Case Report

Sublingual Schwannoma: A Rare Case Report with Diagnostic and Surgical Challenges

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Abstract

Background: Schwannomas are solitary, slow-growing, benign tumors made of nerve sheath Schwann cells. Oral cavity involvement is rare, although around a quarter occur in the head and neck region. The patient in this publication is a 32-year-old woman who has a distinct, painless, slowly increasing swelling in her left sublingual area. Clinical presentation, FNAC, and contrast-enhanced CT were inconclusive. Complete surgical excision with enucleation and primary closure was performed. Definitive diagnosis was made by histology (Antoni A and B areas, Verocay bodies) and immunohistochemistry (S-100 positivity). The patient recovered uneventfully with no recurrence. Sublingual schwannoma, though rare, should be considered in differential diagnosis of floor-of-mouth swellings.

Keywords: Schwannoma, sublingual space, oral cavity, S-100, enucleation.

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Introduction

Schwann cells are spindle-shaped cells that surround every extracranial neuron in a thin barrier. To improve nerve conduction, they wrap axonal fibers in an insulating myelin sheath. Schwannomas typically arise from proliferation of these cells in peripheral, cranial (except optic and olfactory), or autonomic nerves, showing predilection for sensory nerves.[1,2]

Schwannomas manifest as slow-growing, benign, well-encapsulated, solitary lesions, generally asymptomatic. Although they can appear anywhere in the body, they prefer the head, neck, and extremities.[3,4] The head and neck region account for between 25–48% of schwannomas, with the intracranial region being the most prevalent. However, oral floor schwannoma is incredibly uncommon, occurring in only 1% of cases. The tongue is most frequently affected by intraoral lesions, with the palate, buccal mucosa, lip, and gingiva being damaged in decreasing order.[5–7] About 10–40% of extracranial schwannomas are not identified with the nerve of origin.[8–10]

Detecting the nerve of origin is often challenging. The tumour seldom recurs if completely excised; malignant transformation is rare.[11] We report a case of sublingual schwannoma wherein the nerve of origin was not identified.

Case Report

A 32-year-old woman arrived at our hospital with a bulge in her left oral cavity floor that had been there for twelve years and was progressively becoming bigger. For the previous three to four months, she experienced mild pain over the swelling; nevertheless, she reported no speech or deglutition difficulties, and her taste and sensory perceptions were normal. There was no history of trauma, systemic or local sickness, or motor abnormalities. She had received a course of antibiotics and analgesics from a local dentist before presenting to us.

Intraoral examination revealed an approximately 2×2 cm oval, well-circumscribed, smooth, lobulated, yellowish-white firm swelling involving the left anterior sublingual region (Figure 1). The mass was non-tender, freely movable, and the overlying adjacent mucosa was normal. No evidence of paraesthesia or neurological weakness was present.

Contrast-enhanced CT showed a subtle suspicious area of minimal abnormal enhancement with ill-defined margins in the left parasagittal area of the floor of the mouth; the mass did not show significant enhancement. Based on clinical and radiological profiles, differential diagnoses included benign soft tissue lesions of the sublingual area such as sublingual cyst or minor salivary gland tumour.

Lacking a definitive diagnosis, excisional biopsy was performed under general anaesthesia. The lesion was enucleated with gentle, meticulous submucosal dissection. The lingual nerve and Wharton's duct were identified and preserved. The tumour was an isolated mass without any communication to the lingual nerve

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or adjacent structures. The surgical wound was sutured with 4-0 absorbable vicryl material.

Macroscopic appearance: Solitary, pinkish, well-encapsulated mass.

Microscopic examination: Alternating the areas of Antoni A and Antoni B. Spindle cells with hazy cytoplasmic boundaries and nuclear palisading connected to Verocay bodies were visible in Antoni A regions. The hypocellular Antoni B regions have spindle to oval cells dispersed randomly within a weakly textured matrix.

Immunohistochemistry: Strong positive staining for S-100 protein, confirming neural crest origin.

Final diagnosis: Schwannoma.

The postoperative course was uneventful. Sutures were removed on day 7, and complete wound healing was noted. At 6-month follow-up, there was no clinical or radiological evidence of recurrence, and the patient remained asymptomatic.

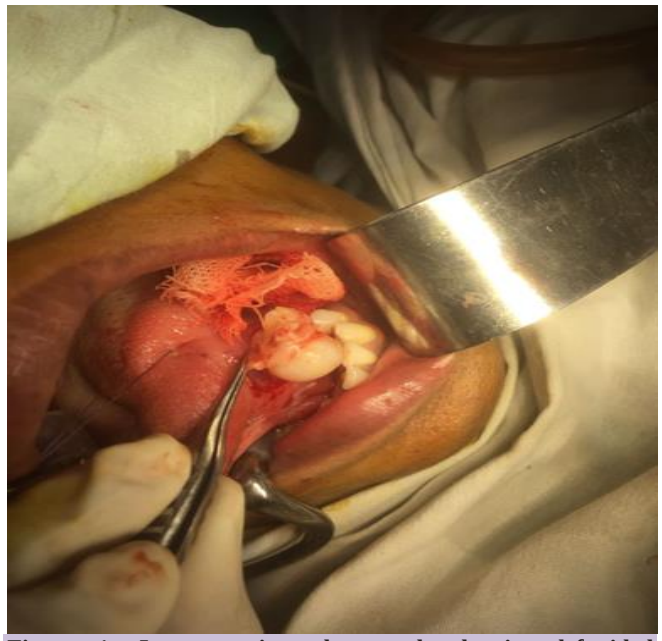

Figure 1: Intraoperative photograph showing left-sided sublingual swelling (well-circumscribed, smooth, lobulated)

