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Tongue in groove septoplasty

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Abstract

Background: Correction of the lower third of the nose is perhaps the most challenging component of performing a rhinoplasty. The tongue-in-groove (TIG) technique provides a method for correcting excess columellar show and maintaining correction of caudal deviation. It is also indicated for controlling nasal tip rotation and projection while preserving the integrity of the lobular cartilaginous complex and may be combined with either the external or endonasal rhinoplasty. It is typically used in combination with other septorhinoplasty maneuvers. The TIG technique consists of a method by which the medial crura are advanced cephaloposteriorly onto the caudal septum into a surgically created space between them.

Caudal septal deviation leads to unfavorable esthetic as well as functional effects on the nasal airway. A modification to the tongue-in-groove (TIG) technique to correct these caudal septal deformities is described. With placement of a temporary suspension suture to the caudal septum, manual traction is applied, assuring that the caudal septum remains in the midline position while it is being secured with multiple through-and-through, trans-columellar and trans-septal sutures. From 2003 to 2016, 148 patients underwent endonasal septoplasty using this modified technique, with excellent functional and cosmetic outcomes and a revision rate of 1.4%. This modified TIG technique replaces the periosteal suture that secures the caudal septum to the midline nasal crest in the original TIG technique. This simplifies the procedure and minimizes the risk of securing the caudal septum off-midline when used in endonasal septoplasty.

Methods: Fifty-two patients with caudal septal dislocation were included in this study. Nineteen of the patients underwent open septoplasty and 33 patients underwent endonasal septoplasty. The caudal cartilage septums were fixed to the maxillary spine with horizontal mattress suturing in all patients. The patient followed up between 3 and 24th month. The modified "NOSE" survey was used to assess surgical outcome in all patients. The degree of septal correction was also classified. Nasal obstruction is the most common symptom associated with septal deviation. Anterior septal deviations may drastically affect nasal airflow dynamics directly and indirectly. Both dorsal and caudal deviations contribute to nasal obstruction through the reduction of the INV cross-sectional area and narrowing of the nasal vestibule. These areas of narrowing behave as Starling resistors during increased respiratory effort that collapse as the negative pressure generated by airflow through a narrow region, because of Bernoulli's principle, overcomes the nasal cartilaginous support and thereby further decreases airflow. Posterior septal deviations are better tolerated due to the increased cross-sectional area in this region, but can still affect breathing when severely deviated.

Results: Complete correction was achieved in the postoperative period in 96% of the patients. The status was near complete correction in 2 (3.8%) of the patients. But in these 2 patients, degree of caudal septal dislocation was corrected from severe to moderate after surgery and the fixation suture side is correct and stable. Postoperative modified NOSE survey scores were lower than the preoperative scores in all open and endonasal septoplasty groups ($P < 0.05$). NOSE 2 (nasal blockage or obstruction) and NOSE 4 (trouble sleeping) scores were higher in patients with higher follow-up duration in open septoplasty group.

Conclusion: Suturing technique is quite suitable for caudal septum dislocations and can easily be used in open and endonasal septoplasty. This suture reduces postoperative NOSE scores and the patients are satisfied with the results of the surgery. The septal stability may decrease in open septoplasty group with the longer post-operative duration. However, wide exposure can be ensured with an open septorhinoplasty approach. We concluded that it will be better to use endonasal septoplasty in appropriate cases and suture with nonabsorbable sutures.