CASE REPORT

An Exophytic Growth in the Maxillary Anterior Region: A Diagnostic Dilemma

Shrinidhi MS, Chethana KC, Suprabha K, Chaitra MP, Bharathi Poojari, Soumya B G.

Abstract

Background: Odontomas are benign odontogenic tumors containing all the tissues of teeth.According to WHO, they are classified as compound and complex odontomas. When the dental tissues are organized resembling a tooth like structure, they are called compound odontomas. Complex odontomas lack a well organised structure. The exact etiology of the odontomas are unknown. They are usually asymptomatic which are noticed during routine radiographic examinations.

Case report: A 46 year old patient reported with a hard and painless swelling in the upper front tooth region,and had a history of extraction in the adjacent area. OPG and CBCT report revealed the presence of a solitary well defined irregular radiopacity, surrounded by a radiolucent rim, in relation to the tooth 22. Patient was provisionally diagnosed with odontoma, with poor prognosis of 22.

Management: Conservative surgical excision of the lesion was done under local anaesthesia. Though the recurrence rate is low, the lesion was carefully excised and the surgical site was sutured. The specimen sent for histopathological examination, revealed the features similar to complex odontoma. Although similarities exists between the two types, proper radiographic and histopathological examination is required to arrive at a definitive diagnosis.

Keywords: Benign tumors, Odontomas, Odontogenic tumors.

Introduction

Odontomas are the most common benign odontogenic tumor of epithelial and mesenchymal origin. The term odontome was defined by Paul Broca in 1867 as the tumor formed by the excessive proliferation of dental tissues. They constitute about 22% of all the odontogenic tumors of the oral cavity.[1] They are classified as compound and complex odontomas based on the radiographic, microscopic and the clinical characteristics. About 37% of all the odontomas are compound while complex odontomas reports an incidence rate of 30%.[2] The dental tissues are well organised, regularly shaped and appear as tooth like structures in compound odontome. They are more frequently seen than complex odontomas. Anatomically, they are associated with the maxillary incisor–canine region. An odontome is considered to be a complex odontome when it lacks an orderly pattern of arrangement of the dental tissues, and is commonly seen in the mandibular premolar-molar region.[3]

According to the World Health Organisation, they are classified as ameloblastic fibro-odontome, Odonto-ameloblastoma, complex odontome and compound odontome.[4] WHO defined ameloblastic fibro-odontome as a lesion causing inductive changes with the presence of dentin and enamel. It represents about 3% of all the odontogenic tumors.[2] Odonto-ameloblastoma is a slow growing lesion consisting of both ameloblastomatous and odontoma like components. They are rare neoplasm which includes odontogenic ectomesenchyme with odontogenic epithelium resembling ameloblastoma.[5]

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In most of the cases, odontomas are asymptomatic, are associated with permanent dentition and are often noticed during the routine radiographic imaging. Radiographically compound odontomas appear as multiple radiopaque structures resembling bag of tooth appearance, in complex odontoma there is irregular radiopacities with a radiolucent halo.[6]

The etiology is unknown, but it has been associated with traumatic injuries to the primary dentition and the inflammatory process following it. The surgical excision of the lesion is the treatment of choice.[5] This report presents a case of an unusually sized complex odontoma, mimicking a bony tumor, present in the maxillary anterior region of a 46 year old female patient.

Case Report

A 46 year old female patient reported to our department with chief complaint of a swelling in the upper front tooth region since one year. The growth was painless without any change in size. Patient had a history of uneventful healing after the extraction of upper front tooth two years back. The patient presented with a hard growth adjacent to the area of extraction after one year following prosthetic rehabilitation.

Fig. 1: Pre-operative view of the hard tissue and soft tissue lesion measuring about 10x7mm and 7x9mm respectively.

