

A RARE CASE OF REMOVAL OF IMPACTED MAXILLARY CANINE FROM AN EXTRAORAL SITE.

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ABSTRACT

Maxillary canines are the most common impacted tooth, following the third molar teeth. This is mostly due to the fact that they have longest period for development and the most tortuous route to full occlusion. Deviation from eruption path leads to abnormal inclination of the erupting cuspid, sometimes it may fail to erupt. Removal of impacted canines in ectopic position is always challenging due to close approximation of vital structures such as maxillary antrum, nasal cavity or sometimes infraorbital nerve. Abnormal orientation of the long axis of the tooth makes the surgical accessibility more difficult for successful removal of it. Here we present an extremely rare case of impacted cuspid which was found to be protruding through the skin and dermal appendages outside the mouth in the ala region. As it was found to be within the 'dangerous area of face', an extreme caution regarding surgical planning and execution prevented undue postoperative complications.

KEY WORDS

Maxillary impacted canine, dangerous area of face, extraoral approach.

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INTRODUCTION

The signs and symptoms of canine impaction can vary, with patients only noticing symptoms when they are suffering from unsightly aesthetics, faulty occlusion, or poor cranio-facial development. While various surgical interventions have been proposed to expose and help erupt impacted canines, these treatment modalities have a high degree of difficulty compared to other types of dental cosmetic surgeries. Management of maxillary impacted cuspid is based on the understanding of the eruptive patterns and the guidance of the lateral incisor. Surgical approach will be based on the location of the impacted tooth.

A classification with 3 categories is presented by Chapokas et al.¹

| Classification | Location | Surgical technique |
|----------------|--|--------------------------|
| I | Palatal | Gingivectomy |
| II | Centre of the alveolar ridge or labial | Repositioned flap |
| III | Labial to the long axis of the adjacent lateral incisor root | Apically positioned flap |

The regional anatomy of the cuspid region usually reveals a strong convex curve of the cuspid root at the lateral corner of the anterior aperture of nasal cavity. The root of cuspid usually lies beneath the compressor naris muscle. This muscle is located somewhat superior and posterior to the depressor septi muscle and usually involved with the tooth structure located beneath the ala of the nose. This region is situated within a triangular zone roughly extends from angle of mouth to bridge of the nose. Rich vascular supply in this region provides direct pathway of infected emboli to the interior of cranium through facial veins as they are devoid of valves. Constant exposure to trauma and subsequent infection is always a risk factor for spreading infection from this region of face commonly known as "Dangerous area".² Impacted cuspid impinging through the muscles and dermis in this region is extremely rare and always has a greater propensity



Fig:1



Fig:2



Fig:3

Fig:1,2,3 showing appearance of tooth like white hard mass over the skin along the left lateral border of the ala of nose.

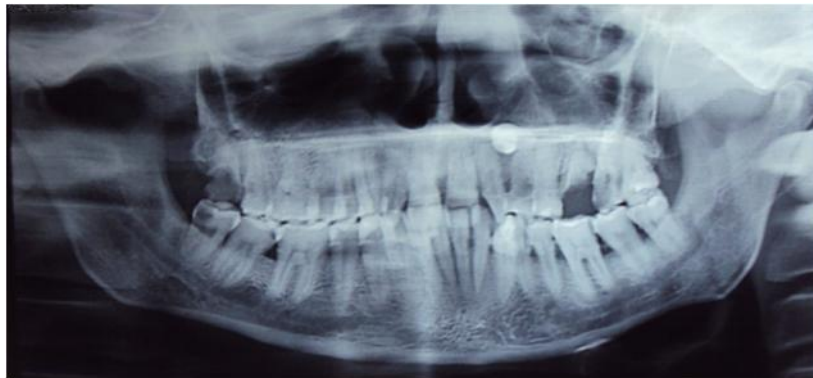


Fig:4



Fig:5



Fig:6

Fig:4,5 & 6 showing pre-operative panoramic radiograph and cone beam computed tomography of the patient



Fig:7



Fig:8

Fig:7 & 8 showing post-extracted wound and extracted canine.

to get exposed to frequent trauma and infection with their grave consequences.

Atraumatic removal of tooth with minimum injury to surrounding soft tissue lessens the chance of harbouring infection in this region.

