and therefore a definite assessment and diagnosis are critical. Blood test, ultrasound sonography, doppler sonography, CT, MRI, and biopsy are medical examinations that support successful treatment planning. Follow up observation, sclerotherapy, intraoral appliance application, bleomycin, and surgical intervention are those methods that are applied to treat VM. In this case report, cases of VM in the maxillofacial region will be elucidated, and diagnosis and treatment method will be presented to suggest a standard for VM treatment which can be implemented in the future clinical cases.

08-04

Rhinoplasty using Cadaveric cartilage

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Introduction

Most of the patients undergoing rhinoplasty do not have severe nasal deformities, so it is sufficient to use autologous cartilage as a graft material. However, if the degree of deformity of the nose is severe, such as cleft lip or cleft palate, and the strut of the nose or vomer is weak and curved, the amount of augmentation is large, so rib cartilage or ear cartilage is mainly used. This study aims to examine the advantages and disadvantages of cadaveric cartilage through two cases of rhinoplasty using cadaveric cartilage.

Methods

After cadaveric cartilage is harvested from the cadaver, it is irradiated to prevent the possibility of a disease that can be transmitted from the corpse to the recipient. After that, cadaver cartilage is formed to fit the location where the cartilage will be inserted and then transplanted. The two cases covered in this study were men in their late teens and early 20s with cleft palate and cleft lip and palate, respectively, who underwent rhinoplasty along with cheiloplasty. In both cases covered in this study, since conventional autologous cartilage was not used, differences from other autologous cartilage in the surgical procedure and precautions were taken care of.

Result

In both cases, the patients were satisfied and there was no significant difference compared to autologous cartilage collection in terms of postoperative complications or aesthetic and functional aspects.

Considerations and Conclusions

The degree of protrusion and rotation of the tip of the nose are major determinants in giving satisfactory functional and aesthetic results in rhinoplasty. To this end, there is still debate over which material to use for reconstructing the triangular structure of the nose in patients who have functional and aesthetic deformities of the nose due to cleft palate or trauma while grafting other materials in the nose. Autologous cartilage transplantation is considered the preferred method for rhinoplasty because of its low risk of infection and extrusion. However, collecting autologous cartilage from other parts, such as ribs, has disadvantages in that it increases the donor morbidity and operation time. Irradiated cadaveric cartilage augmentation, that is, rhinoplasty using cadaveric cartilage, can have similar complications as autologous cartilage transplantation, but can be an effective alternative in that it excludes consideration of donor site complications.

08-05

Analysis of DISE in OSA patients

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Obstructive sleep apnea (OSA) is a sleep respiratory disorder that causes ventilation disorders such as hypopnea and apnea due to obstruction of the upper airway during sleep. The upper airway obstruction seen in OSA patients varies from nasal cavity to oropharynx, tonsils, tongue root, hypopharynx, and larynx, and can occur in any part of the upper airway. Therefore, accurately identifying the occlusion site is the most important process in OSA treatment.

Among the various occlusion site inspection methods, DISE was introduced to overcome the limitation that the existing upper airway occlusion site examination is performed in an awake state. It is a method of observing dynamic changes in the upper airway. In addition, it is possible to select an appropriate treatment method according to the confirmed occlu-

sion site, thereby increasing the effectiveness of surgery and reducing unnecessary surgery.

In this study, DISE was performed in 23 patients, 20 male and 3 female. The occlusion sites were 15 times in the velum, 10 times in the oropharynx, 5 times in the tongue base, and 3 times in the epiglottis. In one patient, several obstruction sites were observed, so the total number of obstruction sites was 33. As for the degree of occlusion, partial obstruction was 14 and complete obstruction was 4, and anteroposterior was 3, lateral was 7, and circumferential was 13.

During the DISE test, the effect of advancing the mandible was 1 for bad, 7 for moderate, and 14 for good. Surgery performed after DISE had maxillomandibular advancement 15, genioglossus advancement 10, UPPP 8, pharyngeal flap revision 1, tongue. Base reduction was 1 and tonsillectomy was 4. Among the 23 cases, 2 cases still complained of discomfort after surgery. AHI, RDI, and O2 saturation values were improved in all but one of the 7 cases where f/u polysomnography was performed.

DISE has the advantage of reducing unnecessary surgery by selecting an appropriate surgical treatment according to the identified occlusal site, and f/u polysomnography is required in the future.

Infection

09-01

Comparison of the Effect of Oral Versus Intravenous Bisphosphonate Administration on Osteoclastogenesis in Advanced-Stage Medication-Related Osteonecrosis of the Jaw Patients

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It is yet unknown whether the intravenous administration route alone can fully account for the exacerbation of medication-related osteonecrosis of the jaw (MRONJ). The purpose of this retrospective study was to identify the potential role of the bisphosphonate (BP) administration route as an independent prognostic factor for non-cancerous, stage III MRONJ patients. Bone samples were retrospectively obtained from two groups of osteoporosis patients who underwent surgery for the treatment of stage III MRONJ. Among the subjects, 10 had a history of only oral BP consumption and 10 of intravenous (IV) BP administration. The samples were assessed for osteoclast morphology and immunohistochemical expression of the receptor activator of NF-kB ligand (RANKL), osteoprotegerin (OPG), and potassium calcium-activated channel subfamily N member 4 (Kcnn4). Although the osteoclasts derived from both groups exhibited no significant differences in the mean quantity, diameter, and nuclearity, significantly attenuated tartrate-resistant acid phosphatase activity was noted among the IV BP-induced MRONJ bones compared to those of the oral BP group. Significant suppression of the RANKL/OPG ratio and Kcnn4 expression among the retrieved bones of IV BP group patients was also noted. Our results indicate the potential of the BP administration route as an independent prognostic factor for advanced-stage MRONJ, regardless of the dosage or indication for which the BP was prescribed.

09-02

Analysis of Patients Visiting Gangnam Severance Hospital Due to Abscess in Fascial Spaces

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After the expansion of the preventive dentistry and the introduction of antibiotic therapy, the incidence, morbidity and mortality of odontogenic infections have been decreasing. However, odontogenic infection still occupies large proportion in dentistry and even within the same country. Frequency of dental infection varies depending on the region, because dental disease such as dental caries, periodontal disease, etc. is related with socio-economic level such as primary health care.

When odontogenic infection in the oral and maxillofacial area infection is not treated promptly and appropriately, the inflammation spreads to the outside of the alveolar bone, an abscess may occur in the fascial space. If such abscess is not treated promptly and appropriately, the inflammation can cause deep neck space infection. It can lead to serious life-threatening conditions due to the occurrence of complications such as upper airway obstruction, mediastinitis, and cavernous thrombosis, so diagnosis and appropriate treatment for infection are important.

Therefore, in this study, the age, sex, time of occurrence, site of occurrence and characteristics of patients who visited the Gangnam Severance hospital Oral and Maxillofacial Surgery Department for the past 10 years (2001-2021) with an abscess in the oral and maxillofacial region were identified, and statistical analysis was conducted. This comparative review is intended to be used as a reference for future diagnosis of dental infection patients, establishment of treatment plans, and prognosis.

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대한악안면성형재건외과학회
종합학술대회 및 정기총회

The 60th Congress of the Korean Association of Maxillofacial Plastic and Reconstructive Surgeons

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류지혜
부산대학교 치의학전문대학원 구강악안면외과학 교실

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Fatema Farhana Shathi
전남대학교 치의학전문대학원 구강악안면외과학 교실

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Cutaneous sarcoidosis with Propionibacterium acnes on lower lip : Case report

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Endoscopic-Assisted Intraoral Open Reduction Internal Fixation of Mandibular Subcondylar Fractures : A case report

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There are two types of reduction for surgical treatment of mandible fractures : non-invasive reduction and open reduction. In open reduction, part or all of the fracture site can be seen and the exact reduction can be confirmed with the naked eye, and direct fixation can be performed at the same time as reduction.
However, open reduction of mandibular subcondyle fractures has many limitations, such as limited access to the fracture site, possible damage to the facial nerve and major blood vessels, and facial scarring.
Recently, there has been a report that an endoscope is used for open reduction of subcondylar fractures of the mandible, which is not easily accessible anatomically, to facilitate visual field acquisition and to attempt accurate reduction and fixation to achieve successful results.
This paper describes a case of a subcondyle fracture where a rigid internal fixation with endoscope was performed and a conventional rigid internal fixation was done in the region of the mandibular parasym physis.

P1-02

Management of PanfacialInjuries and Reconstruction of Upper Lip with Abbe Flap after Traumatic Lip Avulsion: A Case Report

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Introduction

Lip defects due to congenital anomalies, trauma, or neoplasia are assessed functionally and aesthetically for necessity of reconstruction. This case report reviews a management algorithm of lip avulsion and reconstruction methods by introducing upper lip defect of two-thirds total length that do not involve the oral commissure, recovered by the Abbe flap.

Case Report

A 45-year-old male patient had an upper lip avulsion by falling off his bike in drunken state. The full thickness of the right lateral portion of upper lip was avulsed, and no prominent blood vessel was found. Primary reapproximation was attempted, but the tissue was necrotized after two weeks. The removal of the infected tissue was followed with appropriate debridement, and secondary healing was proceeded for six weeks. Cosmetic deformity disrupting lip sealing occurred. The Abbe cross-lip switch flap was designed harvesting lower lip. The nutrition pedicle was kept for two weeks, during which a liquid and soft diet was administered, with the pedicle having been sectioned at the end of that period. Z-plasty with advancement flap was performed two years later for better aesthetic and functional outcomes. As a result, oral competence such as fluid intake, speech intelligibility, and facial expression was improved functionally. Microstomia was resolved and the symmetry of vermilion border was re-estab lished aesthetically.4 oral cancer. A total of 75 patients were included in

Discussion & Conclusion

The full thickness of traumatic lip avulsion should be examined the presence of viable blood vessels. If present, immediate microvascular replantation with debridement would be performed. However, the absence of prominent blood vessels of avulsed tissue in this case led to primary reapproximation, which failed ultimately. According to the literatures, the tissue survival rate after reapproximation might have increased if adjuvant therapy with hyperbaric oxygen therapy and leech therapy was followed.

Reconstruction is the next elective treatment option of lip avulsion. The method of lip reconstruction is selected by defect location and size. The abbe flap was appropriate because it is indicated in lip lateral defects of one-half to two-thirds total length that do not involve the oral commissure. Abbe flap is composed of skin, muscle, and mucosa with a pedicle containing an inferior labial artery. Thus, it preserved the orbicularis oris muscles and the vermilion border to improve speech, facial expression, and oral competence. Since the amount of primary flap shrinkage is difficult to estimate, clinicians should be aware that additional revisions may be necessary. Consequently, the functional and aesthetic re-establishment in this case were successful.

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Comparison of clinical outcomes between surgical and non-surgical treatment on mandibular condyle fractures

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Introduction

Treatment for fractures of the edentulous mandible is a special therapeutic challenge and controversy exists regarding the method of management. The purpose of this study is to compare and discuss the treatment options for the fractures in the edentulous mandible.

Patients and Methods

We conducted a retrospective study of 271 patients with condylar fracture who had treated surgically or non-surgically and observed for more than 3 months at the Department of Oral and Maxillofacial Surgery, Chonnam National University Hospital between February 2010 and December 2020. They were divided into two groups that underwent open reduction and closed reduction, and the mouth opening, temporomandibular joint disorder, and malocclusion were evaluated.

Results

Among 115 patients who underwent surgical treatment, complications occurred as mouth opening less than 40 mm (n=19), temporomandibular joint clicking sound (n=1), temporomandibular joint pain (n=2) and malocclusion (n=3). In non-surgical group (n=103), complications occurred as mouth opening less than 40 mm (n=9), temporomandibular joint clicking sound (n=4), temporomandibular joint pain (n=1) and malocclusion (n=3).

Conclusion

In this study, no clinical differences are observed between surgical and non-surgical treatment in patients with mandibular condylar fractures. It seems that both methods can be selected as an appropriate treatment according to the preference of the operator considering the status of fractures.

P1-04

Mechanics in the production of mandibular fracture: retrospective clinical study of mandible fracture

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As society gradually became a developed country through industrialization and urbanization, it was observed that modern people's opportunities for sports and leisure activities increased. These social changes not only affect an individual's lifestyle, but also cause an increase in injuries.

Due to the protruding anatomical structure of the maxillofacial region, it is prone to injuries and fractures. The mandible is the only movable bone among the maxillofacial bones, and the frequency of fractures is higher than that of other parts of the body.

According to domestic and foreign previous studies on mandibular fractures, the causes of fractures are classified into falls, violence, and traffic accidents and fracture sites are classified into the symphysis, mandible angle, mandibular body, mandibular condyle, and coronoid process.

It is thought that etiological factors such as the cause of the fracture, the location of the fracture, the patient's age, health status, and the presence or absence of smoking and drinking have an influence on the pattern and distribution of fractures.

In this study, the etiological factors such as age, gender, cause of fracture, fracture location, and patient's health status were investigated for patients who visited the Department of Oral and Maxillofacial Surgery at Kyung-hee Medical Center Dental Hospital from 2016 to 2021 based on analysis. Through this, we intend to check the tendency of mandibular fractures and refer to the treatment of patients in the future.

P1-05

Efficacy of mesh titanium plate in reconstruction of large defects of skull : A Case report

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The primary function of the skull is to house and protect the brain along with important components of the central nervous system. The skull is protected by thick cortical bone, but High-velocity impacts can result in frontal sinus fracture and brain injury, lead to vascular injury, hearing loss, vertigo or imbalance, facial nerve injury, and cerebral spinal fluid (CSF) leaks. Temporal bone fractures occur in 1% - 9% of all head injuries, in 5% of all skull fractures but Frontal bone deformities as sequel to trauma may be as high as 70%. Skull fractures including the frontal and temporal bone treatment is still an issue of research in craniofacial surgery and neurosurgery.

The aims of the treatment are to reduce the short- and long-term complications, to protection of the intracranial contents, to maintenance of sinus function and to keep the aesthetic of the face. It is a difficult procedure for all craniofacial surgeons, particularly when concerning the reconstruction of large defects. Various grafts and alloplastic materials have been employed for the repair of cranial defects, but it is difficult to shape the graft to conform to contours of the cranial vault because the harvested grafts are rigid. Not only on aesthetic correction of defects but also reconstruction of large defects, titanium mesh presents characteristics like large versatility and ease of handling, besides avoiding the problems related to the other materials. Titanium mesh possesses higher strength, corrosion resistant, low weight-to-volume ratio, malleable to a reasonable extent which allows easy molding of plate to the anatomic contour of the bone and has low thermal conductivity, and this property leads to even distribution of stress at bone implant interphase.

We report our experience in the reconstruction of acquired frontal and temporal bone defects by titanium mesh implant, and titanium mesh gives satisfactory results.

Orthognathic Surgery

P2-01

Reliability and validity of Japanese version of Orthognathic Quality of Life Questionnaire

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Quality of life (QOL) is now known to be one of the important prognostic factors in many clinical fields. Disease-specific quality of life is an important index as well as health related quality of life (HRQOL) to validate outcome of medical treatments. Orthognathic Quality of Life (OQLQ) is developed to measure QOL of dentofacial deformity, and the aim of the study is to develop Japanese version of OQLQ and examine its reliability and validity.

Materials & Methods
With the permission of the OQLQ developer, the original English version of the OQLQ was translated into Japanese with a forward-backward translation method. Pilot study was carried out on a sample of 22 patients, and validity study was done on a sample of 25 patients. The reliability was verified with Cronbach's coefficient alpha and item-total correlation. Validity study was performed after reliability of the questionnaire was proofed, and performed with test-retest method. HRQOL was also measured to verify the validity the questionnaire with SF-8, and correlation was verified with Spearman correlation coefficient. All of the patients participated in this study were new patients who were diagnosed as dentofacial deformity.

Results
At the pilot study, Correlation coefficient of item-total correlation score were -0.011 to 0.068. Some inquiry of oral function component showed weak correlation, but Cronbach's coefficient alpha of each component was 0.79-0.85, which revealed reliability of the questionnaire. Paired t-test at the validity study showed most of the inquiry no significant difference, which means the repeatability in the same patient and the validity of the questionnaire. Spearman correlation coefficient showed all four components of OQLQ showed moderate to strong correlation with some items of mental scales and MCS of SF-8.

Conclusion
We concluded that the Japanese version OQLQ we developed is a reliable and variable questionnaire.

P2-02

Anatomical Characteristics of the Masseter Muscle in Mandibular Prognathism

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Mandibular prognathism causes functional and esthetic problems. Therefore, many studies have been conducted to understand its etiology. Following our previous study, which revealed that the major characteristic of the mandible with prognathism is the volume/length ratio of the mandibular body and condyle, we analyzed the volume and orientation of the masseter muscle, which inserts into the mandibular body, expecting that the difference in the size of the masseter muscle causes the difference in the mandibular size. This study compared the masseter

muscle of the participants in the prognathic group to those in the normal group on the volume/length ratio and orientation. The masseter muscle ratios (volume/length); the angle between the superficial and deep head of the masseter muscle; and the three planes (the palatal, occlusal, and mandibular) were analyzed. A total of 30 participants constituted the normal group (male: 15, female: 15) and 30 patients, the prognathic group (male: 15, female: 15). The results showed that the volume/length ratio of the masseter of the normal group was greater than that of the prognathic group ($p < 0.05$). In addition, the orientation of both the superficial and deep head of the masseter of the participants in the normal group was more vertical with respect to the mandibular plane than that of the prognathic group ($p < 0.05$). We concluded that the mechanical disadvantage of the masseter muscle of the prognathic group is attributed to mandibular prognathism.

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P2-03

Anatomical Characteristics of the Lateral Pterygoid Muscle in Mandibular Prognathism

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Mandibular prognathism is one of the most concerning subjects in the oral and maxillofacial fields. In our previous studies, we attempted to clarify the etiology of mandibular prognathism. They revealed that one of the major characteristics of mandibular prognathism was the lower volume/length ratio ofthe mandibular condyle and body compared to normal, and the masseter muscle showed parallelism with this. This study aimed to evaluate the relationship between mandibular prognathism and the lateral pterygoid muscle by measuring the orientation and volume/length ratio of the lateral pterygoid muscle. Computed tomography was used to calculate the volume/length ratio of the lateral pterygoid muscle in 60 Korean individuals. Mimics 10.0 and Maya version 2018 were used to reconstruct the surface area and surface planes. The results showed that the prognathic group showed smaller lateral pterygoid volume/length ratios compared to the normal group ($p < 0.05$). In addition, the normal group displayed a larger horizontal angle ($p < 0.05$) to the mandibular and palatal planes than the prognathic group. This demonstrated that the mechanical drawback of the lateral pterygoid in the prognathic group is associated with mandibular prognathism.

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P2-04

Surgical Treatment of Medication -Related Osteonecrosis of the Jaw: A Retrospective Study of MRONJ Patients

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Objectives

Treatment for patients in different stages of MRONJ vary. When treating patients in stage 1 and 2, conservative treatment—taking antibiotics and trying gargle with 0.12% chlorohexidine is recommended. However, many authors have recently supported the positive effect of resection of the affected area, expecting symptoms to relieve quickly. Purpose of this study is to inform the effectiveness of surgical treatment on MRONJ stage 2 and 3 patients.

Materials and Method

We investigated the success rates and treatment outcomes of two stages of MRONJ patients who received surgical treatment from March 2019 to May 2021 at Oral and Maxillofacial Surgery Department, Ewha Women's University Seoul Hospital. Total of 55 patients who underwent surgical treatment were studied and data was collected by analyzing clinical and radiological findings

Results

Patients followed up at 7 to 10 days after surgery, and three and six months after then. Healing state of the bone were evaluated based on panoramic radiograph clinical examination. (Figure 5) When symptoms worsened without healing during follow-up, another surgery was considered. Of the 54 patients observed, 36 stage 2 patients ended treatment within six months of surgery and 4 out of 18 stage 3 patients went through another surgery.

Conclusion :

From the study, we could conclude that treating MRONJ patients with aggressive surgical intervention properly enables reconstruction of settled oral environment.

P2-05

A case of skeletal anterior crossbite corrected by mandibular posterior subapical segmental osteotomy

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Objectives

Mandibular subapical segmental osteotomy can correct vertical, transverse and A-P problems, such as open and deep bites, scissor bite, and mandibular prognathism. This surgery is frequently applied in the anterior and premolar regions but rarely in the molars region, because of the risk to injure the inferior alveolar nerve. In this case report, the patient showed an anterior crossbite but his presurgical facial profile was acceptable. The severe apical periodontitis was seen in the mandibular bilateral first molars. The mandibular bilateral first molars were extracted and the anterior crossbite was corrected by mandibular posterior subapical segmental osteotomy.

Case

A 20-year-old male visited our orthodontic clinic with a chief complaint of anterior crossbite. The mandibular body was quite long (Ar-Pog length: +3.0SD) and FMA was significantly large (39.5°). His lower lip was protruded, but the chin point was not protruded in the profile. The apical periodontitis was seen in the mandibular bilateral first molars, and these teeth had to be extracted. To correct the anterior crossbite, SSRO was planned. However, it was expected that the mandibular setback would cause the excessive retrusion of his chip point. 3D-simulation was performed to determine the type of osteotomy and the optimum osteotomy line. We planned the mandibular posterior subapical segmental osteotomy after the extraction of the mandibular bilateral first molars and utilizing the left third molar. After the orthognathic treatment, favorable occlusion and facial appearance were achieved. Furthermore, the data of Semmes-Weinstein pressure aesthesiometer showed that the mental nerve paralysis was recovered to the preoperative level at 2 weeks after the surge

Discussion and summary
The mandibular posterior subapical segmental osteotomy can be performed safely by 3D-simulation and careful osteotomy. This surgery is effective to correct the skeletal anterior crossbite without retrusion of the whole mandible.

