Original Research Paper

Volume - 15 | Issue - 09 | September - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Histopathology

# A SILENT GROWTH ON THE TONGUE: UNMASKING LINGUAL SCHWANNOMA

**Dr Mamatha K** Associate Professor, Department of Pathology

**Dr Srushti M*** Assistant Professor, Department of Pathology *Corresponding Author

**Dr H T Lathadevi** Professor, Department of ENT

**ABSTRACT** Schwannoma, also referred to as neurinoma or neurilemmoma, is a benign, solitary, encapsulated, and slow-growing tumor originating from Schwann cells of the peripheral nerve sheath. Around 25–45% of schwannomas occur in the head and neck region, with 1–12% reported within the oral cavity—most commonly on the tongue. We present a rare case of a 26-year-old female who reported a swelling measuring 2.5 × 1 cm on the dorsal aspect of the tongue, near the tip. The lesion was cystic in consistency, had a smooth surface, was non-tender on palpation, and the overlying mucosa appeared normal. Histopathological examination revealed predominantly hypercellular areas composed of spindle-shaped cells arranged in palisading patterns, forming characteristic Verocay bodies. Immunohistochemical analysis demonstrated strong and diffuse nuclear and cytoplasmic positivity for S-100 protein, confirming the neural origin of the lesion. Due to overlapping clinical presentations with other submucosal lesions, histopathological evaluation supported by immunohistochemistry is essential for definitive diagnosis. Lingual schwannomas are exceedingly rare and should be considered in the differential diagnosis of any well-defined, painless, firm mass on the tongue. Surgical excision remains the treatment of choice, with local recurrence being uncommon.

**KEYWORDS :** Schwannoma, Intra-oral and Rare

## INTRODUCTION

"Schwannoma, also referred to as neurinoma or neurilemmoma, is a benign, solitary, encapsulated, and slow-growing tumor that originates from Schwann cells of the peripheral nerve sheath." Around 25–45% of schwannomas develop in the head and neck region, with 1–12% occurring within the oral cavity—most commonly on the tongue [1,2]. These tumors originate from nerves ensheathed by Schwann cells, which include the cranial nerves excluding the optic and olfactory nerves, as they are extensions of the brain's white matter, spinal nerves, and components of the autonomic nervous system. [3].

Peripheral nerve sheath tumors are classified into two main types: neurofibromas and schwannomas. These tumors consist of a mixture of neurites, Schwann cells, and fibroblasts embedded within a collagenous or myxoid stroma. According to English literature reports published from 1923 to 2023 there were 183 cases documented [4].

## CASE REPORT

A case of young 26-year-old female presented with painless swelling over tip of tongue noticed first time postpartum which gradually increased to the present size. The patient had no history of tongue bite.

Intra-oral examination revealed 2.5x1cm sized swelling on dorsal aspect of the tongue at the tip. It was cystic in consistency with smooth surface non-tender on palpation & the overlying mucosa was normal (Fig 1).

Clinically, the case was diagnosed as benign cystic lesion suggestive of mucous retention cyst. CBC parameters were under normal limits. The patient underwent complete excision of the mass under local anesthesia. Following the incision, the swelling protruded easily and was fully mobilized using blunt dissection, allowing for complete excision. The mass was predominantly well-demarcated from the surrounding tissues, exhibiting a whitish color with a firm and elastic consistency. Local haemostasis was ensured and wound was closed (Fig 1). Excised specimen was sent for histopathological study.

Gross examination revealed a solitary, white, globular, encapsulated mass measuring 2 × 1 × 0.7 cm. On cut section, the lesion appeared light tan, homogeneous, and glistening, with areas of mucoid material observed (Fig. 2). Histopathological analysis demonstrated predominantly hypercellular areas composed of spindle-shaped cells arranged in palisading patterns, forming characteristic Verocay bodies (Figs. 3 and 4). Immunohistochemistry (IHC) showed strong and diffuse nuclear and cytoplasmic immunoreactivity for S-100 protein, confirming the neural origin of the lesion." (Fig 4).

