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Intraosseous Odontoma in the Maxilla and Its Impact on Underlying Teeth. A Case Report

SUMMARY

Odontomas are the most common odontogenic tumours. They are usually asymptomatic and often are discovered during routine radiography. Here, we report a case of an odontoma located at the anterior maxilla that initially caused inflammatory reactions around the overlying teeth; later on, it was associated with a generalized inflammation of the area. Endodontic re-treatment of the 4 front maxillary incisors and 2 surgical procedures were performed aiming the patient to recover.

Keywords: Odontoma; Maxilla; Endodontic Re-treatment; Apicectomy

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CASE REPORT (CR)
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Introduction

Odontoma, one of the most common odontogenic tumours, is a tumour-like malformation (hamartoma) in which enamel, dentin or cementum are present. 2 types are recognised using criteria of their histological appearance: compound and complex odontomas[7]. Complex odontomas are less common than the compound lesions in the ratio 1:2[2,4]. They differ in that in the complex odontoma calcified tissues are presented as an irregular mass, while the compound type is composed of tooth-like structures that can be seen radiographically as opacities. The most homogenous tissue can be dentin, while enamel and pre-enamel related structures can be totally abnormal in their shape, size and site[8]. Using clinical criteria, 3 types are described: central (intraosseous) odontoma, peripheral and erupted odontoma. Central odontomas occur predominantly in the anterior maxilla and less frequently in the mandibular molar region. More specifically, in a rather extended study, it was shown that 55.7% of all odontoma cases were located in the maxilla while 44.3% in the mandible. The anterior portion of the maxilla was the most common location of odontomas[3,4]. In another study, the proportions regarding odontomas' localization were for the maxilla (70%) and for the anterior region of the jaw (83%), particularly for the anterior maxilla (62%)[1]. Odontomas are in general inherited or they are shown after a genetic interference during tooth development. As main causes for the development of an odontoma are mentioned trauma, infection, or growth pressure[5].

Case Report

A 40-year-old male reported to a general dentist in March 2004, complaining of pain to all front maxillary teeth (central and lateral incisors). The patient's medical history was not contributory. Clinically, there were no facial asymmetries or localised swellings and the intraoral examination did not reveal any abnormalities. However, the radiological examination using panoramic and intradental periapical radiographs revealed a well defined radiopaque mass situated in bone and underlying the upper central and lateral incisors, but with a greater density than bone and equal to or greater than that of the teeth (Figs. 1 and 2). The pre-operative diagnosis was central compound odontoma and the diffused pain reported by the patient was attributed to its presence. Surgical intervention and extraction of the odontoma was the treatment of choice. The teeth 21 and 22 were already insufficiently treated endodontically, and an apicectomy of 21 and 22 was performed with amalgam used for retrograde filling (Fig. 3).