P2-06

Evaluation of masticatory efficiency in patients with jaw deformities using the gummy jelly method

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Introduction
The gummy jelly method is easy to perform and is a reliable method for evaluating masticatory function. The purpose of this study was to evaluate the masticatory function of patients with jaw deformities using the gummy jelly method and to analyse the factors that influence the masticatory function.

Materials and methods
Twenty-one patients who underwent the correction of jaw deformity at our department from January 2018 to April 2019, along with individuals with normal occlusion (controls), were enrolled in the study. The study subjects were divided into two groups: the post-treatment group, patients who had undergone orthognathic surgery for jaw deformity (n=21); and the control group comprising individuals with normal occlusion (n=20). Masticatory efficiency, number and area of occlusal contacts, and maximal mouth opening were measured.

Results
The mean value of masticatory efficiency immediately before surgery was 143 (range 78.5 - 236.5) mg/dL, which was significantly lower than 214.8 (range 137 - 275.5) mg/dL in the control group. The final mean value 12 months after surgery was 167.5 (range 124 - 245.5) mg/dL, with 60% in the control group, although there was not significantly different between the two groups. The number and area of occlusal contacts before surgery were significantly lower in the post-treatment group than those in the control group and decreased 1 month after surgery and then gradually increased. However, the mean values of the post-treatment group were significantly lower than those of the control group at all time points in this study. Furthermore, no correlations were observed between masticatory efficiency (shearing ability) and the number and area of occlu sal contacts.

Conclusion
In conclusion, the masticatory efficiency and occlusal contacts of patients 12 months after surgery were inferior in the post-treatment group than those in the normal occlusion group.

P2-07

Pseudoaneurysm of the facial artery as a late complication of Orthognathic Surgery : A Case Report

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Pseudoaneurysm is a false aneurysm caused by the rupture of artery with extravasation of blood to the adjacent tissues. The hematoma organizes and endothelialized sac is in continuity with the vessel lumen.

Pseudoaneurysms of the extracranial arterial system, particularly the facial artery, are rare. Its occurrence after orthognathic surgery has been reported in some reports, but rare in Korea.
In this article, we describe a case of pseudoaneurysm of facial artery diagnosed 1 month after Le Fort I maxillary osteotomy, bilateral sagittal split ramus osteotomy at the other plastic surgery clinic. A 24-year-old female, from Thailand, was admitted emergancy room with swelling of right face and intraoral pulsatile active bleeding at right SSRO OP site, which being hypovolemic shock state.
We discuss the pathogenesis and clinical presentation of pseudoaneurysm, and diagnostic imaging and treatment options for pseudoaneurysms as review this case.

P2-08

Postoperative Changes in the Pharyngeal Airway space through Computed Tomography Evaluation according to the Orthognathic Surgery Methods in Skeletal Class III Patients : 1 year follow up

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This study aimed at an evaluation of the long term changes up to 1 year in the pharyngeal airway space after BSSRO surgery, according to surgical methods and long-term adaptation through three-dimensional CT analysis.

A total of 11 patients diagnosed with skeletal class III malocclusion from 2014 to 2019 underwent BSSRO setback surgery only (Group1, n=23) or bimaxillary surgery (Group 2, n=14). Cone-beam computed tomography scan were taken before surgery (T0), 2 months after surgery (T1), 6 months after surgery (T2) and 1 year after surgery(T3). The nasopharynx (Nph), oropharynx(Oph), hypopharynx(Hph) volume and antero-posterior(AP) distance were measured through the InVivo Dental Application version 5.

P2-09

Correction of facial asymmetry and occlusal canting with maxillary molar intrusion and BSSRO for patient with mandibular prognathism: A case report

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Introduction
In orthognathic surgery for facial asymmetry accompanying mandibular prognathism, Le Fort I osteotomy and concomitant mandibular surgery is normally performed to correct the problem. Recent advancement of temporary anchorage devices (TADs) enable the variety of orthodontic movements which was previously achieved by a surgical treatment. This article demonstrates that facial asymmetry with occlusal cant can be resolved by unilateral intrusion of maxillary posterior teeth using temporary anchorage devices (TADs). Thus, surgical approach in the upper jaw could be eliminated which majority of p atients fear of morbidity from the Le Fort I osteotomy.

Case report
20-years old female patient with canted occlusal plane, deviation of the mandible and Class III skeletal deformity was referred for improvement of her complaints. Treatment includes intrusion of the right maxillary molars using TADs to correct the transverse occlusal cant. After total 14 months of preoperative orthodontic treatment, dentition in both arches was aligned and leveled, the occlusal plane cant was almost flattened (form 4.2º to 1.3º) with intrusion of the right maxillary molar (2.7 mm) and decompensation of teeth was obtained. In the correction of

mandibular position, mandible was setback on the right and left 11 mm and 4 mm, respectively, as well as shifted 6 mm to the right to correspond midlines. The protruded chin and excess on the right body of mandible expressed more after moving proximal segment was eliminated by shaving. However, there was still deficiency of midface which was obviated with paranasal augmentation procedure. Her occlusal plane and profile were significantly improved by the treatment.

Discussion & Conclusion

Combination of orthodontic treatment using TADs with modification of SSRO can be chosen as an alternative for two-jaw orthognathic surgery required to correct facial asymmetry with canted occlusal plane and mandibular deviation accompanied with dento-skeletal Class III malocclusion. In addition, adjunctive paranasal augmentation is suggested to perform in selected patients with the severe concave profile to improve lateral view of face. Besides, as to patient, she could benefit from less aggressive, cost and healing period of this treatment modality.

P2-10

Correlation between Airway Volume and Polysomnography Data in patients with Obstructive Sleep Apnea using 3-Dimensional Computed Tomography and Polysomnography

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Purpose

To study correlation between airway volume and polysomnography (PSG) data in obstructive sleep apnea (OSA).

Material and method

We studied 44 patients with OSA (mean age 51.25 years, range 32-86, 13 female, 31 male). 3-Dimensional computed tomography (3D-CT) was used to measure airway volume at different level (retropalatal and retroglossal area) and PSG data; respiratory disturbance index (RDI), body mass index (BMI). Data analyses were performed by Pearson's correlation analysis and multiple regression analysis. Pearson correlation is used to show how the tow variables are correlated and the Type of the relationship between tow variables. And regression model is used to determine the Type of relationship and how the strongly effect of independent variable in to dependnt variable.

Results

Patients with OSA were randomly selected by age and BMI(BMI range 17-42). Pearson's correlation coefficient analysis showed that BMI and retropalatal diameters were significant variable in the RDI in patients with OSA (BMI R=0.676, p = 0.000/ Retropalatal diameters R=-0.301, p=0.025). However, multiple regression analysis showed that BMI was the only significant variable in the RDI in patients with OSA (67.6%, p=0.000).

Conclusion

In this study, airway volume in patients with OSA is not a major factor but BMI is key factor to OSA.

P2-11

Comparative Analysis of Post-operative Asymmetry Between Conventional Surgical planning and Virtual Surgical Planning in Orthognathic Surgery of Facial asymmetry patients

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The purpose of this study was to compare the soft tissue asymmetry changes after 2 jaw surgery in facial asymmetric patients between the conventional surgical planning and the virtual surgical planning.

Among patients who underwent 2 jaw surgery with canting correction from one doctor at the Department of Oral and Maxillofacial Surgery at Pusan National University Dental Hospital from January 2015 to September 2018, 15 patients with x-ray (panorama, lateral cephalogram, PA view and Cone-beam CT) were enrolled and analyzed.

For each patient and group, 3D analysis through Invivo-6 (Anatomage Inc, Santa Clara, USA) was performed for preoperative and postoperative period.

A total of 4 pairs of landmarks (the most lateral point in the curved base line of each ala(Ac), soft tissue external gonial angle(Go), paranasal(PN), mouth corner(Mc) were compared and examined by the changes in the Facial Asymmetry Index with respect to the sagittal plane.

P2-12

Postoperative mandibular positional changes in a surgery-first approach: mandibular setback versus advancement surgery

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Purpose

The aim of this study was to predict and compare postoperative changes of mandibular position between mandibular setback surgery and advancement surgery in a surgery-first approach (SFA).

Materials and Methods

The study population included patients who underwent mandibular setback or advancement surgery using bilateral sagittal split ramus osteotomy (BSSO) with or without Le Fort I osteotomy at the Department of Oral and Maxillofacial Surgery of the Chonnam National University Hospital between January 2011 and December 2013. The patients, who had a dentofacial deformity of mandibular prognathism or retrognathism and no preoperative orthodontic treatment, were included. The study groups were divided into mandibular setback surgery and advancement surgery groups. Surgical and postoperative mandibular positional changes were evaluated by lateral cephalograms and CTs taken within 2 months (T0), 1 week after surgery (T1), and after debonding procedure (T2). The postoperative mandibular positional changes were predicted from the increase in vertical dimension (VD) in surgical occlusion, the counterclockwise rotation to the preoperative VD on the lateral cephalograms and CT at T1, and the resultant measurement on postoperative mandibular positional changes was done. And we compared the prediction with actual positional changes of mandible after debonding procedure.

Results

SFA patient with mandibular setback surgery and 6 with advancement surgery were evaluated and significant mandibular changes from T0 to T1 and from T1 to T2 were observed. Negative correlation between horizontal surgical changes and postoperative horizontal changes is showed in both groups. Difference between predicted and actual amount of postoperative mandibular movement is statistically significant in mandibular advancement surgery group. There is no significant difference between postoperative mandibular rotational movement and predicted values from the geometric method.

Conclusion

We predicted and compared postoperative mandibular positional changes between mandibular setback surgery and advancement surgery in SFA patients. In both group, surgical changes and postoperative changes are statistically significant, especially the postoperative mandibular relapse appeared much

larger in the mandibular advancement surgery group than setback surgery group. Therefore, postoperative mandibular relapse is more important consideration for mandibular advancement surgery patient. We have only a few cases to predict the changes in mandibular advancement surgery, so further studies are required.

P2-13

Using personalized 3D printed titanium cutting guide and plate for mandibular body ostectomy to treat severe mandibular prognathism, Case report

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Mandibular body osteotomy can be used in severe mandibular prognathism but is a quite difficult procedure. In this case, 21 years old male has a severe mandibular prognathism as 12mm overjet. Step osteotomy, which is one of the modified methods of body osteotomy, was planned with custting guide and pre-fabricated titanium plate being manufactured by CAD-CAM. The model used for CAD-CAM was reconstructed with CBCT with impression of teeth being overlapped.

1 month follow up was done postoperatively and no complication was observed during this period.

P2-14

The multi-segmental Le fort I osteotomy for effective dentoalveolar arch formation: two case reports

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When performing orthognathic surgery with segmental osteotomy on the dentoalveolar of maxilla or mandible is a procedure that allows us to treat by repositioning all segments in the vertical, transverse and sagittal dimentsions using differential vectors and degrees. This is an effective approach for improving a wide range of dentofacial deformities with occlusal problems that are difficult to solve using the conventional orthognathic surgery.
The indications for a segment osteotomy included dentofacial deformities and malocclusions requiring stable correction within a short overall treatment period.
This study aims to report two cases of applying a segmental osteotomy to recover the dentoalveolar and dentofacial defortmities due to facial asymmetric growth and the results of improving functionally or estethically, regarding the results of overcoming the limitations that can occur with the conventional orthognatic surgery only and increasing the satisfa tions of patients.

P2-15

Soft tissue changes of nose following setback and posterior impaction of the maxilla by Le Fort I osteotomy in relaxed lip position

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The orthognathic surgery improves occlusion, oromaxillofacial function and aesthetic appearance by providing skeletal malocclusion a spatial change of the jaw itself and harmonious jaw relation which orthodontic treatment alone cannot solve in terms of satisfying occlusion or improved facial appearance.
As there are growing interests in esthetics, expectations in orthognathic surgery in terms of improved function and facial appearance are rising higher as well as soft tissue profile changes of the nose after surgery. Therefore, a study on soft tissue profile changes of the nose after maxillary movement was thought to be needed.
Many researches have been done in predicting soft tissue profile changes after skeletal movement and reported on soft tissue profile changes after Le Fort I osteotomy of the Maxilla. However, in Class III malocclusion patients with mandibular hyperplasia, habitual forced lip sealing upon occlusion compresses lips and makes it difficult to accurately measure the nasolabial angle at relaxed lip position.
In this study, among the clinical cases of Le Fort I osteotomy operated by the same surgeon that have taken place from January 2016 to September 2021 at Department of Oral and Maxillofacial surgery, Pusan National University Dental Hospital, the subnasal point and nasolabial angle have been analyzed based on lateral cephalometric radiographs taken at relaxed lip position to remove errors coming from forced lip sealing and the changes of the nasolabial angle after maxillary setback osteotomy have been evaluated.

P2-16

Feasibility and accuracy of Individualized 3D titanium SLM printed tooth-referenced orthognathic osteotomy guide and plate

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Introduction
In order to reduce errors during oral and maxillofacial surgery, a lot of virtual surgery techniques are being performed by combining digital technologies such as CAD/CAM technology in the medical field. Effective oral and maxillofacial surgery can be performed by using a guide with a reference point as a tooth for actual surgery, increasing surgical accuracy and reducing operating time. Therefore, in this study, the effectiveness and precision of tooth-guided surgical guides and plates were evaluated.

Method
In this study, 6 patients who underwent surgery using a guide made with 3D digital technology and 6 patients who underwent surgery using a conventional plate were conducted. Based on the preoperative CT image and intraoral 3D scan, a 3D virtual surgery plan was implemented in the virtual simulation module, and the surgical guide and bone fixation plate were manufactured by extracting the virtual surgery plan as STL. CT images were taken within 2 months after surgery under general anesthesia to evaluate the precision of surgery through overlapping.

Result
In patients using 3D digital technology, surgery time was shortened by using osteotomy guides and plates that are suitable for being tooth-based. The positions of nasal notch, maxillary central incisor, canine, cusp of

first molar, point B, and mental nerve were superimposed before and after surgery to compare distance differences. The digital technology showed higher precision with an average of 0.1911 mm and a standard deviation of 0.897813 mm in patients using digital technology, and an average of 0.48285 mm and a standard deviation of 0.379618 mm in patients who had undergone conventional surgery.

Discussion and conclusion

The individualized tooth referenced guide enables preoperative reproducibility in orthognathic surgery to improve facial asymmetry and facial features, making it possible to perform a remarkably improved stratified operation compared to conventional orthognathic surgery using intermaxillary splint.

P2-17

The retrospective study on preventing nasal malformation after orthognathic surgery with Le Fort I osteotomy

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The aim of this study is to assess the changes of interalar width when performing alar cinch suture in the patients who underwent orthognathic surgery containing Le Fort I osteotomy in Gangneung-Wonju National University Dental Hospital. To achieve this, we compared the interalar width before and after surgery, observed it retrospectively, and assessed that this measurement was increased significantly.

A total of 19 patients underwent the orthognathic surgery containing Le Fort I osteotomy in Gangneung -Wonju National University Dental Hospital, From May, 2019 to October, 2021. In each patient, alar cinch suture (conventional method) was performed through Levator labii superioris alaque nasi muscle. The mean age of patients was 21.8 year, range was 18~29 year. The kinds of maxillary movement were posterior impaction, anterior impaction, canting correction, advance anteriorly, midline correction, rotation and anterior segmental osteotomy. The mean movement was 2.85mm. Each patients were measured the interalar width in preoperatively (T0), postoperatively (T1), Postoperatively 1 week (T2), postoperatively 1 month (T3), and postoperatively 6 month (T4). In the basis of these measurements, we assessed the changes were significant by equality tests.

In this study, the postoperative interalar width (T1), postoperatively 1 week (T2), postoperatively 1 month (T3), and postoperatively 6 month (T4) measurements were not difference significantly comparing with preoperative interalar width (T0), on each statistics (p-value < 0.05), margin of error was 1mm. These means that the alar cinch suture was prevented the post operative nasal change effectively.

The conclusion of this study was like as below.
- When compare the each points with the preoperative point, the interalar widths were not changed signifi cantly ($P<0.05$).

In conclusion, we confirmed that interalar width was not increased significantly when nasal cinch technique was performed in orthognathic surgery containing Le Fort I osteotomy.

P2-18

Comparison of mandibular fixation methods in BSSRO

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Introduction

The proximal segment of the mandible after the sagittal split ramus osteotomy (SSRO) is important factor of surgical relapse. The temporalis and the masseter muscle attached to the proximal segment might induce counterclockwise rotation of the proximal segment. This study is aimed to evaluate movements of the proximal segment and relapse after BSSRO depending on a fixation method.

Patients and Methods

Sixty patients with skeletal class III malocclusion (120 condyles) who underwent orthognathic surgery with BSSRO were divided into three groups depending on the fixation method, which consisted of Group 1(1 screw on proximal segment, 2 screws on distal segment), Group 2(2 screw on proximal segment, 2 screws on distal segment), Group 3(2 screw on proximal segment, 1 screws on distal segment). The angle of condylar heads on the axial, sagittal and coronal views were measured with CBCT using 3-D imaging program at one month before the operation (T0), one day(T1), 6 months (T2), 12 months (T3) post-operation.

Result

All group showed inward rotation of proximal segment on axial view and clockwise rotation on sagittal view right after the surgery. Then 6 months later, the change had been gradually removed for the condylar head to return to its original position by outward and counter-clockwise rotation and it continued until 12 months post-operation.

Discussion and Conclusion

Movements of the proximal segment and relapse after BSSRO are consistent with previous studies. Group 1, fixed to the proximal segment with only one screw, was expected to be most affected by the force of the temporalis and masseter muscles. In result, the mean amounts of post-operation total change(T3-T1) in sagittal view was largest even though there was no statistical difference among three groups(P-value=0.153). We placed the reference points using 3-D imaging program but there are errors in marking process. Alteration of the condyle and ramus after surgery can also decrease the reproducibility. Thus more samples are needed to lead to statistical significant results.

P2-19

Favorable outcomes in virtually planned orthognathic surgery for severe facial asymmetry: case series

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Introduction

3-dimensional (3D) cephalometric analysis, 3D printed surgical splints and customized surgical guides in orthognathic surgery have resulted in more favorable surgical outcomes. Three patients with severe facial asymmetry underwent orthognathic surgery which was performed by single operator (B.M.Seo) using virtual planning system. This case report checks whether the surgery went well as planned and its stability.

Case report

Patient 1 (F/20) have had treatment for hydrocephalus with a shunt in childhood. She has intellectual disability. Severe mandible deviation to the right and anterior open bite were confirmed. Le Fort I osteotomy and bilateral sagittal split ramus osteotomy (BSSRO) were performed according to the 3D virtual simulation data. Patient 2 (M/19) had craniosynostosis and underwent several surgeries including cranioplasty, cleft palate surgery, and bronchesophageal fistula surgery. Severe mandible deviation to the left and obstructive sleep apnea were confirmed. Le Fort I osteotomy, BSSRO, genioplasty and both angle reduction were performed according to the 3D virtual simulation data. Patient 3 (F/20) did not have any special systemic disease or syndrome to cause asymmetry unlike patient 1 or 2. However, she had severe mandibular deviation to the left. As with the previous patients, the surgery including Le Fort I osteotomy and BSSRO was performed according to the 3D virtual planning data. In all three patients, the surgeries went well as planned, and facial asymmetries were significantly improved. Looking at the superimposed postero-anterior (PA) cephalograms,

the results of the operations were stable for at least 18 months without major relapse.

Conclusion
All three patients had severe facial asymmetry with their menton deviated more than 10mm away from the mid-sagittal line. Using 3D virtual surgery planning, prefabricated surgical guide and splint, accurate surgical design was possible. The patients were able to gain their symmetric facial features belonged to normal facial category. Also, it was confirmed that the patients' faces were stable without major relapse.

Tumor & Reconstruction

P3-01

Long buccal nerve Schwannoma: A rare case report

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Schwannoma is an encapsulated benign neurogenic tumor, originated from the myelinating cells of nervous system, and composed entirely of neoplastic Schwann cells which is rarely contain cellular elements such as axons. It is most often associated with the vestibular branch of cranial nerve VIII or the spinal cord, and commonly occurred on the soft tissue of head and neck, upper and lower extremities, and spine. Asia-Pacific population are reported a high incidence of Schwannoma in terms of ethnicity.

The common clinical symptoms of mandibular Schwannomas are swelling which is involves the body of mandible, cortical thinning, and expansion. Schwannoma shows unspecific radiologic features, well-defined monocular solid tumor with thin sclerotic border. Schwannomas demonstrate typical magnetic resonance imaging (MRI) features of T1 iso-to-hypointensity, T2 hyperintensity, and postcontrast enhancement, including eccentric to the nerve fascicles and covering the peripheral nerve. Final diagnosis is confirmed with histopathological or immunohistochemical evaluations. Surgical excision is the standard treatment of choice and the prognosis is favorable because recurrence or malignant transformation is rare.

With regarding the oral and maxillofacial region, the most frequent site of Schwannoma is tongue, followed by the palate, buccal mucosa, gingiva, lips, and vestibule. However, mandibular Schwannomas are rare, but often developed on the posterior along the mandibular branch of trigeminal nerve. Most of them have been reported intra-osseous type, mostly related with the inferior alveolar neurovascular bundle.

