Transoral Robotic Resection of Glossopharyngeal Neurofibroma: A Case Report

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ABSTRACT

INTRODUCTION
Neurofibromas are benign tumors originating from the peripheral nerve sheath. Solitary oropharyngeal neurofibromas are rarely cited in the literature, and none have been reported with the use of transoral robotic surgery (TORS) for excision. This case highlights the diagnostic challenges posed by oropharyngeal neurofibromas, their potential to mimic other conditions, and the novel application of TORS for management.

METHODS
Case study of a solitary neurofibroma masquerading as tonsillitis.

RESULTS
A 47-year-old female presented with a one-year history of a left tonsillar mass. Clinical evaluation, imaging, and biopsy results were inconclusive but raised suspicion for a neoplasm. The patient underwent robotic-assisted tonsillectomy and excision of the mass. Subsequent histopathological evaluation confirmed a benign spindle cell tumor consistent with neurofibroma originating from the glossopharyngeal nerve. The patient recovered postoperatively without any complications.

CONCLUSIONS
Oropharyngeal neurofibromas are rare and may present diagnostic challenges due to their resemblance to common tonsillar pathologies. Imaging and biopsies may not always provide definitive diagnoses, necessitating surgical excision for accurate characterization. This case demonstrates the utility of TORS for safe and effective management, offering improved visualization and surgical access while minimizing patient morbidity. Further research is warranted to explore the broader application of TORS in managing head and neck neurofibromas.

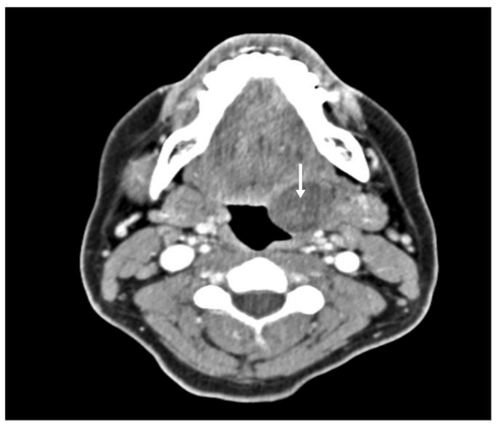

Figure 1: Computed tomography scan taken same week as procedure with white arrow showing 25 x 30 x 30 mm, rounded, hypoattenuating, left pharyngeal mucosal space mass (white arrow).

OBJECTIVES

Key Educational Takeaways
1. Management with transoral robotic surgery appears to be safe and effective, offering distinct advantages when the glossopharyngeal nerve is involved.
2. Discuss diagnostic and novel management strategies for clinicians approaching a patient with presentation of oropharyngeal mass.

BACKGROUND

- Neurofibromas are benign nerve sheath tumors commonly associated with neurofibromatosis type 1 (NF1)
- Cutaneous neurofibromas are primarily located in the trunk (60%), with some in the limbs (21%), and less than 10% in the head and neck region.[1]
- Patients may have symptoms of dyspnea, dysphagia, odynophagia, dysphonia, or obstructive sleep apnea (OSA).[2]
- Limited descriptions of solitary oropharyngeal neurofibromas exist in the literature. [3-6]
- Transoral robotic management is novel in management of glossopharyngeal neurofibromas

CASE PRESENTATION

Patient Presentation

- A 47-year-old female presented to our outpatient clinic with a one-year complaint of a left tonsillar mass.
- Past Medical History: obstructive sleep apnea, recurrent tonsillitis as a child, and halitosis with tonsilloliths.
- Pertinent Negatives: no complaints of dyspnea, dysphagia, odynophagia, or dysphonia.
- Imaging/Pathology: Prior outside computed tomography (CT) scan showed a well-circumscribed and homogenous hypoattenuating mass in the left tonsil. A biopsy was taken, and results showed benign morphology.

Workup

- Flexible laryngoscopy of the upper airway confirmed the left tonsillar asymmetry but also revealed a firm, mass-like component of the visualized tonsil, which was suspicious for cancer.
- Repeat CT with contrast shown in Figure 1.

TORS MANAGEMENT

- The patient underwent tonsillectomy via transoral robotic surgery (TORS) with the DaVinci SP robot (Intuitive Surgical Inc., Sunnyvale, California).
- During dissection of left tonsil, a separate smooth, encapsulated mass was identified and removed with its capsule (Figure 2).
- Permanent pathology results showed the left tonsillar mass to be a spindle cell neoplasm with “carrot shred”-type collagen and central cystic change consistent with a 31mm neurofibroma (Figure 3).
- At her follow-up appointment, the patient was healing well with improving fibrinous exudate and resolution of tonsillar pain

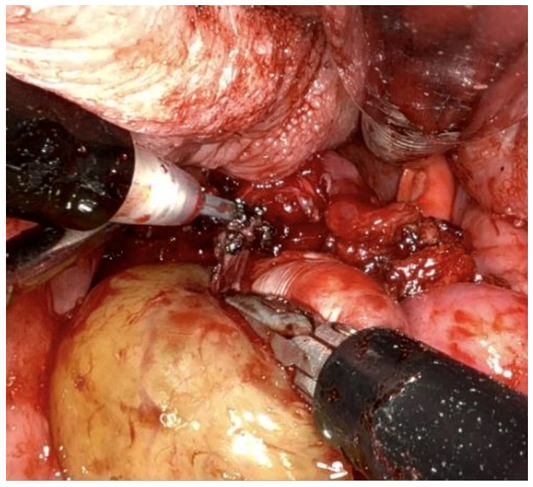

Figure 2: Transoral robotic surgery performed to excise mass, demonstrated in the left lower quadrant of intraoperative image.

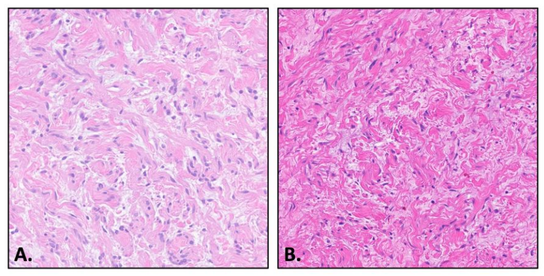

Figure 3: Hematoxylin and eosin-stained pathology slides of the tonsillar mass showing bland, hyperchromatic, wavy spindle cells with carrot shred-type collagen.

DISCUSSION

- This case illustrates how a rare oropharyngeal neurofibroma can mimic the clinical presentation of common tonsillar conditions leading to delayed treatment
- Definitive diagnosis was obtained on surgical pathology despite two prior CT scans and needle biopsy.
- Magnetic resonance imaging (MRI) is a sensitive tool for determining features of malignant versus benign neurofibroma and can aid surgical planning.[7]
- TORS offered the benefit of improved visualization and instrumentation of the inferior aspect of the tumor while posing the least morbidity to the patient.

CONCLUSIONS

- Oropharyngeal neurofibromas are rare and may present diagnostic challenges due to their resemblance to common tonsillar pathologies.
- Surgical removal of neurofibroma should be considered to definitively determine transformation potential and improve quality of life.
- TORS is a safe and effective surgical modality that can offer advantages of visualization for tumors in the oropharyngeal space, and when working near the glossopharyngeal nerve.
- Further research of TORS complication rates in managing oropharyngeal neurofibromas would help clinicians make informed decisions about the risks and benefits of oropharyngeal neurofibroma surgical removal.

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