

## Case Report

# KTP 532 laser excision of lingual schwannoma: a case report

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### ABSTRACT

Schwannoma is a benign slow-growing tumour that arises from Schwann cells of the peripheral nerve sheath. The head and neck are common locations of this neoplasm. Intraoral schwannoma is uncommon, with the tongue being the most common site. The tumor can remain asymptomatic for a long period of time. The patient may present with symptoms such as a lump, swallowing difficulty, pain or discomfort, voice change, paresthesia, snoring, bleeding or ulceration. The tumor is usually slow-growing, solitary and well-encapsulated and malignant transformation is very rare. Sudden enlargement of the tumor can occur even from trivial trauma. Only approximately 50% of these tumors have a close relationship with a nerve. Transoral resection is the treatment modality of choice. Histopathological examination and immunohistochemistry help in confirmation of the diagnosis. Recurrence of the tumor is very rare. This is a case report of a 26-years-old lady with schwannoma in the ventral surface of the tongue successfully treated by transoral resection with the KTP-532 Laser.

**Keywords:** Schwannoma, Lingual, KTP-532 laser

### INTRODUCTION

Schwannomas are benign nerve sheath tumors derived from Schwann cells and account for 1% of intraoral tumors.<sup>1</sup> They are slow-growing neoplasms and are usually solitary.

Complete tumor removal is usually possible and recurrence is extremely rare. Histopathological evaluation reveals a well-circumscribed neoplasm composed of spindle-shaped cells arranged in fascicles and palisading sheets. A positive immunohistochemistry for S100, SOX 10 and CD 34 supports the Schwann cell origin of this neoplasm.<sup>2</sup>

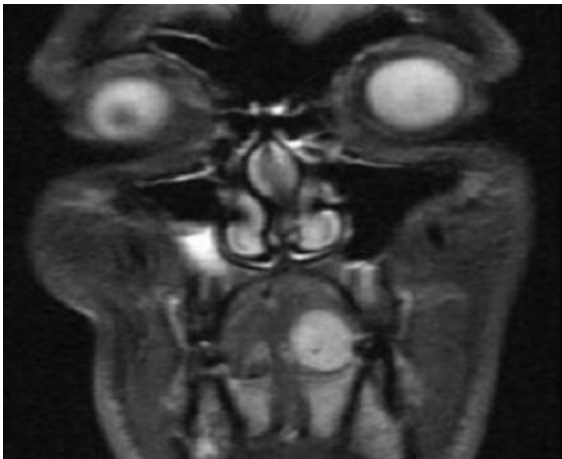
### CASE REPORT

A 26-years-old lady complained of mild pain, swelling under the tongue and slight difficulty in speaking for three months. Intraoral examination revealed a firm, indurated nodule of 2×2×1 cms in the undersurface of the tongue (Figure 1). There was no ulceration over the swelling. Mobility of the tongue was normal. There were no palpable cervical lymph nodes and the rest of the ENT clinical examination was normal. The patient had no other medical conditions. There was no significant personal or family medical history. An MRI scan was performed which revealed the presence of a nodule in the ventral surface of the tongue, well-circumscribed, homogeneously isointense to muscle on T1WI and homogeneously hyperintense on T2WI (Figure 2).

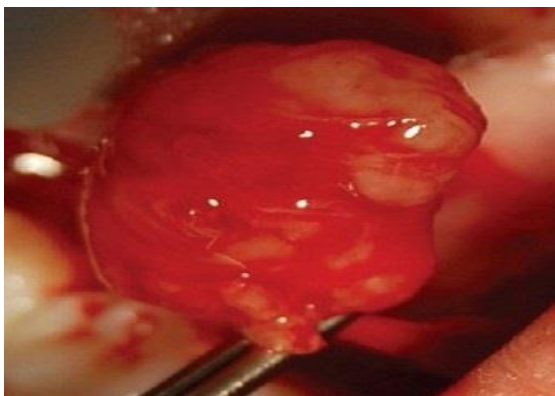
Transoral excision of the lesion was done under general anesthesia using the KTP 532 Laser (Figure 3). Gross examination revealed a reddish encapsulated nodule 2×2×1 cm in size. It had a moderately firm grey white to grey brown cut surface.



