CASE REPORT

Schwannoma of Gingiva: A Rare Case Report

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ABSTRACT

The 'schwannoma', an infrequently occurring benign neural tumor, does not demonstrate proclivity for intraoral locations. However, if present the gingiva is only sporadically involved. In this case report, we present a unique case of 17-year-old female patient with enlarged nodular firm gingival mass in relation to her mandibular anterior teeth which was provisionally diagnosed as pyogenic granuloma. However, the histologic as well as immunohistochemical findings revealed it to be characteristic of schwannoma. After appropriate management, the patient has been kept under stringent follow-up and no recurrence has been noted.

Keywords: Schwannoma, Pyogenic granuloma, Immunohistochemistry, Gingiva, Excision.

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INTRODUCTION

Schwannoma, also referred to as 'neurilemmoma', 'neurinoma', 'neurolemmoma' or 'Schwann cell tumor' is a benign nerve sheath tumor consisting of Schwann cells.[1] Schwannoma was first described by Verocay in 1910 and has got propensity for the head and neck region accounting for one-third of the cases reported, however intraoral lesions exist rarely.[2] When located intraorally, tongue is reported to be the favored site.[3] Gupta et al in the study on 303 solitary neural tumors found 136 lesions to be located in the head and neck region and among these, only 30 (10%) patients presented with the lesions in the oral cavity, thus, highlighting their rarity in intraoral locations.[4] The definitive etiology of schwannoma is obscure and occurs most commonly between 30 and 50 years, and is equally distributed among males and females.[5,6] Clinically, schwannoma is a slow-growing encapsulated nodular lesion and is usually solitary and asymptomatic and surgical excision is the treatment of choice.[7] Conservative surgical excision is the treatment of choice and no recurrence is noted if completely excised.[7]

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CASE REPORT

A 17-year-old black female patient presented to the Department of Periodontology of King George's Medical University, Lucknow, in April 2013, for evaluation of a swelling in lower gingiva at midline that had been present since 6 months. Although the patient had noticed the swelling earlier, she left it unexamined because there were no symptoms associated with it. The medical history of the patient was noncontributory. On extraoral examination, there was no obvious swelling. Upon intraoral examination, roughly oval-shaped swelling; measuring 1.5 × 1.5 cm was observed in relation to tilted and stained mandibular centrals and laterals on right as well as on the left side (Fig. 1). Swelling had slowly but gradually increased in size since it was first noticed by the patient. The swelling was not associated with pain, paresthesia and discharge. The mass was semi-firm in consistency and the overlying mucosa was normal without any erythematous or ulcerative changes and the surface appeared smooth. The nodular mass was nontender on palpation and aspiration test was negative. The patient had poor oral hygiene in mandibular anterior area. The gingiva was pink along with loss of stippling. Bleeding on probing was present in relation to the associated dentition. Owing to the patient's age, medical history and clinical presentation, a preliminary diagnosis of pyogenic granuloma (PG) was made.

INVESTIGATIONS

Routine hematological examination was advised before any treatment can be initiated. All the values were found to be within reference range. To rule out bony involvement, a panoramic radiograph was advised which revealed no abnormality (Fig. 2). Further, advanced diagnostic modalities, such as CT scan and MRI, would have been useful in gauging the infiltration of the lesion into the

surrounding tissue as it was not done owing to the nature of the lesion and poor socioeconomic status of the patient.

DIFFERENTIAL DIAGNOSIS

Intact overlying epithelium as seen in the case resembles several other benign lesions, like schwannoma, granular cell tumor, lipoma, salivary gland neoplasm, leiomyoma, rhabdomyoma or nerve sheath myxomas.[8] Similar location can be seen in cases of mucocele and fibroma. Other lesions mimicking to the one presented are neurofibroma, perineurioma, hemangiomas, pyogenic granulomas and localized idiopathic gingival enlargements. Schwannoma must be differentiated from neurofibroma as it may be a manifestation of neurofibromatosis. The idiopathic gingival enlargement must be differentiated from chronic hyperplastic gingivitis and orofacial granulomatosis whereas schwannoma must be differentiated from granular cell tumors, irritation fibromas, neurofibromas, leiomyomas, hemangiomas, lipomas, pyogenic granulomas, rhabdomyomas, benign salivary gland tumors, nerve sheath myxoma and traumatic neuroma on the basis of hereditary pattern, history, clinical presentation and histological findings.

Treatment

Scaling and root planing along with oral hygiene instructions were instituted initially. The tailored treatment plan consisted of an excisional biopsy under local anesthesia. The specimen was sent in for histopathologic examination and bleeding was stopped by means of pressure pack. Grossly, the specimen was pale pink in color (Figs 3 and 4). The tissue was then processed, and sections were stained with hematoxylin and eosin (H&E) and S-100 staining. On the basis of histological and immunohistochemical aspects, the final diagnosis was that of schwannoma (Figs 5 and 6).

