Case Report
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A Rare Case Report of the Mandibular Schwannoma

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Abstract

In the head and neck region, nerve cell tumours are a rather rare neoplasm. Either the central nerve sheath or the peripheral nerve sheath may be the source of them. The retropharyngeal area, epiglottis, palate, mouth floor, etc., are the most frequently occurring places. Schwann cells, which create the myelin sheath that covers peripheral nerves, give rise to benign non-odontogenic tumours known as schwannomas or neurilemmomas. The majority of schwannomas are slow growing, clearly defined, unilocular, encapsulated lesions with a range of symptoms. Due to the course of the inferior alveolar nerve, the mandible, particularly in the posterior portion of the body and ramus, is the most frequent site of occurrence of intraoral schwannomas. Microscopically, schwannomas have a well-defined perimeter, a capsule around them, and regions that are made up of fascicles of Schwann cells with a spindle cell shape (Antoni A pattern) and microcystic areas (Antoni B pattern). This case report includes the surgical treatment for a rare instance of peripheral soft tissue schwannoma of the mandible along with its surgical management and histological examination.

Keywords: Antoni A, Antoni B, Nerve Cells, Schwann Cells

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1. Introduction

Neurons and glial cells are the building blocks of nerve cells. Schwannoma, neurofibroma, spindle cell tumours, etc. are examples of nerve cell tumours that can develop from the central nerve sheath or the peripheral nerve sheath. Schwannoma, also known as neurilemmoma or neurinoma, is a benign tumour with a moderate growth rate that originates in the peripheral myelinated sheath of peripheral nerves, usually sensitive nerves. With a preference for soft tissues, the head and neck region appear to be impacted in 24-48 % of cases[1]. The two types of schwannomas that can develop in the head and neck area are peripheral and central. Central schwannomas make up fewer than 1% of primary benign tumours, and intraoral schwannomas are a rare disorder. In either of the jaws, 44 cases of central neurilemmomas have been reported, according to the literature. The parapharyngeal space, retropharyngeal space, posterior pharyngeal wall, paranasal sinuses, nasal cavity, scalp, sub-mandibular region, larynx, epiglottis, tongue, palate, infratemporal fossa, buccal, and alveolar mucosa are some of the most common sites of occurrence of the peripheral type in the head and neck region.

Jose Juan Verocay published the first description of schwannoma or neurinoma in the literature in 1910. There are 44 acceptable cases of intraosseous schwannoma of the jaws, 39 of the mandibles and 5 in the maxilla in the current medical literature, which accounts for less than 1% of benign primary tumours of the bones[2]. It is quite uncommon for an intraoral mandibular schwannoma to appear as a peripheral lesion, nevertheless.

2. Case Report

A 38-year-old man who had been experiencing swelling in the lower right side of the jaw below the tongue for six months or more presented to the outpatient department. Additionally, he provided a history of the swelling's steady size growth over time and the absence of any other inflammatory symptoms were present.

His past dental, medical, and familial histories were unrelated, but he had a harmful habit of smoking cigarettes three to four times each day since he was five years old. The results of the general and further oral examinations were within normal limits, and lymph nodes that were not palpable or painful revealed no

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abnormalities. An intraoral examination revealed normal mucosa, along with root stumps with respect to 37 and 38 and all permanent teeth. In addition, a round, lone swelling with a diameter of 3-4 mm was discovered on the lingual surface of the mandible, stretching from the mesial to the distal portions of the bone, 2 mm below the mucogingival junction, and 2 mm above the superior and inferior surfaces of the mouth. The swelling had well-defined edges and a reddish-pink colour (Figure 1). On palpation, all the inspection findings regarding the site, shape, margins, and size were confirmed. The swelling was non-tender and firm. There was no bleeding or discharge present on provocation. It was non fluctuant, non-compressible, sessile and no pulsations were felt. The temperature was normal, and no translucency was present and it was fixed to the underlying bone.



Figure 1. Intraoral image of the swelling.

Based on history and clinical examination it was established that it was a benign soft tissue mass with fibrous components and with no vascular components so a provisional diagnosis of Peripheral Ossifying Fibroma with respect to 44 and 45 was made.

Differential diagnosis included Odontogenic Fibroma, Peripheral Giant Cell Granuloma, Pyogenic Granuloma, Neurilemmomas, and Giant Cell Fibroma.

Radiographic Interpretations

The intraoral periapical radiograph of right mandibular posterior region revealed teeth 44, 45, and 46. Enamel, dentin, and pulp can be easily traced in the teeth present, with no specific periapical finding with respect to 44 and 45. Trabeculae of the bone were also normal.

