Case Report

Impaction of Primary Mandibular Canine – A Case Report and Brief Review of the Literature

AUTHORS: MANOJ KUMAR MALLELA[1], UDAY KUMAR CHOWDARY BIRAPU[2], SURENDRA REDDY MUNNANGI[3], MANASA POLUDASU[4]

Abstract:

Impaction of primary teeth is a rare occurrence and is commonly due to the presence of an odontoma. Odontomas are considered as common odontogenic tumors, which are asymptomatic and found on routine radiographic examination. They appear as radio-opaque lesions of different sizes that are solitary or multiple. Clinically, they are complex or compound, and are also classified as Intra-osseous (occur inside the bone) and Extra-osseous (present in the tooth bearing portions of the jaws).

Compound odontomas commonly occur in the anterior region of the upper jaw and complex odontomas in the posterior region of both the jaws. They constitute around 22% of all the odontogenic tumors. Sometimes they might be associated with disturbances in the eruption of teeth like impaction, retention or delayed eruption of primary teeth. This case report presents a rare occurrence of an impacted primary canine with odontoma in a seven-year-old female child.

Key Words: Odontoma, Primary dentition, Compound odontoma.

Introduction:

Paul Broca in 1867 coined the term odontoma. Odontomas are developmental anomalies, originate from differentiated ectodermal and mesodermal cells of dental lamina from which ameloblasts and odontoblasts arise1. In the year 2005, WHO classified them under benign tumors, subclassified as compound and complex odontomas based on histological and morphological criteria2. Compound odontomas are composed of multiple, small tooth like structures and complex odontomas may be amorphous or calcified mass with no morphologic similarity to even a rudimentary tooth. A study of literature reveals occurrence of a few cases of odontoma associated with primary teeth in the mandibular region. They are rarely associated with the primary dentition but commonly present in the permanent dentition.3 This case reports an odontoma related to the mandibular region of the primary dentition which is rarely seen.

Case report:

A seven years old female child reported to the department of Pedodontics and Preventive Dentistry with a chief complaint of asymmetry of face because of a swelling on the right mandibular primary canine region. Family history revealed no signs of unerupted teeth or hypodontia. There was no history of trauma and extra oral examination revealed no submandibular lymphadenopathy on both the sides. The swelling was bony hard in consistency with no crepitations. It was oval in shape extending 2cm anterio-posteriorly and 1cm superio-inferiorly.

Intra-oral examination revealed the presence of all primary teeth except lower right canine. Past history presented no evidence of extraction or avulsion of a tooth. There was approximately a space of 4 mm in the mandible between the mesial surface of the first primary molar and distal surface of the primary lateral incisor on the right side. Similar space was absent on the contra-lateral side of the arch. Soft tissue examination showed a non-draining soft tissue swelling with normal overlying mucosa. The swelling was slow growing and reached the present stage (Fig.1a).

Figure 1a Figure 1b

Fig:1a. Intraoral view Fig:1b Preoperative IOPA.

A pre-operative radiovisiograph (Fig.1b) and an orthopantomogram (OPG) (Fig.2) revealed irregularly placed multiple radio-opaque masses similar to the density of a dental tissue. It had been placed over and around the crown of the impacted primary canine and between the roots of the lateral incisor and the mesial root of the first primary molar. OPG showed a rotated right permanent lateral incisor due to the presence of an impacted primary canine.

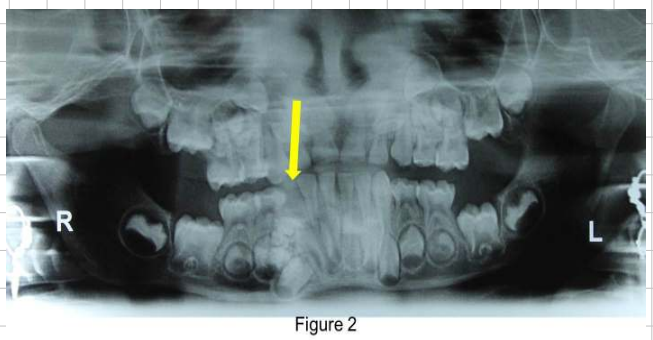

Figure 2

Fig:2 Panaromic view showing odontomas

A differential diagnosis of an odontoma was made and a surgical profile advised. The treatment plan was explained to the Parents and an informed consent obtained prior to the procedure. The treatment was carried out under local anaesthesia by raising a full thickness mucoperiosteal flap. A window was created on the buccal bone (Fig.3a, 3b) of the primary canine region with a straight fissure bur.