In this case report, we present a patient who had Schwannoma originated from the long buccal nerve which was misdiagnosis as salivary gland tumor derived from retromolar pad soft tissue.

P3-02

A squamous cell carcinoma arising in Oral lichen planus and periodic follow-up of precancerous lesion : literature review and case report

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Introduction
Oral lichen planus has a higher rate of malignant transformation than skin lesions, and many cases have been reported continuously since the first malignant transformation was reported in 1910. The malignant conversion rate of oral lichen planus is 1.09-1.1%, and the average duration of the study is 51.4 months. Although many studies are currently being made on the possibility and mechanism of malignant transformation of precancerous lesions, there is no common guideline and it is difficult to establish a diagnosis and treatment method for malignancy in precancerous lesions. can do. Therefore, in this paper, we tried to find out the appropriate time for follow-up through a literature review on the rate of malignant transformation of precancerous lesions, and furthermore, to help with proper management and prevention.

Method
Through Pubmed and Embase, we searched comprehensively English papers on patients who were converted from precancerous lesion to squamous cell carcinoma and underwent surgery, chemotherapy, and chemotherapy. The investigation items were the follow-up period from the precancerous lesion to the transformation of the carcinoma, the histological differentiation of the carcinoma, the age of the patient, the general condition, and the presence or absence of lymph node metastasis, and systematic review was conducted using Revman software. The criteria for the conclusion of the study were to evaluate whether early malignant transformation was detected based on the degree of tissue differentiation of carcinoma, lymph node metastasis, and the presence or absence of metastasis.

Conclusion
Appropriate follow-up period considering the patient's general condition and oral care condition also evaluates the risk for malignant transformation rate and enables early detection, which can affect the prognosis for treatment.

P3-03

A rare case report of schwannoma at upper lip : case report

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Introduction
Schwannoma is a benign tumor originating from Schwann cells. It occurs in about 25% to 48% of all cases in the head and neck, but rarely occurs on the lips. Therefore, in this case, a schwannoma was found in the upper labia and presented.

Case report
This case is a 30-year-old female who visited the hospital with a nodule in the philtrum region since May 2020. On clinical examination, a circular raised nodular lesion was observed in the philtrum region.

P3-04

Efficacy of respiratory management with elective tracheostomy in patients with advanced oral cancer

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Oral cancer surgery carres a high risk of upper airway obstruction. The use of elective tracheostomy in major head and neck surgery is well established, although the actual use of elective tracheostomy is variable. Resection of the mandible, tongue, and floor of mouth cares a particularly high risk since surgery in these areas may cause bleeding that may lead to upper airway obstruction as well as upper airway edema in pharynx and the posterior tongue. The purpose of the present study was to evaluate the use of tracheostomy in oncological patients undergoing oral cancer surgery at Pusan national university dental hospital.

The subjects of this study were 20 oral cancer patients who underwent oral and maxillofacial surgery from 2010 to 2021 at Pusan National University. Age, sex, underlying disease, chest x-ray findings, location and size of primary lesion, type of resection, type of flap, type of cervical ablation, postoperative complications, etc., focusing on cases for which surgical resection and reconstruction are indications was investigated and analyzed with the Camerom M. scoring system.

In this study, the average score of 10 patients who underwent tracheectomy was 10.2, and the average score of patients who did not underwent tracheostomy was 7.5. According to the Camerom M. scoring system, patients with a score of 8 or higher are classified as high-risk patients, and those with a score of less than 8 are classified as low-risk patients. Also, the patient who did not plan tracheostomy before surgery, but showed respiratory depression due to postoperative edema, had a score of 7, which was on the borderline between high-risk and low-risk groups. A proper tracheostomy indication is needed, to facilitate the recovery and the postoperative management of the patients. the major advantages of performing an elective tracheotomy in our opinion is to facilitate urgent treatment whether it is an urgent lifesaving treatment or an urgent return to the operating room for flap salvage. Another advantage for having a tracheostomy is the prevention of pneumonia and the reduction of risk for iatrogenic flap disruption during reintubation.

P3-05

Bone Healing Pattern after Surgical Treatment of Giant Cyst Involving Maxillary Sinus

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Purpose

The purpose of this study was to investigate the postoperative healing and bone regeneration patterns of giant cysts involving the maxillary sinus.

Materials and Method

From June 2013 to August 2021, patients who visited the Department of Oral and Maxillofacial Surgery, Gachon University Gil Hospital was investigated. Among patients diagnosed with a cyst invovling the maxillary sinus and who underwent surgery, We included patients with more than 6 months CT f/u. Patients who underwent maxillofacial surgery or bone graft, patients in the growth phase, and patients with relapse were excluded. Postoperative CT and postoperative CT were superimposed. The healing pattern of bone defect, bone expansion, and mucosal thickening before and after surgery was evaluated. In the coronal section of the maxillary sinus, a total of three sagittal planes were formed at intervals of 1 mm from the center of bone regeneration. The amount of vertical bone regeneration was measured at the center and both ends of each sagittal plane.

Result

7 patients were selected for the study. There were 4 males and 3 females, and the average age was 32.1 years. There were 3 cases of a dentigerous cyst, 2 cases of a odontogenic keratocyst(OKC), and 1 case of a radicular cyst, and 1 case of a postoperative maxillary cyst(POMC). The mean follow-up period was 16.7 months.

There were 5 cases of bone defects in the sinus wall, complete bone regeneration was observed in 3 patients, and incomplete recovery was observed in 2 patients. Bone expansion in the maxillary sinus was observed in 2 cases, and the expanded bone was gradually resorbed after surgical treatment. In the case of thickening of the maxillary sinus mucosa, complete recovery was confirmed in 3 patients who were followed up for an average of 27 months or longer.

The average vertical bone regeneration of the maxillary sinus floor was 7.15 mm. The average monthly one regeneration was 0.43 mm/M.

Conclusion

Giant cyst involving the maxillary sinus may lead to the bone defect of the maxillary sinus wall and bone expansion in the maxillary sinus, and mucosal thickening of maxillary sinus. This can be expected to complete recovery, and a certain amount of bone regenerates in the maxillary sinus floor.

P3-06

Multiple odontogenic keratocyst of maxilla involving the left infero-lateral orbital rim

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Odontogenic keratocysts are locally aggressive, cystic jaw lesion with a putative high growth potential and a propensity for recurrence. Clinically, it accounts for 8-11% of odontogenic cysts and occurs in various age groups, but peak in the 2nd and 3rd decades and is more common in males. Since a considerable number of odontogenic keratocysts are asymptomatic, they are often identified by chance radiographic examination. Conservative methods such as enucleation, marsupialization, decompression and adjuvant methods such as peripheral ostectomy, cryotherapy using liquid nitrogen, Carnoy's solution can be additionally used, and extensive resection is sometimes performed.

In the treatment of odontogenic keratocysts, it is still unclear which method can minimize the side effects and lower the recurrence rate. Depending on the treatment, the recurrence rate was lower when the enucleation was performed with adjuvant methods than the enucleation was performed alone. Extensive resection had the lowest recurrence rate. Recently, in the case of enucleation alone, it is considered insufficient from the viewpoint of the recurrence rate, and it is recommended to use an additional method together. Although aggressive treatment methods such as extensive resection have the lowest recurrence rate, they can be the most invasive for patients. The treatment method should be decided by considering this comprehen sively.

A 50-year-old woman visited the Department of Oral and Maxillofacial Surgery, Dankook University Dental

Hospital, complaining of swelling in the left zygomatic region. On clinical examination, swelling was observed around the left eye. On radiological examination, a multilocular radiolucent lesion was observed in the left maxilla, which had also invaded the right maxilla and left zygomatic bone. It also extended to the left infero-lateral orbital rim. The lesion was removed under general anesthesia, and histological examination revealed a diagnosis of odontogenic keratocyst. During the postoperatvive follow-up, an incision and drainage were performed under local anesthesia due to swelling and pain around the left eye at 2 months, and antibiotics were administered. After that, the symptoms decreased. Until now, the teeth in the area related to the lesion were maintained without extraction, and although removal was attempted in a conservative way, the patient is undergoing regular follow-up without any discomfort.

P3-07

Considerations for vascular anastomosis using coupler devices

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Introduction

Recently, microvascular anastomosis using a mechanical anastomotic coupler device (MACD) called a coupler device has been introduced. The purpose of this study is to review the clinical experience of this department.

Case Report

We reviewed 12 cases of microvascular anastomosis using MACD in this department from April 2020 to October 2021. The patients were M/F (n=7/5), Age (63.9±7). The recipient vessel was usually a venous branch of the internal jugular vein or external jugular vein. Three types of donor flaps were used: radial forearm free flaps (n=7), fibula free flaps(n=4), and anterior lateral thigh flap (n=1). The mainly used coupler size was between 1.5 and 3mm, and an average of two pieces were used per surgery, and the average coupler installation time was about 2-5 minutes. Complication were observed in a total of two cases. In one case, vascular kinking occurred, and after removal of the existing coupler device, a new coupler device was re-installed. In another case, there was no problem in the anastomosis site, but swelling occurred in the donor flap, and the 2mm coupler device was removed and then reanastomized with 9-0 nylon. In the remaining 10 cases, no known side effects such as venous congestion or vewwel wall rupture were observed after surgery.

Discussion & Conclusion

The case of swelling of the donor flap after coupler anastomosis appears to be caused by varicose veins in the fibular free flap. Areas with or suspected of having peripheral vascular disease are one of the contraindications of coupler anastomosis, but they have the disadvantage of being difficult to confirm before surgery. The coupler device is a good tool to reduce vascular ischemia and surgery time by enabling faster anastomosis than hand-sewn technique. Since the size is adjusted to the smaller diameter of the two blood vessel diameters of the recipient blood vessel and the donor blood vessel, the larger of the two blood vessels may cause tissue folding or blood vessel kinks. Therefore, if possible, selecting blood vessels with similar diameters or preparing them to be similar in both the recipient and donor sites will result in more successful results.

P3-08

Treatment of Odontogenic myxoma using costochondral graft : A case report

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Odontogenic myxoma is a rare intraosseous neoplasm arising from embryonic connective tissue associated with tooth formation, which is benign but locally aggressive. It rarely appears in any bone other than the jaws. Clinically, it is a slow-growing, expansile, painless, non-metastasizing, central tumor of jaws, chiefly the mandible.

A 70-year-old female patient was admitted to the Oral and Maxillofacial Surgery Department via the Department of Oral Medicine with the address of swelling of the right preauricular region. From 1 year ago, a burning and tingling sensation continued in the area from the right preauricular region to the right mandible, and there was a feeling of suffocation during opening and mastication.

The length of the rib bone to be harvested during costochondral graft was predicted by making a 3D model using CT. After tumor resection on the right temporomandibular joint, costochondral graft was performed. After harvesting rib bone, temporomandibular joint reconstruction was performed.

After discharge, regular follow-up was performed, and the occlusion was maintained in a stable state, and there was no midline deviation.

P3-09

Mammary analogue secretory carcinoma of the palate: a case report

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Mammary analogue secretory carcinoma (MASC) is a rare salivary gland neoplasm that has similar histological and molecular features with secretory carcinoma of the breast and was first reported by Sk□lov□ et al. in 2010. MASC and breast secretory carcinoma have a fusion of the ETV6 gene on chromosome 12 and the NTRK3 gene on chromosome 15 with translocation t(12;15)(p13;q25). Fusion of the genes encoding a chimeric tyrosine kinase has potential transformation activity and plays a role in carcinogenesis. In this report, we present a cases of MASC of palate in young male.

A 28-year-old male patient was referred to the department of oral and maxillofacial surgery at our hospital with mass on hard palate more than 10 years. The size of painless mass has increased during past 6 months, so he wanted to evaluate and remove the mass. He didn't complain of any other symptom. He underwent bilateral endoscopic sinus surgery(ESS) and turbinoplasty 12 years ago and has no other past medical history. He smoked for 9 years. On examination, we noted that a firm, erythematous, elevated mass with a central ulcer located at the left hard palate. The lesion was about 2.5cm x 2.0cm in size. There was no palpable lymphadenopathy on head and neck examination. Computed tomography (CT) showed a mass on left palate with no definite bony destruction, so we made a provisional diagnosis with pleomorphic adenoma. The operation was performed under general anesthesia with wide resection. Hemostasis was achieved with bipolar electrocautery. The surgical site induced secondary healing. A biopsy was performed and sent to the pathology department. On hematoxylin and eosin stain, the tumor has lobulated architecture and cells form microcystic, macrocystic, tubular spaces containing pale eosinophilic secretion. On immunohistochemical stain, the tumor cells are positive for S-100 protein and negative for p63 and vimentin. Before surgery, it was diagnosed as a benign tumor and neck dissection was not performed. Postoperative PET-CT was taken and no lymph node metastasis was observed, so no addiational treatment was performed. At 8 months after surgery, follow-up CT was taken. No definite abnormal enhancing lesions were found on the operation site. At 1 years after surgery, wound was healed and no evidence of recurrence.

MASC is a recently introduced malignancy of the salivary gland. Statistically, MASC accounts for

approximately 4% of salivary gland malignancies. Of the reported cases, approximately 70% occur in the parotid gland, 7% occur in the submandibular gland, and others occur in the minor salivary glands, and very rarely in the palate. Treatments for MASC include wide resection and if metastasis to lymph nodes is suspected, neck dissection is performed. MASC is low-grade malignant salivary gland tumor and should be differentially diagnosed with acinic cell carcinoma and low-grade mucoepidermoid carcinoma. Immunohistochemically, Acinic cell carcinoma are negative for S100 and mammaglobin, which are positive in MASC. And low-grade mucoepidermoid carcinoma is positive for p63 and negative for S100, and vice versa in MASC.

P3-10

Study on Surgical Treatment for Locally Advanced Oral Cancer

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Introduction

Locally advanced oral cancer refers to a stage 3 or 4. This study was conducted to investigate the outcome of surgical treatment in patients with locally advanced oral cancer.

Methods

From January 2009 to December 2018, stage 3 and 4 patients were classified among the patients who underwent neck dissection and surgical treatment for oral cancer, and medical records and radiographs were conducted. Investigating items include sex, age, TNM classification, neoadjuvent therapy, postoperative therapy, recurrence and metastasis.

Results

1. There were a total of 77 patients with stage 3 and 4 oral cancer. A total of 75 patients were included inthe study, excluding 2 patients who underwent neoadjuvant therapy.

2. The mean follow-up period was about 43.9 months. Recurrence occurred in 19 patients, and the average duration of recurrence was 20.7 months.

3. Recurrence occurred in 2/18 (11%) of stage 3 patients, and recurrence occurred in 17/57 (30%) of stage 4 patients.

Conclusion

Surgical treatment for locally advanced oral cancer is the primary treatment option, except for unresectable oral cancer. It was confirmed that the tendency of recurrence after surgery increased as the stage increased.

P3-11

Angiolymphoid Hyperplasia with Eosinophilia of Lip : Case report

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Introduction

Angiolymphoid hyperplasia with eosinophilia(ALHE) is a vascular disease of uncertain etiology, characterized by pink to reddish-brown dome-shaped papules or nodules on the head and neck, especially on the ears and scalp. As an inflammatory disease, histopathologically, it is characterized by proliferation of vascular endothelial cells and infiltration of inflammatory cells such as lymphocytes and plasma cells. It is generally considered a benign condition, but surgical resection is recommended as a treatment in consideration of recurrence. In this case report, we would like to discuss the histopathological form and treatment methods of this lesion through angiolymphoid hyperplasia with eosinophilia(ALHE) on the lip in a 46-year-old male.

Case report

A 46-year-old male patient without specific underlying disease visited our hospital with a nodule on the right upper lip. According to the history taking, it occurred after the biting of lip 1year ago, and the size of the nodule gradually increased over time. Accordingly, a biopsy was planned under the provisional diagnosis of traumatic fibroma. Visually, a painless nodule of about 1.5cm in size was observed on the inner side of the right upper lip and there was a feeling of induration upon palpation, but the surface of the lesion was smooth. An excisional biopsy of the right upper labial region was performed under local anesthesia. As a result of histological examination, the lesion was diagnosed as angiolymphoid hyper plasia with eosinophilia(ALHE).
Healing after surgery was normal, and no recurrence was observed during periodic follow-up.

Conclusion

ALHE is relatively common in young adults and women, and occurs in the skin or subcutaneously. It most commonly occurs in the head and neck, but the extremities, hands, penis, and oral mucosa are also rarely affected. ALHE should be differentiated from Kimura's disease, angiosarcoma, and epithelioid hemangioendothelioma, and may be similar to Kaposi's sarcoma and granuloma pyogenic nodules. For ALHE, surgical resection should be considered as the preferred treatment method, and it is known that recurrence and metastasis rarely occur when completely resected.

P3-12

Fracture of iliac bone after autogenous graft harvesting: Report of 2 cases

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Among bone graft materials, auto-bone graft is considered the most stable method for reconstruction of oral and maxillofacial area and is still a standard treatment. There are donor sites for harvesting bone, which are skulls, ribs, mandible, tibia, and iliac bone. Among them auto-iliac bone is the areas where the largest amount of bones can be harvested in the human body and are the most commonly used bone in the case of large defects.

The iliac bone is rich in both sponge and cortical bones, easy to harvest, and has the advantage of being able to harvest by two team approach. However, the drawbacks include scar, Post-surgery pain, gait delay, risk of femoral nerve damage, general anesthesia, and hospitalization for several days, bone absorption occurs a lot after grafting because the origin of the havesting bone is different from that of the maxillofacial bone. In addition, complications after iliac bone graft include additional surgical incisions, bleeding due to additional surgery, hematoma, fracture, and instability, possibility of transfusion, extended surgical and anesthesia time, chronic pain or sensory loss due to nerve damage. In this case, we would like to introduce a treatment method in the event of an iliac fracture, known as rare complications.

This report covers two cases of iliac bone graft, which are performed to reconstruct maxilla after melanoma removal of the right maxillary palatal area and Mandibular posterior area after surgery of ameloblastoma. When iliac fracture occurs while walking after iliac bone graft, in the cases of the reconstruction of the maxilla, conservative treatment was performed and in the cases of reconstruction of the mandible bone, surgical treatment was performed for iliac fractures.

In this study, through the cases of bone graft for maxilla and mandible for oral and maxillofacial reconstruction, I report this with a review of the literature because iliac fracture is rare complication in donor site of auto-iliac bone graft.

P3-13

Basal cell adenoma of the parotid gland : Case report

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Introduction

The basal adenoma is a rare disease with a frequency of 1-3% of salivary adenoma, which is prevalent in women in their 50s and is a benign epithelial tumor in which basal cells multiply without substrate components. The most prevalent area is the parotid gland, which rarely occurs in the upper lip, oral mucosa, lower lip, palate, and nasal septum. In this case report, we would like to discuss the histopathological form and treatment method of this lesion through basal cell adenoma that occurred in the parotid gland of a 66-year-old male.

Case report

A 66-year-old male patient with no specific medical history visited a hospital with millary neoplasm near left temporomandibular joint. Enhance Neck CT was taken and the neoplasm with a diameter of 6mm was identified. Afterwards, as a result of biopsy performed during benign tumor resection surgery in the parotid gland, the lesion was finally diagnosed as basal cell adenoma. Post-operative healing was performed normally, and no recurrence was observed during periodic follow-up.

Conclusion

Clinically, basal cell adenoma does not exceed 3 cm in diameter and takes the form of a fluid tumor wrapped in a well-bound capsule. It slowly grows for months or years without tenderness or pain, so the patient may not recognize it, and most of them are located in the parotid gland superficial lobe. Basal cell adenoma requires differential diagnosis from pleomorphic adenoma, adenocarcinoma, basal cell adenocarcinoma, basal epithelial cell carcinoma, etc. Treatment can be performed with partial lobectomy, total lobectomy, partial lobectomy and pericardial resection, total lobectomy, and selective lobectomy. Malignant changes or metastasis are very rare, so the prognosis is usually good, but the recurrence rate reaches 25% in the case of the membrane type.
In this case, local excision was performed, and no complications were observed and normal healing forms were shown, but long-term follow-up observation is needed later for recurrence.
Since it is difficult to clearly differentiate basal cell adenoma by CT and . Fine needle aspiration biopsy do not provide accurate diagnosis, it is necessary to consider slowly occurring parotid gland benign tumors when diagnosing them.

P3-14

A retrospective comparative analysis of prognosis between patients with radial forearm free flap and patients with buccal fat pad pedicle flap applied to the reconstruction of the oral defective part after oral cancer resection

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Introduction

Various flaps are used for reconstruction of oral defects that occur after oral cancer resection. Soft tissue reconstruction in the maxillofacial region can be classified into reconstruction methods such as Primary closure, Free graft, Local flap, Distant flap, and free flap by microvascular anastomosis. The purpose of this study is to examine the success rate and patient survival rate of the reconstruction flap according to the type of flap and various variables through the case of a patient who underwent reconstruction surgery for the defect site after resection of oral cancer.

Materials and methods

From 2006 to the present, among the patients who underwent oral cancer surgery at our hospital, 10 patients with radial forearm free flap and 5 patients with Buccal fat pad pedicle flap were retrospectively observed to reconstruct the oral cavity. , the primary site of the lesion, the stage, the size of the defect, the success rate of the flap at the reconstruction site depending on whether postoperative radiotherapy or simultaneous chemoradiation therapy, and the patient survival rate were analyzed retrospectively through patient cases.

