Management of Bilateral Ectopic Canines: A Case Report

Smruti Bhushan Nanda[1], Sumita Mishra[2]

[1]Professor & Head, [2]Associate Professor, Department of Orthodontics & Dentofacial Orthopaedics, Institute of Dental Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India

Abstract

An ectopic canine tooth may originate due to genetic/environmental aberrations. These teeth demand correction as they can move in the jawbone and damage the adjacent bone, roots of the teeth, pose esthetic concerns. Timely diagnosis and treatment play a pivotal role. The case report stresses on an extraction treatment approach for correction of ectopic canine in a patient posing severe crowding in both upper and lower arches.

Keywords: *Ectopic Canines, Bilateral, Orthodontic Mechanotherapy.*

Introduction

Orthodontic practice envisages ectopic canines very frequently with a prevalence rate of 1-2% in the general population.[1,2] They occur with a variety of local and systemic issues. The long tortuous path of a canine might be an explanation for the etiology of this phenomenon. Any associated disturbance with the follicle of the unerupted tooth may displace the maxillary canine tooth.[3,4]

Canine Impactions and Classification:

A. ARCHER'S

It may be:

1. CLASS I: Partially Impacted
   a. Horizontal
   b. Vertical
   c. Semi vertical
2. CLASS II: Buccally impacted canine
   a. Horizontal
   b. Vertical
   c. Semi vertical
3. CLASS III: Impacted canine in both palatal and labial surfaces
4. CLASS IV: Impacted canine located in the alveolar process
5. CLASS V: Impacted canine located in the edentulous maxilla
6. CLASS VI: Canine in aberrant position

Case Report:

Diagnosis and Etiology: A 12-year-old male patient named Soumya Ranjan Mitra reported to the Department complaining of irregularity in the upper and lower teeth. Extraorally, the patient had a convex profile with incompetent lips (Figure 1) with an asymmetrical face.

Figure 1. Patient with convex profile

Corresponding Author:
Dr. Sumita Mishra
Associate Professor, Department of Orthodontics & Dentofacial Orthopaedics, Institute of Dental Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India
e-mail: sumita.mitali@gmail.com

He had a normal gait with a thin physique. The patient was cooperative and was keen for braces treatment. On intraoral examination, the patient had Angle's Class I molar on the right side and Angle's Class II molar on the left side with 2 mm of overjet (Figure 2.a & 2b.).

Figure 2a. Class I molar

Figure 2b. Class II molar

Maxillary (upper) archand mandibular (lower) archexhibited severe arch crowding (Figures 3 & 4).There was minimal attached tissue with the ectopically erupting right and left upper canines. Cast analysis showed arch length discrepancies in the maxillary as well as mandibular arches.

Figure 3. Maxillary anterior crowding

Figure 4. Mandibular anterior crowding

There was an absence of any pathologies in the panoramic radiographic image. Lateral cephalometric analysis showed skeletal Class II relationship with normodivergent pattern. The patient had upright maxillary incisors.

Treatment Objectives: The main objective of treatment was the correction of ectopic canines with a cuspid guided occlusion preserving the normal overjet and obtaining a proper overbite.

Treatment Plan: The rationale of treatment was to extract the first premolars, preserve the profile of the patient and obtain a stable treatment result.

Treatment Alternatives: Several treatment options are available for the correction of ectopic canines. The first and most popular would include the extraction of all first premolars as seen in our case. The other would include the distalization of the upper premolars and the extraction of the lower premolars. The least preferred would be a non-extraction treatment plan but the disadvantages would include proclining the incisors, longer treatment duration and enamel demineralization as a result. There can be a change in profile adversely affecting the esthetics of the patient. Arch form maintenance is predictable with extraction treatment.

Treatment Progress: Patient's dentition was checked for any signs of dental caries, periodontal degradation. The amount of attached gingiva was evaluated over the ectopic canine region. Full bonded MBT 022 system fixed appliances were placed on both the arches. The extraction of all four premolars was carried out. Initial leveling and alignment were carried with 0175 multistranded wire followed by 014 NiTi and other 17*25 NiTi and stainless steel wires. Light elastic forces were used to retract the buccally placed canines into the arch. The total treatment time was 20 months. After completion of treatment, removable retainers were given for the maxillary and the mandibular arches.

Treatment Results

A canine protected occlusion was achieved with ideal overjet and overbite. The canines were in Class I occlusion with correction of crowding in both the arches (Figure 5 & 6).

Figure 5. Class I Canine with canine protected occlusion

Figure 6. Ideal overjet and overbite

Discussion

Timely interception of the ectopic canines can be made possible by periodic panoramic radiography, careful clinical examination, and intraoral palpation.[5] Proper set up of Orthodontic records helps in a space analysis. Space can be gained via several method: maxillary arch expansion, proclination of maxillary incisors, other treatment strategies. It is important to check forthe mobility of the adjacent teeth.[6,7] If the deciduous canine id mobile, there are chances of its replacement by permanent canines.

If the permanent lateral incisor is mobile, it might indicate that the impacted canine has resorbed its roots. We were able to effectively manage the case by extraction treatment.[8] Non-extraction treatment would have proclined the maxillary incisors and worsened the soft tissue profile of the patient. Easy correction of crowding was possible with extraction expecting stable results post debonding. The factors dictating crowding include tooth size and dental arch dimensions.[8] Proper clinical examination and diagnostic radiographs are essential for the diagnosis of these ectopic canines.[8]

Conclusion

The success of Orthodontictreatment posesa great challenge to the Orthodontist in terms of ectopic canine correction. The extraction treatment plan is more predictable, stable giving importance to the esthetics of the patient.

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