Extraoral examination revealed no facial asymmetry or abnormalities. Intra oral examination revealed the presence of a solitary hard lesion, measuring about 10x7mm, extending from the mid root region till the depth of the vestibule of 22 region. A reddish, solitary, pedunculated growth was also seen on the palatal aspect adjacent to the edentulous area. On palpation, the bony lesion was hard in consistency and non-compressible with no associated symptoms. There was no vestibular tenderness reported. The palatal swelling was soft and non- tender measuring about 7x9mm (Fig. 1).

IOPA and OPG revealed a well defined radiopacity with dilacerated root of teeth 22 (Fig. 2). CBCT revealed a solitary well defined irregular radiopacity surrounded by a radiolucent rim. Margins of the lesion were well defined and irregular in shape, measuring about 8.5x8.5mm (Figure 3). The internal structure appeared to be radiopaque with varying radiodensity (800-1500HU). Perforation of the labial cortical plate was also seen. Hence it was provisionally diagnosed as infected complex odontoma and pyogenic granuloma in the edentulous area. Differential diagnosis included osteoma or adenomatoid odontogenic tumor.

After adequate local anaesthesia a full thickness mucoperiosteal flap was reflected with a vertical releasing incision. After through debridement it was found that the lesion was attached completely to the apex of 22 with complete loss of the buccal cortical plate. As the lesion was approached for the

Fig. 2: Orthopantomogram w.r.t 22 shows well defined radiopacity with dilacerated root w.r.t 22.

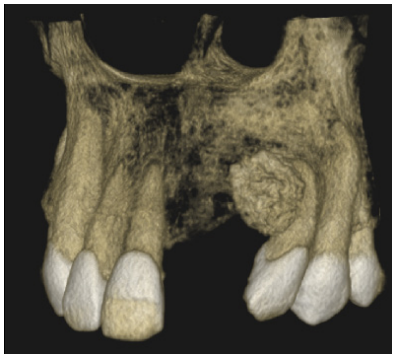

Fig. 3: CBCT image of the hard tissue revealed well defined margins with irregular radiopacity surrounded by a radiolucent rim.

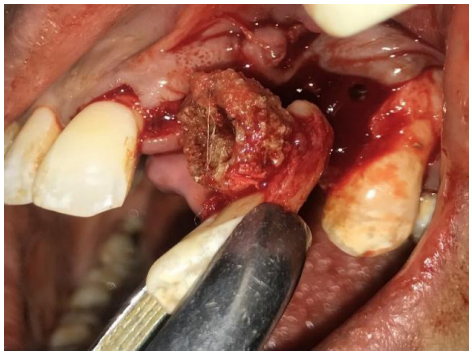

Fig 4: Removal of the bony lesion associated with teeth 22

Fig. 5: Excised hard tissue specimen

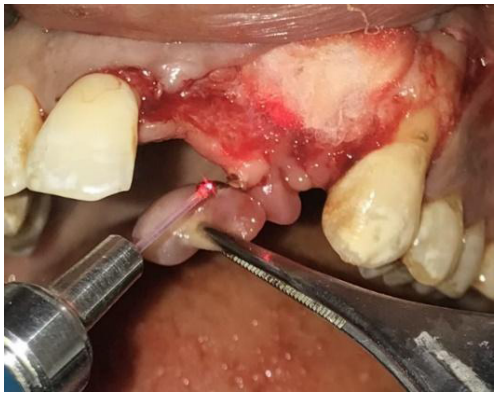

Fig. 6: Laser excision of the soft tissue lesion

Fig. 7: 1 month post-operative view

excision, there was mobility of 22. Hence the bony lesion along with the tooth associated had to be extracted (Figs. 4 and 5).

Curettage was performed and PRF was placed within the extraction site. Flap approximated using 3-0 silk sutures. The palatal soft tissue was excised using laser (Fig. 6). Patient was instructed to be on soft diet and was advised to follow strict oral hygiene care. Sutures were removed on the 7th day and satisfactory healing was noted. Patient is now under maintenance phase (Fig. 7). No post-operative complications such as paresthesia was reported.