Mandibular cross-sectional occlusal radiograph revealed bilateral radiopaque bony protuberance lingually suggestive of mandibular tori along with a soft tissue shadow in the right premolar region. Findings in occlusal radiograph and panoramic radiograph revealed no specific findings (Figures 2 and 3).

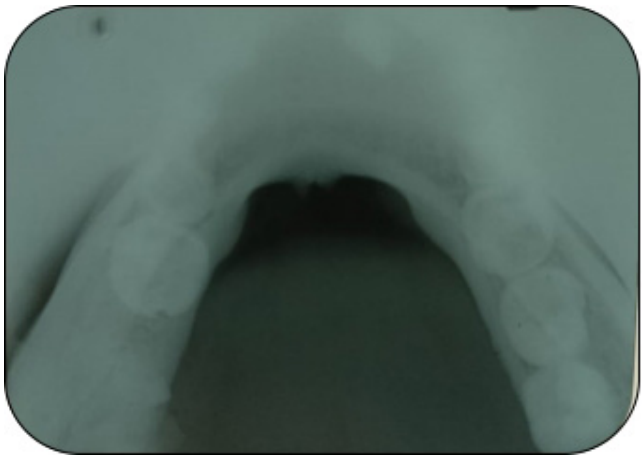


Figure 2. Occlusal radiograph depicts no hard tissue pathology.



Figure 3. Panoramic radiograph depicts no bony involvement or pathology.

Treatment Plan

As the lesion was a non-inflammatory mass with no bone involvement, it was diagnosed as a benign soft tissue tumor, so an excisional biopsy was planned along with oral prophylaxis, endodontic treatment in respect to 37, and extraction in respect to 38.

Excision was done under local anesthesia and the well-encapsulated gross specimen measuring approximately 3 × 4 mm in diameter, reddish pink in



Figure 4. Gross specimen after excisional biopsy.

color, and soft to firm in consistency (Figure 4) was sent for histopathological examination.

Histopathological Examination

H and E stained section studied showed, an encapsulated mass of tissue that was composed of Antoni A and Antoni B types of cells interspersed within collagenous stroma. Antoni A type is made up of streaming fascicles of elongated and spindle-shaped Schwann cells with palisaded nuclei arranged around central acellular, eosinophilic Verocay bodies. Antoni B type of cells exhibits disorderly and randomly arranged spindle cells

