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## Clinical and radiological approach to neurogenic tumor base of tongue: A case report

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### Abstract

Schwannoma or neurilemmoma is a benign peripheral nerve sheath tumor that comes under the broad category of neurogenic tumors. Schwannoma is a relatively uncommon slow-growing, solitary, smooth, painless tumor and its intraoral location makes it even rarer. Occurrence of intraoral Schwannoma goes in the order -tongue followed by the palate, floor of the mouth, buccal mucosa, lips, and jaws comprising 1% of all head and neck tumors. Here we discuss a case of Schwannoma base of tongue in a young female who presented with complaints of facial asymmetry, snoring, mouth breathing, and occasional sleep apnea for a year. Clinical and imaging findings were suggestive of a Schwannoma. Complete transoral resection and histopathological examination proved the same.

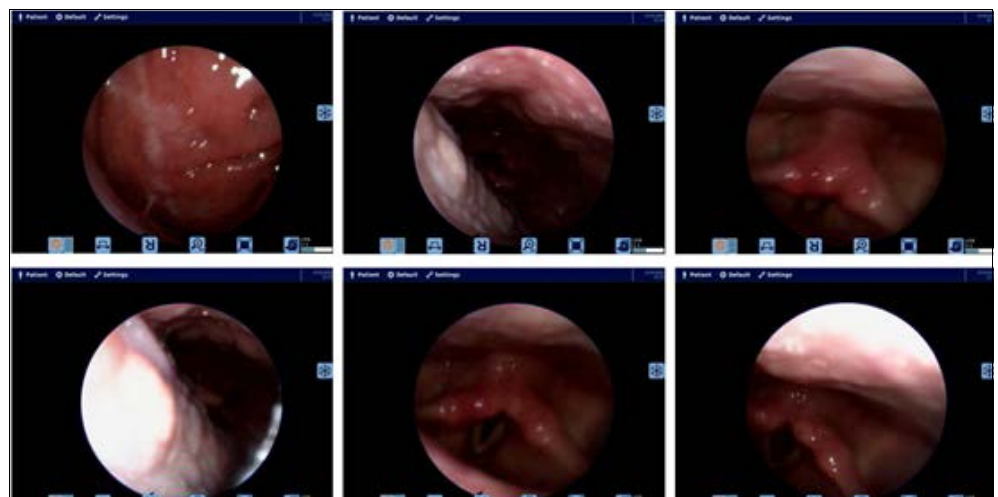
**Keywords:** Schwannoma tongue, MRI, ultrasound, CO<sub>2</sub> laser excision

### Introduction

#### Case report

A 28-year-old Indian female who is on treatment for hypothyroidism presented to the otorhinolaryngology department with complaints of snoring and mouth breathing for a 1-year duration. Occasional sleep apnea and slight alteration in the speech were noticed by her family members for which sleep study was done and findings were normal. Gradually she experienced difficulty in protruding her tongue and noticed an asymmetric swelling in the floor of the mouth. It was gradually increasing in size and painless. No complaints of loss of taste or sensation. On clinical examination, a smooth bulge from the right side of the floor of the mouth pushing the tongue upwards was seen. A painless solitary, smooth, slow-growing mass causing mechanical obstruction to the airway without any functional loss strongly suggested a benign pathology.

On Nasopharyngolaryngoscopy and video-laryngeal stroboscopy, a bulge was noted in the posterior part of the base of the tongue extending to the right vallecula. (Figure 1)