Results

In a total of 15 patients, the average age of the patients was 62.3 years from 30 to 81 years, and there were differences in the selection of the type of flap depending on the primary site of the lesion, the stage of the TNM, and the size of the defect. In terms of overall operation time and flap success rate, the average success rate of the radial forearm free flap was 11 hours and 37 minutes, the success rate of the flap was 9 out of 10 (90/%), and the average of 3 hours and 30 minutes for the Buccal fat pad pedicle flap was 5 cases. Among them, 5 cases (100%) were shown, and the patient's survival rate was 100% in both groups. There was no significant difference between the two groups with or without postoperative radiotherapy and concurrent chemoradiation.

Discussion & Conclusion

The radial forearm free flap is the most widely used flap for reconstructing soft tissue defects in the oral cavity. It is used to reconstruct all soft tissues in the oral cavity. The skin is thin, hairless, the flap is flexible, it is easy to lift, has a long vasculoscope, there is little variation in blood vessels, and there are many perforated blood vessels connected to the skin. There are some bad downsides. In the case of the buccal fat pad pedicle flap, the operation is very simple, but there is a limitation in size and the area that can be used is limited to that of the maxilla and the buccal mucosa. Through various criteria, it was possible to check the success rate of the flap applied to the reconstruction of the defect and the survival rate of the patient.

P3-15

Intraoral lining with soleus muscle without a skin paddle during free fibula flap reconstruction : A case report

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Introduction

Free fibula flap is currently in the spotlight as one of the standard treatments for mandibular bone reconstruction by oro-maxillofacial surgeons. However conventional free fibula flap has variables such as poor oral mucosa formation, limited flap tissue, and deformation of perforated blood vessels. In particular, if perforated blood vessels distributed in skin tissue cannot be found, the free fibula flap should be reconstructed with muscles without skin paddle. The purpose of this study is to review reconstruction case with free fibula flap including soleus muscle instead of skin paddle and suggest that the flap with soleus muscle can be used with perforator vessel variation in reconstruction of mandibular defect.

Case

The 71-year-old male patient with an ulcerative lesion on the left side of the mandible was diagnosed with squamous cell carcinoma as a result of tissue slide reading. Under general anesthesia, segmental mandibulectomy, selective neck node dissection, and mandible reconstruction with free fibula flap were performed. In operation, doppler device was used to find perforated blood vesseles to the skin tissue, but they were not found. So instead, mandible reconstruction was performed using septomuscular branches of peroneal artery and soleus muscle.

Discussion
Summarizing the defects of the conventional free fibula flap is the insufficient volume of the flap tissue, variation in perforated vascular distribution, and poor oral mucosal epithelialization. In order to solve these problems, it can be used to rebuild the mandibular defect using free fibula flap with soleus muscle. Free fibula flap, including soleus muscle, can provide greater tissue volume, better mucosa formation and can be used in larger carcinomas and emergencies in preparation for variations in perforated vascular distribution.

P3-16

Risk Factors of Avulsion Fracture after Iliac Crestal Flap for Jaw Reconstruction

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Introduction
The iliac crestal flap is often used in maxillofacial reconstruction surgery because it has a similar bone contour to jaw bone. However, complications occur frequently in this flap, and the avulsion fracture of the anterior superior iliac spine (ASIS) occurs only in rare cases. The purpose of this study is to evaluate the risk factors affecting fractures that may occur after iliac crestal flap harvesting.

Patients and Method
In this study, we performed preoperative and postoperative CT scans of the iliac bones of 22 patients who underwent iliac crestal flaps between February 2013 and July 2019. Three of these patients had fractures within 1 month after surgery. After converting DICOM files to a three-dimensional model using Mimics software, some reference points were defined for analysis. The patients were classified into fracture and non-fracture groups. The patients' age and sex, harvested bone, residual bone and absolute bed rest (ABR) periods were investigated.

Results
The patients' age and sex were not associated with fracture occurrence. There was a statistically significant difference in the width of the anterior - superior part of residual bone. The fracture group showed statistically significantly shorter ABR periods. In the case of the iliac crestal flap, it was found that the factors that can affect the occurrence of fractures are the width of the residual bone and the ABR period.

Conclusion
Iliac avulsion fracture can be prevented when the remaining bone is sufficient and the ABR period is prolonged sufficiently.

P3-17

Analysis of treatment outcomes in tongue cancer patients with curative surgery: 20 years experiences of National Cancer Center, Korea

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Introduction
The aim of this study was to analyse the clinical outcomes of patients with squamous cell carcinoma (SCC) of tongue who underwent curative surgery and to evaluate the factors affecting overall survival rate (OS).

Method and materials
A retrospective cohort study was designed including all patients with primary SCC of tongue in the Department of Oral Oncology Clinic, National Cancer Center during the years 2001 - 2020. Relevant clinicopathological data were reviewed to determine factors with an impact on OS.

Results
191 patients with primary SCC of tongue were included. OS in this cohort was 68.5% with a mean follow-up time of 51.5 months (range 0-240 months). Cervical metastases were found in 75 patients (39.27% 75/191). Significant negative impact of pathological TNM stage and cervical nodal status on patient survival was found. Other factors include higher differentiation, presence of extranodal extension (ENE), adjuvant treatment, marginal status and disease recurrence. 56 patients developed disease recurrence during follow-up (29.32%, 56/191) and most patients exhibited local disease recurrence with or without regional or distant metas tases (49.09%, 27/55).

Conclusion
This study evaluated the previously confirmed prognostic factors in tongue cancer patients who received curative surgery. Our findings mostly corresponded with the previous studies. Factors affecting OS should be taken into consideration after curative surgery and patients with those factors should be managed with close follow-up to detect early signs of recurrence and improve survival rate.

P3-18

Implant placement with Iliac bone graft using 3D Printed Biodegradable mesh after marginal mandibular reconstruction in oral cancer patient: a Case report

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Introduction
The purpose of this study was to introduce a case in which reconstruction of the donor site using patient-specific implant was applied after reconstruction of a mandibular defect after segmental mandibulectomy due to the primary squamous cell carcinoma in mandible.

Method and Materials
A 52-year-old male who was diagnosed as SCC was planned segmental mandibulectomy, selective neck dissection (I-V) were planned the management of the SCC, and DCIA-based iliac crest flap was planned to reconstruct the resected mandibular site.
For computer assisted surgery, CT data of the patient's facial bone and ilium were collected. Segmental mandibulectomy was performed in the usual way.

Results
In this report, we proposed reconstruction of donor site with 3D printed titanium implant. This method can alleviate donor complications that may occur in conventional flap reconstruction and can shorten the recovery period. In particular, it is possible to prevent a variety of disorders such as gait disturbance, loss of hip contour that the patient may feel due to bone defect of the donor site, limitation of mobility, and fracture that may occur at the site weakened by osseousdefect.

Discussion
Recently, direct reconstruction of maxillofacial defect has been performed using patient specific 3d printing implant using medical data and 3d printing technique.

This method may be useful for reconstruction of jaw bone, but reconstruction of hard and soft tissues requires additional surgery because of soft tissue coverage

P3-19

Predictive modelling of level IIb lymph node metastasis in oral squamous cell carcinoma

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The aim of the present study was to examine the conditions, characteristics, and risk factors of level IIb lymph node metastases in oral squamous cell carcinoma and to formulate surgical criteria for level IIb lymph node dissection. We analyzed clinical and pathological records for 541 oral squamous carcinoma patients in relation to level IIb metastasis. Univariate and multivariate analyses were performed to detect risk factors for level IIb lymph node metastasis; a predictive model was built based on multivariate analysis and tested in a validation group. Univariate and multivariate analyses using the training group indicated that level IIa metastasis and Lymphovascular permeation (LVP) were two independent risk factors for level IIb lymph node metastasis. This model was built and tested in a validation group, the area under the curve being 0.697 ($P < .0.001$). The model's sensitivity was 66.7% and specificity was 77.4%. Nomogram incorporating validated variables was developed for level IIb metastasis prediction. Expected survival probabilites were analysed to specify significance of model's variable on patients' overall survival and recurrence. Level IIb dissection should be performed in patients with level IIa metastasis and LVP. However, thorough consideration of the oncologic safety of omitting level IIb dissection is compulsory.

P3-20

A rare case of metastatic renal cell carcinoma in the mandible

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Renal cell carcinoma (RCC) accounts for approximately 3% of adult malignancies and 90–95% of neoplasms arising from the kidney. Characteristically renal cell carcinoma is known for lack of early warning signs, and resistance to adjuvant therapies such as radiation and chemotherapy. While RCC often metastasize to lungs, liver, bones, lymph nodes, it rarely metastasizes to the head and neck region. When RCC metastasize to the head and neck region, it is spread to the thyroid, parotid, tonsil, tongue, sinonasal region, mandible and skin.

The following report presents a rare case of uncommon type of renal cell carcinoma, which metastatic lesion on mandible was first discovered before the primary lesion on kidney was found. The patient was referred from Department of Oral medicine to Department of Neurology for hypoesthesia of left chin and lower lips without clear cause. Two months later, from PNS CT, enlarged bulging osteolytic lesion on left mandible was found, and the patient was referred back to the Department of Oral and Maxillofacial surgery. The patient received extraction of #38, and inflammatory tissue was sent for biopsy. Histologically, it did not match with any known histological patterns of tumors from oral region. Immunohistochemically, it showed negative toward CK7/CK20, ruling out most of epithelial carcinomas originating from salivary gland, lung or colon. It was marked positive toward Vimentin, indicating its mesenchymal origin. PAX-8 positive result suggests that it might have originated from organs such as kidney. From PET CT, primary lesion in the left kidney was confirmed.

Although The patient showed no symptom or sign pertaining to urinary tract, it was confirmed as renal cell carcinoma of unclassified type from radical nephrectomy. The patient had successfully undergone partial mandibulectomy on the left mandible, selective neck dissection on the level Ib, IIa, IIb lymph nodes, and the reconstruction was done with left free fibular flap.

Although metastasis to the head and neck region is not common for primary tumors, in most cases where it is discovered, the metastatic lesion is so large that morbidity is high when resected or metastasis to other organs is often found, leading to palliative therapy. Therefore, Oral and Maxillofacial surgeons should always consider the possibility of metastasis of malignant lesions including renal cell carcinoma for rapid diagnosis and treatment.

P3-21

Solitary Neurofibroma: A Rare Occurrence on the Hard Palate

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Neurofibromas are benign tumors arising from peripheral nerve sheaths that rarely affect the oral cavity. They are classified as solitary when not associated with any syndrome or multiple when associated with autosomal dominant neurofibromatosis syndrome or type III multiple neoplastic syndromes. When not associated with syndromes, they rarely occur in the oral cavity, and then most commonly in the tongue. The diagnosis is complicated because of the similarities with other benign neoplasm. Therefore, the histology representation using the appropriate immunohistochemical analysis is fundamental for the final diagnosis.

Method

We present a case of 53 years old male presented to our department with an intraoral swilling located centrally on the anterior portion of the hard palate, with fluctuation tendency and tenderness to palpation in addition to grade four mobility for both centrals and right lateral incisor. patient was diagnosed 3 years ago on a different hospital as case of cystic lesion relying on the CT radiograph only. an incisional biopsy was done to confirm the histological nature of the neoplasm The immunohistochemical test which resulted positive for S-100 and negative for CD34, SMA, b-catenin, and CK (AE1/3) allowed the diagnosis of a benign lesion arising from a neural origin. Surgical excision of the entire mass was done including the affected teeth which was attached to the mass. The gross specimen measured about 4.5 x 3 x 2.5 cm, the tumor mass appeared to be reasonably circumscribed with soft and hard tissue involvement. final diagnosis of neurofibroma was made relying on both histopathological and immunohisto chemical analysis.

Conclusions

Solitary neurofibromas originating in the hard palate are difficult to differentiate from other neoplastic lesions based on clinical findings alone. Therefore, it is important to perform immunostaining of the biopsied specimens The treatment is local surgical excision, and recurrence is rare. Any patient with a lesion that is diagnosed as a neurofibroma should be evaluated clinically for the possibility of neurofibromatosis. Malignant transformation is very rare especially compared neurofibromatosis. Solitary neurofibroma of the oral cavity is rare for that reason we report this case to contribute for additional information.

P3-22

Locoregional recurrent Head and Neck cancer after radiotherapy: Case report

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The radical excision of the primary site and selective neck dissection of the area according to the primary site with postoperative systemic therapy was considered as the first treatment option for oral squamous cell carcionma (OSCC). However, in about 40% of patients locoregional recurrence or distant metastasis occurs within 3 years, and in the case of locoregional recurrence, surgical treatment is considered again as the first treatment. But most patients have a 5-year survival rate ranging from 20% to 60% with the failure of the ultimate treatment.

This patient underwent radical excision of primary tumor and elective neck dissection in August 2017 for OSCC in retromolar trigone. After pathological review, there was no metastatic lymph node and residual tumor on resection margins, so the patient had a disease free survival for 1 year and 3 months without any adjuvant therapies. However, metastasis on lymph node was diagnosed at 1year and 6months after surgery, and radiation therapy was performed for 5months after radiation therapy and 1year and 4months after chemotherapy.

In this case, complete resection of an early stage tumor with no metastatic lymph node was reported at first surgery, but later repeated locoregional recurrence suggesting that adjuvant therapy should be carefully considered.

P3-23

A Review of 2 Cases of Unusual Cervical Lymph Node Metastasis in Patients with Squamous Cell Carcinoma of the Oral Cavity

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Introduction
Lymph node metastasis are the most significant prognostic factor in head and neck cancer. Patients with squamous cell carcinoma arising from the oral cavity tended to have metastasis to ipsilateral nodes in level I to III regions. However, cases of metastasis that bypass from ipsilateral level I to III regions and show metastasis to the contralateral cervical lymph node or metastasis to level IV or V have been reported rarely.

Method and materials
One of the patients in this case underwent wide excision and modified radical neck dissection on the left side for squamous cell carcinoma of the right mandible at the Yonsei University Oral and Maxillofacial Surgery Clinic in July 2021. The intraoperative biopsy showed no ipsilateral lymph node metastasis. However, on PET-CT and FNAB taken later, level IB lymph node metastasis was found on the contralateral side. The other patient went wide excision and radical neck dissection on the left side for squamous cell carcinoma of left mandible in October 2021. Results : As a result of intraoperative biopsy of the cases, all of them showed no metastasis to the ipsilateral lymph node in level I, II, and III zones, but showed contralateral IB, IIA and skip metastasis to ipsilateral level IV, respectively.

Conclusion
Based on a study on the lymphatic drainage system, it was reported that metastasis to ipsilateral level I, II and III lymph nodes was frequent in oral cancer. For this reason, there are many reports and studies that selective neck dissection has comparable oncologic safety to modified radical neck dissection. However, since metastasis to the contralateral lymph node or skipmetastasis has been reported in rare cases, it is necessary to carefully consider this fact when planning the operation.

P3-24

Antero-lateral Thigh free flap for Reconstruction of Maxillary Defects with Infratemporal Fossa Extension

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Introduction
Loss of the maxilla and midfacial bone buttresses after tumor resections can lead to severe functional and esthetic consequences. The loss of palate function may lead to oro-nasal communication, nasal speech, and oral intake difficulties
Owing to the large size of some maxillectomy defects, free tissue transfer with a relatively large flap is typically needed to fill the dead space and restore the facial appearance.
This case series discussed 3 cases with maxillectomy with infratemporal fossa extension, reconstruction with antero-lateral thigh free flap.

Patients & Methods
From November 2020 to October 2021, 3 cases of maxillectomy defect reconstructed by single surgeon with anterolateral thigh free flap was included. Clinical outcomes were reviewed.

Result
All flaps survived. Separation between nasal cavity and oral cavity was achieved. Satisfactory oral intake, pronunciation, and appearance was achived.

Conclusion
While some scholars still avoid reconstructiong maxillectomy defect for postoperative reexamination to early detect recurrent lesions. However, the flap does not increase the likelihood of postoperative recurrence, and early detection of recurrent lesions no longer depends solely on the visual observation of the clinician but rather with imaging modalities. Free flaps involving bone has its advantages. However, antero-lateral thigh free flap provides adequate thickness and wide extent of skin and sof tissue to cover, separate and restore the bulk of defect.

Implant

P4-01

A case report of long-term follow-up of guided bone regeneration technique and implant restoration at the mandibular molar area with severe alveolar bone loss from a periapical lesion

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Dental implants are the standard when teeth are lost for various reasons. Most periapical lesions are expected to be healed naturally by removing the microbial infection and bacteria. However, if the tooth gets extracted due to a progressed periapical lesion, bones may not be healed sufficiently for an implant placement. Bone grafts and other techniques are performed to enhance bone regeneration at the lesion2). There is a controversy over the necessity of a bone graft3). Also, it is important to consider the timing of bone graft and implant placement after the removal of the lesion. The size of the lesion, the anatomical structure around the lesion, and the other factors must be considered for the best method and timing which remain controversial. Remodeling of degenerated bone tissue due to a pathologic condition takes about one to two years. If the vertical bone loss is severe even after the remodeling period, a bone graft becomes challenging. For this type of bone graft, it is recommended to use autogenous bone which has a high osteogenetic properties.

This case report is about a patient who received guidedbone regeneration with autograft and implant placementafter severe alveolar bone loss due to a periapical lesion.The patient was followed for eleven years.

P4-02

A retrospective study on marginal bone resorption and survival rate 5 years after implant placement immediately after tooth extraction

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Introduction

Immediate implant placement after tooth extraction can reduce the treatment period compared to the traditional procedure that waits for more than several months for bone healing from the tooth extraction, as well as the initial resorption of alveolar bone, reduction of soft tissue retraction, and restoration of tooth extraction and final prosthetic restoration. It has several advantages, such as reducing the time for surgery, so it is widely used by clinicians despite the burden of the procedure. The purpose of this study is to evaluate and report the amount of marginal bone resorption 5 years after implantation of screw type and locking taper implants placed immediately after tooth extraction.

Methods and Results

From January 1, 2012 to December 31, 2016, 127 screw type and locking taper implants placed immediately after tooth extraction were selected from 92 patients at Cheongju Hankook Hospital. The average amount of mesiodistal marginal bone resorption was measured by comparing the panoramic radiographs of the selected implants when the prosthetic was installed and 5 years after the implantation. Among 127 implants (57 screw type, 70 locking type) of a total of 92 patients, 2 of them failed, resulting in a survival rate of 98.43%, and both were locking taper implants. The marginal bone resorption was 0.42±0.63mm in the mesial marginal bone and 0.37±0.71mm in the distal marginal bone about 5 years after the prosthesis was installed. In detail, in screw type implants, the resorption was 0.33±0.56 mm in the mesial marginal bone and 0.28±0.73mm in the distal marginal bone, and in the locking taper implant, the resorption was 0.49±0.68 mm in the mesial marginal bone and 0.44±0.69mm in the distal marginal bone. Survival rates according to the placement site showed 95% survival rates in the maxillary premolars and maxillary molars, respectively, and 100% in other sites.

Conclusions and Discussions

Immediate implantation after tooth extraction has been introduced as a stable and predictive treatment method in several studies. In this study, the survival rate after 5 years of implant placement was 98.43%. According to gender, 98.55% of males and 98.28% of females survived, and there was no significant difference according to gender. By age, 1 out of 58 implants placed in patients in their 60s and 1 out of 32 implants placed in their 70s failed. In addition, two implants failed only in the maxilla with a survival rate of 96.97% in the maxilla and 100% in the mandible, and all were posterior teeth with bone graft, and they occurred within 1 year of loading the prosthesis. It is thought that the maxillary molars had thinner cortical bone than the mandible or maxillary anterior teeth, and mostly consisted of cancellous bone, which made the bone quality unfavorable for implant placement. In this study, we report good marginal bone resorption and survival rates in follow-up examinations 5 years after implants placed immediately after tooth extraction.

P4-03

Implant Treatment After Mandible Reconstruction Surgery Using Vascularized Free Flap

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Introduction

Rehabilitation of oral function and esthetics could be achievable by using vascularized free flaps followed by the placement of implants for the patients who had extensive mandibular defects. The purpose of this study is to evaluate the survival and success rates of implants that placed in reconstructed mandibles and to identify prognostic factors that may influence implant survival.

Patients and Methods

We conducted a retrospective study of patients who received reconstruction surgery using vascularized free flaps followed by the placement of implants at the Department of Oral and Maxillofacial Surgery, Chonnam National University Hospital between January 2007 and December 2019. Those patients were investigated about the following data: age, gender, diagnosis, reconstruction method, the number of failed or failing implants, whether radiation therapy or chemotherapy was performed and related complications, and etc.

Results

The mean implant placement period for 22 patients with 103 implants was 17 months after the reconstruction surgery. The mean follow-up period for all implants was 65 months. Reconstruction method were iliac crest flap for 5 case and fibula flap for 17 cases. A total of 103 implants were placed, of which 23 implants showed bone resorption, and 5 implants were removed at 3.2 months after the implant placement, all of which were the cases of fibula flap. Survival and success rate of implants were 95.1%, and 88.3%, respectively.

Conclusion

Placement of implants in the reconstructed mandibles using vascularized free flap is a reliable method with a high survival rate.

