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Case Report

Strategy of Management of a Large Complex Odontoma of the Previous Maxilla Associated with Unerupted Teeth: A Case Report of a Rare Entity

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Abstract

Odontomas are the most common odontogenic benign tumours, characterized by slow growth potential and constitute 67% of all odontogenic tumours. They can also be categorized as hamartomas and are a result of developmental malformation of odontogenic tissues. They are usually asymptomatic and are often discovered during routine radiographic examination or during a radiographic exploration when there are retained deciduous teeth in children. They have an unknown etiology and are broadly classified in to compound and complex odontoma. Complex odontoma is a rare entity in which the dental tissues are well formed but exhibit an amorphous and more or less disorderly arrangement. Occasionally, this tumor becomes large, causing bony expansion of the jaws followed by facial asymmetry. Early diagnosis and surgical enucleation of the tumour is recommended to prevent impaction of unerupted teeth.

We report in this paper a rare case of a large complex odontoma on the anterior maxilla associated with unerupted teeth in a 14 year-old male patient, as well as the management strategy used in this case.

Keywords: *Complex Odontomas; Anterior Maxilla; Benign Tumours; Hamartomas*

Introduction

According to the 2005 World Health Organization classification [1], odontomas are defined as odontogenic benign tumours containing all the various component tissues of the teeth which are usually detected during the first two decades of life. They constitute 67% of all odontogenic tumours and are considered to be developmental anomalies (hamartomas) rather than true neoplasms, in which the odontogenic cells do not reach the normal state of morphodifferentiation, the enamel, dentin and cementum are formed in an abnormal pattern [2]. Two main types of odontoma are described: complex odontoma, an amorphous and disorderly pattern of calcified dental tissues, and compound odontoma, multiple miniature or rudimentary teeth. Although unknown, the etiology of odontomas can often include local trauma or infection. A gene mutation or postnatal interference with the genetic control of tooth development is also one of the supposed reasons. Odontomas are slow growing and often non-aggressive in nature, they becomes occasionally large, causing expansion of bone followed by facial asymmetry [5,6]. These tumours are usually detected during routine radiographic examination or during a radiographic exploration when there are retained deciduous teeth in children. Histologically, they often shows the presence of enamel matrix, dentin,

pulp tissue and cementum that may or may not be exhibit a normal global edifice. The histopathological examination is important for an accurate diagnosis [7]. In all cases of complex odontomas, surgical enucleation represents the best therapeutic option and the prognosis after treatment is very favorable, with very low recurrence's incidence [8,9].

Case Report

A 14-year-old male patient was referred to the Department of Pediatric Dentistry at the Rabat University Hospital Center with the chief complaint of missing teeth and the presence of hard mass and swelling in the upper right region of maxilla. The extra-oral examination revealed no abnormalities such as incompetent or elevated lips. Intraoral examination revealed right upper deciduous lateral tooth with swelling in this region. On palpation, the swelling was bony hard and non-reducible, non-compressible and non-mobile. It was ovoid in shape, large approximately 2 x 1 cm in size, extending from the persistent primary upper lateral incisor to the first permanent premolar. Based on the history and clinical examination, a provisional diagnosis of dentigerous cyst was made. Clinical differential diagnosis included an Ameloblastic fibro-odontoma, Adenomatoid odontogenic tumor, Calcifying odontogenic cyst, Focal sclerosing osteitis, osteoma.

Radiographic examination using panoramic incidence and Dentascan examination revealed a well-defined radiopaque mass with unerupted permanent upper right lateral incisor and canine. Dentascan image was obtained of the lesion and it measured approximately 2.5 x 1.5 cm in size along. The Dentascan gave a 3 Dimensional overview of the radiopaque mass thereby a precise surgical intervention. Based on the radiographic appearance a diagnosis of complex odontoma was made. The radiographic differential diagnosis included odontoma, ameloblastic fibro-odontoma, and ameloblastic fibro-dentinoma. Surgical removal of the odontoma under local anaesthesia was planned. A mucoperiosteal flap on the labial surface from the primary right lateral incisor to the right first permanent premolar was reflected. The layer of bone overlying the labial surface was removed and the calcified mass was exposed. After enucleation of the lesion, the specimen was sent for histopathological examination. Histopathological reports revealed an amorphous and disorderly pattern of calcified structures like enamel, dentin, and cementum which were intermingled with pulp-like tissues in few areas. Few odontogenic islands were seen in a fibro-vascular connective tissue. Based on the appearance of the gross specimen and the histopathological examination, a diagnosis of complex odontoma was made, which is a rare entity in this region of maxilla.