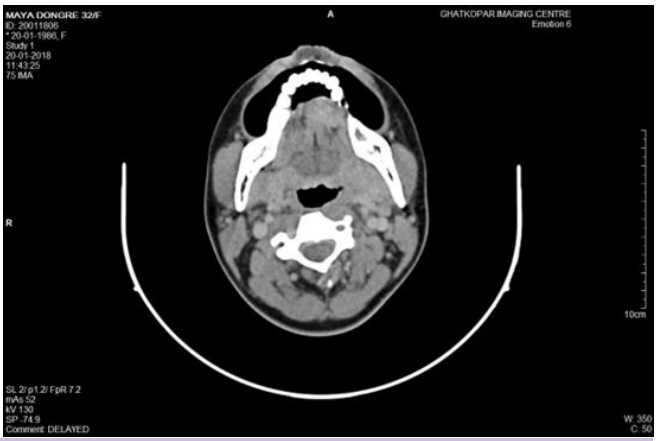

Figure 2: Axial section of CT scan showing small left sided sublingual mass with homogenous enhancement

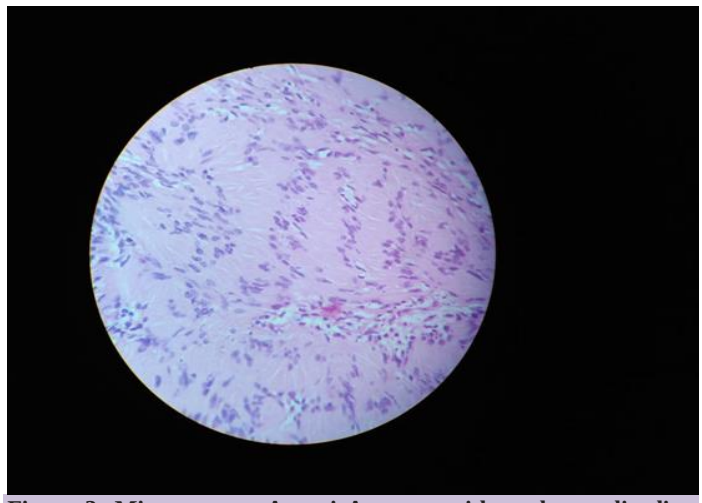

Figure 3: Microscopy – Antoni A a reas with nuclear palisading around Verocay bodies (H&E)

Discussion

Verocay initially referred to Schwannoma as "neurinoma" in 1910. It is an uncommon, benign Schwann cell neurogenic tumor. There are no sex preference and no known aetiology.[4,5] The majority of cases happen in the second to fifth decades of life. They usually show up as a long-standing, hard, well-defined, painless, slowly expanding mass with a preference for the peripheral parts of the cranial nerves and, in most cases, no neurological abnormalities.[12]

The two clinical types of Schwannoma are the pedunculated form, which resembles a fibroma, and the more common encapsulated form, which is surrounded by dense fibrous connective tissue.[13] As in our case, the lesion usually manifests as a smooth-edged, well-circumscribed lump. Fibroma, lipoma, mucocele, epithelial hyperplasia, benign salivary gland tumors, hemangioma, granular cell tumor, neurofibroma, neuroma, nerve sheath myxoma, leiomyoma, and rhabdomyoma are among the differential diagnosis for swelling in the floor of the mouth. Despite its rarity, oral floor schwannoma should be taken into consideration.[1,2]

Diagnostic imaging (ultrasound, CT, MRI, FNAC) has limitations. The role of preoperative CT/MRI is not firmly established.[2] Imaging results for sublingual schwannoma were not reported by Kawakami et al. Only 4 out of 49 patients had a valid diagnosis, according to Kon et al., who concluded that imaging-based diagnosis is quite challenging. For preoperative planning and to rule out cancer, imaging is crucial. The best method for determining the size of a tumor is magnetic resonance imaging (MRI), which has a strong correlation with the results of surgery.[2,13] Since the patient had already had a CT scan, an MRI was not done in this instance.

Identifying the nerve of origin was difficult here, as in many cases. When schwannoma arises from a small nerve, the association is hard to establish; if from a large nerve, nerve fibres spread over the capsule surface rather than integrating into the mass.[7,8] Dreher et al. noted difficulty differentiating lingual, hypoglossal, and glossopharyngeal nerve tumours in >50% of intraoral cases. Reported cases also describe schwannoma arising from the sublingual gland, mylohyoid nerve, and hypoglossal

nerve.

The preferred course of treatment is surgical excision; in well-encapsulated variants, recurrence is rare. Non-encapsulated tumors need normal tissue margins, whereas the encapsulated variety is easily enucleated. Although it's not always feasible, careful separation to maintain function is tried if the nerve of origin is visible. Prognosis is favourable. Malignant transformation is rare and was not a concern in our patient, as histology showed benign features with complete removal confirmed.

Conclusion

Schwannoma of the sublingual space is an exceptionally rare benign tumour that can mimic more common soft tissue lesions. Clinical diagnosis is difficult due to the absence of neurological signs and nonspecific imaging features. In our case, CT was inconclusive, and the nerve of origin could not be identified intraoperatively—a recognized challenge in up to 40% of extracranial schwannomas. Definitive diagnosis rests on histopathology (Antoni A and B patterns, Verocay bodies) and immunohistochemistry (S-100 positivity). Complete surgical enucleation is curative, and recurrence is rare when excision is complete. This case highlights that even when the nerve of origin cannot be identified, careful surgical excision with preservation of adjacent structures (lingual nerve, Wharton's duct) leads to excellent outcomes. Clinicians should include schwannoma in the differential diagnosis of any chronic, painless, well-encapsulated swelling in the floor of the mouth.

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Conflicts of interest

There are no conflicts of interest.

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