



## Case report

## Schwannoma in the floor of the mouth: A case report and clinicopathological studies of 10 cases in the oral region

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## ABSTRACT

Schwannoma is a benign tumor derived from the Schwann cells of the nerve sheath. This tumor rarely occurs in the oral region. The tongue has been reported the most common oral site; occurrence in the floor of the mouth is rare. In this report, an 18-year-old female patient with schwannoma in the right floor of the mouth is described. We also analyzed 9 additional cases of schwannoma, all of them involving the oral region, and the literature is reviewed regarding clinicopathological features.

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## 1. Introduction

Schwannoma is a benign, slow growing, usually solitary and encapsulated tumor, originating from Schwann cells of the nerve sheath. This tumor arises from any cranial, peripheral, or autonomic nerve that contains Schwann cells. Although this tumor may affect any site of the body, 25–45% of all schwannomas are found in the head and neck region. Intraoral schwannomas account for 20% of head and neck schwannomas, can arise both in soft tissue and bone, mainly the tongue, followed by the palate, the floor of the mouth, the buccal mucosa, the gingiva, the lips, and the vestibular mucosa [1,2].

Schwannoma involving soft tissue appears as a smooth sub-mucosal mass, resembling other lesions such as mucocele, fibro-epithelial polyp, fibroma, lipoma and benign salivary gland tumors. Identification of the originating nerve may be difficult. It can be seen alone, or is associated with von Recklinghausen disease. The etiology is unknown, but it is postulated that the lesion arises by proliferation of Schwann cells at one point inside the perineurium. The lesion will cause the displacement and compression of the surrounding normal nerve tissue [3].

We present the case of an 18-year-old female patient with schwannoma in the right floor of the mouth, and 9 additional cases of schwannoma in the oral region treated at the Department of Oral

and Maxillofacial Surgery of Tokyo Medical and Dental University Hospital Faculty of Dentistry from 2001 to 2010. In addition, the literature is reviewed regarding clinicopathological features.

## 2. Case report

An 18-year-old female patient was referred to our hospital on January 2011, with a painless swelling in the right floor of the mouth. She first noted the swelling in the right floor of the mouth with no other symptoms about 1 year earlier.

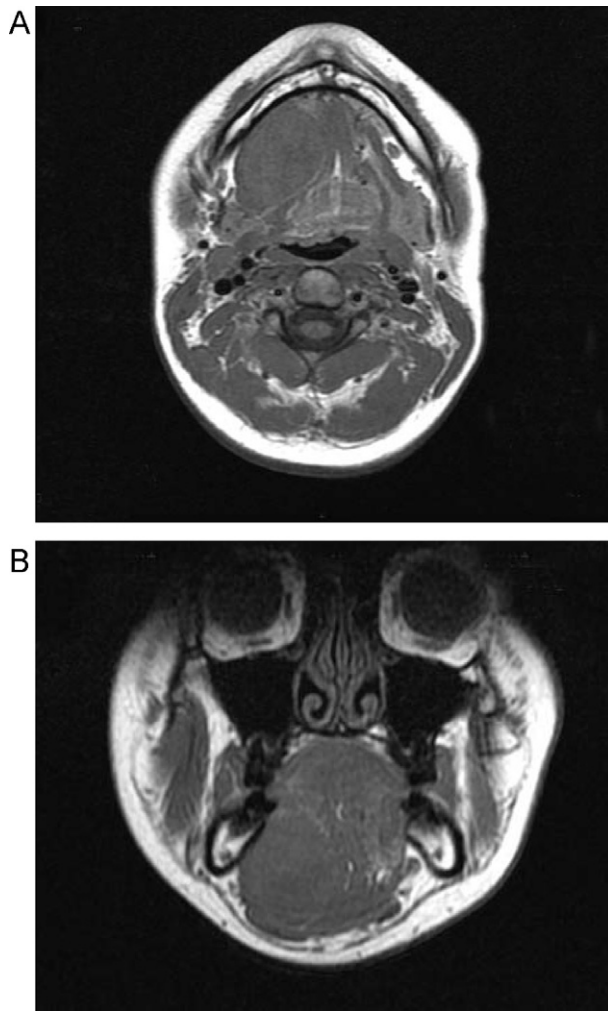
She was in good health and had no relevant family history. Intraoral examination revealed a well-demarcated, soft elastic, spherical mass, measuring approximately 25 mm in diameter, covered by normal mucosa. There was no impairment of tongue movement, and paralysis of both lingual and hypoglossal nerve was not observed.

Magnetic resonance imaging (MRI) revealed a well-demarcated, ovoid mass showing uniformly isointense signals to the surrounding muscle tissues on T1-weighted images (Fig. 1A and B), and inhomogeneous, a peripheral hyperintense and rim and central hypointense signals on T2-weighted images (Fig. 2A and B) and enhanced T1-weighted images.