After healing, impression was taken and partial prosthesis was made which served as space maintainer, esthetic and functional rehabilitation. Clinical and radiographic follow-up will be done until the spontaneous eruption of retained teeth. In the opposite case, orthodontic traction may be considered.

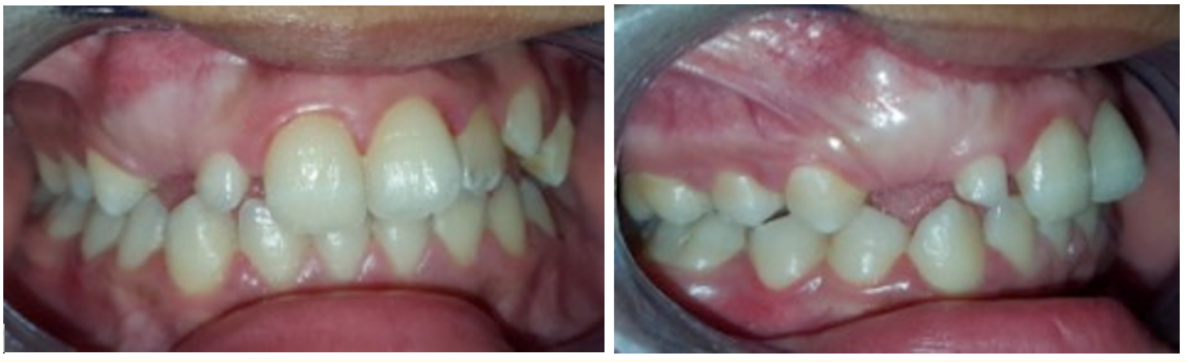

Figure 1: *Clinical pre-operative view.*

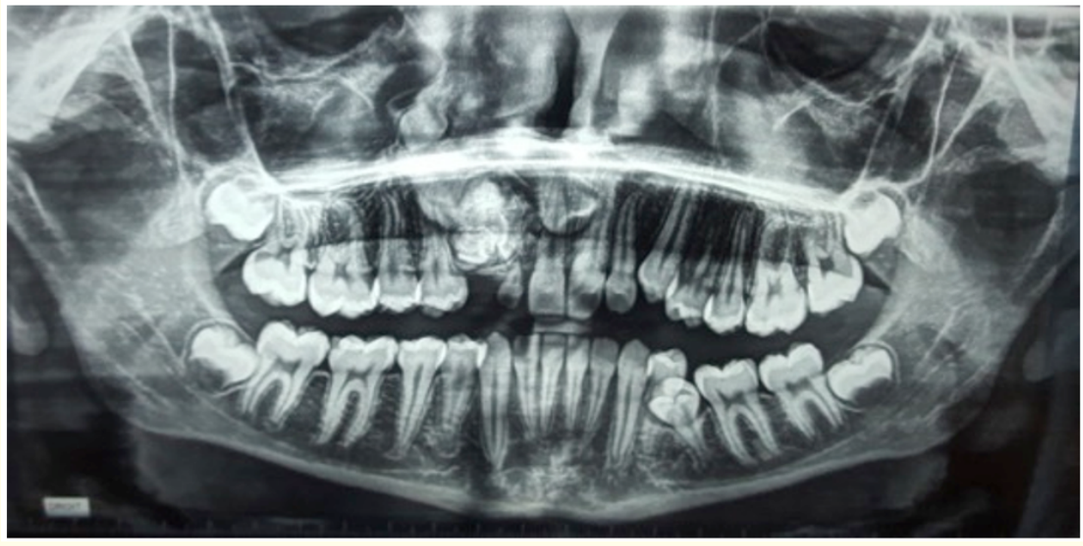

Figure 2: *Panoramic radiograph showing the lesion as well defined radiopacity in the right side of the maxilla in the Previous Region.*