CLINICAL REPORT

A male patient of age 45 years old was referred to the Department of Oral and Maxillofacial surgery with a chief complaint of swelling and intermittent pain over the left anterior region of upper arch. On examination a tooth like white hard mass was found over the skin along the left lateral border of ala of the nose (Fig:1,2 &3). The swelling was conspicuous within the facial skin and soft tissue and was tender on palpation. There were no associated symptoms present along with the swelling. No mucosal lesion found either intraorally or intranasally on examination. Orthopantomographic examination revealed an impacted canine present in the left upper anterior arch in close vicinity to the floor of the left anterior nasal aperture and roots of upper left lateral and first premolar teeth. It was evident that the orientation of the teeth was in transverse plane. To confirm the exact location and actual clinic-radiological correlation cone beam computed tomography (CBCT) was suggested. CBCT examination revealed presence of an impacted canine with transverse orientation near the apex of the root of upper lateral incisor (Fig: 5 & 6). The crown was seen as directed anteriorly in the sagittal plane, which was found earlier clinically as a conspicuous hard swelling in the left ala of the nose. There was no other relevant medical history of the patient and hence, was prepared for the surgical removal of the tooth. All other investigations were within normal reference ranges. For removal of the tooth extraoral approach was chosen as it was found to be a direct access to it. The local region of the skin was prepared for surgery. After local anaesthesia with lignocaine (1:200,000) by infraorbital block, nasopalatine block and local infiltration over the skin, the soft tissues surrounding the crown of the cuspid were dissected bluntly. The

tooth was approached with root elevator along the dissected tissue plane to provide sufficient luxation and removed gradually by the help of extracting forcep. After extraction the soft tissue wound over the skin was closed with interrupted suture. Patient was followed up after a week and after 3 weeks following the removal of the tooth. Uneventful healing was noted with minimum scar formation.

DISCUSSION

Prevalence of maxillary canine impaction ranges from 1.0% to 2.5%, where 8.0% to 10.0% of these cases are bilateral. Impaction of remaining teeth in the permanent dentition is quite rare and its documented prevalence ranges only from 0.04% to 0.35%.^{1,3,4} The unerupted impacted maxillary canine tends to be positioned more palatally than labially, at a ratio of 2:1 or 3:1.⁵ Considering gender and location, impaction of the maxillary permanent canine is twice as common in females.⁶ The etiologic factors for canine impaction are mentioned in various professional literature, although most of the authors repeat the same references.⁷ According Moyers⁸ "Maxillary cuspid follows a difficult and tortuous path of eruption than any other tooth. At the age of 3 it is high in the maxilla, with its crown directed mesially and somewhat lingually." Bishara⁹ and associates summarised Moyer's theory that impaction is caused by-

Primary causes:

1. Rate of root resorption of deciduous teeth.
2. Trauma of the deciduous tooth bud.
3. Disturbances in normal tooth eruption sequences.
4. Availability of space in the arch.
5. Rotation of tooth buds.
6. Premature root closure.
7. Canine eruption into the cleft area in a person of cleft palate.

Secondary causes:

1. Abnormal muscle pressure
2. Febrile diseases
3. Endocrine disturbances
4. Vitamin D deficiency

Clinical evaluation of the patient with an impacted maxillary canine is generally initiated by careful inspection of the labial and palatal tissues, and measurement of the width of keratinized gingiva present in the canine area. During the visual examination, the clinician will evaluate arch space available and maxillary lateral incisor inclination. Afterward, palpation is performed labially and palatally in search for the canine bud. This provides information regarding potential location of the impacted canine and periodontal anatomy. Radiographic methods used for localization of impacted maxillary canines include orthopantomogram, lateral cephalometry, parallax method, occlusal radiography, CT, and CBCT with or without use of stereolithographic models. If the tooth is not palpable, 2 or more periapical radiographs taken at different angles can confirm the position of the impacted tooth by utilizing the principle of the SLOB or Clark's rule. The SLOB rule means "Same Lingual, Opposite Buccal". If the beam angle moves mesially, then the image of the impacted canine moves mesially too. This means the impacted tooth might be located on the lingual or palatal side. On the other hand, if the beam angle moves distally and the image of the impacted canine moves mesially, the tooth is likely located on the buccal side. This principle has been useful to locate the position of the tooth. Approximately 90% of the time, clinicians can identify the position of an impacted tooth on the labial or palatal sides.^{1,5} However, there are many limitations including measuring the exact distance from the impacted tooth to the adjacent teeth and identifying the presence or absence of root resorption on adjacent teeth.

CONCLUSION

Although the labial failure of eruption is less frequent than the palatal impaction, labial spontaneous ectopic eruption of the maxillary canines is much more frequent than the palatal or labial impaction. The labial failure of eruption or the ectopic eruption of the maxillary canine can be considered the result of a crowded condition in the

maxillary bone. The position of the impacted maxillary canine tooth in this case report was unusual and it was utmost necessary to remove the tooth to prevent recurrent infective complications in the surrounding tissues associated with the tooth. CBCT proved to be a necessary radiographic tool for assessment of this kind of impacted teeth in ectopic location. Removal of the tooth by means of external approach¹⁰ was unique and was particularly useful in this case. Judicious planning and its execution proved to be master step in this kind of impacted canines.

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