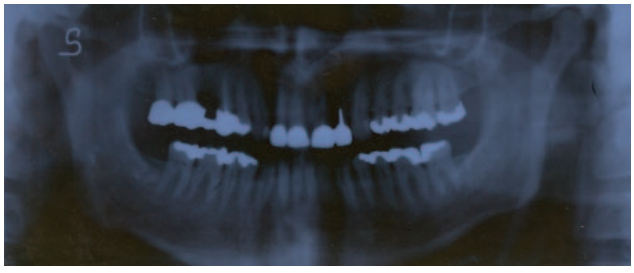

Figure1. Panoramic radiograph. The odontoma is seen overlying teeth 21 and 22

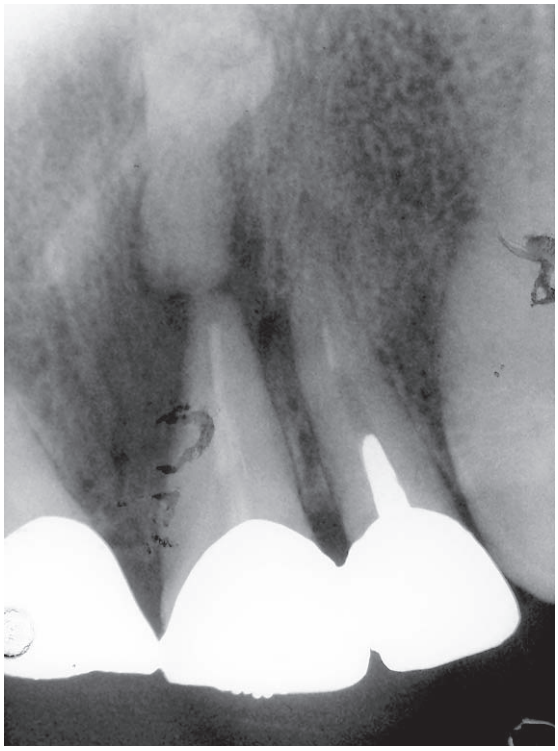

Figure 2. Intradental periapical radiograph of the case, before any surgical treatment

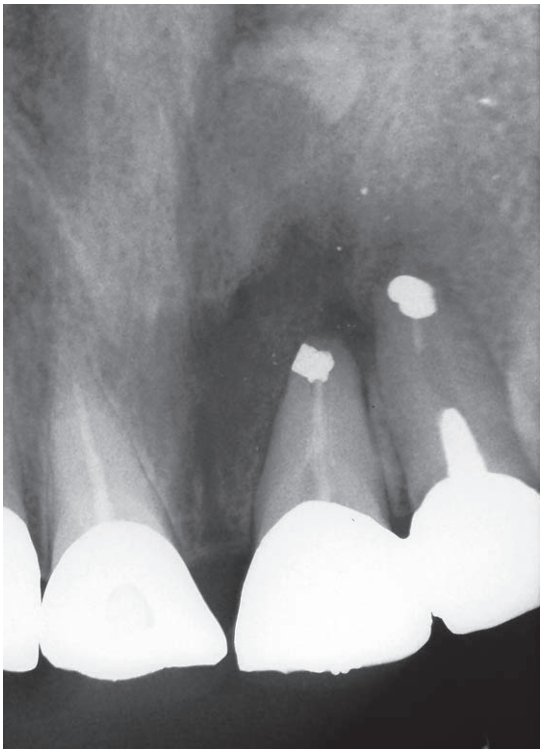

Figure 3. Intradental periapical radiograph 9 months after the first surgical procedure

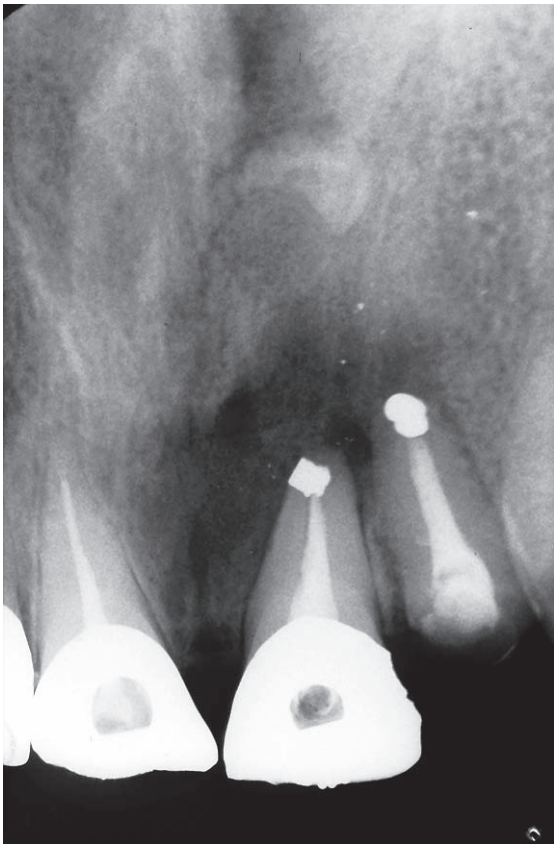

Figure 4. Intradental periapical radiograph following the endodontic re-treatment of the teeth 21 and 22

Figure 5. Intradental periapical radiograph after endodontic re-treatment of 4 upper incisors

6 months later, the patient returned complaining for the same diffused pain to the front teeth and a general lip swelling. His dentist decided to treat endodontically the tooth 11 (Fig. 3).