P4-04

Effect of osseodensification drilling protocol in maxillary sinus augmentation: An ex vivo study

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Introduction
The long-term success rate of the implant is low in the posterior maxilla with thin cortical bone and low-density of cancellous bone, especially if the height of residual bone under the maxillary sinus floor is insufficient. The purpose of this study is to evaluate the effect of osseodensification drilling on initial implant stability and quantitative autogenous bone deposition in the maxillary sinus augmentation by comparing various drillings.

Materials & Methods
In the pig model, the maxillary sinus augmentation with the crestal approach was performed through conventional drilling (CD), osseodensification drilling with counter-clockwise direction (OD-CC) and clockwise direction (OD-C), osteotome technique, and drilling with crestal approach system kit. The volume change of autogenous bone deposited between the maxillary sinus floor and the maxillary sinus membrane was evaluated using micro CT. After drilling the sternum of a pig with low bone density in the same way, IPS was evaluated by measuring implant stability quotient (ISQ) and periotest values (PTV), and the degree of osseodensification around the drilling hole was analyzed through micro CT.

Results
There is a statistically significant difference among test groups. The OD-CC group showed statistically higher ISQ, PTV, and bone density than the other groups. Also, only in the OD-CC group, bone deposited between the maxillary sinus floor and the maxillary sinus membrane was observed, and the average of the deposited bone was a value of 18.75±3.82 mm³.

Conclusion
Counterclockwise osseodensification drilling not only increases IPS in low-density bone, but also increases the success rate of maxillary sinus augmentation by inducing bone deposition without perforating the maxillary sinus membrane.

P4-05

A Comparison Between Two Percussion-Based Measuring Devices for Stability Changes After Implant Placement

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Successful osseointegration is essential for successful implant treatment. A physiological bone remodeling occurs between the implant-bone interface and the process ends with final osseointegration. Initial stability or primary stability begins to decrease by the bone resorption in the early period after implant placement. New bone formation is then following and the total stability forms “stability dip” curve is the period transiting to secondary stability from primary stability and shows temporarily decreased total stability. Such a change in stability can be predicted to some extent, and clinically, a stability measuring device using magnetic resonance frequency(RFA) or a percussion method are being used nowadays. “Periotest(Periotest®, Siemens AG, Bensheim, Germany)” which has been well known for a long time, and “AnyCheck(AnyCheck®, NeoBiotech, Seoul, Korea)” comparatively recent domestic device are being used widely in clinical office in Korea. The purpose of this study is to compare the clinical reliability of “AnyCheck”, against “Periotest” which has already been proved clinically reliable. 43 Patients who visited Dept. of Oral and Maxillofacial Surgery at Korea University Anam hospital and received implant surgery under local anesthesia, and set healing abutment at the day of surgery were included. Implant stability was measured using Periotest and Anycheck. Implanted sites, the diameter and length of the fixtures, initial torque value(ITV), and the diameter and height of the healing abutments were recorded. The reliability of two different devices were then compared and analyzed.

TMJ

P5-01

A study on the correlation between masticatory muscle thickness and pain in patient with TMJ deformity using ultra-sonographic diagnosis

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Purpose
he purpose of this study is to study the correlation between the thickness of the masseter muscle and temporomandibular joint pain among patients with temporomandibular joint deformity using ultra-sono graphic imaging evaluation.

Method
A total of 31 patients who visited the Department of Oral and Maxillofacial Surgery at Seoul Hospital affiliated with Ewha Womans University College of Medicine from March to September 2021 were includedThe thickness and temporomandibular joint shape were measured on both sides of the mandibular masticatory muscle thickness and the temporomandibular joint shape in patients observed with mandibular condylar abnormalities using the Mini-sono detector, and the presence or absence of pain, the presence or absence of joint noise, and the degree of pain were collected using the VAS expression method.

Result
According to the statistical results, in patients with condyle deformity observed through ultra-sonographic imaging, the thickness of the masseter muscle at the non--pain site was thicker than the pain site muscle., and the degree of pain and the

thickness of the masseter muscle showed a low correlation. Arthrocentesis and Botulinum Toxin injection treatment were effective in relieving the patient's pain and splint treatment was used to relief mandibular condylar space in the long term.

Conclusion
Based on the findings, it can be claimed that ultrasonography is simple, inexpensive and easily repeatable method to get real-time diagnosis and treatment results for masseter muscles. On the other hand, if the diagnosis is unclear by ultra-sonographic measurement, an additional detailed examination such as cone-beam CT or MRI may be required.

P5-02

A radiographic and histopathological analysis of condylar hyperostosis and condylar osteochondroma

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Purpose
Osteochondromas are the most common tumors of skeletal bones, but are rarely found in the jaw. Condylar hyperplasia is a self-limiting disease characterized by non-neoplastic overgrowth of the condyle. Mandibular condylar hyperplasia and condylar osteochondroma are both characterized by hypertrophy of the mandibular condyle, facial asymmetry, and malocclusion. This study presents a comparison and analysis of these two diseases using X-ray, CT and pathological information for the selection of a differential diagnosis.

Methods

Case 1- This patient visited for temporomandibular joint pain and complained of opening restriction. As a result of clinical and radiological examination, an extended exophytic osseous structure with a size of 1.1x1.0x0.8cm was found in the left mandibular condyle, and a proliferated appearance of the left mandibular condyle was observed on a bone scan. Left condylecomy was performed under general anesthesia, and the resected tissue was biopsied.

Case 2- This patient visited complaining of opening limitation and pain in the right temporomandibular joint 5 years ago. As a result of clinical and radiological examination, scattered loose bodies of bony particle and multipole ossicles were observed between the upper right mandibular condyle and the articular fossa. Under general anesthesia, thickened bone tissue and ossified joint disc were removed from the joint and glenoid fossa, and the resected bone tissue was biopsied.

Result

Radiological findings
A characteristic feature when distinguishing osteochondroma from hyperostosis is that osteochondroma is observed with a spherical condyle on radiographs. In hyperostosis, characteristic condyle shape and ratio are more conserved and uneven ossification was more significant.

Histopathological findings
Both osteochondroma and hyperostosis have a cartilage cap covered the surface of the condyle. In osteochondroma, fibrous layer is shown and cartilage islands are scattered on the underlying trabecular bone. In hyperostosis, basophilic wavy line at the interface between the calcified and hypertrophic layer of the condylar cartilage. Reversal lines are shown in condyle hyperostosis.

P5-03

Relationship between temporal and masseter muscle status and skeletal patterns with facial asymmetry

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Purpose
Literature on whether the masseter and temporalis muscle size and scheme are different among the three facial skeletal types in asymmetric patients is lacking. This study aimed to investigate the relationship between masticatory muscle volume, surface area, and facial skeletal patterns.

Methods
This retrospective study included 83 patients who underwent facial computed tomography from January 2011 to December 2020. The patients were classified in either the “control” and “asymmetry” group according to the degree of facial asymmetry. Patients that belonged to the asymmetry group were sub-classified as skeletal class I, class II, and class III. The volume and surface area of the temporalis and masseter muscles, including the bilateral thickness of the masseter muscle, were measured twice. Reliability and comparative analyses were conducted according to groups.

Result
There was no significant difference between the bilateral sides for all variables in the control group. In the asymmetry group, all variables on the non-deviated side were significantly larger ($p<0.05$), except for masseter muscle thickness. The masseter volume of the non-deviated side was significantly larger than that of the deviated side in skeletal class I ($p=0.020$) and class III ($p=0.011$). However, there was no significant difference between the deviated and non-deviated sides in class II ($p=0.355$). Regarding masseter thickness, there was a significant difference only in class II, which was thicker on the deviated side ($p=0.022$).

Conclusion
The different volumes of masseter and temporalis muscles should be considered in facial asymmetry patients while the clinician considers orthognathic surgery to correct the facial deformity.

Basic Research

P6-01

4-HR increased phosphorylation of p53 in the p53-mutant cancer cell

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In head and neck squamous cell carcinoma, p53 mutation has associated with a poor prognosis. And, p53 mutation with obvious change in amino acid is found to be a strong and independent factor for predicting survival. The aims of this study were to investigate the effect of 4-HR on p53 mutant mucoepidermoid carcinoma cells (YD-15) and evaluated its therapeutic effects in xenograft model. To determine the effect on YD-15, western blot analysis, p53 transcription activity, MTT assay, and apoptosis immunocytochemistry were done. The effect was also evaluated in xenograft study. In the cell experiments, when the 4-HR concentrations increased, the expression level of HDAC4, Acetyl-p53, p-p53 increased. Increased p53 transcription activity and decreased cell viability, and increased apoptosis were observed. When treated 4-HR to xenograft model, compared with control (β-cyclodextrin), a suppressed trend of tumor growth rate and survival rate. A significantly less weight gain was observed at 15th day of observation. (p=0.021). In the immunohistochemical analysis, the 4-HR group had higher expression HDAC4, acetyl-p53, p-p53 compared to the control group. Cancer Signaling Phospho Antibody Arrays and p53 Signaling Phospho antibody array implied that DNA repair, cell death, cell cycle, apoptotic process increased slightly amid reduced proteins and cell cycle suspension. In conclusion, 4-HR induces apoptosis in p53-mutant cancer cells.

P6-02

Dental Aspiration/Swallow Accident Protocol

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Purpose

Emergency situations that may occur during dental treatment include swallowing in the upper gastrointestinal tract or aspiration into the airways with dental instruments and materials or dental aspiration. If it passes into the upper gastrointestinal tract, it is discharged naturally without most complications, but if it passes into the airway, it can cause life-threatening complications, and in the worst case, it can lead to death. It is important to have an appropriate first aid and referral protocol in an emergency.

Methods

From June 2012 to June 2021, 12 cases of dental material and instrument swallowing and aspiration accidents at Gangdong Kyung-Hee University Dental Hospital were analyzed. The circumstances of the occurrence and initial response were checked, and the results of referrals from the Department of Gastroenterology, Respiratory Medicine, Otorhinolaryngology, and Radiology were summarized.

Results & conclusion

After swallowing and aspiration accidents, check for symptoms of respiratory difficulties such as face color, vomiting, coughing, and hoarse breathing. After first aid, radiographs of the cervical spine and chest are taken. Depending on the results of the imaging, an endoscopy is performed in a specialized medical department to remove it. If initial removal is not possible, follow-up after hospitalization. There were 1 case of removal through nasopharyngoscope, 4 cases of removal through gastroscopy, 1 case of removal through bronchoscopy, and 1 case of removal through colonoscopy. A total of 5 cases were removed after follow-up.

Despite adequate preventive measures, dental hospital swallowing and aspiration accidents continue to occur. Keep in mind that safety accidents can happen to anyone and don't let go of tension. You should always be careful when using the device and develop the ability to respond quickly without panicking in an emergency. In addition, since cooperation with other departments is important after first aid, it is important to properly share protocols with o ther departments before an accident occurs.

P6-03

The effect of VEGF on the osteogenesis in direct co-culture system of osteoblasts and osteoclasts

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It is well known that bone is a highly vascularized organ and angiogenesis plays an important role in osteogenesis, and VEGF is one of the most important factors for angiogenesis. However, there is still no direct evidence on the mechanism of VEGF on osteoprogenitor cell differentiation. In addition, the effects of VEGF on differentiation of osteoprogenitor cells are controversial. Some studies showed that VEGF alone had no effect on osteoblast differentiation of MSCs. Co-culture systems of osteoblasts and osteoclasts are useful for evaluation of in vitro bone formation as they mimic the normal human physiological condition. Although limited evidence exists regarding the establishment of the optimization of the osteoblast/osteoclast ratio in the direct co-culture, we chose the ratio of 1 osteoclast: 1 osteoblast, using previously published method.
Considering osteoblast-osteoclast direct co-culture system reflects a certain part of the dynamic process of bone formation and resorption governed by osteoblasts and osteoclasts in in vivo physiological condition, in the present study, we examined the effect of VEGF on the osteogeneis in direct co-culture system of osteoblasts (human periosteum-derived cells) and osteoclasts (THP-1 monocytic leukemia cells).

P6-04

Nasopalatine duct cyst with sebaceous differentiation: a rare case report with literature review

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Background

The aim of this study was to report a rare case of nasopalatine duct cyst with sebaceous differentiation. Further, a systematic search of the literature was performed to identify studies reporting patients with intraosseous jaw cysts with sebaceous differ entiation.

Case presentation

A 55-year-old Korean man was referred to our hospital because of a cystic lesion of the anterior maxilla. Radiologic examination revealed a well-circumscribed radiolucent lesion in the anterior maxilla. Histology showed a respiratory columnar and cuboidal epithelium-lined cyst. Transition from the ciliated columnar epithelium to stratified squamous epithelium with sebaceous differentiation was observed. Based on these findings, the final diagnosis was nasopalatine duct cyst with sebaceous differentiation.

A systematic search of the literature was performed to identify studies reporting patients with intraosseous

jaw cysts with sebaceous differentiation. There were 24 cases of sebaceous differentiation in the epithelium of the cysts including 2 odontogenic keratocytes, 8 orthokeratinized odontogenic cysts, 8 dentigerous cysts, 1 radicular cyst, and 2 glandular odontogenic cysts. However, no case reports describing the occurrence of nasopalatine duct cysts with sebaceous differentiation have been reported.

Conclusion
This first case report of nasopalatine duct cysts with sebaceous differentiation could provide insight into the diagnostic process of cystic lesions with sebaceous differentiation

P6-05

A retrospective study of clinical and radiological factors related to the recurrence of Ameloblastoma

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Ameloblastomas are benign but locally invasive neoplasms that represent 10% of all odontogenic tumors. They are characterized by slow growth, asymptomatic swelling and/or perforation of the cortical bone. However, without any treatment, ameloblastomas might grow into massive proportions, causing facial deformity.

Despite its benign characteristics, amelblastoma has a high recurrence rate after treatment with a recurrence rate of 55-90%. It is important to identify risk factors associated with recurrence in order to reduce the recurrence of ameloblastoma and to minimize the effect of repeated surgery on the patient's face shape and function. It is also useful for clinical treatment protocols and prognostic judgments. The purpose of this study was to investigate the clinical and radiological risk factors associated with the recurrence of ameloblastoma in patients who had operated for 5 years.

In this study, among patients who underwent surgery at the Department of Oral and Maxillofacial Surgery at Pusan National University Dental Hospital for 5 years from 2017-2021, patients who were confirmed as ameloblastoma as a result of histological examination were included. Among them, recurrent and non-recurrent cases were divided into two groups, and the following factors were identified and compared.; Age at initial presentation, sex, site of occurrence, type of treatment, lesion size, inclusion of teeth in the lesion, relationship with inferior alveolar nerve, radiological pattern (monocystic, polycystic, etc.), radiological characteristics, etc.

This study is a retrospective study analyzing clinical and radiological factors related to the recurrence of enamel blastoma. Analysis of these factors associated with the recurrence of enamel blastoma provides better insight into treatment planning for enamel blastoma to reduce the recurrence rate.

P6-06

Patients admitted to an independent dental hospital who were transferred to the emergency room: A retrospective study

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Introduction
Pusan National University Dental Hospital is established independently of the College of Medicine Hospital, so it is somewhat difficult to deal with medical emergencies, such as when medical cooperation is needed in an emergency, you can only receive treatment by transferring to the emergency room of the medical college hospital.

Patients and Methods
This study was conducted with patients transferred to emergency room from September 2016 to September 2021 at Pusan National University Dental Hospital during their hospitalization period. A total of 35 patients (21 males, 14 females) were transferred to the emergency room during this period.
The mean age was 63.9±21.1 years (maximum value: 85, minimum value: 9), and 20 patients were over 70 years old. Nine patients had no underlying disease.

Results
Of the 35 patients, 8 were malignant tumors, 14 were diseased, 6 were fractures, and 7 were abscesses. Two patients transferred to airway obstruction were intubated in the emergency room, and two patients diagnosed with pneumonia were transferred to the Department of Pulmonary Medicine. There were 4 patients with electrolyte imbalance, 2 had a fall, and 1 of them had a fracture of the radius. Five patients died, of which two had a fungal infection, two had a malignant tumor, and one had a deep gap abscess. One patient was admitted to the cardiology department for heart failure. The other 10 patients returned to the hospital after performing only simple evaluation (examination) or simple treatment (transfusion) in the emergency room.

Conclusions
Inpatients in Oral and Maxillofacial Surgery may require emergency medical consultant, and if necessary, they should be treated without delay. In addition, long-term hospitalization patients should perform a systemic evaluation as well as the patient's dental condition through periodic lab tests.

P6-07

Efficacy of treatment with sialendoscopy in the xerostomia patient group and analysis of causes of dry mouth

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Xerostomia is a multi-symptomatic disease that is difficult to diagnose and treat, and a clinical protocol for symptom improvement has not been established. The purpose of this study is to present our own treatment protocol aimed at improving related symptoms as well as treating the disease by performing sialendoscopy for xerostomia patients.

The purpose of this study was to observe the efficacy of Sialendoscopy by analyzing unstimulated whole saliva(UWS) and salivary pH before and after the procedure and VAS questionnaire analysis in xerostomia patients who underwent sialendoscopy diagnosed with chronic sialoadenitis.

Sialendoscopy focuses on salivary gland's flow disorders, and direct observation of the salivary duct is possible through the endoscope. It is easy to identify the cause of secretion or flow disorders and sialoadenitis, and aims to improve symptoms by ductal dilating, irrigation, and injecting drugs.

The purpose of this study is to evaluate the therapeutic efficacy of sialendoscopy in the xerostomia patients group by analyzing unstimulated whole saliva, salivary pH, and VAS with a 6-month follow-up period after sialendoscopy in 50 patients with xerostomia.

P6-08

The Effects of 4-Hexylresorcinol administration on the growth of the Salivary Gland in the rat model

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Background
4-Hexylresorcinol (4HR) is a food additive and class I histone deacetylase inhibitor. This study was performed to exam the effect of 4HR application on the salivary gland in growing rat model.

Method
Four-weeks old rats were used for this experiment. The experimental group (9 males, 8 females) were received 12.8mg/kg of 4HR weekly for 12 weeks. Ten rats (5 males, 5 females) were used as control group. Submandibular glands were collected on 12 weeks after the first administration of 4HR. Weights of the glands were measured. Hematoxylin/eosin staining, periodic acid Schiff staining, and immunohistochemistry with VEGF-A, testosterone antibody were performed.

Result
The weight of the salivary gland was higher in the experimental groups, especially in male. No significant difference was showed between control group and experimental group in hematoxylin/eosin staining. Increased mucous acini area/total area ratio was shown in experimental groups in periodic acid Schiff staining, and it was significant in male experimental group. VEGF-A was more expressed in experimental groups. In the result of immunohistochemistry with testosterone, more amount of testosterone was showed in male experimental group.

Conclusion
This study demonstrated that 4HR induces vascular regeneration and increase of mucous acini ratio in salivary glands. Also, the result shows that the significant increase of salivary gland weight in male experimental group is related to increase of testosterone synthesis in salivary gland, which is the compensation for decrease in testosterone synthesis in testis induced by 4HR.

P6-09

Acute myeloid leukemia diagnosed by blood test incidentally after extraction: A case report and literature review

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Leukemia is a heterogeneous group of hematological disorders arising from hematopoietic stem cells, resulting from the uncontrolled proliferation of neoplastic cells, characterized by impaired differentiation and programmed cell death. When this disease is not treated, it can be divided into acute and chronic according to the clinical course. Acute myeloid leukemia(AML) can be diagnosed when myeloblasts in bone marrow are greater than 20% and erythroid precursors are greater than 50%. The incidence of AML increases with age, and median age at diagnosis is over 65 years.

Many studies have shown that signs of myeloid leukemia appear in the oral cavity. These oral signs include petechiae, spontaneous bleeding, periodontal abscesses, gingival swelling or gingival hyperplasia. These clinical symptoms should be differentiated from chronic or acute periodontal disease, or drug-induced gingival hypertrophy and gingival hyperplasia. A blood test is a quick and easy method we can choose for a more accurate differential diagnosis. Through blood tests we can obtain basic but important and necessary information, which could help us to check patients' systemic condition. The purpose of this study is to examine the necessity of blood tests before dental surgery such as tooth extraction or biopsy through the case of a 77-year-old female patient who was accidentally diagnosed with acute myeloid leukemia as a result of blood tests performed before incision and drainage due to infection findings after extraction.

Dentoalveolar Surgery

P7-01

Clinical Significance of Intraoperative Exposure of Inferior Alveolar Nerve during Surgical Extraction of the Mandibular Third Molar in Nerve Injury

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During extraction surgery, the inferior alveolar nerve (IAN) can occasionally be observed in the extraction socket of the mandibular third molar (M3). The purpose of this study was to investigate and compare the incidence of IAN injury in groups with and without intraoperative IAN exposure during surgical extraction of M3, and to identify additional risk factors for the IAN injury in addition to the IAN exposure. A total of 288 cases in 240 patients, who underwent surgical extraction of M3 by a single surgeon, were divided into the exposed group (n = 69) and the unexposed group (n = 219). The surgeon recorded the information regarding the procedure when the clinical observation of IAN exposure was made during the surgery. The incidence of IAN injury after the extraction surgery was significantly higher in the exposed group than in the unexposed group (4.3% versus 0%, $p < 0.05$). Paresthesia was recognized in three cases of the exposed group, but it showed complete recovery within three postoperative months. No case of permanent paresthesia was detected in both groups. According to the logistic regression, the only significant risk factor of IAN injury in the exposed group was the increase of age

(OR 1.108, p < 0.05). Intraoperative IAN exposure during surgical extraction of M3 may show a higher incidence of IAN injury than the case without IAN exposure, representing an incidence of 4.3%. Even if the paresthesia associated with IAN exposure occurs, it is likely to be a temporary injury, and this risk may increase with age.