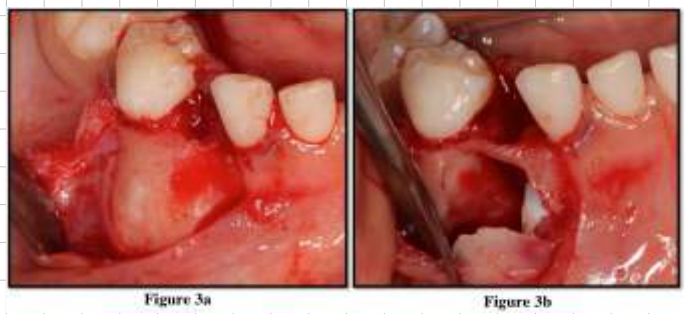

Fig:3a. Buccal mucoperiosteal flap raised

Figure:3b Cavity after removal odontomes

A decision was made to extract the impacted primary canine along with the other 16 denticulate and particulate teeth like structures (Fig.4a), as chances of re-eruption were slim. The cavity was curetted and the sharp bony edges were smoothened with a bony file. The flaps were brought closer and sutured with 3/0 black silk suture material (Fig.4b)

Fig:4a Mineralized structures removed from the Lesion

Fig:4b Mucoperiosteal flap sutured

The excised sample was collected and sent for histo-pathological evaluation. Histo-pathological appearance showed presence of tooth like structures resembling pulp tissue in central portion surrounded by dentine and enamel. The report confirmed the diagnosis of a compound odontoma. A space maintainer was planned and the child is under follow up.

Discussion:

"Tooth impaction" refers to the cessation of eruption of a tooth caused by a clinically or radiographically detectable physical barrier in the eruption path or by an ectopic position of the tooth. It is caused by local or systemic factors such as presence of supernumerary teeth, odontomas, cysts, crowded tooth germs, erupted teeth, dilacerations, ankyloses and systemic genetic inter-relations such as cleidocranial dyostosis and hypopitutarism4.

The etiology of odontomas may be due to trauma or infection and inflammatory process, hereditary anamolies (Gardener syndrome, Hermanns syndrome), hyperactive odontoblastic activity and alteration of genetic component which is responsible for dental development. The present case has not shown any signs of systemic manifestations, hereditary factors or history of trauma. Though WHO has classified odontomas under benign odontogenic tumors, they can be regarded as hamartomas or malformations because of their composition and behavior. These malformations once calcified do not develop further and remain in the bone or erupt into the mouth. They are characterized by their slow growth and non-aggressive behavior.

Gravey et al. classified compound odontomas into three types. Denticulo type which is composed of two or more separated denticles having crown and root, dental hard tissues resembling that of a tooth. Particulate type which is composed of two or more separate masses or particles bearing no resemblance to the tooth. The last one is Denticulo-particulate type in which both denticles and particles are present together5.

Some studies showed high occurrence in males than females, but some authors concluded that there is no gender variation. On the contrary Garcia-consuegra et al. and Hisatomi et al. found a female predilection6.

Literature reveals that the position of the odontoma may occur between the roots in posterior teeth, above the crown, near the apices and between the roots of two teeth7.

They are more commonly present in permanent dentition than in primary. The occurrence of them in the primary dentition is more in the maxilla than in the mandible. Compond odontomas are common in the anterior region whereas complex odontomas are more prevalent in the posterior region. Surgery was performed similar to the procedure discussed by Yildirium et al4. One of the most common treatments advocated for odontomas in both primary and permanent dentition is surgical removal. If detected at an early stage, they can be removed without disturbing the underlying developing tooth, thereby facilitating spontaneous eruption if root formation is incomplete. If the tooth is unerupted, the impacted tooth can be treated with orthodontic traction8-10. If insufficient space is present for impacted tooth to erupt, up-righting of the inclined neighboring teeth is necessary.

The chances of re-eruption are more in primary dentition than in permanent dentition. This may be due to superficial placement of impacted tooth, less density of the overlying bone and the presence of succedaneous tooth germ at the apical area, which acts as a physical barrier. Thus, when the obstruction to the eruption pathway is eliminated, the impacted tooth begins to move in the less pressurized gingival direction. Some studies stated that the teeth should be extracted when the chances of spontaneous eruption were slim or when there was no expectation of eruption11.

The management depends upon the age of the patient, stage of root development in the impacted primary tooth, status of the developing successor and the adjacent tooth. In the present case, the age of the child was 7 yrs and the root formation was complete. So the chance of spontaneous eruption would be slim. The radiographic findings showed a rotated permanent lateral incisor and an obstructed permanent canine, therefore the primary canine was extracted, and planned for the placement of a space maintainer.

Conclusion:

Odontomas cause various problems that include impaction or ectopic eruption if not detected early. They are asymptomatic, therefore a routine full mouth radiographic survey or orthopantogram will be useful for early diagnosis. The prognosis of the teeth involved with odontoma depends on various factors. Proper treatment planning is necessary to remove or save the tooth involved.

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PARTICULARS OF CONTRIBUTORS :
1) Director PG Studies & Professor, Department of Pedodontics and Preventive Dentistry, SVS Institute of Dental Sciences, Mahabubnagar.
2) Sr. Lecturer, Department of Pedodontics and Preventive Dentistry, SVS Institute of Dental Sciences, Mahabubnagar.
3) Reader, Department of Pedodontics and Preventive Dentistry, SVS Institute of Dental Sciences, Mahabubnagar.
4) P.G. Student, Department of Pedodontics and Preventive Dentistry, SVS Institute of Dental Sciences, Mahabubnagar.

ADDRESS FOR CORRESSPONDENCE:
Dr. M. G. Manoj kumar MDS,
Director of PG Studies & Professor,
Department of Pedodontics and Preventive Dentistry,
SVS Institute of Dental Sciences, Appannapally, Mahabubnagar.
Phone: 9849140036, e-mail – doctormallela@gmail.com

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