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A brief education and professional history

Yonsei University College of Dentistry (1984~1991)

Yonsei University Graduate School (1991-1997)

Faculty Exchange at Lille II Universite, France (2003-2005)

Adjunct Professor of Tokyo Dental College, Japan

Emeritus Professor of Binzhou Medical University, China

Associate Editor / Surgical and Radiologic Anatomy

Editorial Board / *Clinical Anatomy*

Associate Editor / European J Clinical Anatomy

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Clinical anatomy of face for Toxin and Filler Injection: MAXIMIZING the RESULT and SAFETY

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Anatomically, the face is the most complicated structure of the human body. Especially, the structure of facial muscles including nerves and vessels is very variable and has the racial differences. Recently, the importance on the facial anatomy has been reconsidered as the interest on the facial aesthetics is increasing. The aesthetic physicians should understand the anatomy of the facial musculature. Through this lecture, I would like to show the anatomical characteristics and the individual variations of the face related to the filler and Botulinum toxin injection for the safe and efficient clinical applications.

To avoid the serious complications after the injection, the detailed vascular anatomy of the face is essential. In this presentation, I would like to show (1) the whole running courses of the facial artery (FA) and superficial temporal artery (STA), (2) the origin and nature of the angular artery, (3) the layered location of supratrochlear and supraorbital artery at the forehead, (4) the vasculatures of the nose, and (5) the courses and distribution patterns of the labial artery around upper and lower lip. In every items of my presentation, the clinical importance of each area will be raised. In addition, I would like to suggest some injection techniques to reduce the vascular problems related with filler Injection as follows;

1. Small volume: Excessive amounts of filler should not be injected into one area. External pressure may increase causing damage to blood vessels.
2. Slow injection: Any filler injection should proceed slowly. A slow injection can reduce the risk of damaging vessels by a sudden increase in pressure
3. Retrograde injection: Anterograde injection increases the chance of intravascular injection.
4. Aspiration: Aspiration is the most effective method of verifying whether a needle or cannula is located within a vessel.
5. Use of cannula: Using a cannula of relatively large diameter reduces the chance of intravascular injection; however, it does not ensure complete safety.
6. Size of the needle and cannula: It is best to use a needle or cannula of sufficient size so that the pressure of injection is not high.
7. Avoid the vascular layer: It is best to inject into a layer with little to no blood vessels traversing. It is safest to inject into the subdermis or supraperiosteal level.
8. Anatomical knowledge: Above all, a thorough knowledge of the anatomy of the region being treated is necessary.

About the peripheral nerve distributions of the head, I will demonstrate that the demarcations of branches of the CN V (trigeminal nerve) and CN VII (facial nerve) anatomically overlap on some area of a whole face based on the Sihler's staining technique. Especially, I would like to talk about the general distribution and anastomosing patterns of the trigeminal and facial nerves. Through this lecture, the anatomical characteristics and the individual variations of the face related to the filler and toxin injection for the safe and efficient clinical applications will be given.