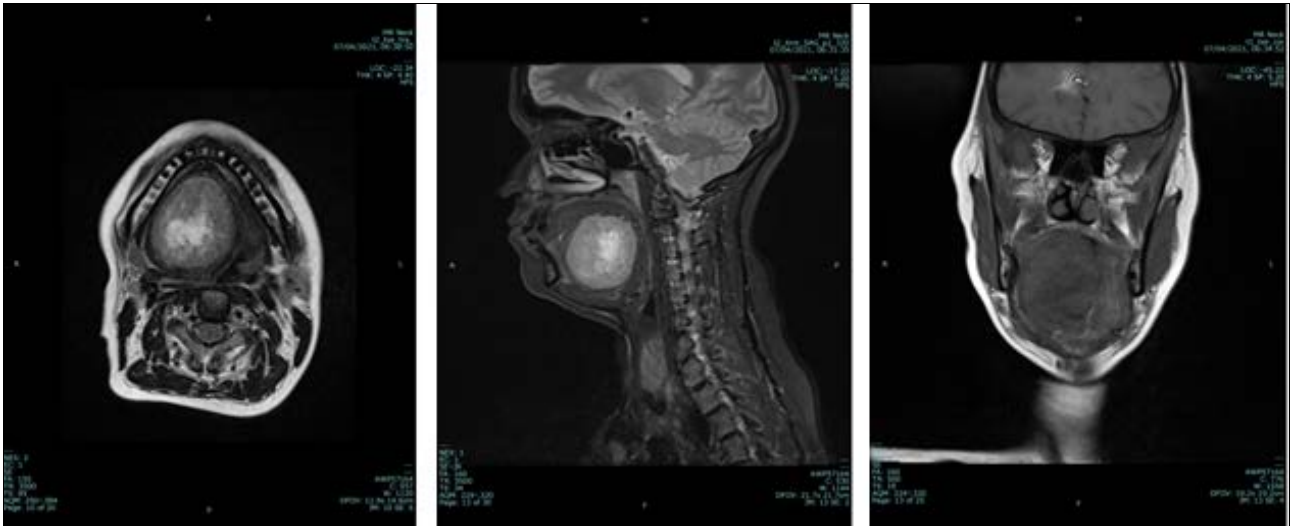
**Fig 1:** Videolaryngostroboscopy shows the extent of the lesion till the right vallecula

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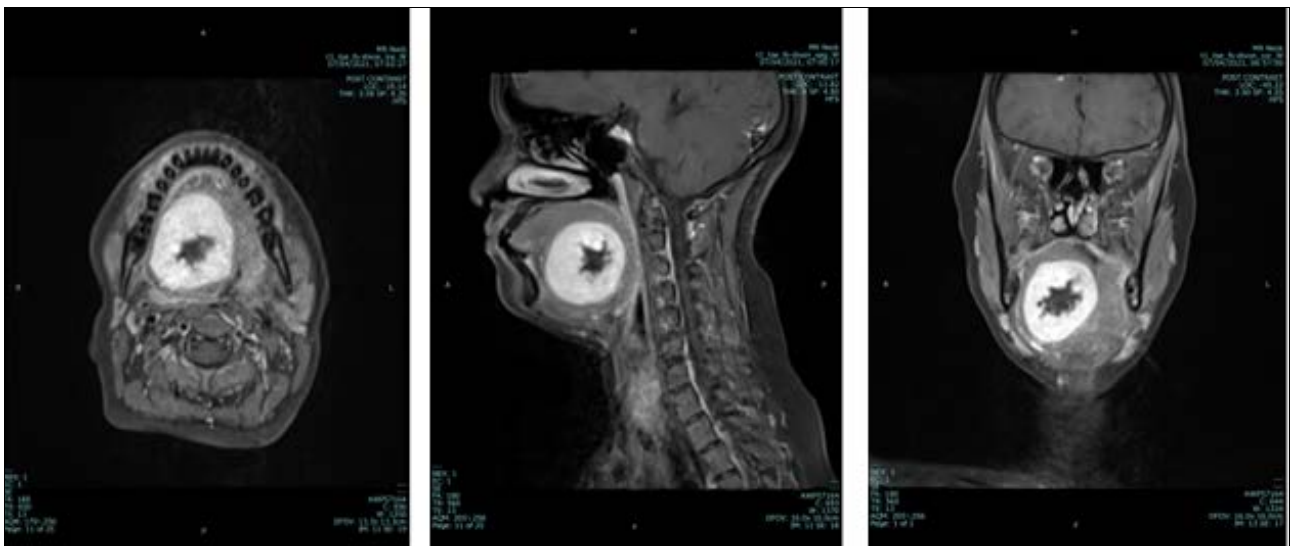
The first radiological investigation done was CT neck which showed a large well defined heterogeneous lesion with fluid attenuation areas on the right side of the base of the tongue and posterior aspect of the tongue causing displacement of midline septum towards the left side. Post-contrast, the lesion showed mild heterogeneous predominantly peripheral enhancement.