Outcome and follow-up: The area appeared normal after 15 days postoperatively. Oral hygiene instructions were reinforced. The duration of follow-up was of 9 months and no reoccurrence has been noted (Fig. 7).

DISCUSSION

In the present case, the surfaced mass was single, painless, circumscribed, firm, and smooth and without any particular features to distinguish it from other benign soft-tissue lesions. When solitary slow-growing lesions are found, excisional biopsy is done. The histopathologic

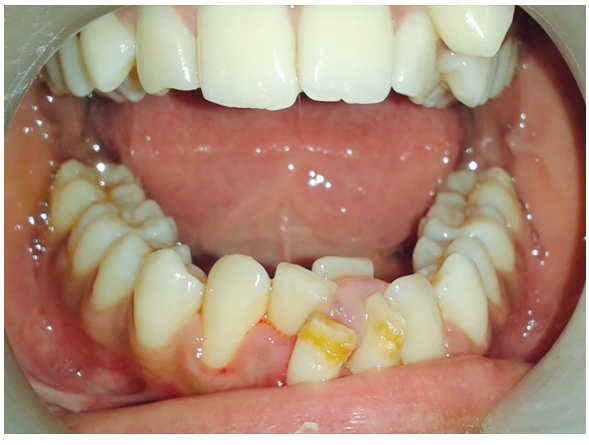

Fig. 1: Photograph depicting gingival overgrowth in mandibular anterior teeth

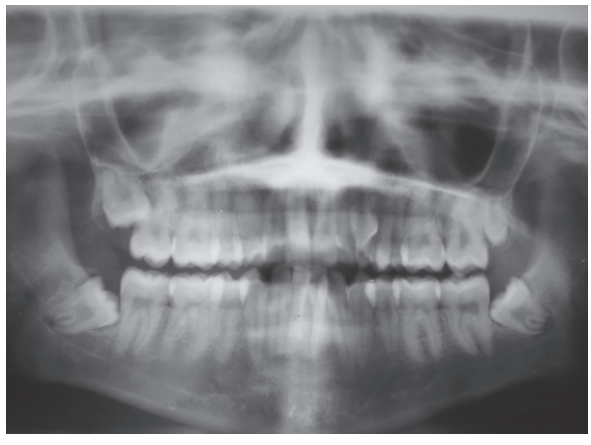

Fig. 2: Panoramic radiograph of the patient

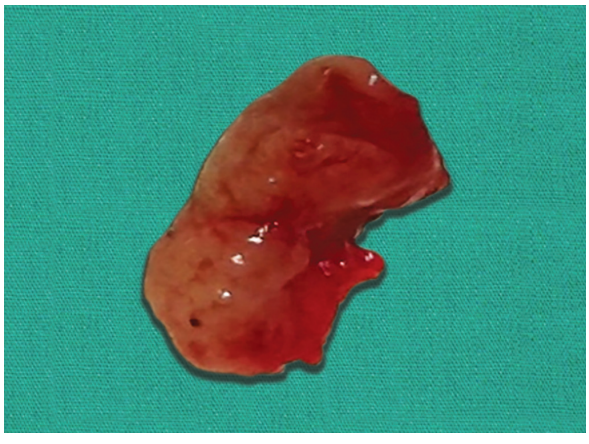

Fig. 3: Excised gingival tissue measuring 0.5 × 0.5 × 1 cm

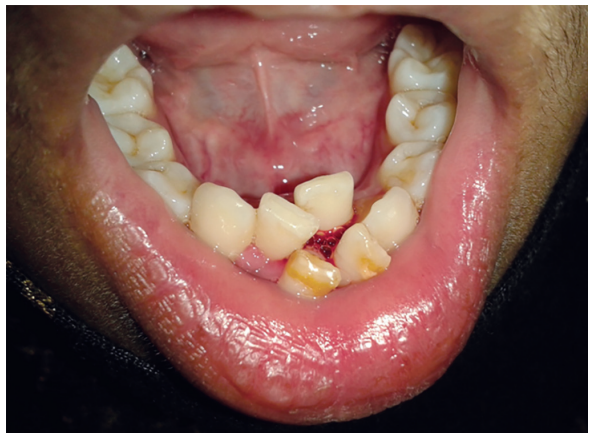

Fig. 4: Intraoperative photograph of concerned patient

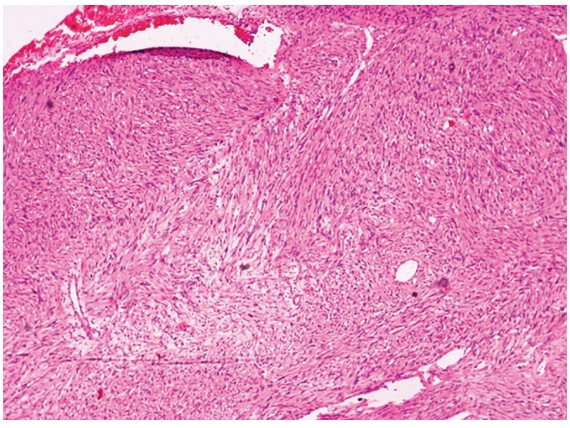

Fig. 5: Histopathological slide of the tissue showing Antoni A and B tissue pattern