P7-02

Management of Extensive Subcutaneous Emphysema & Pneumomediastinum : A Two-case report

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Subcutaneous emphysema refers to the inflow of air into the subcutaneous tissue mainly due to damage to the respiratory organs, and it is one of the rare but fatal comlications that may occur during dental treament or surgical procedure. We would like to introduce the successful management cases of extensive subcutaneous emphysema that occurred during the usual extraction process of the left lower third molar in a 23-year-old male patient, and originated from pneumothorax due to trauma in a 46-year-old male patient. Subcutaneous emphysema is a self-limiting disease, and conservative treatment is usually performed with careful observation of symptoms. However, extensive subcutaneous emphysema cause discomfort and respiratory problems in patients due to severe swelling, and in this case, a method to discharge emphysema through surgical intervention is required. In addition, supplemental oxygen inhalation creates a partial pressure gradient with nitrogen, helping to resolve the emphysema quickly. We would like to discuss two cases in which the subcutaneous emphysema was effectively treated by combining such surgical drainage and oxygen therapy.

P7-03

Iliac bone graft for augmentation of heavily resorbed alveolar ridges ; Case report

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Introduction

When autogenous bone grafting is performed for the purpose of increasing alveolar bone for implant placement, the mid and ascending parts of the mandible have been widely used intraoral as donor sites, and skull, tibia, and iliac bones have been widely used outside the oral cavity. Among them, iliac bone grafting is the most widely used for reconstruction of severely resorbed jawbone because it can collect the largest amount of bone and is easy to operate. In the iliac region, not only cortical bone but also a large amount of cancellous bone exist, so the cortical and cancellous bone complex can be collected in the form of a bone block and used for reconstruction of severely resorbed alveolar bone. In this case, we report good results after implant placement after iliac bone graft to increase severely resorbed alveolar ridge.

Case report

A 42-year-old female patient with complete edentulous maxilla and partially edentulous mandible due to severe periodontitis came to our oral surgery clinic. Since the alveolar bone resorption is very severe in the edentulous area, it was necessary to vertically increase the alveolar bone through a large amount of bone graft after the residual teeth were extracted for implant placement. On April 30, 2020, under general anesthesia, the maxillary sinus elevation was performed for the maxillary posterior region, and the maxillary anterior, mandibular anterior and posterior regions were implanted with iliac bones and fixed with screws. Six months after bone grafting, the first implant operation was performed.

Conclusion and Discussion

Although iliac bone grafting is a good procedure that can collect the largest amount of bone, surgery under general anesthesia and hospitalization are required. After iliac bone transplantation, sequelae and complications that may occur in the donor site include gait disturbance, chronic pain, sensory loss, hematoma, external changes, scars, and fractures. It has been reported that up to 50% of bone resorption occurs after long-term follow-up of iliac bone grafting. Therefore, it is necessary to collect excess bone in consideration of the amount of bone required and the amount of resorption. Excessive bone grafting may cause insufficient soft tissue in the oral cavity, making the primary closure difficult., and postoperative tension may cause suture dehiscence, resulting in bone loss. In bone grafting performed for the same purpose as in this case, autogenous bone can be collected from skulls, ribs, mandibles, and tibias in addition to iliac bones. However, considering accessibility, bone extraction volume, and donor complications, it can be said that the most preferred bone at present is the iliac bone.

P7-04

Removal of Maxillary third molar displaced into the infratemporal fossa : A case report

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Introduction

In rare cases, during extraction of impacted maxillary third molar, teeth may be displaced into adjacent anatomical spaces such as the maxillary sinus, infratemporal space, pterygomandibular space and buccal space.

Case

He was 20-year-old male patient. It was decided to extract #28 and 38 under local anesthesia. During the extraction process, #28 had be displaced into the infratemporal fossa.

To remove #28 tooth, the incision was extended to the buccal sulcus and the #28 was removed using Kelly.

Discussion

The infratemporal fossa is an anatomically complex area. Removal of teeth that have be displaced into the infratemporal fossa carries the risk of bleeding and nerve damage. However, it is recommended to remove for reasons such as infection, restriction of mandibular movement, or trismus due to fibrosis. The timing of removal of teeth is controversial. Some authors suggest the need for immediate removal for reasons such as concerns about infection of important structures in the infratemporal fossa. Other authors recommend delayed removal of 2-4 weeks. However, if delayed removal is selected, antibiotic treatment is required to avoid infection by the tooth.

Conclusion

It is important to prevent tooth displacement in advance through thorough preparation through clinical and radiological examination before extraction of the maxillary third molar. Use of a distal retractor to secure field of view. form an appropriate flap during extraction, and appropriate force control is required when using an extraction device.

P7-05

Prognosis of teeth affected by cyst without root canal treatment after surgery

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Purpose

When planning cyst enucleation, the surgeon should decide on the treatment of the tooth affected by the cyst. Therefore, in this study, the prognosis of the tooth affected by the cyst was investigated after cyst enucleation was performed without root canal treatment.

Patient and Method
From January 2013 to July 2021, patients who underwent cyst enucleation without root canal treatment were subjected to discoloration, percussion reaction, and inflammation. Patients who tested positive in the Vital test, had no inflammatory findings, and had a follow-up period of 3 months or longer were selected for investigation, and were classified according to whether the cyst contained an apex, and whether the cyst contained less than 1/2 or more than 1/2 of the root. However, cases in which affected teeth were extracted before and after surgery were excluded from this study.

Result
Of the total 235 patients, 65 met the purpose of the study, and of these, 101 teeth were affected by the cysts. When the cyst contained an apex and contained less than 1/2 of the root, 74 cases, when the cyst contained an apex and contained more than 1/2 of the root, 24 cases, the cyst did not contain an apex and contained less than 1/2 root, 3 cases and , the cyst did not contain an apex and contained more than 1/2 root, 0 case were investigated. Two complications were investigated only when the apex was affected by the cyst.

Conclusion
Based on the results of this study, the option of not root canal treatment of teeth affected by the cyst before cyst enucleation can be considered first.

P7-06

Deep Learning-Based Prediction of Paresthesia after Third Molar Extraction: A Preliminary Study

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The purpose of this study was to determine whether convolutional neural networks (CNNs) can predict paresthesia of the inferior alveolar nerve using panoramic radiographic images before extraction of the mandibular third molar.

The dataset consisted of a total of 300 preoperative panoramic radiographic images of patients who had planned mandibular third molar extraction. A total of 100 images taken of patients who had paresthesia after tooth extraction were classified as Group 1, and 200 images taken of patients without paresthesia were classified as Group 2. The dataset was randomly divided into a training and validation set (n = 150 [50%]), and a test set (n = 150 [50%]). CNNs of SSD300 and ResNet-18 were used for deep learning. The average accuracy, sensitivity, specificity, and area under the curve were 0.827, 0.84, 0.82, and 0.917, respectively.

This study revealed that CNNs can assist in the prediction of paresthesia of the inferior alveolar nerve after third molar extraction using panoramic radiographic images.

P7-07

Effect of submucosal injection of hyaluronidase after third molar surgery: a randomized controlled trial

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Introduction
Hyaluronidase (HUD) is an enzyme that hydrolyzes hyaluronic acid (HA), an intercellular base material of the connective tissue, and controls the binding force of intercellular space and facilitates the absorption and diffusion of drugs. It has been reported to be effective in reducing chronic neuralgia, reducing edema after surgery, preventing and treating subcutaneous bleeding, and removing hematoma. For primary purpose of the study, we aimed to evaluate the efficacy of postoperative sequelae (opening limitation, swelling and pain) after HUD submucosal injection immediately after surgical extraction of the mandibular 3rd molar (M3M). For secondary purpose of the study, the efficacy was evaluated as a patient-centered result after HUD injection immediately after surgical extraction, and the safety was evaluated by inspecting the presence of adverse effects.

Materal and Methods
A total of 37 patients were included to the experimental or control group on the right or left side M3M, respectively. Statistical significance was analyzed for differences in linear measurement values for postoperative sequelae (mouth opening, swelling and pain) between the entire control and experimental groups.

Results
1) Vital signs: No statistical significance was found in the difference in biological signs between the control and experimental groups. (P > 0.05)
2) Postoperative sequelae (preOP/POD2/POD7, mean±SD)
- Mouth opening: Experimental group (52.78±7.04 /37.42±10.75 /47.64±7.57) had larger values than the control group (52.43±8.00/33.44±10.23/44.31± 9.56), and statistical significance was confirmed in the difference (P=0.844 /0.113 /0.011).
- Pain: Experimental group (NA/2.15±1.35/0.83± 1.06) showed lower intensity of postoperative pain compared to the control group (NA/4.26±2.30/1.90± 1.45). Statistical significance was confirmed in the difference (P=NA/ <0.01/ <0.01).
- Swelling: Experimental group (376.35±24.76 /381.64 ±26.53 /379.14±23.68) showed smaller values in the difference of swelling (preOP vs POD2 /POD2 vs POD7) than the control group (370.31±18.79 /371.31± 28.29). Statistical difference was confirmed to be significant (P=0.238 /0.041 /0.015).

P7-08

Immediate reconstruction of mandibular defect after treatment of medication-related osteonecrosis of the jaw (MRONJ) with rhBMP-2/ACS and miniplate : case series

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Introduction
he purpose of this study was to pursue, and to report the results of, mandibular reconstruction and rehabilitation of medication-related osteonecrosis of the jaw (MRONJ) patients having large critical-sized defects of the mandible using a combination of recombinant human bone morphogenetic protein-2 (rhBMP-2) and absorbable collagen sponge (ACS) with surgical miniplate without any grafting materials.

Case presentation
Three patients aged 67 and 86 (2 patients) presented due to discomfort on the mandible. They all had a medical history of bisphosphonate and steroids treatment orally or intravenously, and all had been diagnosed as MRONJ stage 3. Sequestrectomy and saucerization were performed, and then a surgical miniplate (Hansolmedical, Korea) was adapted and fixed on the sound portion of the mandible. rhBMP-2 was loaded onto an ACS at a dose of 1.5mg/cc. Several rhBMP-2 (Cowellmedi, Korea)/ACS (Ateloplug, TRMkorea, Korea) were placed into the bony defect with a surgical miniplate. All 3 patients recovered without complications. They all exhibited radiographic

evidence of bone formation by 3 months postoperatively in every case.

Conclusions
All 3 patients were treated successfully with rh BMP-2/ACS & miniplate without any complications and were observed successful bone formation on the defect site of the mandible. This protocol reported herein represents a new approach to the surgical treatment of maxillofacial bone defects and deficiencies, especially in MRONJ patients.

P7-09

Induction of spontaneous eruption through space maintenance decompression of displaced permanent teeth due to cystic lesion in pediatric patients

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The cyst is usually asymptomatic and increase gradually. It often causes displacement of adjacent teeth. In particular, in children with mixed dentition, if a cyst occurs on the jaw one, the permanent teeth may not erupt normally. In the case, it is necessary to induce eruption for the displaced permanent teeth.

Cyst enucleation is a method of surgically removing a cyst along with the affected tooth. This method can shorten the treatment period and lower the recurrence rate, but has a disadvantage in that it can damage surrounding tissues (inferior alveolar nerves, etc.) and cannot preserve permanent teeth

Decompression and marsupialization are the preferred treatment options for the jaw cyst in order to protect the adjacent tissue around the cyst.

Decompression is a method of reducing intracystic pressure by opening into the cystic cavity and inserting a tube to perform constant drainage. It has the advantage of reducing damage to surrounding tissues (especially inferior alveolar nerves or permanent teeth) and reducing the size of the cyst, leading to spontaneous eruption of the permanent teeth.

We designed a device that interfered with surrounding tissues to a minimum using a silicon tube with acrylic resin. And we performed decompression using the device. As a result, we would like to report 3 cases in which the cyst was effectively removed, and displaced permanent teeth spontaneously erupted.

Acknowledgement
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P7-10

Bone regeneration with iliac block bone, PMCB and titanium mesh ; Report of Five Cases

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Introduction
If iliac block bone with PMCB technique is used recover alveolar bone defects, It is advantageous in maintaining bone shape and predictable bone formation. Due to cortical bone, the absorption after bone graft is low.
In addition, it is possible to rebuild bone defects through iliac block bone with PMCB autogenous bone graft in various areas.
I would like to report 5 patients case who underwent successful surgical treatment using iliac block bone, PMCB and titanium mesh at Chonnam national university hospital's OMS department.

Purpose
I would like to report the accuracy and success clinical evidence of the surgery while observing the bone formation process of a patients who underwent bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

Patients and method

Case 1
- Song OO (69Y/M)
- The result of initial diagnosis Nov. 18, 2020 was extensive bone resorption and periimplantitis in the left mandibular area. So, on Jan. 27, 2021 The patient underwent bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

Case 2
- Hong OO (38Y/F)
- The result of initial diagnosis & biopsy Jun. 11, 2020 was Ameloblastoma on Rt mandibular area. So July. 1, 2020 The patient underwent marginal mandibulectomy with bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

Case3
- Kim O (42Y/M)
- The result of initial diagnosis & biopsy sep. 23, 2020 was Osteomyelitis on Rt Maxillary premolar area. So Feb. 3, 2021 The patient underwent Decortication and sequestrectomy with bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

Case4
- Kim OO (57Y/M)
- The result of initial diagnosis & biopsy April 2, 2020 was Ameloblastoma on Rt Mandibular posterior area. So May 20, 2020 The patient underwent marginal mandibulectomy, multiple extraction with bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

Case5
- Roh OO (74Y/M)
- The result of initial diagnosis & biopsy march 3, 2021 was Odontogenic keratocyst on Lt mandibular premolar area. So march 26, 2021 The patient underwent cyst enucleation with bone regeneration surgery using iliac block bone, PMCB and titanium mesh.

The intent to compare the success rate of bone regeneration through comparison of panorama and dental CT before and after surgery.

Conclusion
We report 5 patients that underwent surgery using iliac block bone, PMCB and titanium mesh. Because we experienced good result (bone formation rate, bone resorption rate).

P7-11

Surgical treatment with autologous iliac bone graft of cemento-osseous dysplasia: A 10-year report

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Cemento-osseous dysplasia (COD) is a benign fibro-osseous lesion that occurs in apical area and contains amorphous, spherical calcified matter similar to cementum. In general, if there are no clear signs or symptoms, periodic follow-up is performed without surgery. There have been reports of successful cases of cemento-osseous dysplasia that were successfully cured by resection followed by bone grafting. This case report is a report on the treatment of cemento-osseous dysplasia with curettage and iliac bone graft. With this case, histopathological/radiological findings and surgical progress will be reviewed.

A 42-year-old woman visited the Department of Oral and Maxillofacial Surgery, Seoul National University Dental Hospital, complaining of radiolucent lesions of

the mandible. Under diagnosis of cemento-osseous dysplasia, the fibrous bone tissue inside the mandible was curettaged and the cortical bone was preserved. An iliac bone graft was performed on the defect area of mandible, and the histological examination showed that mandibular bone dysplasia as cemento-osseous dysplasia. The patient's gender, age, past medical history, and clinical characteristics before and after surgery were reviewed. Preoperative evaluation was performed through panoramic images and computed tomography(CT) images, and the photographic density and bone trabecular patterns of the panoramic images were observed after surgery. Postoperative complications or recurrence were not observed, and the healing was relatively fast, and follow-up has been carried out for 10 years after surgery.

This presentation showed a positive prognosis for treatment with curettage and iliac bone graft for cemento-osseous dysplasia. It also suggests the possibility that autologous bone graft after conservative curettage can suppress lesion progression. Longer prospective studies are needed to obtain more reliable data on the effects of iliac bone grafts in cemento-osseous dysplasia.

P7-12

Comparison of midazolam and dexmedetomidine in third molar extraction under conscious sedation considering cost

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Purpose
The effectiveness of midazolam and dexmedetomidine as conscious sedative anesthetics in dental field has been actively compared and studied. However, studies comparing the two drugs, including not only the existing sleep-inducing effect analysis, but also the actual cost charged to the patient, are insufficient. Therefore, this study attempted to elucidate the efficacy of midazolam and dexmedetomidine by synthesizing these aspects.

Material and methods
This study is an observational study, and the subjects of this study were patients who underwent conscious sedation anesthesia from July 2013 to May 2021 and simultaneously performed surgical extraction of the third molars on both sides of the mandible. Predictors were midazolam and dexmedetomidine, outcome variables were OAA/S, amnesia, satisfaction, BIS, blood pressure, heart rate, and confounding variables were sex, age, BMI, usual sleep time to previous sleep time ratio, and the fear degree to dental treatment and pederson scale. In addition, drug costs between the two groups were compared, and bias control was performed through propensity score matching.

Results
The total number of patients was 185, and the age ranged from 13 to 48 years. When comparing the two groups of Midazolam (n=75) and Dexmedetomidine (n=75) after matching, BIS(at immediately after sedation and local anesthesia)in group M was low. Also, HR(immediately after sedation, local anesthesia, 20 minutes after local anesthesia, end),SBP(20 minutes after local anesthesia, end) in group M was high. However, there was no difference in OAA/S, amnesia, and satisfaction between the two groups. Drug cost was much higher in group D.

Conclusion
Midazolam is more useful than dexmedetomidine when considering not only the stability of vital signs and sedative effects, but also the cost of the patient.

The purpose of this study is to examine the necessity of blood tests before dental surgery such as tooth extraction or biopsy through the case of a 77-year-old female patient who was accidentally diagnosed with acute myeloid leukemia as a result of blood tests performed before incision and drainage due to infection findings after extraction.

Deformity

P8-01

Correction of Midface Deficiency in Patient with Crouzon Syndrome by Orthognathic Surgery and Patient Specific Facial Implant: Case Report

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Crouzon syndrome, also known as craniofacial dysostosis, is an autosomal dominant inherited disease characterized by early cranial fusion and consequential craniofacial malformations. In patients with Crouzon syndrome, the growth of the midface is affected due to early fusion of the cranial base, which results in exophthalmos, ocular ptosis, midface deficiency, and maxillary retrognathism. Frontofacial advancement using Le Fort III osteotomy is the conventional method for treating patients with Crouzon syndrome. However, this procedure has drawbacks such as extensive operation field and high possibility of serious complications (e.g., meningitis). Thus, in this case report, midface augmentation was performed for a patient with Crouzon syndrome by undergoing conventional orthognathic surgery, along with patient-specific implants made using a 3D virtual technique. Implants were 3D printed using polyetherketoneketone (PEKK) and simultaneously implanted during the orthognathic surgery. After the surgery, not only were the patient's occlusion and facial esthetics improved, but also exophthalmos and ocular ptosis were reduced by the midfacial augmentation effect of patient-specific implants placed in the midface. Since the implants were made exactly as what surgeons have intended through CAD/CAM and 3D printing techniques, problems such as under-/overcorrection were avoided. In addition, the possibility of implant malpositioning was minimized using surgical stents as implants were passively fitted on the patient's

bone surface. This case verified that the application of 3D technology to the field of oral and maxillofacial surgery can reduce the invasiveness of surgery and improve the accuracy of the operation. Therefore, by using cutting-edge technologies, the field of oral and maxillofacial surgery is expected to be developed further in the near future.

P8-02

Congenital missing of maxillary lateral incisor and rehabilitation in unilateral cleft lip and palate patients

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Cleft lip and palate is one of the most prevalent congenital craniofacial anomalies, and it commonly has greater incidence of dental abnormalities in number, size, shape, and eruption of teeth. Maxillary lateral incisor is the most frequently affected, often appear in congenital missing or peg lateralis. The aim of this study is to analyze the prevalence of congenital missing of lateral incisor in cleft side and non-cleft side in unilateral cleft patients who were treated in Pusan national university dental hospital, between 2008-2020. Radiographs and records were reviewed to find the relationship of missing tooth and cleft side, maintenance of maxillary lateral incisor, rehabilitation method.

The ratio of congenital missing was 50% in cleft side and 18.75% in non-cleft side. The ratio of extraction after bone graft was 62.6% in cleft side and 31.25% in non-cleft side. The result suggested that since the ratio of maintenance of maxillary lateral incisor is low, early extraction can be considered in some cases.

P8-03

Orthognathic surgery on Tessier cleft no.5 Patient - a Case Report

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Introduction

Facial clefts are the common craniofacial malformations, often involves palate and lips. However, it rarely occurs obliquely in the soft and hard tissues of the face, which is estimated to occur 0.24% of facial clefts.

It was Tessier who postulated the anatomy-based classification system for craniofacial clefts - the sagittal plane and orbit. This case report is about a patient with Tessier cleft no.5, which is rare among them and extends from the orbit to the maxilla.

Case Report

O O Jung(M/25y), Chief complaint: Facial asymmetry. The patient underwent palatoplasty at 6 months, Right zygomatic reconstruction with iliac bone graft at age 6.

Routine Le Fort I osteotomy & bilateral SSRO was done. Additional plate fixation was required due to mobility of maxillary right segment. Left mandible was not fixed due to unstable position of mandibular left condyle.

Discussion

There is not much literature on the orthognathic surgery of Tessier cleft patients. Orthognahtic surgery of cleft patients are difficult and complicated because of problems such as recurrence, healing delay, tooth loss, soft tissue and bone necrosis, and infection due to previous procedures. Since cleft patients' maxillary surgery has a fundamental tendency to recur, and most of them are not completely horizontally stable and have movements after Lefort I osteotomy, it is recommended to have a more sufficient period of intermaxillary fixation than in conventional surgery. In the case of cleft patients, it is also necessary to consider this during maxillary surgery because of thin upper lip the small forward movement effect.

