Component Facelift Approach to the Temporomandibular Joint

Yassmin Parsaei, DMD*†; Seija Maniskas, MS*; Karl C. Bruckman, MD, DMD*; Derek Steinbacher, MD, DMD, FACS*

INTRODUCTION

Surgical management of the temporomandibular joint (TMJ) may be necessary for various conditions such as internal derangement and disc displacement, disc degeneration, condylar resorption, and condylar hyperplasia. Obtaining sufficient exposure to the TMJ during reconstructive surgery can prove difficult due to the high complexity of regional anatomy. Various surgical approaches have been developed to allow exposure of the joint and surrounding structures. Conventional approach to the joint requires a composite preauricular incision, which limits accessibility and requires significant retraction, leaving the facial nerve vulnerable to injury. Furthermore, the preauricular approach can result in unsightly scarring at the incision site.

The purpose of this video (see Video [online], which displays the authors’ component approach to expose and manipulate the TMJ, including the glenoid fossa, eminence, zygomatic arch, capsule, articular disc, condyle, and coronoid. The video further demonstrates specific maneuvers and operative sequence of eminectomy, condylar shave (high condylectomy), disc plication, and fat grafting to the joint) is to demonstrate our preferred component approach for achieving optimal functional and esthetic results, while addressing internal derangement of the TMJ.

INDICATIONS AND MANAGEMENT

A 57-year-old woman with a history of TMJ pain, clicking and condylar subluxation is featured. Examination reveals palpable lateral poles with clicking upon opening and increased tenderness on the left side. Computed tomography scan demonstrates arthritic changes and cysts, especially on the left condylar head. Conservative therapy was attempted and failed. As such, surgery was planned with the goal to improve function, halt the progression of arthritis, and alleviate pain.

OPERATIVE TECHNIQUE

The surgical field is prepared and draped. The planned approach is marked and a dilute epinephrine solution is administered. A retrotragal incision is made from the root of the helix to the lobule. A skin flap is elevated subcutaneously toward the malar region and sutured forward. The expected trajectory of the frontal branch is noted. A SMAS flap is marked out above the zygomatic arch and dissected while testing for the facial nerve. The zygomatic arch is exposed subperiosteally and the superior joint space entered. The capsule is followed laterally/inferiorly and divided (exposing the disc and condyle).

The planned eminectomy is marked and performed using a fissure burr and osteotomes. The transition to the glenoid fossa is rasped. The condylar head is visualized and irregularities smoothed. A high condylectomy could be performed at this time if indicated. The mandible is opened and closed to ensure proper hinge and translation motion with the disc capturing. This disk can be repaired and repositioned if needed. Strained, harvested fat is injected within the inferior and superior joint space for its anti-inflammatory properties.

The capsule is closed, and the SMAS flap repositioned and secured over top. The skin is closed in a layered fashion. Botox is injected into the masseter and temporalis. A facial compression garment is placed. The patient is discharged on the same day after recovery.

POSTOPERATIVE CARE

A soft diet is maintained for 1 week postoperatively. Stooping, heavy lifting, and strenuous exercise are avoided during this time period. Skin sutures are removed at 1 week.

Disclosure: The authors have no financial interest to declare in relation to the content of this article.

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.
DISCUSSION

Access to the temporomandibular joint is necessary for surgical management of a variety of conditions. Internal derangement of the joint is a frequent pathology, characterized by abnormal disc displacement, resulting in significant pain and degeneration of the articular surfaces. Other common disorders include inflammatory joint conditions (rheumatoid arthritis, osteoarthritis, and infectious arthritis), which can cause degeneration of the articular cartilage, synovial tissues, and the mandibular condyle. Congenital or developmental disorders such as condylar hyperplasia or aplasia can also adversely affect the TMJ. Although most patients are treated successfully with conservative measures, chronic conditions may require surgical interventions such as condylectomy, disc repositioning, meniscectomy, and possible reconstruction.

Open-joint procedures of the TMJ can prove challenging due to the many anatomic structures in the region such as the facial nerve, auriculotemporal nerve, superficial temporal artery and vein, middle temporal artery and vein, and the parotid gland. It is critical for the surgeon to identify the ideal surgical approach which provides adequate exposure of the joint with maximal protection of adjacent structures and formation of an inconspicuous scar.

