

REVIEW ARTICLE

CANINE IMPACTIONS: AN ORTHODONTIST'S PERSPECTIVE

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HOW TO CITE THIS ARTICLE:

V. Harikrishna, Arindom Banerjee, I. Anil Kumar, V. Akhila. "Canine Impactions: An Orthodontist's Perspective". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 65, November 27; Page: 14210-14213, DOI: 10.14260/jemds/2014/3902

ABSTRACT: Impacted teeth are those which are not predictable and do not erupt absolutely based on clinical and radiographic assessment. Certain impactions can be complicated and the outcome unpredictable if the tooth is positioned unfavourably either horizontally or vertically in the alveolar bone. Presence of canines buccally, palatally or lingually can be seen using various diagnostic methods. Factors that interfere with its development and eruption have influence on aesthetics, function and stability. A detailed understanding of the management of impacted teeth is essential for a stable and aesthetic result. So, we put forth the most common procedures which can be carried out by general dentists in managing impacted maxillary canines.

KEYWORDS: (Impacted teeth), (maxillary canines).

INTRODUCTION: In addition to straightening teeth, Orthodontists are also artists in creating a smile. Although it is more of a science, Orthodontics is still very subjective. In orthodontics, certain time tested requirements for long term stability should be addressed during treatment planning. The goal is to place the teeth in a particular position that will give the most functional esthetic and stable results possible.

Impacted teeth are those with delayed eruption time or that are not predicted to erupt absolutely based on clinical or radiographic assessment. Permanent maxillary canine are the second most frequently impacted teeth (mandibular third molars being first). The incidence of their impaction is 1-2% in general population. This is the most probably due to a prolonged development period (i.e 5 months -12 years) and the long, convoluted path of eruption before the canine appears into full occlusion.¹ About one third of impacted maxillary canines are positioned labially within the alveolus and two third located palatally.² Family history visual and tactile clinical examination by the age of 9-10 years and thorough radiographic assessment are the methods of diagnosis that may allow for early detection and prevention of impacted canines.

The outcome of certain canine impactions can be unpredictable and challenging if not diagnosed properly. Eruption process can be simplified with proper diagnosis.

DIAGNOSIS: Diagnosis plays an important role for every clinician in deciding whether the impaction is favorable or not. This is done based on proper clinical and radiographic assessment of the subject. Clinical assessment is carried out by inspection and palpation of alveolar process. Presence of proclined lateral incisors and peg shaped lateral incisors helps assess the presence of impacted teeth.

RADIOGRAPHIC METHODS INCLUDE:

- 1) Intraoral Peri-apical Radiographs. (Fig: 1)
- 2) Vertical rule of thirds. (Fig: 2)
- 3) Horizontal rule of thirds. (Fig: 3)

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In orthopantomogram (OPG) medio-lateral assessment of the canine can be done by using horizontal rule of thirds or vertical rule of thirds. (Fig: 2 & 3)

MANAGEMENT:

There are five (5) treatment options for the management of impacted teeth:

- a) Observation.
- b) Interceptive.
- c) Intervention.
- d) Relocation.
- e) Extraction.

a) Observation: It implies no treatment for a specific period. It generally initiates with the completion of deciduous dentition eruption and ends with the eruption or removal of an impacted tooth. For this to be a viable treatment option, a clinician should use clinical and radiographic evaluation which in most cases predicts tooth impactions.³

b) Interceptive: it is a procedure which is carried out in order to prevent impaction of teeth. This is done by the early removal of primary canines. This procedure is carried out when:

- Clinical bulge is not palpable at 9 years.
- When there is a medial tilt of ling axis of canine radio graphically.
- Lingual position of canine in relation to incisors.
- When there is horizontal overlap of canine radio graphically.

c) Intervention: It is a procedure which is carried out when there is obstruction to the eruption of canine. It can be due to presence of supernumerary teeth, tissue obstruction and ankylosis or over retained deciduous teeth. More than 90% of the supernumerary teeth can lead to the normal eruption of the permanent canines.^{3,4}