On histological examination of decalcified hard tissue, sheets of lamellar bone were observed, with presence of cementoblasts and haphazardly arranged pulp and dentine like tissues. Few areas with fibrous stroma were also noted with no evidence of malignancy, suggestive of complex odontoma. Histopathological examination of the soft tissue specimen showed hyperplastic parakeratinised stratified squamous epithelium with connective tissue dense inflammatory infiltrate and increased vasculature, features suggestive of pyogenic granuloma.

Discussion

Odontomas are mixed tumors of odontogenic origin. Most of these lesions are asymptomatic which are found during routine radiographic examinations. Both types of odontomas contain similar cells, because of which most of the investigators consider these two lesions the same for the practical purposes. They are most commonly associated with the permanent dentition and rarely reported with primary dentition.[6]

According to many studies, complex odontomes are most commonly associated with mandibular molar-premolar region and second most commonly seen in the maxillary anterior region.[2] The average age of occurrence is 20.3 years, with a female predominance.[7]

The exact etiology is still unknown, however local trauma, inflammation, infection and genetic mutations have been reported. Euler and Atkinson have reported that the growth pressure due to inadequate space will affect the tooth bud during the development.[8,9] The presence of pyogenic infection during early stage of tooth development causes splitting of tooth germ. Hence in case of any infection the occurrence of odontomes may be due to this division of tooth germ.[9] Genetic predisposition due to mutation in epithelial cells of the developing tooth germ may change the inherent capacity of the developing tooth germ leading to the formation of the odontoma.[10]

Visual examination of the lesion does not clearly help in differentiating between compound and complex odontomes. When compared to clinical examination, radiographic examination seems to be more effective in discriminating between the two. A radiopaque, well organised tooth like structure suggest the presence of compound odontome. Radiographic examination in the present study revealed an irregular ovoid radiopacity, with a thin radiolucent zone in association with tooth 22, which were features suggestive of complex odontome.[11] The complex odontome presents calcified irregular mass composed of amorphous conglomeration of tubular dentin, enamel and pulp. When anatomic similarity to the rudimentary teeth exists, the diagnosis shifts more towards compound odontome.[11,12]

Odontomes are usually embedded within the bone, referred to as intra-osseous odontome. Any alterations within the neighbouring teeth can cause their eruption. The eruption of these odontomes within the oral cavity is due to the pressure generated, causing breakage of cortical plate.[13] The present report also showed similar appearance. The release of Epidermal growth factor beta (EGF-beta), transforming growth factor (TGF) and protease from the reduced enamel epithelium (REE) signals the release of colony stimulating factor by the follicular cells. The proteases also help in breakdown of the follicle, enabling the odontome to attain the path of least resistance.[14]

Histologically, calcified tissues with irregularly arranged cementoblasts and tubular dentin are termed as complex odontomes. The present study reveals similar features. The hypocalcified areas of both enamel and dentin are also seen.

A reddish, pedunculated growth known as pyogenic granuloma sometimes known as granuloma pyogenicum was thought to be an exaggerated granulomatous lesion. Studies have reported that the imbalance between the pro-angiogenic and anti-angiogenic factors have lead to the rapid proliferation of capillaries. About 7% of these lesions are related to trauma.[15] Regezi et al reported that this exuberant proliferation can be due to a known stimulus or injury from the foreign material.[16] In the case presented here, patient was rehabilitated with a poorly fitting removable prosthesis since two years following extraction, which might have triggered the inflammatory pathway. Excision and biopsy of the lesion is the recommended line of therapy. The recurrence rate is about 16%.[17]

The excision of the lesion requires a simple surgical procedure. However, care should be taken to remove it completely especially in case of an immature complex odontoma. The recurrence rate of odontoma is very low, but the lesion should never be left untreated as studies have reported cystic changes with extensive bone loss.[18]

Since both types of odontomas resemble eachother, a definitive diagnosis can be achieved only by proper radiographic and histopathological examinations. The use of radiographs such as OPG and CBCT can help in arriving at a proper diagnosis. Surgical excision with histopathological examination can eliminate intra-operative and post-operative complications with a favourable prognosis.

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