### Postoperative Outcome

At the two-month postoperative follow-up, the patient exhibited no clinical evidence of recurrence(Fig 6).

## DISCUSSION

The Swedish neurologist Nils Ragnar Eugene Antoni described schwannomas heterogeneity, who studied the tumor tissue into two different architectures. They are hypercellular regions of fascicles of Schwann cells with spindle cell morphology (Antoni A pattern), which can abruptly show transition to other hypocellular areas with microcystic and myxoid areas (Antoni B pattern) or merge with them. Schwannomas exhibit regions of palisading or nuclear alignment; these regions frequently form Verocay bodies or parallel nuclear arrays, which were described by Jose Juan Verocay in 1910. Schwannomas variants are Ancient", "Plexiform", "Cellular", "Melanotic", and "Psammomatous" variants [2,5].

These tumors may show degenerative and cystic changes, a feature referred to as 'ancient schwannoma' which is due to prolonged physical stress. The majority of cases occur sporadically; however, a small percentage are associated with genetic syndromes: Neurofibromatosis type 2 (NF2) in approximately 3% of cases, schwannomatosis in 2%, and Carney's complex in about 5%, often in association with meningiomatosis, with or without NF2. Notably, the presence of bilateral vestibular schwannomas is diagnostic of NF2[ 6].

Schwannomas can present as solitary lesions or in association with inherited genetic disorders such as neurofibromatosis type 1 (NF1), neurofibromatosis type 2 (NF2), or schwannomatosis. The NF2 gene acts as a tumor suppressor and plays a critical role in the regulation of Schwann cell proliferation. In cases involving the tongue, determining the nerve of origin is often challenging due to the close anatomical relationship between the hypoglossal, glossopharyngeal, and lingual nerves. [7].

Schwannomas typically present between the second and fourth decades of life and exhibit no sex predilection. Within the oral cavity, the tongue is the most affected site, followed by the palate, floor of the mouth, buccal mucosa, gingiva, lips, and vestibular mucosa. Clinically, these tumors often present as a painless mass, particularly when located in the anterior tongue and measuring less than 2 cm. In contrast, schwannomas located in the posterior tongue or those exceeding 3 cm in size are more likely to produce symptoms such as dysphagia, snoring, and pain. The severity of symptoms generally correlates with the size and anatomical location of the tumor. [8].

Clinically, schwannoma may be indistinguishable from other encapsulated benign tumors; therefore, histopathological examination is essential for an accurate diagnosis. The main differentials submucosal nodule on dorsal tongue clinically are neurofibroma, granular cell tumor, traumatic neuroma, fibroma, leiomyoma, lipoma etc. Rare benign soft tissue tumor in the anterior dorsal tongue Ectomesenchymal chondromyxoid tumor can also occur. Histologically the differentials of schwannoma are meningioma,

palisaded myofibroblastoma, leiyomyoma or leiyomyosarcoma, and pleomorphic hyalinizing angiectatic tumor of soft tissue [8,9].

Although several histological variants exist, diagnosis can be challenging when the tumor is predominantly composed of hypocellular areas. In such cases, considering differential diagnoses specific to the site and confirming with immunoreactivity for S-100 and SOX10 can aid in accurate identification.

Total surgical resection is the line of management in most of these tumours. The recurrence rate is very low, and malignant transformation is very rare [10].

The tip of the tongue is the least commonly affected region. However, Robert et al. documented a case of schwannoma arising from the tip of the tongue in a 30-year-old female. Histologically schwannoma should be differentiated from leiomyoma, palisaded myofibroblastoma but our case showed characteristic features predominantly comprised of Antoni A areas, with nuclear palisading / verocay bodies (Fig 3). Malignant transformation is an exceptionally rare event but can occur, and one case has been reported in the tongue The present case also has presentation at the tip of the tongue, which is a rare site [8,10].