TISSUE OBSTRUCTION: it causes delay in permanent tooth eruption and unexceptional findings of clinical and radiographic assessment, subsequently clinicians should consider a soft tissue or an osseous interference.³

OVER RETAINED DECIDUOUS TEETH: Maxillary deciduous teeth are more commonly ankylosed than mandibular deciduous teeth. This leads to delayed or non Resorption of deciduous roots which result in impaction.⁵

d) RELOCATION: it refers to the repositioning of an impacted tooth first surgically and then orthodontically.⁶ Surgical exposure and orthodontic eruption of an impacted tooth is ideal when its apex is completely formed. During surgical exposure the crown should be uncovered up to the cement-enamel junction (CEJ).⁷ Space must be orthodontically created before the exposure and orthodontic eruption of impacted teeth. If tooth movement is not detected with reasonable digital force and orthodontic forces are unsuccessful, then the tooth is ankylosed. When tooth movement is apparent with reasonable digital force, but there is no response to orthodontic forces, then primary failure of eruption must be ruled out. The orthodontic appliances [Including cements, bands, brackets and other auxiliary attachments] and poor access to the crown of the impacted tooth compromise local hygiene practice.

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Due to the possibility of contamination of oral fluids, bonding an attachment to the impacted tooth is complicated. Newer bonding materials with an affinity for moisture can enhance the placement of attachments on impacted teeth. These materials have simplified procedures for bonding and bone removal.⁸

- e) **EXTRACTION:** impacted teeth which cannot be repositioned go in for extraction. Unfavorably positioned impacted canines cannot be repositioned and hence go in for extraction.

CONCLUSION: In conclusion, canines play a vital role in esthetics and function. Hence, treatment of impacted canines is essential. Surgical exposure and orthodontic correction is the most preferable treatment mode. Orthodontic treatment, of impacted canines can be very rewarding if done on the basis of a sound problem list and treatment goals.

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Fig. 1: Intraoral Peri-apical Radiograph

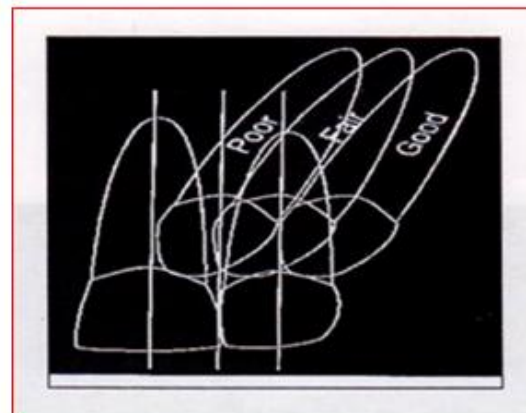


Fig. 2: Vertical rule of thirds

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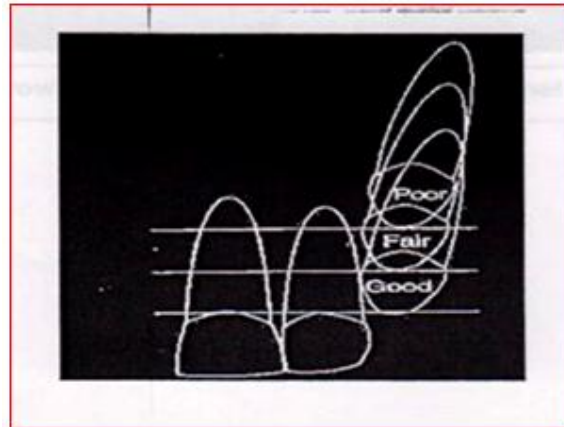


Fig. 3: Horizontal rule of thirds

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Date of Submission: 03/11/2014.
Date of Peer Review: 04/11/2014.
Date of Acceptance: 24/11/2014.
Date of Publishing: 26/11/2014.