IMPACTED CANINE ASSOCIATED WITH COMPOUND ODONTOMA:
A CASE REPORT

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Abstract

Odontomas are nonaggressive odontogenic lesions with an occurrence rate of 22-70% in the oral cavity. In the present study, the most common location for compound odontoma was the canine region. The etiology of odontomas is unknown, but it could be due to trauma, inflammatory and infectious processes, hereditary anomalies, odontoblastic hyperactivity, or alteration of the genetic components responsible for controlling dental development. The interdisciplinary treatment plan, coordinated by the oral surgeon and the orthodontist, was based on the complete removal of the odontomas and the orthodontic traction of the impacted teeth. In conclusion, most odontomas are found in the second decade of life on routine radiographic examination, and they could cause impaction of the adjacent permanent teeth. Early detection and treatment of odontomas could increase the possible preservation of the impacted teeth through various treatments.

Keywords: odontoma, impacted canine, orthodontic treatment.

1. INTRODUCTION

The term odontoma was used for the first time in 1867 by Paul Broca to describe odontogenic tumors [1]. In 1946, Thoma and Goldman discard this definition and define the odontoma as a mixed tumor, with both epithelial and mesenchymal origin. They also classified the odontogenic tumors into three categories: epithelial, mesenchymal and mixed tumors [2]. Odontogenic tumors represent a heterogeneous group of lesions that range from hamartomas to benign or malignant neoplasms [3].

From a histopathological point of view, odontomas are formed of dental tissues (enamel, dentin, cement and dental pulp) [1,4]. In 2005, the World Health Organization classified odontomas into two categories: complex and compound [5]. The compound odontoma represents the miniatural variant of a tooth, consisting of organized dental tissues, radiologically presented as a calcified, unicellular structure, containing several radiopacities similar to teeth (denticles). Complex odontomas are considered conglomerates of dental tissues with tooth-like radiopacity but without similarity in shape. Compound odontomas are nonaggressive, painless lesions with limited growth potential, unlike complex odontomas that have the tendency to expand [6,7]. Compound odontomas are twice as common as the complex ones [4].

The exact etiology of odontomas is still unknown. As mentioned in the literature, several factors may contribute to the occurrence of odontoma, from trauma in temporary dentition to inflammatory or infectious processes, hereditary abnormalities (Gardner’s syndrome, Hermann’s syndrome), odontoblastic hyperactivity or alterations of the genetic components responsible for controlling dental development [8].

2. CASE PRESENTATION

CASE 1

A 32 year-old patient without associated pathology addressed to the orthodontist for aesthetic reasons (the presence of edentulous space
in the lower left canine). The patient reported no trauma or infectious processes in the lower region.

Extraoral examination showed no pathological changes, while intraoral examination (Fig.1) revealed the absence of the left inferior canine. Orthopantomography showed a canine impaction caused by the presence of a conglomerate of dental-like radiopaque formations, delimited by a narrow radiotransparent area, with the characteristics of a compound odontoma.

Fig. 1. Case 1 - Intraoral view showing the edentulous lower left space

A cone beam computed tomography (CBCT) was performed to establish the treatment plan and evaluate the relations of the tumor with the impacted tooth, which confirmed the presence of a compound odontoma (Figs. 2,3).

Fig. 2. Case 2 - CBCT- axial view of the compound odontoma

The treatment plan, based on a multidisciplinary approach, was developed by a medical team consisting of an oral surgeon and an orthodontist. In the first stage of the treatment, the fixed orthodontic appliance was bonded on both arches, in order to distalize the adjacent teeth and create space for the eruption of the impacted canine. The second stage of the treatment was the surgical one, when the tumor was removed under local anesthesia and the impacted canine disengaged (Figs. 4,5).

Fig. 3. Case 1 - CBCT- sagittal view of the compound odontoma

Fig. 4. Case 1 - Intraoperative view of the intact buccal cortical bone
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Since the canine was deeply inserted (Figs. 6,7), braces application for traction on the dental arch could not be performed in the same session and the orthodontist planned a second session.

CASE 2
A 41 year-old female patient was presented to the orthodontist with the persistence of the deciduous left maxillary canine and swelling of the left upper vestibule. The patient declared no systemic pathology associated.

Intraoral examination (Figs. 8,9) revealed a swelling between the apexes of teeth 63-24, with dimensions of approximately 2/1 cm, irregular as shape and surface, hard consistency, immobile and with an unchanged covering mucosa, as well as the persistence of deciduous teeth 63-83, without mobility.

Orthopantomography and periapical radiography 23 (Figs. 10,11) showed the inclusion of the left maxillary permanent canine, presence of radiopaque masses similar to small teeth surrounded by a radiotransparent edge, as well as the anodontia of the right lower permanent canine and the pathological inclusion of the lower third molars.
The surgical diagnosis established on the basis of clinical and radiological findings was of compound odontoma in the upper left region 22-24, dental inclusions 23, 18, 38 and anodontia 43. The orthodontic diagnosis was Class II malocclusion associated with mandibular retrognathism, retrusion of the upper incisors and persistence of deciduous teeth 63 and 83.

The surgical-orthodontic treatment had two phases: (1) in the orthodontic phase, the fully-fixed 0.022-inch edgewise appliances were placed on both arches; (2) the surgical phase included extraction of the deciduous tooth 63, complete removal of the tumor and disengagement of the impacted maxillary canine, on which the braces were laterally applied and repositioned on the dental arch (Figs. 12,13).

The macroscopic features of the excisional biopsy specimen revealed three miniature tooth-like structures in different evolution stages (Fig. 14), histological examination confirming the diagnosis of compound odontoma.
3. DISCUSSION

As observed in most studies, odontomas are usually diagnosed in the second or third decade of life and only in 10% of cases are found in people over the age of 40 years [1,9]. These tumors do not have a predisposition for a particular gender, the differences between them being insignificant [10]. Odontomas are painless injuries, so that they are often discovered by chance, during a routine radiological examination. These characteristics have been also found in the two cases presented.

As known, more than half of the patients with odontomas associate an impacted tooth [1]. In the here reported cases, odontomas were also associated with impacted teeth, the patient with the maxillary odontoma also presenting the deciduous tooth after its normal age of exfoliation. Most of the odontomas are located in the anterior region of the jaws. Literature data showed that complex odontoma occurs more frequently in the lower molars area and compound odontoma - in the anterior segment of the upper jaw [6,11]. Our patients had both compound odontomas, located in the area of maxillary and mandibular canines, which is consistent with literature findings.

Odontomas are usually situated intraosseously, but occasionally they may erupt into the oral cavity. Only 30 cases of erupted odontomas are reported in the literature [7]. In the first case presented by us, the odontoma was located intraosseously while, in the second case, the tumor was localized submucosally.

4. CONCLUSIONS

The two cases of compound odontomas associated with permanent canine impaction highlight the need for an interdisciplinary approach to this pathology.

We also wanted to show the importance of establishing a diagnosis as early as possible, which may be done by routinely performing panoramic radiographs from the earliest ages. The presented cases also show that a delayed diagnosis leads to the complete formation of the impacted tooth root, which will require application of the orthodontic tractions on them, in order to bring them in an appropriate position on the arch.

References