Case Report

An unusual case of compound odontome associated with maxillary impacted central incisor

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ABSTRACT

Odontomas are the most common type of odontogenic tumor occurring within the jaws and are frequently associated with the retained deciduous teeth interfering with the eruption of permanent teeth. Compound odontomas are usually diagnosed in the anterior portion of the jaws and resemble tooth-like structure. These are usually asymptomatic. Complex odontomas are normally diagnosed in the posterior part of the jaws and consist of a disorganized mass with no morphologic resemblance to a tooth. The present case report of a 16-year-old female is a typical case of compound odontoma in the maxillary anterior region associated with retained deciduous incisor, which also resulted in failure of eruption of the permanent maxillary right central incisor. An intraoral periapical radiograph revealed the presence of a radio-opaque tooth-like structure in the apical region of retained deciduous incisor and an impacted permanent right central incisor whose path of eruption was impeded by the structure. Treatment included the surgical removal of the lesion followed by orthodontic extrusion of the impacted incisor. Follow-up was done for one 1 year and no recurrence was seen.

Key words: Complex odontoma, impacted teeth, odontoma, orthodontic extrusion

Introduction

Odontomas are defined as "a benign odontogenic tumor composed of odontogenic epithelium and odontogenic ectomesenchyme with dental hard tissue formation" by the World Health Organization.[1] They are lesions of children and young adults, and are diagnosed most frequently at 10-19 years of age.[2] Paul Broca was the first person to use the term "odontoma" in 1867. Odontomas have been classified into two main types – compound and complex. Compound odontomas are usually diagnosed in the anterior portion of the jaws and resemble tooth-like structure. These are usually asymptomatic. Local trauma and infections are the most common etiologic factors.

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Odontomas are usually discovered during routine radiography, but may cause difficulty in identification due to lack of calcification.[3] Odontomas are usually managed by conservative surgical excision. Prognosis after treatment is very favorable, with rare chances of recurrence.[4,5]

Case Report

A 16-year-old female patient reported with the chief complaint of apparent delay of the exfoliation of the upper right deciduous tooth. The clinical history did not reveal any systemic pathology associated with it. Intraoral examination revealed the presence of retained right maxillary deciduous central incisor (51), the absence of the corresponding tooth, i.e. right maxillary permanent central incisor (11), with the contralateral tooth already erupted. An intraoral periapical radiograph was obtained, which revealed the presence of a radio-opaque tooth-like structure in the apical region of 51 and an impacted permanent right

maxillary central incisor whose path of eruption was impeded by the radio-opaque structure [Figure 1a-c].

A complete blood investigation was carried out before performing the surgical procedure. Surgical excision of the odontoma was done under local anesthesia. A full-thickness mucoperiosteal flap from the right maxillary permanent canine to the left maxillary permanent canine was reflected [Figure 1d]. The layer of bone overlying the calcified mass was removed and the calcified tooth-like structure was excised [Figure 1e and 1f] without disturbing the underlying impacted right maxillary permanent central incisor and was sent for histopathologic examinations. In order to ensure that no denticles remained, a thorough curettage was performed in the area and radiographs were taken before the closure of the flap [Figure 2a]. After hemostasis was achieved, the area was irrigated with normal saline and the lingual button was bonded onto the labial surface of the impacted right maxillary permanent central incisor and ligature wire was tightly secured to it; the mucoperiosteal flap was then sutured back in the position. After flap closure, the ligature wire was tightly secured to the arch wire in order to apply traction forces [Figure 2b and 2c]. The healing was uneventful and the sutures were removed on the 7th day after surgery. Follow-up examinations were done after 1 week, 3 months, and 6 months and, subsequently, ligature wire was tightened [Figures 2e, 2f and 3a, 3b]. After 6 months, a minor surgery was attempted to reposition the flap apically to the right permanent central incisor [Figure 3c and 3d].

Discussion

Odontomas are the most common odontogenic tumor of the jaws. They are usually diagnosed in the second decade of life with no gender predilection. They are frequently asymptomatic and are associated with retained deciduous teeth resulting in delayed eruption

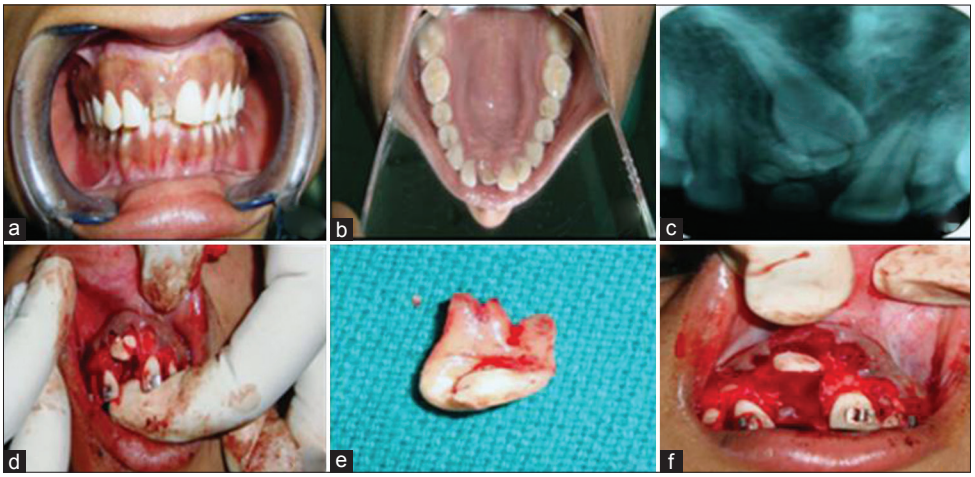

Figure 1: (a) Pre-operative frontal view. (b) Pre-operative intraoral view. (c) Pre-operative radiograph. (d) Flap raised during surgery and exposed odontome along with orthodontic brackets in place. (e) Excised specimen. (f) Surgical site after removal of odontome