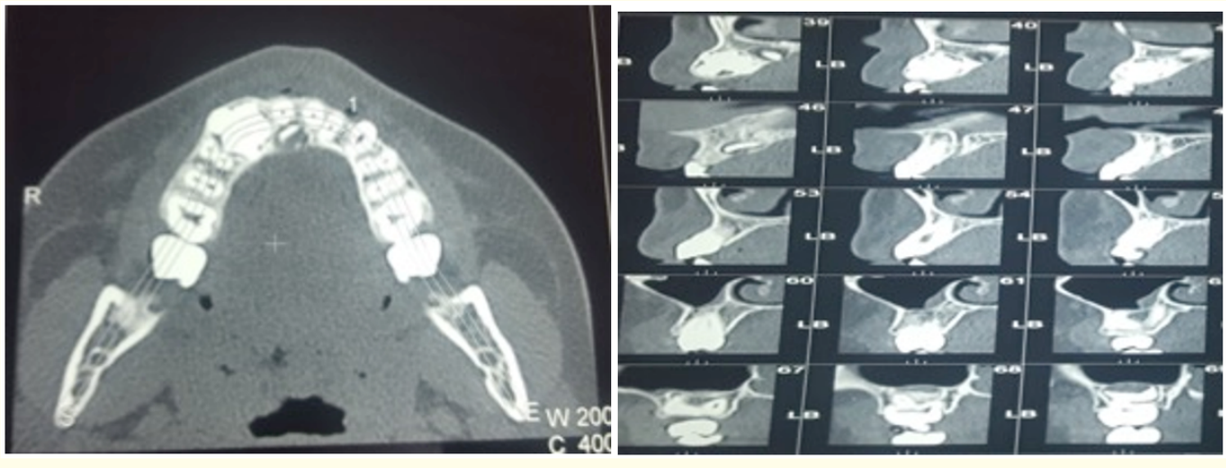

Figure 3: *Dentascan showing the size and the localisation of the lesion.*

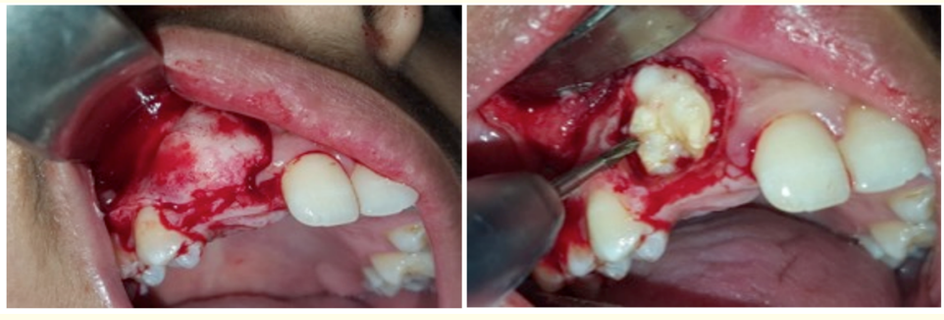

Figure 4: *Surgical exposure of the tumor.*

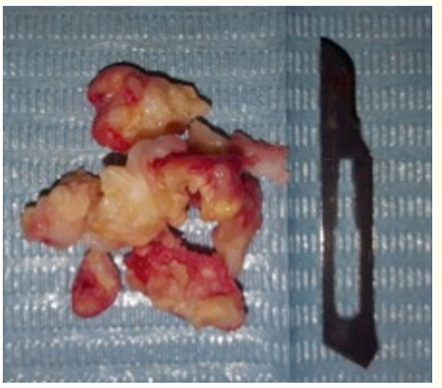

Figure 5: *Formicides lesion.*

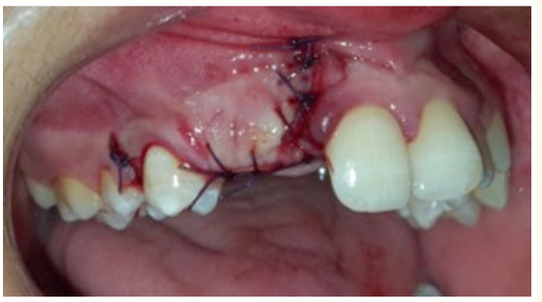

Figure 6: *Postoperative view with sutures.*

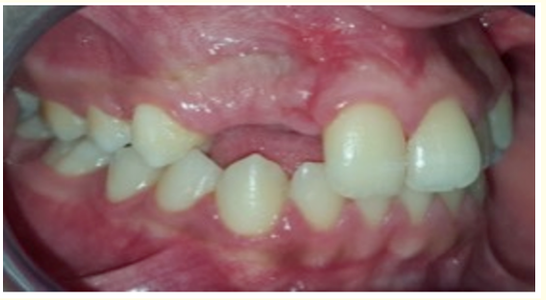

Figure 7: *Post-operative view after 1 month follow-up.*

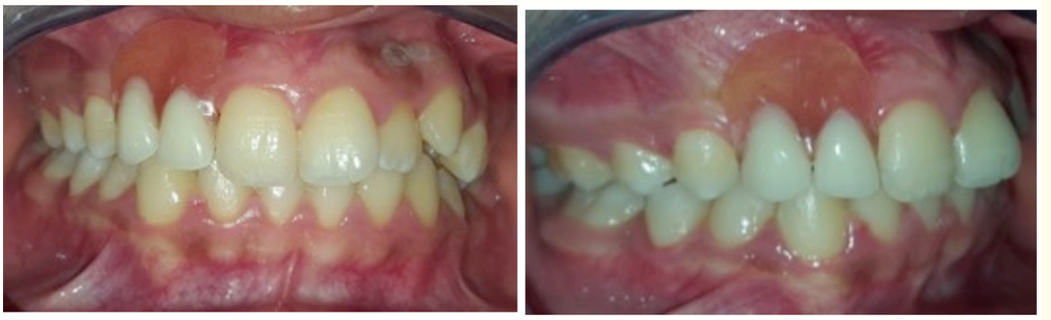

Figure 8: *Removable partial dentures space maintainers.*

Discussion

Broca proposed in 1866 the term odontoma, who defined it as a tumour formed by overgrowth of complete dental tissue including enamel, dentine, cementum and in some cases, pulp tissue. Clinically, three types of odontoma are recognised: intraosseous, extraosseous and erupted [14]. Thoma and Goldman classified odontomas as follows: Geminated composite odontomes (two or more, more or less well - developed teeth fused together), Compound composite odontomes (made up of more or less rudimentary teeth), Complex composite odontomes (calcified structure, which bears no great resemblance to the normal anatomical arrangement of dental tissues), Dilated odontoma (the crown or root part of the tooth shows marked enlargement), cystic odontomes (an odontome that is normally encapsulated by fibrous connective tissue in a cyst or in a wall of cyst) [15].

World Health Organization determined two distinct types of odontomas: complex and compound odontoma. In complex odontomas, all dental tissues are formed, but appeared without an organized structure, as amorphous conglomerates of hard tissue [21,22]. Histologically, they are characterized by sheets of immature