

Intrabony schwannoma of the mandibular symphysis: A rare case report

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ABSTRACT

Introduction: Schwannoma is a benign type of nerve sheath tumor not frequently reported in the oral cavity, representing only 1% of benign primary bone tumors of the jaws. The most common location is the posterior body and the ascending ramus of the mandible, following the path of the inferior alveolar nerve. The symphyseal location is considered exceptional. **The present case is an intraosseous schwannoma located in the mandibular symphysis. Case Report:** A 31 years old male patient was referred to our department regarding a slow-growing swelling with no acute signs. Panoramic radiograph and CT scan revealed a unilocular radiolucency of 18x20x35 mm, and no involvement of the mental or the inferior alveolar nerves. The finding data suggested a benign lesion with a cystic appearance. After the surgical enucleation, the histopathological analysis reported the diagnosis of an intraosseous schwannoma. The patient did not experience

any postoperative complications. **Conclusion:** In encountering a symphyseal swelling, non-odontogenic lesions, such as schwannomas must be considered in the list of diagnosis.

Keywords: Intraosseous, Mandible, Neurilemoma, Schwannoma, Symphysis

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INTRODUCTION

Schwannomas are a benign form of peripheral nerve sheath tumors. They mostly affect the vestibulocochlear nerve, causing a unilateral hearing loss. In the oral cavity schwannomas have a 35% chance of occurring [1]. The most common intraoral sites are the tongue, followed by the palate, the floor of the mouth, the buccal mucosa, the gingiva, the lips, and the vestibular mucosa [2]. Intraosseous schwannomas on the other hand are extremely rare representing less than one percent of the benign primary bone tumors. The most common site of occurring is the posterior part of the mandible, following the course of the inferior alveolar nerve. Intraosseous schwannoma of the mandibular symphysis is exceptional [3].

CASE REPORT

A 31-year-old male patient was referred to our department (oral surgery and pathology Casablanca, Morocco), by a private dental practitioner, regarding a slow growth swelling in the mandibular symphysis with approximately six months of evolution. The patient reported an asymptomatic swelling six months prior to the dental visit, as a minor enlargement of the bone on the buccal side of the inferior incisors. The swelling then increased slowly in volume, without ever being symptomatic. The past medical, family history and dental history of the patient was unremarkable. No history of oral swelling, trauma, or swelling in other parts of the body was reported the facial appearance was symmetrical with no swelling (Figure 1). A clinical intraoral examination revealed a discrete anterior buccal expansion extending from the mesial side of the 44 to the mesial side of 33 lined with a normal mucosa and no involvement of the lingual side. No vestibular obliteration was noticed (Figure 2). On palpation the lesion was compressible and non-tender. Pulp vitality testing was negative on the four inferior incisors. Panoramic radiograph revealed a well-delimited radiolucency with corticated border, located in the mandibular symphysis, and extending from 45–33. Vertically, the lesion included the apices of the said teeth up to 15 mm above the inferior border of the mandible the radiograph also showed discrete root resorption of the 45, 44 and 33 and important root resorption of the 43, 42, 41, 31 and 32 (Figure 3).

A computed tomography scan showed an 18x20x35 mm image and no involvement of the mental or the inferior alveolar nerves. It also showed a pronounced resorption of the teeth's roots in contact of the lesion, and a cortical bone interruption on the buccal side (Figure 4).

The finding data suggested a benign lesion with a cystic appearance.

A fine needle aspiration test did not draw any cystic fluid or blood. Under local anesthesia a surgical exposure of the lesion was obtained by a buccal mucoperiosteal flap. The lesion was found to be well circumscribed and contained within a well vascularized dense fibrous capsule (Figure 5). The tumor was easily enucleated in toto.

Microscopic examination showed spindle-shaped cells isolated or arranged in loose bundles. Verocay bodies were seen. Multinuclear cells with some atypia were noticed, but no mitotic activity was observed. The presence of an abundant myxoid stroma with the presence of ecstasic hyalinized blood vessels was also reported (Figure 6A).

