Transoral Robotic Surgery (TORS) for Parapharyngeal and Retromolar Trigone Tumors

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INTRODUCTION

Traditional approaches to the retromolar trigone (RMT) and parapharyngeal space (PPS) result in a narrow operative field at the critical point of dissection. The open approach affording the most expansive view is the mandibular split. This comes with a reported morbidity of 35%, which includes mal/non-union, plate failure, wound infections, and poor aesthetic results. Transoral robotic surgery (TORS) places the visual vantage point within the operative field, thus widening to a three-dimensional panoramic view despite the confines of the anatomy. This panoramic concept revolutionized transnasal transsphenoidal skull base surgery when endoscopes offered an alternative to the microscope. O’Malley and Weinstein performed the preclinical and the first parapharyngeal space (PPS) mass resection using TORS, demonstrating its the safety and feasibility. We present a case series where surgical resection of these difficult to reach tumors was accomplished utilizing TORS.

Case #1 - Prestyloid PPS Mass

- 32 yo female presented with an incidental parapharyngeal mass (figure 1).
- CT guided FNA consistent with pleomorphic adenoma.

Transoral robotic approach with Stryker Navigation System.

The Crow-Davis mouth retractor was used to expose the soft palate and oropharynx (figure 2).

An introral incision was extended from the lateral portion of the tonsillar superiority onto and through the soft palate. Constrictors were divided and the dissection was carried laterally until the medial pterygoid muscle was exposed.

The dissection was carried along the medial aspect of the pterygoid muscle clipping all bridging vessels. Medially the dissection continued through the posterior pharyngeal wall to the longus colli muscle.

The Stryker navigation system was used to direct the dissection posterior to the medial pterygoid (figure 3).

Blunt dissection was carried laterally until the mass was visualized (figure 4).

The anterior, lateral and medial aspects of the mass were dissected coldly using the spatula in a blunt fashion.

Mass was removed en bloc – Pathology consistent with Pleomorphic adenoma

Palatal defect was closed primarily. On postop day 2 she was advanced to a dysphagia soft diet and discharged home (figure 5).

Six-month follow-up - tolerating a regular diet without trismus.

Total robotic console time was 164 minutes.

Case #2 – PPS and RMT Mass

- 69 yo male w/ soft tissue swelling over the retromolar trigone without complaint of trismus or dysphagia.
- MRI: multilobulated mass extending from the retromolar trigone to the medial pterygoid muscle in PPS. FNA and office biopsy were negative for malignancy

The patient was taken to the operating room for a transoral robotic excision of his parapharyngeal mass.

Submucosal dissection was carried down to the cystic mass and blunt dissection freed the mass from its surrounding attachments. The lingual nerve was identified and preserved with the deep part of the resection extending to the medial pterygoid and the peri-carotid fat.

The mucosal incision was closed primarily and the patient was discharged on POD #1 on a regular diet.

Although the frozen section at the time of resection was reported to be benign, the final pathology revealed low-grade mucoepidermoid carcinoma.

During the original exptation, all gross tumor was resected; however based on the frozen sections margins were not assessed at that time. On final pathology the tumor was reported to extend to the inked margin of resection and re-excision was recommended.

This was again accomplished with TORS. The da Vinci robotic system was again docked and the previous mucosal incision was excised along with normal tissue deep to the scar bed this included a cuff of medial pterygoid muscle, pharyngeal constrictors as well as the tonsil en bloc.

The final reexcision was free of tumor and no adjuvant therapy was required.

He was discharged on POD #1 on a regular diet.

Two-month follow-up there was no tethering of the tongue or lateral pharyngeal wall.

Robotic console time for the first resection was 40 minutes and 54 minutes for the second TORS.

Case #3 RMT

- A 74 yo male referred with close margin of retromolar trigone SCCA following laser surgery at an outside institution.

The patient was taken to the operating room for transoral robotic re-excision of his retromolar trigone lesion.

Robotic excision started along the lateral gingiva of tooth #31, carried through the buccal mucosa, onward across the retromolar trigone, and into the soft palate eventually ending at the posterior tonsillar pillar.

The medial dissection was extended from the gingiva medial to tooth #31, along the lateral pharyngeal wall, to the previously described mucosal cut. Deeper cuts were made laterally through the buccinators muscle, superiority to the muscle of the soft palate, and mediately to the pharyngeal constrictor and medial pterygoid muscle.

The specimen was lifted off the medial pterygoid muscle and an anterior, lateral and medial aspects of the mass were dissected coldly using the spatula in a blunt fashion.

The specimen was completely released with transection of the stylohyoides.

Reconstruction was achieved by robotically raising a buccal/mucosa rotation flap.

The patient was discharged on dysphagia soft diet postop day 3.

Total robotic console time was 34 minutes.

REFERENCES