**Figure 1: Intraoral view of a tumor arising from the ventral surface of the tongue.**

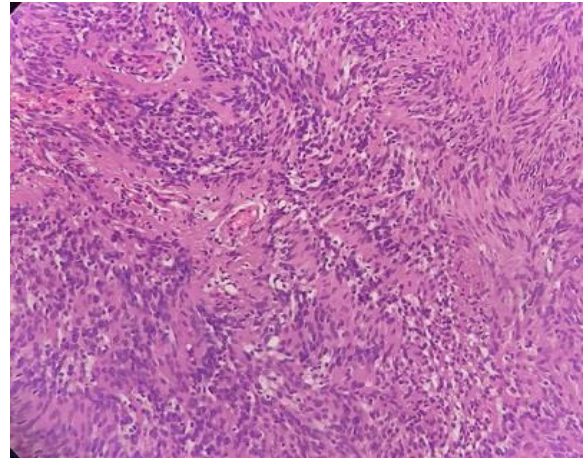


**Figure 2: T2W MRI scan showing a hyperintense well demarcated lesion involving the tongue.**

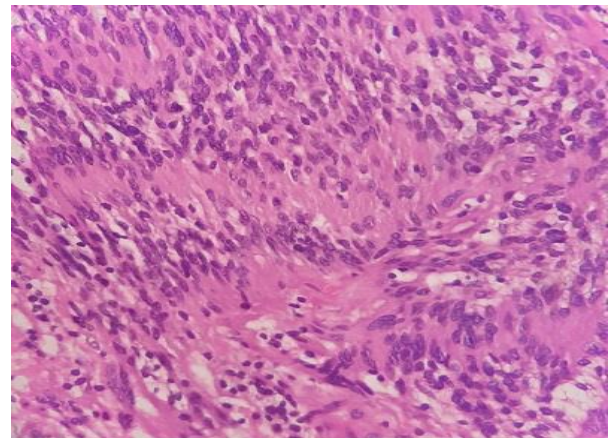


**Figure 3: Intra-operative picture showing excision of tongue schwannoma.**

Microscopy revealed an encapsulated neoplasm composed predominantly of thin-walled blood vessels with foci of spindle shaped cells arranged in fascicles showing pointed edges. Adjacent areas showed hyalinization and thick-walled blood vessels. No evidence of cytological atypia, necrosis or increased mitosis was noted. Histopathological examination confirmed the diagnosis of schwannoma (Figure 4, 5). Immunohistochemical examination was suggested by the pathologist; however, the patient refused the investigation. The patient is asymptomatic and is under follow-up in the outpatient department since 5 months.



**Figure 4: 100x magnification H&E stain showing spindle shaped cells with wavy nuclei in hypo and hyper cellular pattern with thick-walled blood vessels.**



**Figure 5: HPE 400x magnification showing spindle shaped cells.**

## DISCUSSION

Schwannoma originates from nerve sheath Schwann cells, which surround cranial, peripheral, and autonomic nerves.<sup>3</sup> Schwannomas were described by Verocay in 1908. Shortly after that, Stout recognized their schwannian origin.<sup>4</sup> 25–40% of all schwannomas affect the head and neck region, with the parapharyngeal space being the most common site. Head and neck schwannoma

can arise from any cranial nerve, except the olfactory and optic nerve, as they are extensions of white matter from the brain.<sup>5</sup> Intraoral schwannomas mostly arise from the tongue, followed by the palate, floor of the mouth, buccal mucosa, gingiva, lip, and vestibule.<sup>3</sup> Only 50% of schwannomas have a direct relation with a nerve.<sup>4</sup> In about 50% of intraoral cases, it is not possible to differentiate between tumors of lingual, hypoglossal, and glossopharyngeal nerves.<sup>6</sup> Lingual schwannomas are slow growing tumors; however sudden enlargement is most likely due to trauma caused by chewing.<sup>7</sup> Malignant transformation of schwannoma is unusual.<sup>8</sup>