Immunohistochemical staining for S-100 protein was strongly positive (Figure 6B). The diagnosis of a benign intrabony schwannoma was then confirmed.

The patient did not experience any postoperative complications. A follow-up of six months showed a good soft tissue healing (Figure 7A), no signs of paresthesia, and the beginning of bone formation (Figure 7B).



Figure 1: Extraoral photograph of the patient showing no sign of swelling and asymmetry



Figure 2: An intraoral photograph revealing a discrete anterior buccal expansion extending from the mesial side of the 44 to the mesial side of 33 lined with a normal mucosa and no involvement of the lingual side.



Figure 3: Panoramic radiograph showing a well-defined unilocular radiolucent lesion in the anterior mandibular region, discrete root resorption of the 45, 44 and 33 and important root resorption of the 43, 42, 41, 31 and 32.

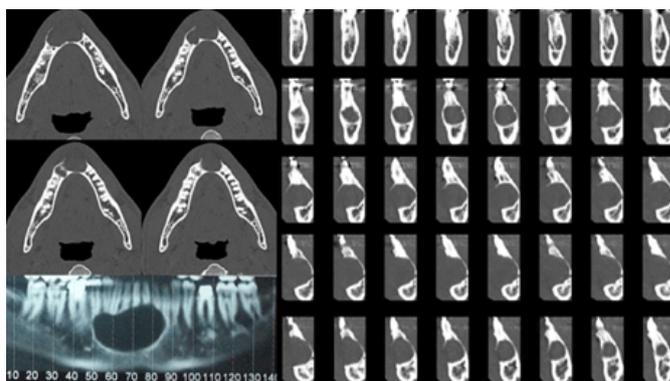


Figure 4: Computed tomography scan showing a radiolucent image of 18x20x35 mm in the symphyseal area of the mandible, root resorption of the 44, 43, 42, 41, 32, 31, and cortical bone interruption on the buccal side.



Figure 5: Peroperative image showing the well-encapsulated tumor.

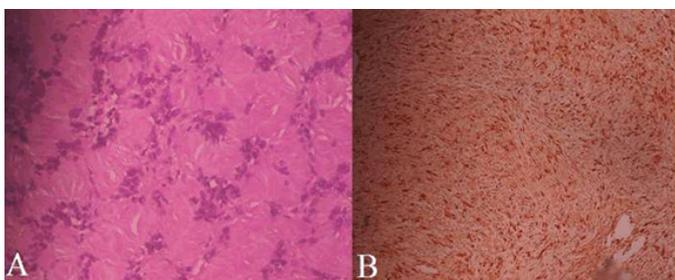


Figure 6: (A) Microscopic image showing patterns of nuclei interlocking with acellular (H&E stain, x400) areas, and (B) Immunohistochemistry staining for S-100 protein (magnification: x200).



Figure 7 (A) A follow-up of one year showing a good soft tissue healing (B) Panoramic radiograph at six months follow-up showing bone formation and no sign of recurrence.

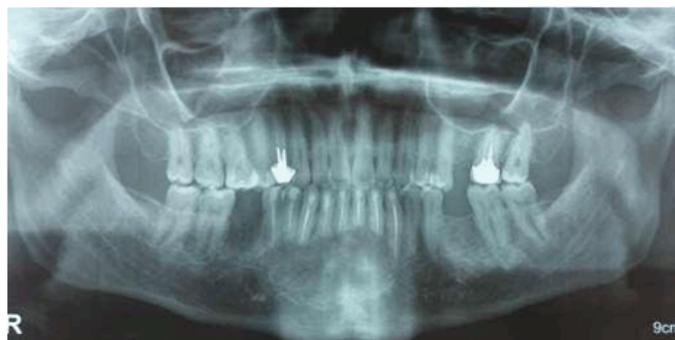


Figure 8: Panoramic radiograph at one year showing a complete bone formation and no signs of lesion recurrence.

DISCUSSION

Schwannomas are rare benign neoplasms derived from the Schwann cells of the myelinated nerves [4].