3 months later, he was referred to the Department of Endodontology, Dental School, since the clinical symptoms have not subsided. The teeth 11, 12, 21 and 22 responded with great sensitivity to percussion and palpation tests. The patient complained of a light swelling of the area and especially of the upper lip. Teeth 11, 12, 21 and 22 were decided to be re-treated endodontically on the basis that all of them were under-filled, simultaneously showing signs of localized periapical inflammation

(Figs. 4 and 5). Although re-treatment of all the above mentioned teeth was sufficiently completed, the patient still complained for diffuse pain in the area and therefore a second surgical clearance of the area was performed at the oral surgery department in order to eradicate any remnants of the "calcified structure" as it was thought that this was possible reason for continuous pain (Fig. 5). A biopsy of the upper lip was taken as well, as the patient complained for a light diffused swelling. Antibiotics were prescribed and given to the patient for a period of 2 weeks.

6 months later the symptoms totally subsided (Fig. 6) and permanent restorations were placed 1 year thereafter (Fig. 7).

Figure 6. Intradental periapical radiograph after the second apicectomy that followed for the upper incisors and removal of the odontoma's remnants

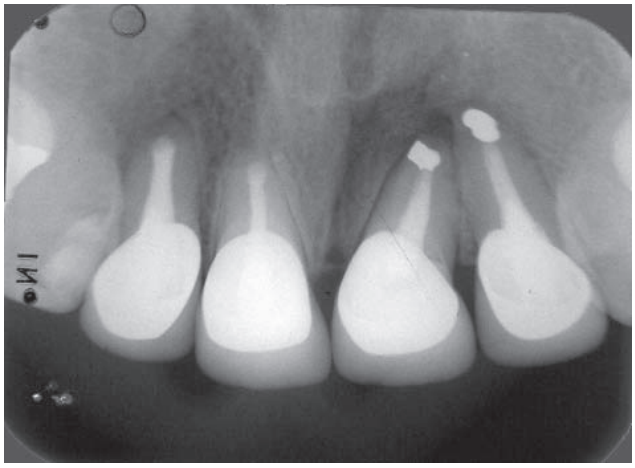

Figure 7. Periapical tissues radiographically show signs of healing 6 months later

Discussion

Odontomas are entities that can cause different complications in the related teeth. Delayed eruption of the neighbouring teeth, or occurrence of impacted permanent teeth, especially in relation with maxillary central incisor (27%), are mentioned[1]. Pain, expansion of the cortical bone and tooth displacement are referred as well. In the present case, the impacted odontoma was the cause of periapical inflammation of the underlying teeth. One of the problems that had to be solved was the endodontic re-treatment of the teeth with clinical signs of infection, as we believed that microflora in the root canals of the involved underlying teeth, was one of the probable reasons for the patients' problems, in combination with microleakage. On the other hand, it is well known that in several cases amalgam used as a filling material in periapical surgery can produce hypersensitivity of the neighbouring soft tissues, or even the treated teeth fail to heal as a result of corrosion of the apical amalgam[6].

Cases like that, may confuse diagnosis, since the signs are not totally clear and radiographically these cases could be held as various other lesions[9]. Therefore before any treatment plan is decided, there is a need to differentially diagnose cementoblastoma, osteoid osteoma, fibro-osseous lesions from odontomas. A cementoblastoma presents a well defined radiopaque mass attached to a tooth and root and surrounded by a radiolucent area[10]. Osteoid osteomas are characterized by a small ovoid or round radiolucent area surrounded by a rim of sclerotic bone; the central radiolucency exhibits some calcification as it matures. Cemento-ossifying fibroma is presented as a well-defined radiolucency with increasing degree of calcification as it matures; it is not surrounded by a radiolucent rim and it is diffused with normal bone[10]. One of the major drawbacks regarding diagnosis in this case was the lack of histological data for confirmation of the preoperative diagnosis.

In the present case, no eruption was mentioned or seen, although we assume that the case started during an eruption process that was followed by inflammation, which was extended and gave signs of periapical inflammation to the underlying teeth. Furthermore it can't be assessed as well, to what extend the undertreatment of the involved teeth was the cause for the patient's chief complaints or it was actually the remnants of the odontoma that caused the inflammation signs and discomfort of the patient, as both followed on the same time.

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