Intraosseous Schwannoma in Mandible – A Case Report
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Abstract

Intra osseous schwannomas are very rare and account for about 1% of all intra osseous neoplasm. According to the literature only 44 cases of intra osseous schwannomas are reported. In this paper we report a case of intra osseous schwannoma in a 12 year old female reported with a swelling in the anterior region of the lower vestibule. Occlusal radiographs revealed an ill-defined radiolucency with cortical plate expansion and a fracture line in the symphysis region. Histopathology and immuno-histochemistry confirmed the diagnosis of Schwannoma. The lesion was treated with surgical excision.

Key words: Neurilemmoma, Schwannoma, Mandible, Bone.
Received on: 11/07/10 Accepted on: 14/10/10

Introduction

The schwannoma, also called Neurilemmoma or neurinoma, is a benign neoplasm originating from the peripheral neural sheath. Although the head and neck region is one of the most common sites for benign nerve-sheath tumors, intraoral lesions are unusual, particularly in the intraosseous region of the jaw (1, 2). The term Neurilemmoma was coined by Verocay in 1910 (3).

Case Report

A 12 year old female patient reported to the department of oral and maxillofacial surgery, with a chief complaint of swelling in the front region of the lower jaw, of six month duration. The swelling has increased gradually from the time of onset. There were no associated symptoms like pain, paraesthesia and discharge.

On intraoral examination she revealed a diffuse swelling in the anterior region of the mandible, measuring 3 cm × 3 cm (Fig. 1). The swelling was causing obliteration in the vestibular depth. The surface appeared smooth and the surrounding area was normal. The swelling was extending from the right mandibular lateral incisor to the left mandibular lateral incisor measuring 3 cm × 3 cm. On palpation the swelling was firm in consistency and perforation of the buccal cortical plate, through which the tumor mass was extending out causing vestibular obliteration. There was no mobility seen with the associated teeth. On aspiration it yielded scanty amount of frank blood.

Figure 1 Preoperative Photograph
The intra oral periapical radiograph showed ill-defined radiolucency extending from the right mandibular lateral incisor to the left mandibular lateral incisor. IOPA, occlusal and OPG radiograph was taken, which revealed marked buccal cortical plate expansion and a hairline fracture line in the chin region (Fig.2 a, b and 3).

![Figure 2 a. Occlusal view, b. IOPA view](image)

Figure 2 Orthopantomogram

The differential diagnosis of lipoma, neurofibroma and salivary gland tumor was made and planned for the surgical excision. During the surgical excision, the swelling was well encapsulated and extending into the bone causing expansion and cavitation. Then the tumor mass (Fig.4) was excised in total and sent for histopathologic examination.

![Figure 4 Surgical Specimen](image)

After the surgical excision endodontic treatment of the involved tooth was done. The excised biopsy specimen showed an encapsulated lesion consisting of bundles of spindle cells in Antony A and Antony B zones arranged in palisading pattern, interspersed with small hyaline structures, the verocay bodies. The Antony A type tissue was characterized by schwann cells that are closely packed forming bundles with elongated, palisaded nuclei. Free bands of amorphous substance between the rows of nuclei constitute the verocay bodies. While Antoni B type has less number of cells and less organization. The spindle cells are widely separated and dispersed in a loose and random fashion with a network of delicate reticulated fibers.

In the present case, the histopathologic analysis revealed majority of Anthony B pattern for the whole specimen (Fig.5). Immuno-histochemistry was performed which showed intense positivity for S100 protein.

![Figure 5 Histo-pathological Slide](image)

**Discussion**

Schwannoma was first coined by Verocay in 1910(2-5). He called it neurinoma. In 1935, the term neurilemmoma was coined by Stout (3). Intra oral schwannomas are not common (6), intra osseous schwannomas are still rare (3, 4). According to the literature there have been 44 cases of intra osseous schwannoma are reported (3, 4). Schwannoma of the
jaw occurred in the age range of 8-72 years, with the average age of 34 years (3, 4). The present case was a 12 year old patient. Approximately 25% of the reported cases originate from the head and neck region and only few cases have been reported in the oral cavity (7, 8). The mandible is a favored site compared to the maxilla (4). Mandibular schwannomas are mostly localized to the posterior body and the ascending ramus and can also involve the symphysis region (4). In our case the tumor was in the anterior region of the mandible which is very rare. Schwannomas are slow growing tumors. The most common clinical finding is swelling followed by pain and paraesthesia (3, 9). Pain may present when the tumor encroaches upon the adjacent nerves (3, 9, 10). But in our case there was no pain and paraesthesia. All the cranial nerves in the head and neck region can give rise to schwannoma, except olfactory and optic nerves, which are not considered as true cranial nerves because of absence of schwan cells (11). Radiographically, schwannomas of the jaws are unilocular radiolucency with a thin sclerotic border. Additional features such as external root resorption, cortical plate expansion and spotty calcifications are evident (3, 4). Our case revealed both labial and lingual cortical plate expansion, cavitation, perforation, and pathological hairline fracture were seen.

Microscopically schwannomas are well encapsulated. The tumor consists of bundles of spindle cells in Antoni A and Antoni B zones arranged in palisaded pattern, interspersed with small hyaline structures called Verocay bodies (3, 6, 12). Immuno-histochemically schwannomas show positivity for S100, CD34, and Epithelial membrane antigen (EMA), only in the capsule protein (3, 13). Malignant transformation of benign schwannoma and primary malignant cases of schwannoma are reported (3, 14, 15). In our case the tumor was well encapsulated with predominant Antoni B zones were seen in a myxomatous stroma (16), and no cystic areas (2) were seen. The recommended treatment for intra osseous schwannoma is surgical excision followed by periodic follow up. The involved nerve can be resected to prevent the chances of recurrence. Incomplete resection of the tumor can attribute to recurrence of the lesion and frequent follow up is essential (3, 4).

Conclusion

The clinical and radiographic features of schwannoma mimic many other lesions such as odontogenic cysts and other benign tumors, which can confuse the doctor. Hence a comprehensive differential diagnosis for such lesions should always include neural tumor, though it is rare.

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