



Unique Journal of Medical and Dental Sciences

Available online: www.ujconline.net

Case Report

ORTHODONTIC TRACTION OF IMPACTED MAXILLARY CENTRAL INCISOR– A CASE REPORT

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Received: 30-04-2015; Revised: 27-05-2015; Accepted: 25-06-2015

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ABSTRACT

Establishment of good occlusion is not only the prime objective of orthodontic therapy, but also to improve dental and facial esthetics. One of the most common orthodontic problems requiring surgical intervention is the non-eruption of a permanent tooth, here is a case showing the presence of Odontome in the path of eruption of central incisor resulting in impaction which required orthodontic traction.

Keywords: Impacted Incisor, Orthodontics, Surgical Exposure, Irregularity, Case Report.

INTRODUCTION

The treatment of impacted teeth has caught the imagination of many in dental profession. However, the orthodontic / surgical modality has achieved the most satisfactory result in long-term. According to Shafer, Hine and Levy, Impacted teeth are those which are prevented from erupting by some physical barrier in the eruption path. The causes may be local or systemic. Irregularity in the position and pressure of an adjacent tooth, Density of overlying or surrounding bone, Long continued chronic inflammation with resultant increase in the density of mucous membrane, Lack of space due to underdeveloped jaws, Unduly long retention of primary teeth, Premature loss of primary teeth, Acquired diseases such as necrosis due to infection or abscesses, Inflammatory changes in the bone due to exanthematous diseases. And the systemic causes may be due to rickets, anemia, congenital syphilis, tuberculosis, endocrine dysfunction, malnutrition¹.

Here we present a case of a compound odontome associated with impacted maxillary right central incisor and its management. The mean age of dentition on an average is 14.8 years, with the prevalent age being the second decade of the life. The common site of compound odontome is in the maxillary anterior region as compared to mandibular arch. Odontome can cause over retention, impaction and delayed eruption of the teeth which is one of the major concern of pediatric patients².

CASE REPORT

A 13 year old female patient reported with the chief complaint of missing upper anterior tooth, on clinical examination good facial profile and balanced soft tissue, on intra oral examination maxillary right permanent incisor was clinically missing. No sign of swelling in relation to missing tooth region and no relevant medical history (Figure 1).



Figure 1: Pre operative intra Oral view



Figure 2: Pre operative OPG



Figure 3: Pre operative Occlusal view

On radiographic examination shows the presence of multiple tooth like structure which was radioopaque with well defined border (Figure 2, 3). The right maxillary central incisor was impacted and presents at a high level close to the nasal floor with sign of dilaceration. The diagnosis was made as compound odontome in the anterior maxillary region with impacted right maxillary central incisor.

TREATMENT PLANNING

Surgical removal of compound odontome was planned. Parent consent and patient blood profile investigation was done before the surgery. Surgical removal of compound odontome done under local anesthesia. Enucleated lesion shows multiple small tooth like structures. After the surgical removal of the lesion the patient was kept under observation for eruption of impacted maxillary central incisor for 6 months⁷ (Fig 4), post observation there was no sign of tooth eruption. Hence orthodontic traction was planned for the patient. A mucoperiosteal flap was raised under local anaesthesia and the impacted tooth was surgically exposed and button was bonded with a sling attached for traction^{5,6}. The flap was placed back and sutures placed for closed forced eruption of incisor. The orthodontic sling was attached to fixed orthodontic begg's appliance (Figure 5). After a period of 8 month of orthodontic traction the impacted incisor was brought into alignment (Figure 6).



Figure 4: X- rays showing Post surgical removal of odontome



Figure 5: Surgical Exposure of Right central incisor with immediate orthodontic attachment with a sling for traction and suture placed for closed eruption of central incisor.



Figure 6: Alignment of central incisor done using begg's appliance.

DISCUSSION

The term odontoma was introduced by Broca in 1863 to comprise all odontogenic tumours. Odontomas were considered to be the most common odontogenic tumors of the jaw bones and may appear as numerous miniature or rudimentary teeth called compound odontomes, or as an amorphous mass of mineralized tissue called complex odontome. It is the most common odontogenic tumor representing 67% of all odontogenic tumors.³ Odontomas are classified by WHO under mixed benign tumors because of their origin from epithelial and mesenchymal origin, exhibiting different structures of dental tissue.

These cells and tissue can appear either normal or be a deficit in structure. The level of differentiation may vary, creating various forms of dental tissues. These tissues may form non-descript masses of dental tissues known as complex odontomas, to multiple well-formed tooth-like structures known as compound odontomas. It is seen in all age groups and in any location of the dental arch.⁴ Odontome is one of the most common causes for delayed eruption of teeth and is very commonly seen in the anterior maxillary region. Any clinically missing tooth needs to be radiographically confirmed and necessary intervention should be considered for any interference in the path of eruption.

Early diagnosis and intervention of impacted teeth prevents future complications and at the same time correction of these impacted incisors into their proper position helps the patient's esthetics and also strengthens their confidence to overcome the psychological problem due to missing teeth.

CONCLUSION

The management of impacted teeth is one of the greatest challenges as it requires a multidisciplinary approach and requires early intervention. Success of the treatment depends upon patient cooperation, age of patient, proper diagnosis, level of impaction, inclination and depth of impaction, amount of root formation, type of exposure of tooth, amount of bone removal, type of attachment, orthodontic traction. All these parameters play an important role when managing impacted teeth to achieve good alignment in the arch, and integrity of the periodontium.

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Source of support: Nil, Conflict of interest: None Declared