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Surgical management of peripheral complex odontome – An unusual case report

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Abstract
Peripheral complex odontoma is an uncommon extra osseous lesion reported usually in paediatric age group. It is classified under benign mixed epithelial & mesenchymal odontogenic tumours. It occurs due to presence of the remnants of serres. In this case report a 13-year-old female patient reported with palatal swelling behind the maxillary left permanent central incisors. After clinical & radiographic examination, excision of calcified hard mass was done. The calcified mass was present in palatal mucosa and not embedded in bone. Histopathological examination of the mass revealed the typical features of complex odontome.Post-surgical follow up was done periodically for six months.

Keywords: Peripheral complex odontoma, examination, excision

Introduction

Odontogenic tumours are a broad set of lesions that can range from hamartomatous lesions to malignancy, with varying clinical behaviours and histopathological types. Odontogenic tumours, which are more frequently found in intraosseous tissues and less frequently in soft tissues, can be initiated by interactions between the ectodermal and mesenchymal layers of odontogenic tissues [1]. Peripheral odontoma, usually present in gingiva and palatal mucosa, clinically orginates as soft tissue enlargement. It is rarely reported in the maxillary sinus, the subcondylar region, the cheek, the midline of the palate, and the middle ear. Peripheral odontoma is confined in the soft tissues of the maxillomandibular complex and arises from the stimulation of the epithelial dental lamina, but reports of them are rare and elusive [2]. It is generally thought to have its origins in the remains of Serres, which are supraperiosteally positioned in the gingiva and are vestiges of the dental lamina [3]. Peripheral odontoma are seen in young children without any sex predilection. It appears as slow growing, firm, hard gingival mass with normal mucosa. Clinically, PO might be misinterpreted as a typical oral reactive soft-tissue disease such peripheral giant cell granuloma, pyogenic granuloma, focal fibrous hyperplasia (irritation fibroma), and peripheral ossifying fibroma. In the new 5th edition of the "World Health Organization (WHO) Classification, odontomas are classified under benign mixed epithelial & mesenchymal odontogenic tumours. They are described as hamartomas, or tumor-like abnormalities made of both soft and hard dental tissue [4]. Odontoma are differentiated into compound composite odontome and complex odontoma. Compound odontoma has anatomic resemblance to tooth except its small in size while complex odotoma has no tooth like resemblance, it is an irregular mass bearing no morphological similarity to tooth. Compound composite odontoma is the most common type. Etiology is unknown. It has been proposed that the development of such a lesion may be caused by local trauma or infection. This article is about the case of slow growing gingival mass which was noticed a year back, patient reported to us at the age of 13 years after trying all home remedies.

Case Report

A 13 years old girl reported to Paediatric and Preventive Dentistry Department of DR R Ahmed Dental College & Hospital due to a nodular painless swelling present behind the right upper central incisor on the palatal mucosa. Patient noticed the swelling 1 year back and also gave the history of it sequentially increasing in size without any pain and discharge. The swelling was sessile, mucosa present over the swelling was normal. On palpation the swelling was hard in consistency like a bony swelling relation to left upper central and lateral incisor. (Fig: 1).

Fig 1: Intra oral photograph showing a nodular lesion on the palatal aspect of the left central and later incisors

Treatment Procedure

After anaesthetizing anterior palatal mucosa using nasopalatine nerve block, crevicular incision was given from canine to canine region. On elevating full thickness palatal flap, no bony swelling was observed on the palate but hard swelling was palpable inside palatal full thickness flap (Fig:2A). Calcified mass was removed by a vertical incision on the bone facing surface of the flap along the centre of the hard swelling and suture was placed (Fig 2B,2C). Excised specimen was sent for the histopathological evaluation. Histopathological examination revealed irregular calcified odontome surrounded by densely inflamed connective tissue with oral mucosa covered over it. The odontome is comprised of dentin matrix, enamel, pulp tissue around the dental papilla. Histopathological features suggested that this calcified mass is complex Odontome. Since it is present in the extra osseous site, the confirmatory diagnosis of peripheral complex odontome was made (Fig :3). Post-operative evaluation was done after 6 months. Till today, there is no history of the recurrence and the lesion has healed uneventfully. (Fig: 4)

