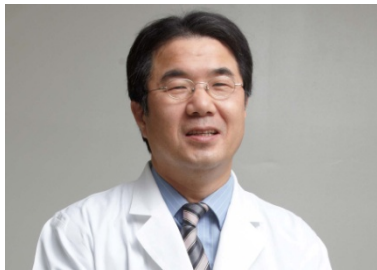


Computer-based functional and esthetic reconstruction of mandibular anterior arch defect : 3D analysis of airway anatomy in patients with mandibular anterior arch reconstruction:

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The reconstruction of mandibular anterior arch defect following trauma, osteoradionecrosis and tumor ablation is challenge to maxillofacial surgeon. The U-shaped mandible is difficult to reconstruct morphologically. Furthermore, functional restoration is hard to obtain due to the extrinsic tongue muscles are originated from mandible anterior portion.

Fibula free flap is mainly used and accepted choice of the reconstruction of the anterior mandibular defect. But, almost literature reviewed some reports and there was rare of long-term follow-up data and evaluation of functional and esthetic analysis.

The purpose of this study was to analyze functional results especially focused on the airway change in the anterior part of mandible reconstruction. Forty eight patients of anterior arch reconstruction with pre- and postoperative CT scans were included and parameters of airway were analyzed.

The retroglossal (RG), Retroglossal lateral dimension (LAT), RG-cross sectional area(CSA) were significantly decreased in the post-operation patient($P<0.05$). Airway length (UI) was significant increased compared with pre-operation patient. Furthermore, RG has a positive relationship with airway volume ($r=0.517$); HP has a stronger relationship with airway volume($p=0.627$) EB-area and RG-area have a strongest relationship ($r=0.887$ & $r=0.906$); also, On multiple regression analysis, RG-area($p=0.017$) and EB-area had positive correlation with the post-operation airway volume.

The result of this study indicate that the airway volume change is associated with HP, EB-area, RG-area; but retroglossal (RG), retroglossal lateral dimension (LAT), RG-cross sectional area(CSA) were significantly decreased in the post-operation patient comparing with pre-operation patient. This indicates great care about this area is necessary during mandibular anterior arch reconstruction.

Bibliography

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