The first microscopic description of the tumor was made by Jose Verocay in 1908, and was then named neurinoma. In 1935, Arthur Purdy Stout, provided an advanced description of its histopathology and named it 'Neurilemmoma'. Presently, the terms schwannoma, schwann cell tumor, neurinoma, neurilemmoma and perineural fibroblastoma are being used synonymously [1].

Schwannomas are unusual in the oral cavity and their intraosseous localization is extremely rare, but when they occur, the course of the inferior alveolar nerve is the most common site [4, 5]. In this case, the neoplasm was probably developed from the peripheral nervous plexus of the anterior region of the mandible.

The etiology of the schwannoma is unknown. It is believed to originate from a benign proliferation of Schwann cells inside a fibrous capsule, peripherally to the parent nerve. During this process the tumor growth may cause displacement and compression of the said nerve [6].

There are three mechanisms by which an intraosseous schwannoma may evolve:

- Centrally within the bone
- From the nutrient canal, producing canal enlargement
- From the soft tissue or the periosteum, causing secondary erosion, then penetrating the bone [7]

The common clinical presentation of schwannoma is the painless swelling. Other clinical symptoms such as paresthesia, tenderness to touch and teeth mobility were also reported [4, 5].

Radiographic presentations of schwannomas are usually non-specific but are suggestive of a benign process. In most reports, a unilocular radiolucency with well-defined corticated borders was described. Similarly to our case, root resorption, expansion, thinning and erosion of corticals were also reported [4, 2].

The rarity of this lesion in the anterior area of the mandible makes preoperative diagnosis unlikely. In general, the diagnosis is confirmed histologically after the excision of the tumor [2, 8]. In the present case, the roots' resorption and pulp necrosis of the anterior inferior incisors was more suggestive of an odontogenic lesion. It was during the perioperative time, with the negative fine needle aspiration test and the presence of a fibrous capsule, that the diagnosis of an intrabony tumor was considered.

Histologic features of intraosseous schwannomas are characteristics and easily distinguishable thanks to the presence of two distinct tissues arrangement Antoni type A and B, and Verocay bodies [2, 8, 9].

Antoni A areas are highly cellular zones, punctuated by nuclei arranged in stacked alignments known as palisades. Whereas Antoni B bodies are less cellular, with a myxomatous stroma, and loosely arranged cells. Schwannomas usually show a coexistence of both Antoni A and Antoni B areas. Verocay bodies consist of stacked arrangements of two rows of elongated palisading nuclei that alternate with acellular zones. The formation of this structure is explained by the overexpression of laminins, which is normally found in the basement membranes of several types of cells including schwann cells [9].

Immunohistochemistry is another histological tool to identify schwannomas. Immunoreactivity to S-100 protein is known to be a pathognomonic feature [10]. Being a well-encapsulated lesion, the treatment of choice for schwannomas is the conservative surgical excision, with periodic follow-up. The evidence of recurrence or malignant transformation is uncommon [4, 5]. In this case, the patient had a followed-up of one year, and until now showed no clinical or radiographic signs of lesion recurrence (Figure 8).

CONCLUSION

In encountering a symphyseal swelling, non-odontogenic lesions, such as schwannomas must be considered in the list of diagnosis.

Author Contributions

Soukaina Oujdad – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Mounia El Bouhairi – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Sofia Haitami – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Hicham El Attar – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ihsane Ben Yahya – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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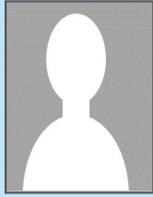
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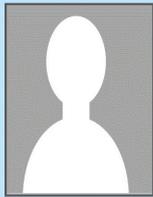
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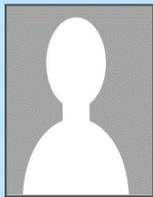
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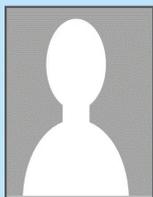
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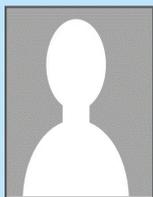
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