The clinical diagnosis was a sublingual gland tumor, not ruling out a malignancy. Under local anesthesia, a biopsy was performed, and the lesion was diagnosed as a schwannoma. The tumor was extirpated under general anesthesia in March 2011. The tumor was completely separated from the surrounding tissue. The surgical specimen was ovoid in shape, grayish-yellow in color, measuring

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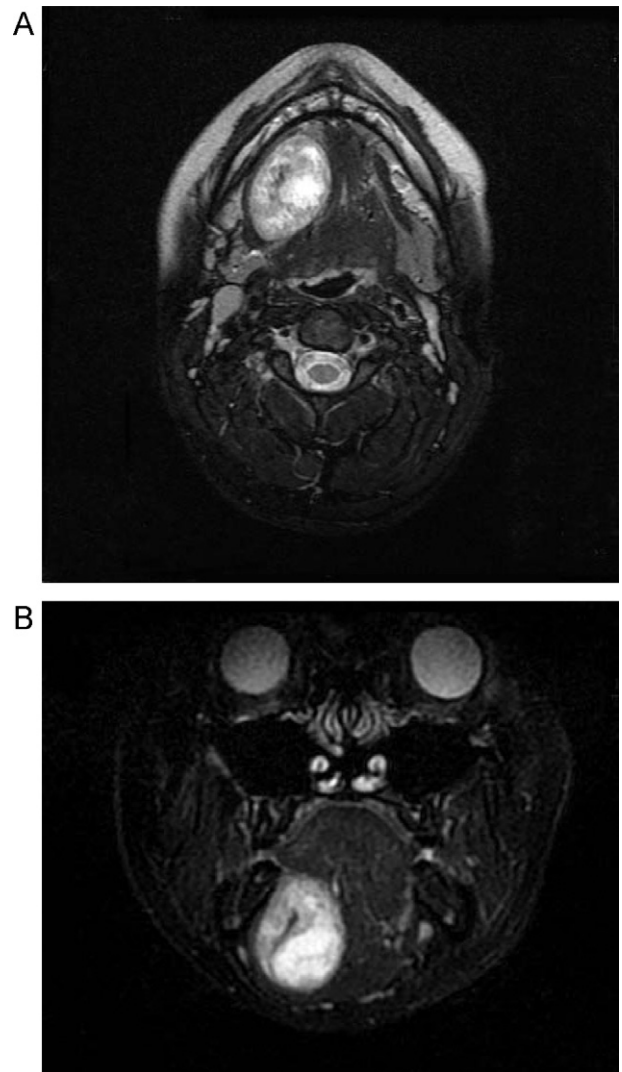
**Fig. 1.** T1-weighted magnetic resonance imaging showing a well demarcated, ovoid, homogenous mass. A: axial view, B: coronal view.

40 mm × 25 mm × 17 mm in size, and was encapsulated by a thin connective tissue capsule (Fig. 3A and B). At this point, there has been no evidence of recurrence.

The microscopic examination revealed that the tumor had a fibrous capsule, and was composed of elongated spindle cells and stellateshaped cells with oval or elongated nuclei and eosinophilic cytoplasm. A myxomatous stroma resembling Antoni type B was mainly present, and some areas showed cells arranged in a nuclear palisading pattern consistent with Antoni type A (Fig. 4A–C). Immunohistochemically, the tumor cells were positive for S-100 protein (Fig. 5). From the histologic features, a diagnosis of conventional schwannoma was formulated.

### 3. Discussion

Intraoral schwannoma is a rare solitary, slow-growing, generally asymptomatic benign tumor that may occur at any age; however, in the oral region it is more often seen during the second and third decades of life. There is no obvious preference for either sex, but some authors believe that these tumors are more likely to develop in females [2], and the others reported a male preference [4]. In the oral region, schwannoma mainly presents in the soft tissue, with the tongue being the most common site. Gallo et al. [5] reviewed the reported 152 cases of intraoral schwannoma with the following frequency of locations: tongue, 71 cases (46.7%); palate, 11 cases (7.3%); floor of mouth, 13 cases (8.6%); buccal mucosa, 18 cases



**Fig. 2.** T2-weighted magnetic resonance imaging showing inhomogenous mass. A: axial view, B: coronal view.

(11.8%); gingiva, 7 cases (4.6%); lip, 7 cases (4.6%); vestibule, 5 cases (3.3%); mandible, 18 cases (11.8%) and maxilla, 2 cases (1.3%).

In the analysis of the study of 10 cases (Table 1), the ages of these patients were between 12 and 69 years (mean age, 32.8), and the female preference was observed with 6 cases in females and 4 cases in males. The tumor involved the tongue in 3 cases (30%), the buccal mucosa in 2 cases (20%), the lower lip in 2 cases (20%), the hard palate in 1 case (10%), the floor of the mouth in 1 case (10%), and the mandible in 1 case (10%). These findings were almost consistent with the previous reports.

Schwannoma is a slow-growing tumor that is initially symptomless, appearing years before the patient consulted a physician. The tumors vary in size from a few millimeters to several centimeters, usually less than 5 cm [4]. The size of these tumors measures 3–30 mm in diameter (mean, 14.1 mm), and the duration ranges from 1 month to 10 years (mean, 21.6 months). In nine of the cases, the painless swelling was the main symptom. There was interference with swallowing in 1 case. It was suggested that this symptom might have come from the location and size of the tumor, because the schwannoma in this case occurred in the dorsum of tongue, measuring 15.5 mm in size.

Because of the rarity of schwannoma in the oral region and no specific symptoms, the diagnosis of a schwannoma is usually established by histological examination. In the present cases, the

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