Submucosal masses of neural origin in the tongue are rare, with solitary lingual ganglioneuroma being an exceptionally uncommon entity. To date, only two cases of solitary lingual ganglioneuroma have been documented in the English literature, underscoring the exceptional rarity of this entity. [11].

Other uncommon sites for schwannoma include gastrointestinal (GI) tract which accounts for all gastric tumors(0.2%), benign gastric tumors (4.0%), and gastric mesenchymal tumors (6.3%) [12]. Breast schwannomas accounts for 2.6% of all schwannomas, even though schwannomas can occcur at any site [13].

The differential diagnosis for benign neoplasms of the tongue includes a variety of mesenchymal, neurogenic, and cystic lesions. Common considerations are: Mucous extravastion cyst, dermoid cyst, papilloma, Granular cell tumor, Fibroma, Lipoma, Rhabdomyoma, Leiomyoma, Neuroma, Neurofibroma, and rare tumors like schwannoma, Ectomesenchymal chondromyxoid tumor and ganglioneuroma can occur [14].

These lesions can present with overlapping clinical features, and histopathological evaluation is often required for definitive diagnosis with supporting immunohistochemistry panels.

## CONCLUSION

- Lingual Schwannoma are very rare and should be considered in differential diagnosis of any well-defined, painless, firm tongue masses.
- Definitive diagnosis should be established through histo-pathological examination and further supported by immuno-histochemical analysis.
- Total excision is the treatment of choice with uncommon local recurrence.

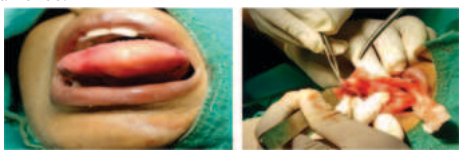

**Fig 1:** Intra-oral examination and intra-operative image: 2.5x1cm sized swelling on dorsal aspect of the tongue at the tip, was cystic in consistency with smooth surface non-tender on palpation

**Fig 2:** Solitary white globular encapsulated swelling measuring 2x1x0.7cm. On C/S:the swelling is light tan, homogenous, glistening with mucoid material