tubular dentin with encased hallow tooth like structures. Ghost cells are especially seen in complex odontoma. Most of these lesions are discovered suddenly on radiographic examination. The common signs and symptoms include impacted permanent teeth and swelling. Budnick found that 61% of cases are associated with impacted teeth [24]. The origin of complex odontoma is not defined exactly; some suggestions about trauma or infection were proposed. Lopez-Areal., *et al.* found that a child developed multiple odontomas after intrusion of incisor teeth at the age of 10 months [25]. Hitchin proposed the hypothesis of genetic mutation as a result of odontomas. An increased number of odontomas were found in people with Gardner's syndrome which is a heritable syndrome [26]. Recurrence of complex odontomas is very rare.

Radiographically, complex odontoma appears as a radioopaque entity which does not resemble tooth structure. The CBCT or Dentascan are very important, they will gave a 3 Dimensional overview of the radiopaque mass thereby a precise surgical intervention [31,32]. Conservative surgical enucleation of the lesion is the treatment of choice until the spontaneous eruption of retained teeth. In other cases, orthodontic traction may be considered.

Conclusion

Early diagnosis and management of complex odontomas are very important to avoid the later complications such as retention of primary teeth and failure of eruption of permanent teeth. A careful follow- up of the case, both clinically and radiographically is necessary to assess the eruption of the unerupted or impacted teeth. Complex odontomas have generally a favorable prognosis with rare probability of recurrence.

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