In this case, stable occlusion and skeletal relation were shown after surgery, but additional prosthesis treatment and scar revision surgery are considered necessary.

P8-04

Intravelar veloplasty performed without an incision on the nasal mucosa on a patient with submucous cleft palate: A case report

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A submucous cleft palate (SMCP) results from a lack of normal fusion of the muscles within the soft palate. A SMCP is characterized by a bifid uvula, deficient midline muscle with zona pellucida, and osseous notch of the hard palate. When a submucous cleft is present, the muscles of the soft palate may not function properly which places a person at risk for speech problems (such as a hypernasality), middle ear disease, and swallowing difficulties. A SMCP requires surgery, if it causes problems. A velopharyngeal incompetence is a condition which a person cannot prevent air from escaping through the nose during the speech, and requires surgical repair of the palate. Intravelar veloplasty involves reconstruction of the abnormal soft palate muscles, tensor and levator veli palatine muscle. In this case report, we present a 48 months old child with SMCP who underwent intravelar veloplasty without separating the nasal mucosa.

P8-05

Definitive cleft septo-rhinoplasty using diced rib cartilage wrapped in temporal fascia for patients with unilateral cleft lip nasal deformity

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An aesthetically unsatisfactory factor in the facial appearance of patients with unilateral cleft lip and palate is facial asymmetry. The biggest influence on this asymmetry is nasal deformity. If a cleft is present in the primary palate due to a congenital malformation, the nasal deformity is also inherent. This congenital nasal deformity is complicated by the growth of the child and the effect of surgery. In most cases, patients with unilateral cleft lip and palate typically exhibit nasal asymmetry due to sagging nasal alar and widened nasal cavity in the affected side. In addition, after skeletal maturation, the nose of patients with unilateral complete cleft lip and palate is generally characterized by wide and asymmetrical dorsal esthetic line, decreased tip projection / rotation, and septal displacement.

In order to correct this surgically, the use of an implant is essential, and a widely used implant is nasal septal cartilage. The costal cartilage has the advantage of providing a sufficient amount and strong for the reconstruction of the extensive skeletal and soft tissue deficiencies characteristic of cleft lip nasal deformity, compared to nasal septal cartilage or auricular cartilage.

Moreover, dorsal grafts are a highly visible determinant of the nasal profile and contour, as well as being technically demanding with a high complication rate. Among them, diced cartilage graft with the pieces of 0.5 to 1.0 mm in size and wrapped in fascia are generally not visible when placed beneath thin skin.

And the graft can be made into a wide range of shapes to fit various recipient sites. And also, the grafts are malleable, which allows for fine adjustments both intraoperatively and up to 10 days postoperatively.

We performed a composite reconstruction of a deep foundation layer of spreader graft and columellar strut overlaid with an esthetic layer of tip graft and dorsal augmentation in a 24-year-old male patient with nasal deformities due to unilateral cleft lip and palate. Diced cartilage wrapped with deep temporal fascia results in a natural-feeling nose.

P8-06

Mandible and zygoma augmentation in patient with hemifacial microsomia using patient specific implant - A case report

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Hemifacial microsomia (HFM) is one of the most common congenital craniofacial abnormalities showing unilateral malformation of derivatives of the first and second branchial arches (BA). Therefore, malformation in HFM is expressed as unilateral hypoplasia of the mandible, short ramus, malformed condyle, small glenoid fossa, microtia and hearing loss due to stenosis of external auditory canal.

In patient with HFM, augmentation using patient specific implants (PSI) is one of the treatment option for the treatment of asymmetry of bone structure and soft tissue

The advantage of PSI is precise adaptation to the region, short operation time, and better cosmetics. Also using PSI can exclude disadvantages of autogenous graft such as unpredictable resorption, or displacement.

In this case, we report mandible and zygoma augmentation using patient specific implant, to treat facial asymmetry of patient with HFM.

P8-07

Comparison of biomechanical analysis after Le Fort I osteotomy with two square-shaped and four L-shaped titanium plates using 3D-FEA

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Introduction
In cases that bone fragments contact with each other and obtain stability after Le Fort I osteotomy, two plates are often used to fix the bone fragments at the zygomatic buttresses. The purpose of this study is to analyze the stress distribution when the bone fragments of Le Fort I osteotomy are fixed with four L-shaped or two square-shaped titanium plates using the three-dimensional finite element analysis (3D-FEA).

Methods
The model after Le Fort I osteotomy with 4 mm advancement fixed with four L-shaped or two square-shaped plates was constructed from CT image data. A load was applied to the bilateral molar and canine teeth areas of the model. The stress distribution in the bone fragments and plates and the displacement of the bone fragments were analyzed by finite elements.

Results
The stress in the plates was higher in the two square-shaped models, but the stress distribution of both models tended to be similar to fixation using four L-shaped or square-shaped titanium plates. The equivalent stress of the bone fragments was concentrated around the plates, and the stress was slightly higher in the two square-shaped model, but there was no significant difference in the displacement of the bone fragments fixed with four L-shaped or two square-shaped plates.

Conclusion
In advancement cases with stable bone fragments, no significant difference was observed in the displacement of the bone fragments between the use of four L-shaped plates and two square-shaped titanium plates. The validity of the fixation method might be suggested in the setting of this study.

Infection

P9-01

Treatment of patients with Necrotizing fasciitis of the head and neck and Skin transplantation : case report

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Introduction
Necrotizing fasciitis is a severe bacterial infection that rapidly progresses along the fascia and causes ischemia and necrosis of the affected tissue. In the head and neck region, it is rarely reported, accounting for about 10% of all cases. It is a life-threatening disease that can progress to mediastinal sinusitis and fatal sepsis if appropriate surgical treatment is not performed at an early stage. In this case, we intend to report the treatment case of a patient with periodontal necrotizing fasciitis that occurred in the head and neck.

Case
A 51-year-old man came to the hospital complaining of swelling of his left jaw. At the time of admission, there was a hard swelling in the left mandibular angle, with an opening limitation, and the dentin was exposed due to abrasion of the #35 crown, and there was caries. It responded to percussion and showed 1 degree of mobility.
After confirming that an abscess was formed in the buccal space, submasseteric space, and temporal space on the CT image, I&D was performed on an outpatient basis, and penicillin and clindamycin antibiotics were administered. After 2 days, the F/U CT image showed blisters, skin fistulas, subcutaneous tissue necrosis, and odor due to the spread of the interstitial abscess and gas generation, and the diagnosis was made as necrotizing fasciitis. A wider incision was made under general anesthesia to expose the affected area, necrotic skin and internal inflamed tissue were removed, additional I&D was

performed, and vancomycin was added as an antibiotic. After 2 I&D, 3 weeks of removal of necrotic tissue and antibiotic therapy, F/U CT and clinical results showed that the patient was completely cured. It was confirmed that the skin was completely engrafted about two months after skin transplantation.

Discussion
Necrotizing fasciitis is a severe soft tissue infection that spreads rapidly through tissue cavities. Treatment of necrotizing fasciitis can be achieved through aggressive removal of fascia and necrotic tissue after prompt diagnosis. Removal of necrotic tissue is essential with prompt surgical treatment, and strong antibiotic treatment must be accompanied. In this hospital, good results were obtained through rapid surgical treatment and antibiotic therapy based on ct reading and clinical experience. Since mixed infections caused by various strains are common, appropriate antibiotic treatment should be accompanied by a bacterial culture test.

P9-02

Preliminary Study of Microorganic and Antimicrobial Characteristics of Recent Odontogenic infections in Seoul, South Korea

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Objective
Odontogenic infections can be challenging to manage acutely. Untreated odontogenic infections can be a life-threatening condition, like deep neck space infection or systemic sepsis. Therefore, the purpose of this study was to analyze the host factor, virulence factor and antimicrobial factor of recent odontogenic infections in South Korea, and to provide guidelines for empirical antibiotics selection in odontogenic infection.

Methods
This 1-year retrospective study evaluated records of patients who suffered from facial swelling and pain, due to odontogenic infections. All patients underwent intra-oral or extra-oral surgical incision and drainage with antibiotics therapy through inpatient or outpatient management. Types of microorganisms and antibiotic resistance were identified from cultured specimens. 1st-generation cephalosporin or Amoxicillin-clavulanate was used as 1st choice antibiotics, and in severe cases, metronidazole was u sed additionally.

Results & conculusion
Streptococcus mitis, Streptococcus cisntellatus, Streptococcus anginosus were the most common strains identified for odontogenic infections. The second most identified strain Neisseria subflava comprises part of the normal flora of the oral cavity and can cause opportunistic infections. Enterobacter cloacae, Klebsiella pneumoniae, Actinomyces odontolyticus, Peptostreptococcus micros were identified as an anaerobic or facultative anaerobic strain. Susceptibility against ampicillin, 1st-generation cephalosporin, penicillin were siginificantely lower than 3rd-generation cephalosporin and levofloxacin. Among bacteriostatic agent, clindamycin showed higher susceptibility than clindamycin. In 3 cases, It was necessary to change antibiotics according to antibiotic resistance results. In most cases, the identified bacterial strains could be covered with 3rd- generation cephalosporin with metronidazole. Although effective against bacteria in odontogenic infection, 4th-generation cephalosporin, tigecycline and vancomycin should reserved for serious systemic infection.

P9-03

Systemic infection after extraction of the mandibular third molar in a patient with Latent Autoimmune Diabetes in adults(LADA) : a case report

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Introduction
Diabetic patients are more susceptible to infection, so sugar control should be prioritized during minor surgery in the oral and maxillofacial area, such as tooth extraction, and close follow-up is required even after minor surgery. Latent Autoimmune Diabetes in Adults (LADA), which I would like to introduce in this case, is a LADA patient who has not been diagnosed as a disease called type 1.5 diabetes because it has the characteristics of type 1 diabetes that occurs late in adulthood. The purpose of this study is to investigate a case of systemic infection that occurred after extraction of the mandibular third molar.

Case Report
A 26-year-old male patient, who was known to have no underlying disease, visited the emergency room due to swelling of the neck, limited opening and pain during swallowing that occurred after tooth extraction 4 days ago due to caries of the left mandibular third molar. He suffered from dysphagia the day before admission and was accompanied by a high fever of 37.8°C at the time of admission. Hematological examination performed on the day of admission confirmed WBC 26.90, ESR 89, CRP 50.75, and Hba1c 12.2. On CT, both submandibular and submental space infections were observed. Under the diagnosis of lugwig's angina, incision and drainage were performed. Even after that, the patient's dysphagia persisted, and the infection spread downward on a CT scan of the neck that was re-examined 3 days later. Therefore, extensive I&D was performed for deep neck space infection including parapharyngeal and retropharyngeal space, and mediastinostomy and tracheostomy were performed in collaboration with the thoracic surgeon. Afterwards, the systemic infection was resolved through active glycemic control and supportive care including antibiotic treatment in cooperation with the infectious disease department and endocrine department.
In this patient, a decrease in c-peptide level, which means insulin deficiency, was observed. Diabetes-associated autoantibody GAD Ab was detected and the characteristics of type 1 diabetes were observed. However, the patient did not have any symptoms of diabetes. There were no specific findings in the previous health checkup performed at the age of 20. Accordingly, the patient was diagnosed with Late Autoimmune Diabetes in Adults (LADA).

Discussion & Conclusion
The main symptoms of diabetes include polydipsia, polyuria, and polyphagia, which may not manifest in some patients. Studies have reported that the proportion of undiagnosed diabetic patients without symptoms ranges from 10.2% to 11.5%. Dentists need to be aware of the patient's systemic medical history and open the possibility of complications due to undiagnosed diabetes prior to minor surgery in the oral and maxillofacial area.

P9-04

Life threatning upper GI bleeding in patients with odontogenic infection

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Introduction
Non-steroidal anti-inflammatory drugs(NSAIDs) is widely used drug it subsides pain & inflammation. It is highly accessible as it can be purchased at a pharmacy without doctor's prescription. Excessive

secretion of gastric acid is one of the most common complication of NSAIDs. This presentation introduce a patient who were hospitalized for dental infection who were life-threatening due to gastrointestinal bleeding caused by taking NSAIDs for a long time before visiting the hospital

Case report
An 80-year-old male patient visited the ER due to swelling in the Right submandible to neck area and chest pain. Extensive abscess formation was observed from the right lower mandible to the deep neck space and mediastinal sinus. Diagnostic tests measured on the day of visit showed RBC 1.64 to 2.26 (∗106) and hemoglobin 5.1 to 6.8(mg/dl). Patient also complaining of melena, so gastrointestinal bleeding was suspected. In cooporation with department of gastrointestinal internal medicine and department of radiology, a gastrointestinal endoscopy was performed. A large amount of hemorrhage and active bleeding were observed in stomach to duodenum. Blood clot were removed. Hemostasis performed on active bleeding site using electrocautery. Additional bleeding was prevented through continuous administration of proton pump inhibitor. Red blood cells, fresh frozen plasma, and platelet transfusion were performed to supplement blood volume. Immediate drainage was delayed for 5 days due to poor general condition including acute kidney injury due to hypovolemic shock and atrial fibrillation. Additional endoscopic findings confirmed there is no more intestinal bleeding.

Result
The patient needed multi-focal care of poor general condition including acute kidney injury due to hypovolemic shock, atrial fibrillation. 15days after hospitalization, the patient could have surgical treatment, debridment for necrotizing fasciitis. After 7 weeks of hospitalization, he was able to be discharged in normal condition.

Discussion
Patients who visit the hospital due to dental infection, need not only an evaluation of the cause of infection, but also an extensive evaluation of the systemic condition. In particular, pain and inflammation caused by dental infection can cause serious side effects if the patient administers painkillers for a long time, and a thorough investigation of the patient's systemic condition as well as medication and underlying diseases will be needed to identify and cope with them early.

P9-05

Comparison of severity of maxillofacial abscess due to odontogenic infection before and after Covid-19 pandemic

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Introduction
After WHO declared pandemic of Covid-19, Coronavirus affects the medical community in various way. We assumed that patients visit dental clinic lately, so severity of odontogenic infection increased. The aim of this study is to analyze the number and severity for maxillofacial and neck abscess patients with odontogenic infection who visited Kyungpook National university hospital emergency room. before and after Covid-19 pandemic.

Methods
Group 1 : Patients who visited maxillofacial and deep neck infection during 2018/02/18~2020/02/18.
Group 2 : Patients who visited maxillofacial and deep neck infection during 2020/02/18~2021/02/18. In February 18, 2020, the first corona virus case confirmed in Daegu city. Therefore, in this study, we divide group 1,2 before and after of February 18, 2020.
Kyungpook national university hospital's EMR system and CT image will be used. We can judge severity of infection by several factors. Infection space/Treatment choice/First visit CRP.

Results
The mean age of patients before COVID-19 was 52, and after COVID-19 was 56. The number of patients decreased after corona (group 3: 108) compared to before corona (group 1: 158, group 2: 147). In the evaluation of the severity divided by the infected space, scores 3,4 increased after corona. Also, scores 3,4 increased in severity evaluation divided by treatment. As a result of the fist-visit CRP measurement, there were many patients with a CRP of 10 or higher in the post-coronavirus group. This suggests that the severity of dental infection increases after COVID-19.

Conclusion
Based on the results of this study, de ntists can expect that tendency of maxillofacial and deep neck infection patients after Covid-19. The result of this study will be helpful for diagnosis of maxillofacial and deep neck infection.

P9-06

Serum values of antibodies against Porphyromonas gingivalis could be a potential biomarker for predicting the occurrence of bisphosphonate-related osteonecrosis of the jaw(BRONJ)

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Objective
Periodontitis is one of the risk factors for bisphosphonate-related osteonecrosis of the jaw (BRONJ). Studies are ongoing to identify biomarkers predicting BRONJ. This study investigated whether serum levels of antibodies against periodontal pathogens could be used as a reliable biomarker for predicting the development of BRONJ.

Materials and methods
46 patients with BRONJ and 70 healthy volunteers were analysed. Serum values of antibodies against Porphyromonas gingivalis(P. g), Fusobacterium nucleatum(F. n), and Aggregatibacter actinomycetemcomitans (A. a)were compared between the BRONJ and healthy group. The correlation between the periodontal clinical index and bone remodelling biomarkers was examined.

Results
Serum values of anti-P. g and anti-A. a antibodies were significantly higher in BRONJ patients than in controls (P<0.05). The area under the receiver operating characteristic curve for serum levels of antibodies was 0.766 for anti-P. g, 0.542 for anti-F. n, and 0.641 for anti-A. a. Anti-P. g IgG was the best factor for predicting BRONJ in terms of accuracy, sensitivity, specificity, false negative rate, and false positive rate. Additionally, serum levels of anti-P. g IgG were significantly associated with BRONJ stage.

Conclusion
We suggest that serum anti-P. g and anti-A. a IgG could be good biomarkers of BRONJ development.

P9-07

Analysis of C-reactive protein (CRP) levels according to glycated hemoglobin (HbA1c) in odontogenic infection patients with diabetic

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Introduction
Diabetic patients are vulnerable to infection,. If the infection that begins with odontogenic infection progresses rapidly, it is very important to control it early because it is exposed to a fatal situation. This study was conducted to understand the effect of

glycated hemoglobin (HbA1c) levels on C-reactive protein (CRP) in diabetic patients with odontogenic infection

Methods
The medical records of 92 patients diagnosed with odontogenic infection and hospitalized for treatment at the Department of Oral and Maxillofacial Surgery in Kyungpook University Hospital between January, 2016 and December, 2020 was reviewed. Subjects were divided into a diabetic controlled group (<7.0, N=45) and a diabetic uncontrolled group (≥7.0, N=47) based on the adult diabetes treatment goal of 7.0% according to the 2021 diabetes treatment guidelines. Each group investigated the HbA1c level, the degree of CRP reduction, and the length of hospitalization, and statistical analysis was performed on the correlation between them.

Results
Age and gender between the diabetic control group (male: 27, female: 18. Mean age: 66.0 years ± 15.14) and non-diabetic group (male: 26, female: 21. Mean age: 62.8 years ± 13.62) showed no significant difference. There was no significant difference between the two groups in the relationship between HbA1c and initial CRP ($p > 0.05$). The number of uncontrolled blood sugar levels during hospitalization was higher in the non-diabetic group ($p<0.05$). In both groups, initial CRP was not related to blood sugar control ($p > 0.05$), but the relationship between 1st F/U CRP and blood sugar was significantly higher in the non-diabetic group ($p < 0.05$). In the diabetes control group, except for 2 patients, blood glucose levels were controlled during hospitalization, and there was no statistical significance between blood glucose and f/u CRP ($p > 0.05$).

Conclusion
There was no significant relationship between HbA1c and CRP in patients hospitalized for odontogenic infection and receiving treatment. Rather, blood glucose levels during hospitalization were more correlated with CRP changes than with HbA1c.

P9-08

Intracranial and maxillofacial abscesses originating from the temporomandibular joint with rheumatoid arthritis : A case report

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The blood-brain barrier (BBB), along with the brain's own immune system, plays a role in protecting the brain from pathogens, so the development of intracranial brain abscesses is rare. Brain abscesses are characterized by difficulty in diagnosing due to non-specific symptoms, and the mortality rate is about 15%, so active treatment is required. Most brain abscesses occur in immunocompromised patients such as human immunodeficiency virus (HIV) infection or taking immunosuppressive drugs. It can also be caused by infection adjacent to brain, such as endocarditis or bacteremia, mastoiditis, sinusitis, or dental infection, etc.

Among the diseases related to the temporomandibular joint(TMJ) handled by dentists in the oral and maxillofacial area, infectious diseases of the TMJ have a rare incidence, and it is difficult to differentiate and early diagnosis from common arthritis. The temporal bone, which the mandibular condyles joint, is one of the craniums surrounding the brain in terms of anatomical location, and secondary brain abscesses due to otitis media and mastoiditis can occur. The mortality rate of these diseases is also high, so caution is needed. Statistically, it has been reported that the proportion of brain abscesses caused by infection of the temporal bone along with sinusitis and gingivitis reaches 25-50% of the total. Therefore, when visiting a hospital with a temporal abscess, a referral to a tertiary hospital is necessary, and the tertiary hospital doctor recognizes the possibility of brain abscess, intensive antibiotic treatment and prompt treatment for the cause.

Purpose
The purpose of this report is to review a case of TMJ infection and secondary maxillofacial and brain abscesses in a 61-year-old female patient with systemic rheumatoid arthritis, and to report the importance of prevention and early diagnosis of brain abscess as a clinician.

P9-09

Cystic lesion between the deciduous tooth and the succeeding permanent tooth : A Retrospective Analysis of 84 Cases

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Introduction
In the case of mixed dentition, it is difficult to diagnose because the root resorption of the deciduous teeth and the growth and eruption process of the succeeding permanent teeth can lead to confusion with the radicular cyst of the deciduous teeth or the dentigerous cyst of the succeeding permanent teeth. The purpose of this study is to investigate the characteristics of radicular cyst and dentigerous cyst that occur between the deciduous teeth and the succeeding permanent teeth, and to analyze considerations for diagnosing them.

Methods
Among patients who have visited our hospital for the past 5 years, the results of clinical and radiological examinations and histopathological examinations of patients who underwent cyst enucleation under general anesthesia for cysts between the deciduous and succeeding permanent teeth were combined and analyzed.