Fig 2a: Surgical Removal of Odontoma **Fig 2b:** Biopsy Specimen **Fig 2c:** Flap Closure with Simple Interrupted Sutures

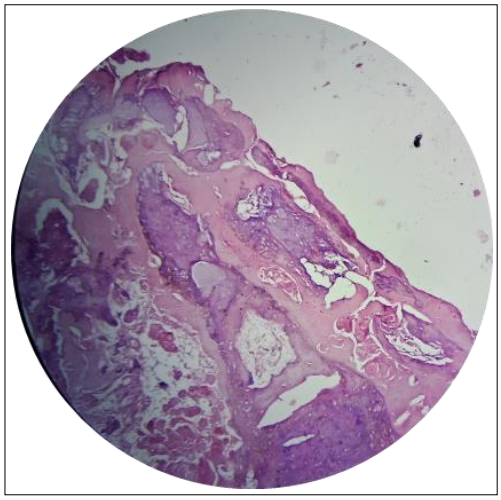

Fig 3: Microscopy Picture of Excisional Biopsy Showing Tumor Composed of Calcified Tissue Surrounded by Lamina Propia

Fig 4: Post-Surgical Follow Up After 6 Months

Discussion

Odontoma is categorised as an odontogenic tumour with a mesenchymal and epithelial origin. It is a developmental abnormality of the dental tissues. Three distinct forms identified in clinical literature are intraosseous, peripheral (extra osseous), and erupted. Up to 45.8% of odontogenic lesions are documented to be intraosseous odontoma [5]. Few cases of intraosseous odontoma are associated with impacted teeth and it hamper their eruption, so far only 20 cases reported in the literature. Compound odontoma make up about 10% of all odontogenic tumours of the jaws [6]. They affect 9% to 37% of the population & complex odontoma affect between 5% and 30% of the population [6]. The Peripheral odontoma is incredibly uncommon., while the central and erupted odontoma are the most common. Aetiology is unknown, some authors claim that development of such a lesion may be caused by local trauma or infection and alterations in the genetic component associated which may or may not be associated with hereditary conditions (Gardner syndrome and Hermanns syndrome) [7].

Peripheral odontomas are confined in the soft tissues of the maxillomandibular complex and arise from the stimulation of the epithelial dental lamina, but reports of them are rare and elusive [2]. It is generally thought to have its origins in the remains of Serres, which are supraperiosteally positioned in the gingiva and are vestiges of the dental lamina. Differential diagnosis is quite challenging for clinician because Ameloblastic fibro-dentinoma and ameloblastic fibro-odontoma share histological similarities [8]. Clinically, Peripheral odontome might be misinterpreted as typical oral reactive soft-tissue diseases such as peripheral giant cell granuloma, pyogenic granuloma, focal fibrous hyperplasia (irritation fibroma), and peripheral ossifying fibroma. Definitive diagnosis is purely based on the histopathological reports.

Micro-computed tomography radiographic evaluation has been used in some studies to evaluate the location and adjacent structure related with the lesion [9]. Surgical excision is the treatment option for odontome. Till date in literature recurrence is not published.

Conclusion

Peripheral complex odontome is a rare entity. Mostly it is confusing with the nodular lesion of the oral mucosa on the clinical visual examination. Sometimes precision quality of the radiography is misleading. Micro CBCT is mandatory for better radiographic diagnosis Final diagnosis can be made only after histopathological examination. So far 9 cases have been reported in the literature, most of the patients reported at young age. Accurate diagnosis and proper treatment are the key for the management of peripheral odontome.

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