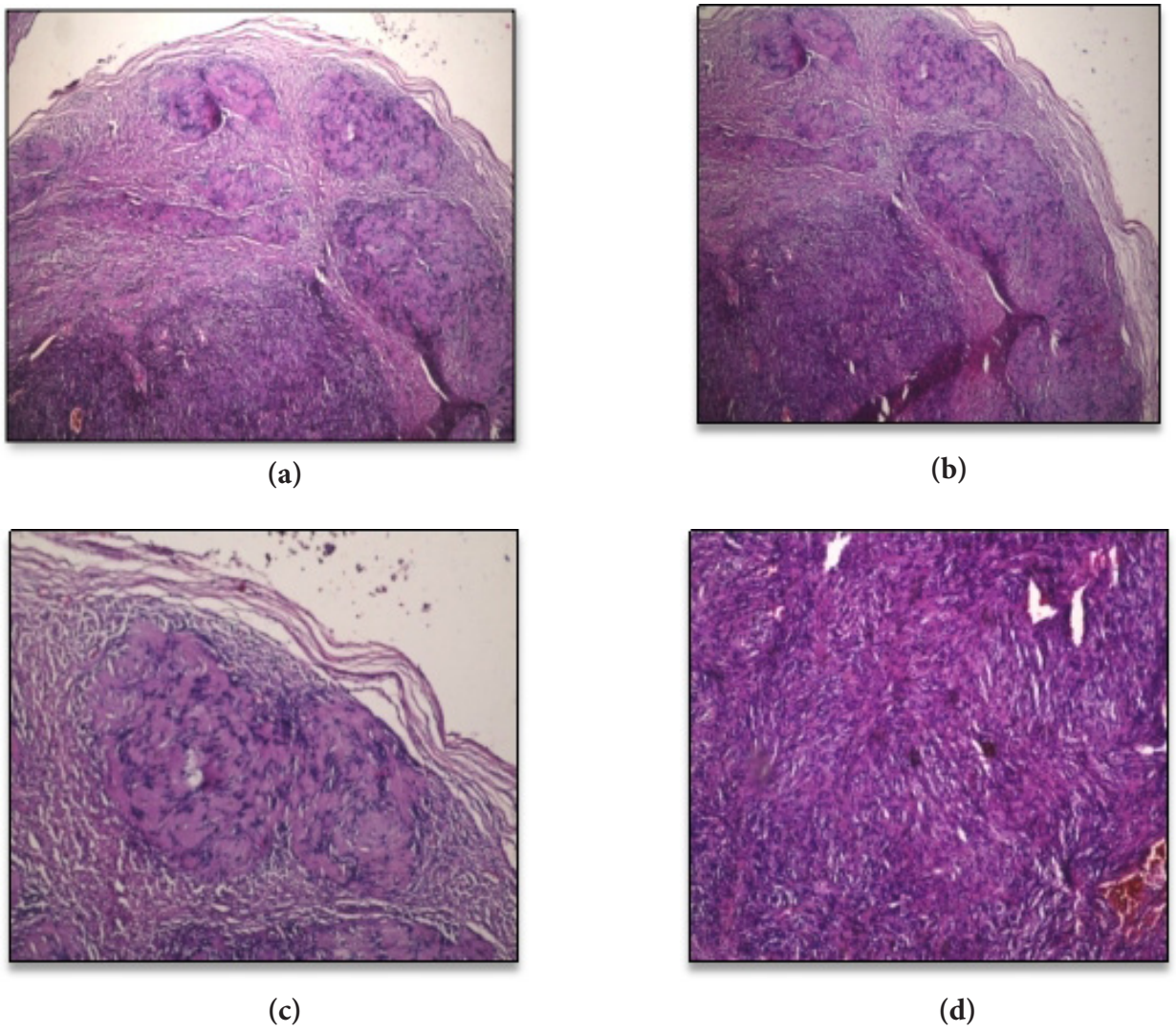


Figure 5. Photomicrographs showing **(a; b):** Antoni A and Antoni B type of arrangements of cells with elongated Schwann cells. **(c)** Verocay bodies and **(d)** microcysts formation.

with areas of microcyst formation. Also seen were areas of dilated blood vessels and adipose tissue (Figure 5).

Confirmatory Diagnosis

Based on radiographic and histopathological examination a final diagnosis of Peripheral Schwannoma of the mandible was made.

3. Discussion

The tongue is the most typical location for neurilemmomas to be detected in the oral cavity, where they are not frequently observed. Neurilemmomas make up less than 1% of all bone-related neoplasms, and of those, the mandible is most frequently affected, especially in the back of the body and ramus[3].

There are two main types of oral schwannomas: ancient/chronic schwannomas, which are long-standing, well-encapsulated lesions that exhibit degenerative changes and atypia, and submucosal nodules, which resemble cysts and are nonencapsulated and typically located below the basal layer of the mucous membrane[4,5].

Neurilemmomas are slow-growing tumours that, clinically speaking, may be present for years before showing symptoms. The most frequent symptom is swelling; however, pain or paresthesia may also be present in 50% of cases[6].

There are three ways that schwannomas might affect bone:

1. A tumour may develop centrally within a bone.
2. A tumour may develop within a nutrition canal.
3. A soft tissue or periosteal tumour may produce secondary erosion and penetration into bone[6].

Mandibular central schwannomas typically appear on radiographs as well-defined sclerotic boundaries with multilocular radiolucency and cortical thinning. However, in our case, these characteristics were lacking, and on the mandibular occlusal radiograph, the lesion only appeared as a soft tissue shadow, suggesting that it was a peripheral soft tissue schwannoma. Based on the presence of mandibular canal dilation, a differential diagnosis involving angiofibroma, neurofibroma, leimyoma, or vascular abnormalities should be done radiographically[7].

Three forms of schwannoma are distinguished histologically:

1. Antoni A tissue makes up the majority of cellular schwannomas, which may also exhibit significant nucleoli, mitotic activity, and occasionally substantial glial fibrillary acidic protein and staining[3].

2. Multinodular architecture can be detected both macroscopically and in histological sections of plexiform schwannoma. They occasionally take the form of Verocay bodies and are primarily made of Antoni A tissue[3].

3. Nucleoli and significant cytoplasmic vacuolation, as well as intranuclear pseudoinclusions and uncommon calcified psammoma bodies, are features of melanotic schwannoma[3].

The preferred course of treatment is conservative surgical enucleation with recurrent follow-up exams. Recurrence is uncommon and is usually caused by malignant instances or improper removal. In order to avoid neurologic disturbances including paresthesia and other pain syndromes, meticulous dissection from the surrounding tissues is crucial. Neuropraxic damage is the primary complication in the surgical management of these lesions[8].

4. Conclusion

Schwannomas are benign peripheral nerve tumors that are relatively uncommon, sporadic in occurrence, and commonly mistaken for other benign soft tissue tumors because of this. Deep-seated and numerous tumors may be more challenging to treat, even though the majority of peripheral tumors are easily removed surgically and many remain asymptomatic. The chance of schwannomas returning is reduced by complete excision. An aggressive neoplasm is not thought to exist in oral schwannoma. Malignant schwannomas and old schwannomas in other areas have been seen in certain patients, though.

5. References

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