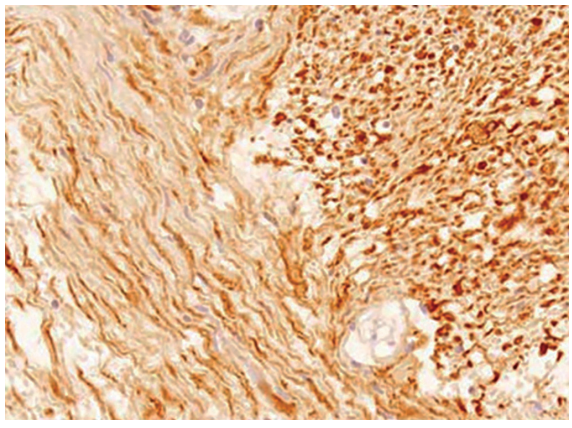

Fig. 6: S-100 positive slide characteristic of schwannoma

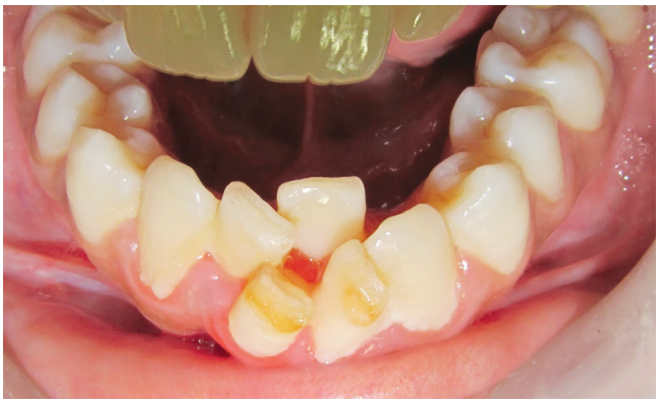

Fig. 7: Postoperative photograph

examination provided a definitive diagnosis for the case.

Oral schwannoma is a rare solitary, slow-growing neural tumor that arises from the Schwann cells of the peripheral, cranial or autonomic nerves. It is believed to originate from a proliferation of Schwann cells at one point in the perineurium causing displacement and compression of the adjacent nerve.[2] Schwannoma does not arise from cranial nerves I and II (optic and olfactory nerves), due to lack of Schwann cells.[9] In the present case incisive nerve, a branch of mandibular nerve may be involved.

The histological findings of schwannoma are pathognomic and are similar to those reported previously, consisting of a thin fibrous capsule (encapsulated) and tumoral proliferation formed by two types of tissue arrangements: Antoni type A and B. The Antoni type A tissue as seen on right side of histological slide is characterized by Schwann cells arranged in rows with elongated nucleus. Verocay bodies may appear in between the rows of nucleus and processes with small amounts of collagen and basal laminar material showing frequent redoubling. While in the Antoni B tissue as seen on left side, it has less number of cells and organization and fusiform cells are widely separated.

Cellular schwannoma is a well recognized variant that, because of its cellularity, mitotic activity and occasional presence of bone destruction is diagnosed as malignant in more than one-fourth of cases. The immune histochemistry provides definitive diagnosis of the tumor with a positive reaction with S-100 protein.

Schwannomas grow slowly, and may plateau in their growth; perhaps indicating that the tumor represents a hamartoma.[5] The treatment of choice is surgical excision after the diagnosis is confirmed by histological analysis due to misleading nature of some malignant lesions. If the nerve from which tumor originates is localized an attempt should be made to carefully separate the nerve before excision.

In our case, the connection with the nerve could not be seen. The prognosis is excellent since it does not usually recur because of encapsulation. Fortunately, malignant transformation of neurilemmoma is exceedingly rare, and no such transformation has been reported for intraoral neurilemmoma.

The patient acceptance was also assessed by a three-point rating scale during follow-up visit as described by Purwar et al[10] and rated it a score of 3 (highly satisfied) on the grounds of presurgical, surgical and postsurgical protocol and cost-effectiveness of the treatment.

SUMMARY

An important conclusion that has evolved from this case report is that the differential diagnosis of painless nodules intraorally must include schwannomas. Prognosis is excellent as the tumor is benign, and recurrence rates are less.

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