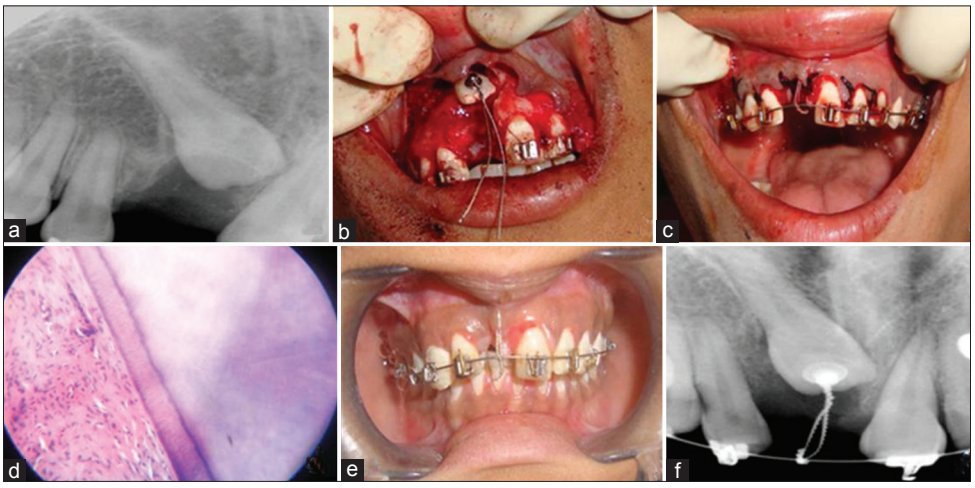

Figure 2: (a) Post-operative radiograph. (b) Bonded lingual button with ligature wire. (c) Twisted ligature wire secured to archwire. (d) Histological section of specimen showing enamel, dentin and pulp. (e) One week follow-up photograph. (f) One week follow-up radiograph

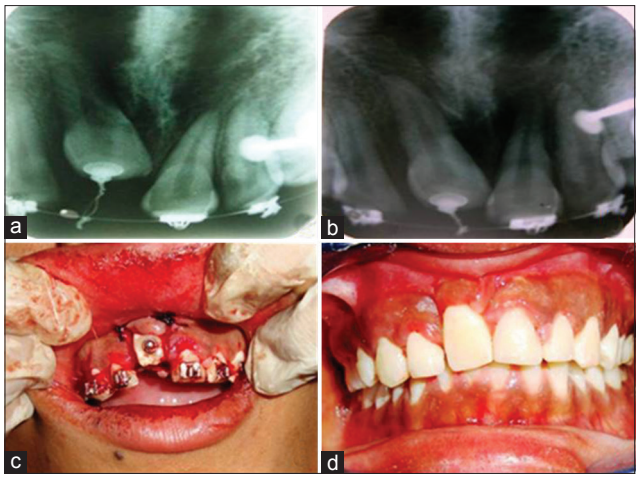

Figure 3: (a) Three months follow-up radiograph. (b) Six months follow-up radiograph. (c) Apically positioned flap raised at 6 months to maintain adequate width of the attached gingiva. (d) Right maxillary permanent central incisor in occlusion

of permanent tooth.[6] Compound odontomas are more common than complex odontomas.[6] Compound odontomas most commonly appear in the anterior region of the jaws.[7] Odontomas may sometimes be associated with pain and swelling, suppuration, bony expansion, and displacement of teeth. In some cases, odontomas may lead to root resorption and paresthesia. The case described in the study was diagnosed provisionally as odontoma on the basis of clinical signs and radiographic findings. Radiological findings are variable and depend upon the amount of enamel and dentin present in the lesion; hence, the lesion which is radiolucent in early stages may become radiodense at later stages, making clinical judgement difficult. Differential diagnosis must be established with ameloblastic fibroma and ameloblastic fibroodontoma.[3] Odontoma can also manifest a part of some syndromes such as Gardner syndrome, Hermann syndrome and basal cell nevus syndrome.[2] Odontomas are easily enucleated,[8] so conservative surgical excision was planned. The tissue was sent for histopathologic analysis and was confirmed as compound odontoma [Figure 2d]. Histologically, odontoma comprised varying amounts of enamel, pulp tissue, enamel organ and cementum. Clinical diagnosis of compound odontomas is easy compared to that of complex odontomas. The rate of correct clinical diagnosis of odontomas has been reported to be 84%.[2] Recurrence rates of odontomas are very low. In the present case once the diagnosis of impaction was done, the treatment was immediately started in order to minimize the negative effect on the occlusion, such as the inclination of the adjacent teeth towards the edentulous space. Since the spontaneous eruption of permanent maxillary central incisor was not anticipated, orthodontic extrusion was done as described and attempted in previous studies.[9,10] Surgical exposure of the crown of the retained tooth was done to receive a bonded orthodontic traction device. The advantage of this technique is that it makes it easy to visualize the movement of the retained tooth and facilitates the eruption. The patient was motivated and taught to maintain oral hygiene as the periodontal health of the tractioned teeth may have worsened in case of negligence.

Conclusion

The early diagnosis and management of odontomas is important because these are a major category of odontogenic tumors occurring within the jaws. The present study demonstrated successful management of a typical case of compound odontoma, utilizing orthodontic maneuver, which resulted in esthetic rehabilitation of the patient. Routine radiographs are of utmost importance in cases of delayed eruption as early diagnosis may avoid some possible complications.

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