For better soft tissue characterization and to assess local extensions, an MRI of the neck with contrast was done. MRI images (figure:2) showed a well-defined lobulated

lesion involving the intrinsic muscles of the body of the oral tongue showing T<sub>1</sub> hypo-intense, T<sub>2</sub> intermediate signals, and central hyperintense signals. Areas of intermediate signals show mild restricted diffusion and nodular enhancement on post-contrast imaging (figure 3). The lesion measured 4.5 x 4.3 x 4.8 cm (Anteroposterior x transverse x craniocaudal). No extension of the lesion into the posterior oropharynx and base of the tongue. MRI was unable to make a definite final diagnosis, however benign characteristics of the lesion were evident.



**Fig 2:** MRI neck T<sub>2</sub> axial, T<sub>2</sub> (STIR) sagittal and T<sub>1</sub> coronal images show a well-defined lobulated lesion involving the intrinsic muscles of the body of the oral tongue showing T<sub>1</sub> hypo-intense, T<sub>2</sub> intermediate signals, and central hyperintense signals

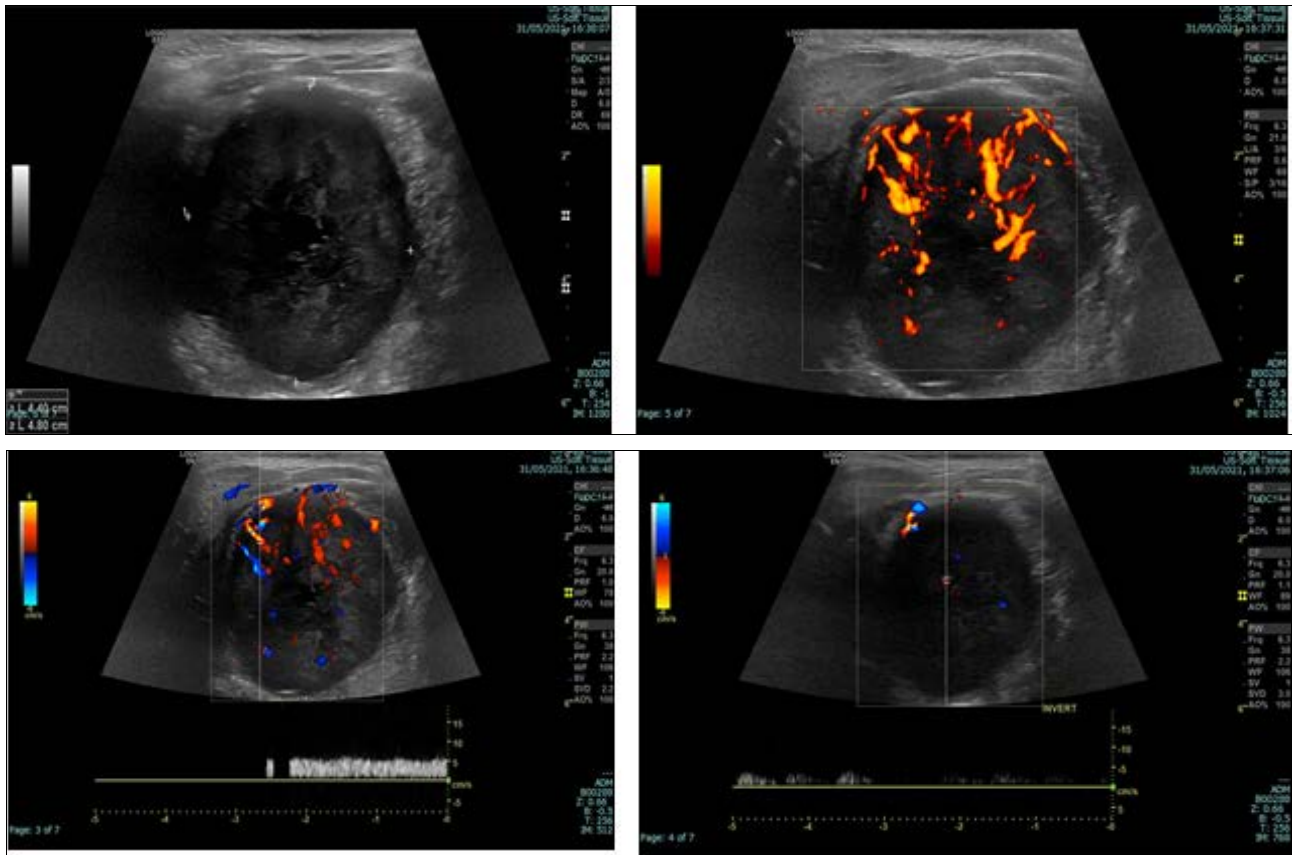


**Fig 3:** T<sub>1</sub> W axial sagittal and coronal post gadolinium images show the lesion to be well enhancing and has a non-enhancing core suggesting central necrosis.

