Combined Endoscopic Endonasal & Transoral Approach to Transpatial Lesion Involving the Masticator, Preparotid, & Infratemporal Spaces: A Case Study

Lucy L. Shi, BA1; Patricia Loftus, MD2; Gustavo Pradilla, MD2; Oswaldo A. Henriquez, MD2
1Emory University School of Medicine, 2Emory University Department of Otolaryngology, 3Emory University Department of Neurosurgery

Introduction
The infratemporal fossa (ITF) is a challenging area to access due to its deep location and complex anatomy. Traditionally, open approaches have been utilized in accessing this space. While these approaches offer wide visualization, they often involve more extensive resection and increased cosmetic morbidity.1-3 Recently, with the advent of endoscopic and robotic (TORS) techniques, both endoscopic endonasal (EEA) and transoral approaches to the ITF have garnered favorability as they can improve functional and cosmetic outcomes.4-6 However, these benefits come at the consequence of visualization and maneuverability, increasing the risk for hemorrhage and capsular disruption. In addition, because of the complexity of these approaches, the operative time may also be longer and there remains the possibility that conversion to an open procedure will be necessary.4-6

In 2012, a study using cadaveric models to investigate the feasibility of a combined TORS and EEA approach to skull base lesions found that the two approaches can be complementary in providing wide exposure of the ITF, while minimizing morbidity.7 In our case report, we describe a novel surgical approach to the ITF with a combined endonasal transpterygoid approach and endoscopic intraoral approach in a patient with a transpatial lesion of the infratemporal and masticator space.

Case Presentation
We report a case of a 55-year-old woman with no significant past medical history who presented to the Otolaryngology Clinic at Grady Memorial Hospital with 5 months of progressively enlarging, painful left facial swelling. Physical exam showed a firm left preauricular mass of approximately 3 cm. Radiographic findings demonstrated a heterogenous multilobulated transpatial lesion in the left masticator space traversing into the preparotid space and displacing the masseter muscle. Fine needle aspiration (FNA) biopsy was inconclusive but suggested a benign salivary gland or nerve sheath tumor.

Operative technique included an endonasal endoscopic approach using a modified medical maxillectomy, transpterygoid/infraorbital approach with the inclusion of a trans-septal window in order to obtain a bimanual/two-surgeon approach. Once the mass was identified and resection reached its lateral limits, an endoscopic transoral approach to the mandibular ramus and notch provided access to the most lateral portion of the tumor.

The post-operative course was unremarkable. Magnetic Resonance Imaging (MRI) obtained one-month post-resection showed no residual tumor. Final pathology revealed a mesenchymal neoplasm with chondromyxoid stroma.

Intraoperative Snapshots

Pre- vs Post-Surgical Imaging

Radiographic Findings

Intraoperative Snapshots


Reference Snapshots

Discussion & Conclusions
This report details a novel surgical approach that can be safely used to access and resect transpatial lesions involving the masticator, infratemporal, and/or preparotid spaces. Through the combination of two closed endoscopic approaches, we were able to avoid an invasive open resection and reduce the associated post-surgical cosmetic and functional morbidity for the patient without compromising complete surgical removal of the tumor. In addition, by employing both an endonasal and intraoral approach, we were also able to achieve a wider surgical exposure that would not be possible by each closed approach alone.

As our report demonstrates, when appropriate, minimally-invasive endoscopic approaches should be considered for accessing deep spaces of the head and neck. Such approaches can allow for reduced post-surgical patient morbidity while maintaining tumor removal outcomes when compared to traditional open approaches. In cases of complex lesions involving more than one anatomical space, two or more minimally-invasive approaches can be combined to maximize surgical field visibility and instrument maneuverability.

Contact
Oswaldo A. Henriquez, MD
Department of Otolaryngology – Head & Neck Surgery
Emory University School of Medicine, Atlanta, GA
Email: Oswaldo.Henriquez@emory.edu
Phone: (404) 616-2375

References