The tumor is slow growing and remains asymptomatic for several years before diagnosis.<sup>9</sup> The size and location of the lesion determines the presence and intensity of symptoms. The presenting symptom may be a lump, dysphagia, pain or discomfort, dysphonia, voice change, paresthesia, snoring, bleeding, ulceration, and rarely, abscess.<sup>3</sup> Patients with large tumours (more than 3 cm) or tumours located on the posterior thirds of the tongue are more likely to be symptomatic.<sup>10</sup>

The tumor can affect any part of the tongue; the tip of the tongue is the least affected part.<sup>9</sup> Intraoral schwannomas constitute about 1% of intraoral tumors; lingual schwannoma can affect all age groups with the peak incidence being between the third and the sixth decade and there is no gender predisposition.<sup>11</sup>

On ultrasonography, schwannoma presents as a well-defined hypoechoic nodule which is oval or lobulated with posterior acoustic enhancement, and on color Doppler it appears hypervascular. Peripheral smear of FNAC appears as a benign mesenchymal tumor.<sup>6</sup> On non-enhanced CT the tumor is seen as a well-circumscribed, dense and homogeneous soft-tissue mass. MRI is the imaging modality of choice for assessing the extent of the tumour. On MRI, the tumor is seen as a smooth and well-demarcated lesion which is isointense to muscle on T1-weighted images and homogeneously hyperintense on T2-weighted images.<sup>8</sup> Differential diagnosis in addition to schwannomas and neurofibromas include granular cell tumours, leiomyomas, fibromas, hemangiomas, rhabdomyomas, lymphangiomas, lipomas, pyogenic granulomas, benign salivary gland tumours, dermoid cysts.<sup>8</sup> The differential diagnosis must include malignant tumors.<sup>12</sup>

Complete surgical excision is recommended for managing the tumor. The most common approach used is the transoral route.<sup>5</sup> The mass can be easily dissected due to the well encapsulated nature.<sup>7</sup> Schwannoma rarely recurs; however, recurrence can happen after incomplete excision. The advantages of transoral approach include avoidance of external scar, preservation of sensation and function, earlier swallow and decreased frequency of fistula formation. The disadvantage includes limited exposure and less visualization of deeper structures.

The utilization of laser is an alternative to traditional surgical methods. Laser surgery is precise and helps provide a dry field intra-operatively.<sup>13</sup> External approaches include submandibular, suprahyoid (transhyoid) lateral pharyngotomy approach, midline mandibulotomy and tongue split, and transhyoid approaches.<sup>5</sup>

Schwannoma is a solitary, smooth, well demarcated slow growing encapsulated tumor and does not invade the surrounding structures. Histopathology is the definitive key for the diagnosis.<sup>6</sup> Beneath the capsule, two main patterns are seen intermingled. The first pattern is Antoni type A, which consists of closely packed Schwann cells that form bundles or are arranged in rows with palisading, elongated nuclei. Free bands of amorphous substance between rows of nuclei constitute Verocay bodies.<sup>5</sup> Verocay bodies under electron microscope appear to be composed of thin cytoplasmic processes with small amount of collagen and basal laminar material showing frequent redoubling.<sup>11</sup> The second pattern is Antoni type B which is composed of very loosely arranged Schwann cells set in a meshwork of reticulum fibers in a disorganized arrangement.<sup>5</sup> Lack of necrosis, hyperchromatism, and atypical features helps in differentiating schwannoma from other spindle cell tumors.<sup>14</sup> Positive staining for S-100 protein which is a neural crest marker is an important characteristic for diagnosis.<sup>15</sup> In our patient, use of the KTP 532 Laser enabled bloodless and precise excision of the tumor.

## CONCLUSION

Lingual schwannoma is a rare tumor of the head and neck which can occur anywhere in the tongue. The tumor can remain asymptomatic for a long period of time and hence can remain undetected. This case report is to highlight the salient features of this tumor and the possibility of malignant transformation, although rare. Hence awareness of this tumor is essential to the otolaryngologist. Complete surgical excision is mandatory to prevent recurrence. Histological examination is essential to clinch the diagnosis.

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