Discussion and Conclusions
Of the total 84 patients who participated in this study, 64 patients were diagnosed with dentigerous cysts and 20 patients were diagnosed with radicular cysts. The most common location for dentigerous cyst was the maxillary anterior region, while radicular cyst was generally found in the mandibular posterior region. Among the 64 patients with dentigerous cysts, 34 patients had the cysts with a radius of 5 mm or more, and the cyst was central type in 43 patients. In 63 patients, no pain was observed, and in 40 patients, clinical findings such as dental caries were not observed. There were 43 patients who showed tooth displacement on radiographic images of the patients with dentigerous cysts. The shortest distance between deciduous and succeeding permanent teeth was 3.10 mm on average. Among the 20 patients with radicular cysts, 18 patients had a cyst radius of 5 mm or more, and 11 patients had a central typed cyst. 13 patients complained of pain, and 18 patients had clinical findings such as dental caries. In 11 patients, tooth displacement of the succeeding permanent teeth below the radicular cysts was observed. The shortest distance between deciduous and succeeding permanent teeth was 1.69 mm on average. Clinical, radiological, and histopathological findings can be analyzed to for the diagnosis of cysts occurring between the root of the primary tooth and the crown of the succeeding permanent teeth.

P9-10

Analysis of clinical contributing factors that cause MRONJ

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Purpose
Since osteonecrosis caused by bisphosphonates, which was used as a treatment for osteoporosis, was reported, recently, bone resorption inhibitors such as denosumab and parathyroid hormone preparations have been rapidly increasing with the registration of health insurance benefits. In addition, cases of newly developed anticancer drugs, especially targeted therapies, that cause osteonecrosis have been continuously reported. The clinical characteristics of drug-related osteonecrosis have been reported in several literatures, and it is known as a disease in which various factors act as contributing factors. However, domestic studies on the clinical characteristics of osteonecrosis caused by drugs other than bisphosphonates are lacking. Therefore, in this study, the clinical characteristics of drug-related osteonecrosis patients who visited our hospital for the past 3 years were analyzed and compared with the existing bisphosphonate-derived osteonecrosis.

Patients and Methods
In this study, from 2018 to 2020, among the patients who visited the Department of Oral and Maxillofacial Surgery at Pusan National University Hospital, 130 patients who were taking osteoporosis-related drugs, were receiving injections, or had a history of prescribing in the past were analyzed by various clinical factors. Location and recurrence rate were confirmed. For clinical factors, the dosage form (medication or injection) of osteoporosis drugs, duration of administration, oral surgery (extraction), sex, and age were applied. After the occurrence of MRONJ, it was divided into operation status, recurrence rate, and location (upper and lower jaw).

Results
From 2018 to 2020, we checked the types of drug administration for patients with osteonecrosis who visited the Department of Oral and Maxillofacial Surgery at Pusan National University Hospital. Among 130 patients, 39 patients received intravenous denozumab, 55 patients took bisphosphonates, and 12 patients switched from taking bisphosphonates to denosumab. The remaining 24 were patients with no history of taking osteoporosis-related drugs. The average duration of treatment for osteoporosis-related drugs was 3.8 years. And 44 patients underwent oral surgery such as tooth extraction. For the treatment of osteonecrosis, 60 patients showed symptoms and 6 patients had recurrence. The purpose of the identification of these contributing factors is not to focus on treatment after MRONJ occurs, but to prevent the occurrence of diseases by identifying the clinical contributing factors as described above when oral surgery is required when taking osteoporosis-related drugs.

P9-11

Primary Closure on Facial Laceration of Dog Bite Wound : a Case Report

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Introduction
When performing primary closure on the bite wounds, a surgeon should consider several points. There are some debates on administration of preemptive antibiotics and timing of wound closure. It is necessary to consider the location, the severity, the aesthetic aspect of the wound, the patient's immune status, and etc.

Case presentation
A 5-year-old boy visited the emergency room at Chonnam National University Hospital about 3 hours after he was bitten in his face by a dog. Deep and extensive lacerations on the right cheek spanned over 10 cm in diameter, involving Right upper & lower lips. Amoxicillin / clavulanate was injected acting on aerobic and anaerobic bacteria. Since the lacerations were on the face, delayed primary or secondary closure was excluded. Primary closure proceeded under general anesthesia approximately 8 hours after the bite. After clensing the wounds thoroughly, we performed the layered suture and inserted a penrose drain to prevent dead space or hematoma. Postoperative rabies vaccination protocol was initiated and hospitalized for 2 weeks for the wound management. Ruptured site, subcutaneous pus drainage, skin necrosis, and bacteremia did not occur. Two times of scar revisions were done under general anesthesia at the 8 and 10 month after surgery.

Conclusion
Primary closure can be attempted where esthetics is important, although generally delayed primary or secondary closure is recommended if possible since closed wounds show a higher infection rate. In this case, careful wound management, copious irrigation, and preemptive antibiotic administration are required, with which it seems that good results can be obtained.

P9-12

Clinical characteristics and Long term prognosis of patients with Medication-Related Osteonecrosis of the Jaw (MRONJ) associated with cumulative dose of bisphosphonate and type of cancer

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Introduction
Bisphosphonate therapy is widely used for the treatment of bone metastasis in breast cancer and is widely used for osteoporosis patients. A potential side effect associated with bisphosphonates is osteonecrosis of the jaw. In this study, we evaluated the clinical characteristics and prognosis of BP-associated ONJ in the cancer population and in those receiving BP for osteoporosis.

Materials and methods
Patients selected 30 patients who underwent tooth extraction or sequestrectomy who were receiving drugs that could cause. MRONJ patients were divided into 2 groups according to the medical history, the cancer patient group was the experimental group, and the osteoporosis group was the control group. After surgery, their prognosis, such as bone exposure, inflammation, delayed healing, and recurrence, multiple lesion and number of visits was investigated and healing status was classified according to the result.

Results
Cancer group had a longer BP's exposure period than osteoporosis patients. In the cancer group, postoperative bone exposure, inflammation, delayed healing, infection, and recurrence were more common, and the number of visits for follow-up was also frequent. Cancer group had poor prognosis after surgery compared with osteoporosis patients.

Discussions & Conclusions
Cancer patients had to maintain bisphosphonates for chemotherapy compared to osteoporotic patients. Cancer patients had shorter bisphosphonate intervals and higher doses than osteoporosis patients. Receiving high-dose intravenous BP in cancer group tend to develop multiple lesions and recur compared with osteoporosis patients. Receiving high-dose intravenous BP in cancer group had a bad healing state, so they were followed up more often and had a longer follow-up period.

P9-13

Investigation of therapeutic effectiveness of rhPTH for MRONJ and its association with bone marker tests

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Introduction
Teriparatide (rhPTH) is an osteogenic stimulator and consists of the 1-34 amino terminus of parathyroid hormone (PTH). Bone mass increases when PTH is intermittently administered at low doses. In recent studies, teriparatide has been reported to have a therapeutic effect on osteonecrosis of the jaw. The purpose of this study was to investigate the therapeutic effect of rhPTH in MRONJ.

Methods
In this study, the therapeutic effect of rhPTH in patients diagnosed with MRONJ from January 2018 to October 2021 was evaluated with an experimental group that received both surgical treatment and rhPTH (teribone, forsteo) injection, and a control group that received only surgical treatment. It was compared through clinical evaluation and radiographic imaging, and classified as 'complete healing', which healed within 4 weeks after surgery, 'delayed healing', which healed within 4-12 weeks, and 'non-healing' that did not heal within 12 weeks. In addition, bone marker tests were performed on several patients in the experimental group to compare the variances before and after rhPTH administration.

Results
In the experimental group, 15 patients (average age about 80.1 years old, 2 male, 13 female, 13 MRONJ stage Ⅱ, 2 stage Ⅲ), and 20 control group patients (average age about 84 years, female 20, MRONJ Stage Ⅱ 15 subjects, stage Ⅲ 5 subjects) were the subjects of this study. In the experimental group, 10 patients (67%) were classified as complete healing and 5 (33%) were classified as delayed healing, and there was no non-healing group. In the control group, 9 patients (45%) were classified as complete healing, 7 patients (35%) as delayed healing, and 4 patients (20%) as non-healing. As a result of the bone marker test, after rhPTH administration, the levels of osteocalcin and bone specific ALP, which are representative bone formation markers, increased by an average of 27.9% and 15.1%, respectively, and the levels of CTx and NTx, the bone resorption markers, decreased by an average of 31.1% and 28.3%, respectively. None of these patients complained of side effects such as severe nausea, vomiting, headache, and asthenia.

Disscussion and Conclusion
rhPTH administration combined with surgical treatment has a significant therapeutic effect in MRONJ.

P9-14

Mandibular Cortical Thickness Change Through the Course of Bisphosphonate Drug Holiday

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Bisphosphonate is used for osteoporosis patients to increase bone density by inhibiting actions of osteoclast. Studies found that , by comparing mandibular cortical thickness on dental panoramic radiograph, bisphosphonate increases mandibular cortical thickness as bone density increases.
Medication-related osteonecrosis of jaw(hereinafter, MRONJ) is a disease occurring among those who take bisphosphonate or have history of having taken it. Usually, MRONJ patients of 2 or 3 stage are recommended to stop taking bisphosphonate under consultation with the physician prescribing the medication.
Bisphosphonates are reported to accumulate in human body due to their affinity to bone matrix. Research says, in case of alendronate, its half life in human body approximates 10 years.
This study aims to observe changes in the thickness of the mandibular cortical bone throughout drug holiday for patients undergoing regular follow-up under MRONJ diagnosis at Ajou University medical center oromaxillofacial department.

P9-15

Cutaneous sarcoidosis with Propionibacterium acnes on lower lip : Case report

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Introduction
Sarcoidosis is a systemic granulomatous disease of unknown etiology. Propionibacterium acnes is the only microorganism that has been isolated from sarcoid lesions. Many P. acnes trigger have been detected in sarcoid lymph nodes using quantitative PCR and in sarcoid granulomas by in situ hybridization. In patients with P. acnes hypersensitivity, granulomatous inflammation is triggered by intracellular proliferation of the bacterium. Proliferating bacteria may escape granulomatous isolation, spreading to other organs. Less frequently, but usually severe, manifestations also occur in the central nervous system, heart, upper respiratory tract skin and bones. Because lesions can exhibit many different morphologies, cutaneous sarcoidosis is known as one of the great imitators in dermatology.

Method and materials
A 56 year-old male patient showed erythematous swelling and induration tendency on chin and lower lip lesion with mild pain. Pathological diagnosis through punch biopsy done by other Dental hospital was granulomatous cheilitis. PCR and immunohistochemistry examination was done to diagnosis sarcoidosis.

Results
As a result of immunochemical staining, positive for PAB in histiocyte cytoplasm could be identified. In addition, in PCR results, a band specific to P. acnes was detected, although the titre was not high. Therefore, the patient was finally diagnosed with cutaneous sarcoidosis due to P. acnes infection.

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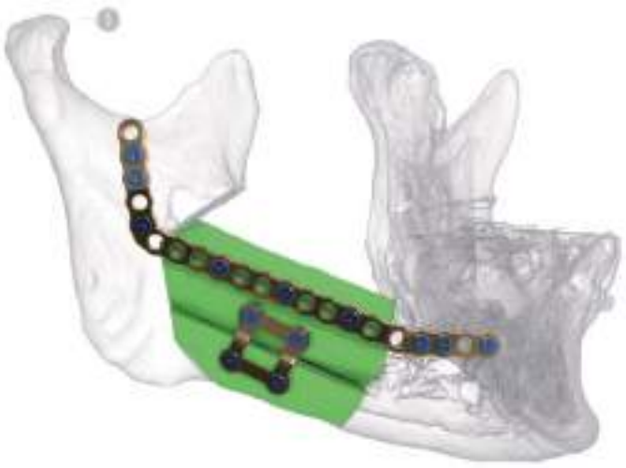

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높은 친수성으로 치유기간을 단축하고 치료 예측성을
높인 SLActive 표면

Roxolid® SLActive®

*Tensile Strength: Roxolid: 1,000 MPa/ Ti Grade 4: 550 MPa

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CollaStat

Bioactive Collagen Hemostat

Key Features

✓ 뛰어난 지혈작용

콜라겐 단백질 입자의 팽창으로 인한 물리적 압박과
트롬빈의 혈액응고 작용의 시너지 효과로 신속하고 효과적인 지혈이 가능하여
수술시간이 단축됩니다.

✓ 최소한의 조작

다림티센의 독자적인 트롬빈 안정화 기술로 트롬빈 용액을 준비하는
과정 없이 주사기를 결합하여 혼합하는 최소한의 조작만으로 사용 준비가 가능합니다.

✓ 적용의 편리성

Flowable한 제품으로 불규칙한 표면이나 접근이 어려운 부위에 적용이 가능합니다.

품목명: 흡수성체내용지혈용품(4등급)
허가번호: 제허 16-518호
사용목적: 외과적 수술시 체내조직을 지혈
사용기한: 제조일로부터 2년
저장방법: 1℃~25℃
용량: 3ml / 6ml

[제조원] dalim (주)다림티센
(주)다림티센
서울시 마포구 연희로31 연남빌딩 3층~5층
02)3142-0646

[판매원] dalim (주)다림양행
(주)다림양행
서울시마포구 월드컵북로 52-1
02)335-1007

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(클로르헥시딘글루콘산염 0.12g/100ml)

01 **광범위한 항균작용**
구강과 인후의 세균감염에 대한 염증을 치료, 예방하며
특히 candida albicans에 대한 효과가 우수합니다.

02 **강력한 염증 억제 작용**
점막친화력이 있어 구강과 잇몸에 대한 효과가 매우 신속하고 지속적입니다.

03 **다양한 기저질환 환자에게 투여 가능**
약물상호작용이 없으며 간장애/신장애/심혈관계/위장관계 환자 및
관련 약물 복용 환자에게도 투여 가능합니다.

04 **간편한 사용법**
물에 희석하지 않고 그대로 사용하므로 매우 간단하며
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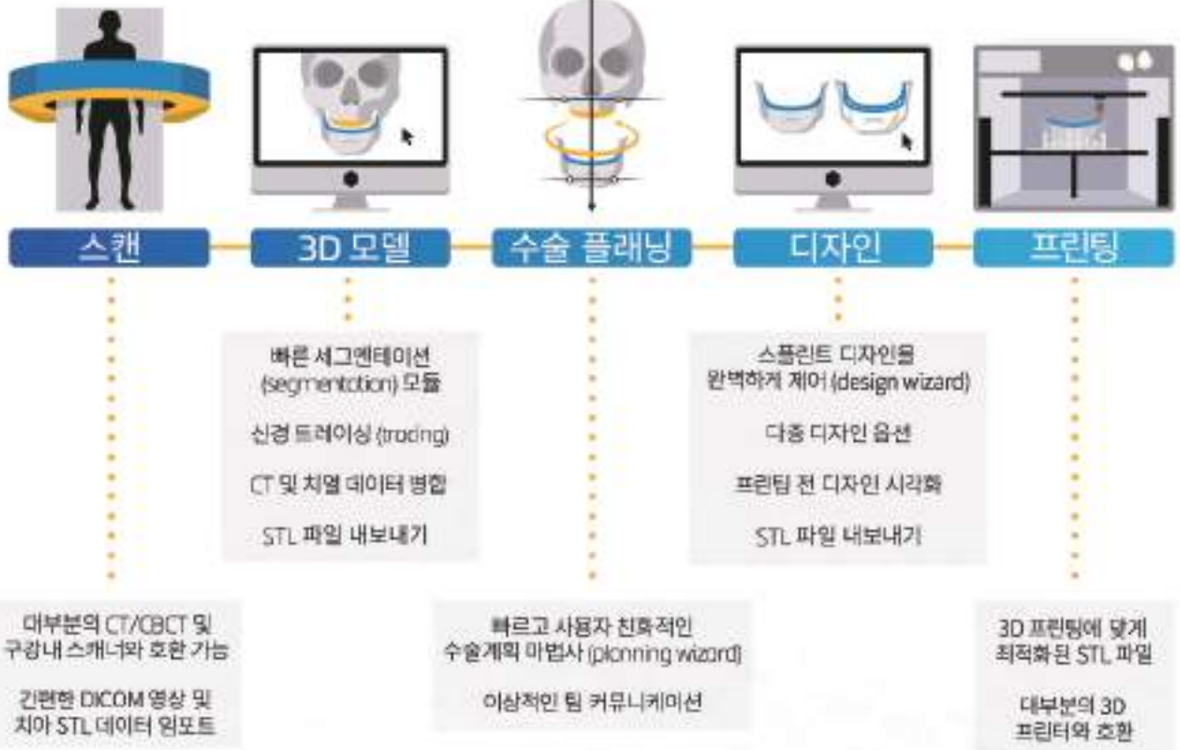

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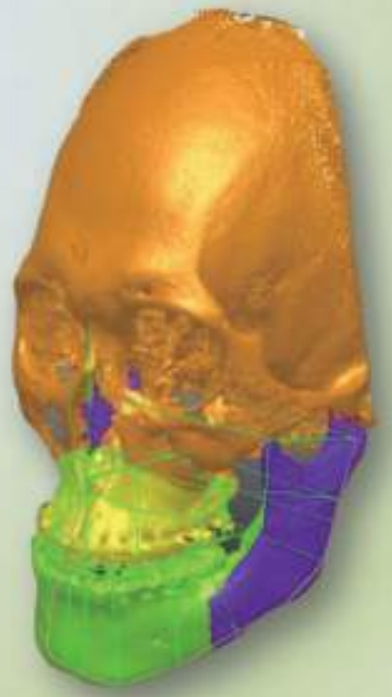

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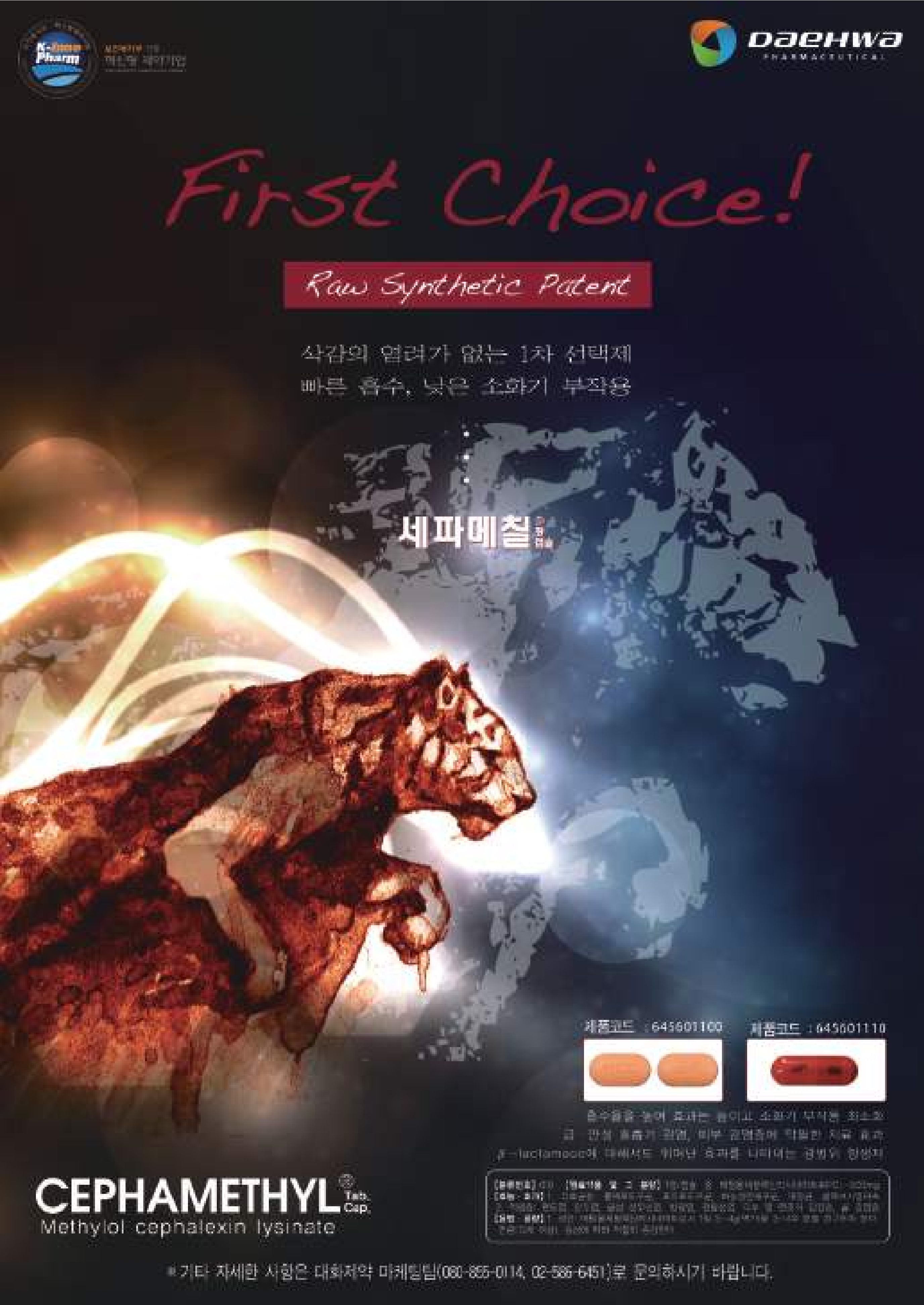
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