Difficulties with access and surgical complications have been reported with many existing methods. In the conventional preauricular approach, significant retraction of the tissue flap to expose the TMJ risks temporary or permanent impairment of the facial nerve as well as bleeding of the temporal vessels. The composite flap further limits the predictability of anatomic exposure and results in visible scarring at the incision site. Although the endaural approach minimizes postoperative scarring, tragus cartilage damage and risk of possible perichondritis remain a significant disadvantage. A postauricular approach also increases the risk of infection and mental stenosis while limiting anterior exposure.

Our component approach to the TMJ utilizing a rhytidectomy incision with a deep SMAS flap allows for a layered dissection, improving the visibility of vital structures and minimizing the risk of injury (facial nerve). Administration of dilute epinephrine ensures adequate hemostasis without impairment of the facial nerve so it may be stimulated during dissection. A beveled incision perpendicular to the hair follicles allows for good regrowth and concealment of incision scars behind the hairline and natural contours of the face and ear. Autologous fat transplantation decreases postoperative edema and scar tissue formation.

CONCLUSIONS

We describe our component approach to the TMJ and its surrounding structures. A rhytidectomy dissection technique with a deep SMAS flap elevation allows for wide surgical access to the TMJ and capsule. The risk of structural damage to surrounding vessels and scar visibility is minimized. The video displays the authors’ component approach to expose and manipulate the TMJ, including the glenoid fossa, eminence, zyomatic arch, capsule, articular disc, condyle, and coronoid. The video further demonstrates specific maneuvers and operative sequence of eminectomy, condylar shave, disc plication, and fat grafting to the joint further highlights the surgical incision, dissection, and operative order in the treatment of internal derangement of the TMJ.

Derek Steinbacher, MD, DMD, FACS
Division of Plastic and Reconstructive Surgery
Yale School of Medicine
330 Cedar St., Boardman Bld., 3rd fl.
New Haven, CT 06510
E-mail: Derek.Steinbacher@yale.edu

REFERENCES

1. Gauer RL, Semidey MJ. Diagnosis and treatment of temporomandibular disorders. Am Fam Physician. 2015;91:578–586.
2. Murphy MK, MacBarb RF, Wong ME, et al. Temporomandibular disorders: a review of etiology, clinical management, and tissue engineering strategies. Int J Oral Maxillofac Implants. 2013;28:e395–e414.
3. Kreutziger KL. Surgery of the temporomandibular joint. I. Surgical anatomy and surgical incisions. Oral Surg Oral Med Oral Pathol. 1984;58:637–646.
4. Cabrejo R, DeSesa CR, Sawh-Martinez R, et al. Does fat grafting influence postoperative edema in orthognathic surgery? J Craniofac Surg. 2017;28:1906–1910.
5. Cascone P, Ungari C, Paparo F, et al. A new surgical approach for the treatment of chronic recurrent temporomandibular joint dislocation. J Craniofac Surg. 2008;19:510–512.
6. Baldwin AJ, Cooper JC. Eminentectomy and plication of the posterior disc attachment following arthrotyomy for temporomandibular joint internal derangement. J Craniomaxillofac Surg. 2004;32:354–359.
7. Ellis E. Surgical Approaches to the Facial Skeleton. 2nd ed. Philadelphia, Pa.: Lippincott Williams & Wilkins; 2006:193–214.
8. Jayavelu P, Riaz R, Tariq Salam AR, et al. Difficulties encountered in preauricular approach over retromandibular approach in condylar fracture. J Pharm Bioallied Sci. 2016;8(Suppl 1):S175–S178.
9. Miloro M, Peterso LJ. Peterson’s Principles of Oral and Maxillofacial Surgery. 3rd ed. Shelton, Conn.: People’s Medical Publishing House; 2011:1:1131–1140.
10. Byron JB, Calhoun KH. Atlas of Head & Neck Surgery-Otolaryngology. 2nd ed. Philadelphia, Pa.: Lippincott Williams & Wilkins; 2001:778.
11. Pfaff MJ, Clune J, Steinbacher D. Component approach to the temporomandibular joint and coronoid process. Craniomaxillofac Trauma Reconstr. 2014;7:323–326.
12. Jones RO, Mellite TK. Use of dilute epinephrine as an aid in facial nerve monitoring. Am J Otol. 1991;12:446–449.
13. Kridel RW, Liu ES. Techniques for creating inconspicuous face-lift scars: avoiding visible incisions and loss of temporal hair. Arch Facial Plast Surg. 2003;5:325–333.