A trucut Biopsy from the lesion was performed and turned out to be Schwannoma.

Pre-operatively ultrasound of the lesion was performed with a 6-15Hz frequency linear probe (figure: 4) to know the vascularity and the feeders. It showed a well-defined

heteroechoic lesion with significant internal vascularity. A central area of necrosis/cystic degeneration was present. Primary feeders appear to be the branches of the lingual artery.



**Fig 4:** Preoperative ultrasound shows a well-defined hetero echoic lesion with intense internal vascularity.

Successful transoral CO2 laser-assisted resection of the tongue Schwannoma was performed (figure 5) with an elective tracheostomy. Macroscopically lesion appeared as a

well-circumscribed light brown nodular mass weighing 50gm and measuring 7x 4.5 x 4 cm.



**Fig 5:** Intraoperative and post-excision images of Schwannoma.

Cut sections showed glistening light brown to pale white faintly lobulated areas with central hemorrhagic areas. Under the microscope, it showed a well-encapsulated neoplasm composed of predominantly cellular Antoni A areas and focally edematous and myxoid Antoni B areas. The cellular areas show spindle-shaped tumor cells with elongated wavy to ovoid vesicular nuclei arranged as palisading Verocay bodies around fibrillary processes. All these findings were consistent with Schwannoma. The patient is back to her normal life and there are no sensory or motor deficits reported till now.

**Discussion**

Schwannoma is a benign lesion derived from the Schwann cells that may arise from any myelinated nerve fiber. Approximately 25-45% of all schwannomas occur in the head and neck. Less commonly, schwannomas present in the oral cavity, and of this subset, the tongue is the most frequently involved [1]. Oral Schwannoma occurs

approximately equally in males and females, is more often found in the second and third decades of life [2]. The etiology is unknown, but it is postulated that the lesion arises by the proliferation of Schwann cells at one point inside the perineurium [3]. The lesion will cause the displacement and compression of the surrounding normal nerve tissue [4]. Clinically, schwannomas produce few symptoms and are usually recognized from the presence of a slow-growing mass. They only rarely manifest as an ulcerated or infected lesion [5]. CT is not as sensitive or specific for the diagnosis of schwannoma as MRI but is often the first investigation obtained. It is particularly useful in assessing bony changes adjacent to the tumor. Imaging features include low to intermediate attenuation, intense contrast enhancement-small tumors typically demonstrate homogeneous enhancement, larger tumors may show heterogeneous enhancement, adjacent bone remodeling with smooth corticated edges [1]. Magnetic resonance imaging is the investigation of choice in lingual schwannomas. The

better tissue contrast of the MRI allows a more precise localization and assessment of the relations to other structures, as well as a more accurate measurement of tumor size. Typical features in MRI are a well-circumscribed mass, hyperintense-isointense to muscle on T<sub>1</sub> weighted sequence, hyperintense on T<sub>2</sub>, and rapid homogeneous enhancement after gadolinium [6]. At pathologic analysis, a schwannoma has a true capsule composed of the epineurium. When large nerves are affected, the mass is characteristically eccentric with respect to the affected nerve, with the nerve displaced to the periphery of the mass. This finding is helpful when present and may be identified at imaging but is usually not seen in small nerves. Growth of Schwannoma within the epineurium creates encapsulation, which allows successful resection.

### Conclusion

This case of tongue base Schwannoma reveals expert management of a rare site large tumor without causing disfigurement or morbidity to a young female. In this case, imaging is appreciable as it plays a crucial role in diagnosis and pre-operative evaluation. The approach to these oral tumors starts with a thorough history and clinical examination followed by nasopharyngeal laryngoscopy, and videolaryngostroboscopy to know the extent and involvement of adjacent organs. Radiological imaging includes CT to understand the bone involvement, MRI for precise localization and assessment of the relation to other structures.

### Conflict of Interest

Not available

### Financial Support

Not available

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