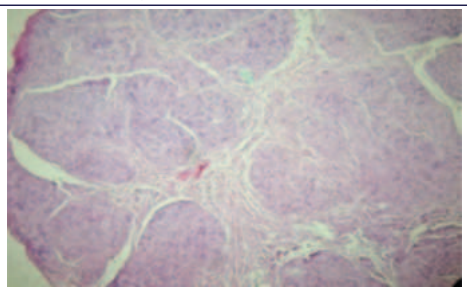

**Fig 3:** Encapsulated tumor with predominantly comprised of hypercellular Antoni A areas(H&E 10X)

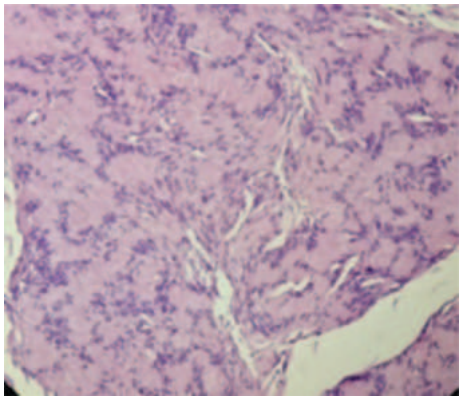

**Fig 4:** Tumor - Antoni A areas, with nuclear palisading / verocay bodies (H&E 40X)

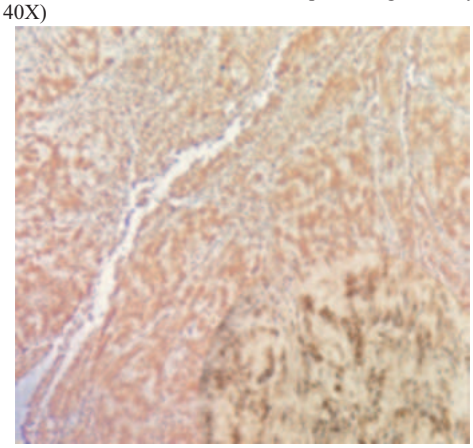

**Fig 5:** IHC: Nuclear & cytoplasmic immunoreactivity for S-100 (S 100 protein 40X)

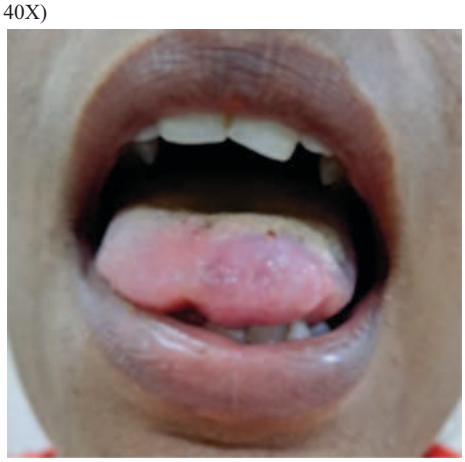

**Fig 6:** Post operative follow up shows with no symptoms and recurrence

## REFERENCES

1. Bhardwaj S, Sen S, Mishra M, Singh G, Mondal S. Exploring the uncommon, tongue schwannoma—A rare case report. Traumaxilla. 2024;0(0).
2. Deepthi V, et al. Schwannoma of the tongue: A case report with an insight on its variants and pathogenesis. Indian J Dent Adv. 2023;13(2):79–84.

3. Haider MY, Rahim M, Bashar NMK, Hossain MZ, Islam SMJ. Schwannoma of the base of the tongue: a case report of a rare disease and review of literatures. Case Rep Surg.
4. Pierri M, Moffa A, Sabatino L, Iafrati F, Di Giovanni S, De Benedetto L, et al. Case report and literature review on tongue schwannoma. J Otorhinolaryngol Hear Balance Med. 2024;5:11.
5. Joshi R. Learning from eponyms: Jose Verocay and Verocay bodies, Antoni A and B areas, Nils Antoni and schwannomas. Indian Dermatol Online J. 2012;3:215–9.
6. Mohammad A, et al. Schwannomas of the head and neck region. Cancer Res Stat Treat. 2020;3(3).
7. Abreu I, Roriz D, Rodrigues P, Moreira Â, Marques C, Alves FC. Schwannoma of the tongue—A common tumour in a rare location: a case report. Eur J Radiol Open. 2017;4:1–3.
8. Bansal R, Trivedi P, Patel S. Schwannoma of the tongue. Oral Oncol Extra. 2005;41(2):15–7.
9. Arteta AA, et al. Ectomesenchymal chondromyxoid tumor of the tongue: A small polyp, a big diagnosis. Adv Oral Maxillofac Surg. 2021;1:100006.
10. Viswanatha SC, Raghavan N. Schwannoma of oral tongue. Int J Otorhinolaryngol Head Neck Surg. 2023;9:682–4.
11. Wevers M, Govaerts D, Hauben E, Politis C. Solitary lingual ganglioneuroma: A case report. Oral Maxillofac Surg Cases. 2020;6:100161.
12. Mathews NR, Joseph D, Joseph E. A rare case report of gastric schwannoma – a clinicopathological perspective and review of literature. Indian J Appl Res. 2025;15(3). doi:10.36106/ijar
13. Jawalkar S, Patil V, Raj SS. A case of schwannoma in breast: A rare site. J Krishna Inst Med Sci Univ. 2024;13(4):185–8.
14. Laskin DM, Giglio JA, et al. Differential diagnosis of tongue lesions. Quintessence Int. 2003;34(5).