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Ectopic upper canine associated to ectopic lower second bicuspid. Case report

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Introduction

The maxillary permanent canine tooth is generally considered to be an important tooth in the dental arch by virtue of its place in the scheme of functional occlusion, its contribution to the appearance of the patient, its root size and length and its role in establishing arch form (1).

The canine develops in the deepest area of the maxilla and follows the longest path of eruption. It's not surprising that ectopic eruption or impaction of the maxillary canine is a frequently encountered tooth malposition. Recent reports showed no statistically significant difference in the anterior or posterior arch width between samples with impacted canines and reference samples(2).

Canine maxillary ectopic eruption or impaction can be bilateral or, less frequently, associated to mandibular canine impaction. Rarely ectopic canine is associated to other ectopic teeth. Sometimes canine impaction can be the result of localized factors or polygenic multifactorial inheritance in association with other dental anomalies.

The treatment and prognosis of unerupted teeth are usually influenced by various factors and may include a broad range of options from passive observation to exposure with traction of the tooth and to a rather aggressive decision of extracting the tooth (3).

The following case of a 13-years-old male with upper ectopic canine and lower impacted bicuspid was observed in which result was favorable and the gingival margin appearance was adequately restored.

Case Report



Fig. 1



Fig. 2

A 13-year 2-month years old boy was referred to our practice with an incisor cross bite, molar cross bite in the right side and unerupted upper canines and lower second left premolar.



Fig. 3



Fig. 4

The patient's face was symmetric with maxilla and mandible well positioned. The soft tissue and lip balance were acceptable (fig 1-2). Molar relationship was Class I. Cross bite of the right first molar and left upper lateral incisor (fig.3-4-5)



Fig. 5

Arch length discrepancy in the maxilla was estimated at 2mm. The cephalometric analysis showed skeletal I class, good relationship of lower incisors in the mandible, normal vertical dimensions. Because of minimal dental crowding and acceptable lip position, it was decided to treat this case with non extraction therapy.



Diagnosis

- Skeletal I class , molar class I
- Dental cross bite (right first molars, left lateral incisors)
- Ectopic upper right canine and impacted lower left second premolar

Treatment plan

- Fixed appliance in the lower arch (except left deciduous molar)
- Mucoperiosteal flap to uncover second left premolar and orthodontic traction
- Expansion of the maxillary dental arch length by quad helix
- Correction incisor cross bite with full band treatment
- Selected root torque on the upper lateral incisor -Mucoperiosteal flap in the upper right canine area
- Traction of the maxillary right canine with special attention to periodontal tissues

Trattamento



Fig. 9



Fig. 10

At the beginning a fixed appliance (Orthos .018") was placed in the lower arch from first right molar to left first molar (Fig 9). After 2 months, a mucoperiosteal flap was performed in the left side to uncover lower second premolar (Fig 10).



Fig. 11



Fig. 12

At the same time an orthodontic button was bonded on the upper face of the tooth and a steel ligature wire .010" was tied (Fig 11). After 6 months quad helix was cemented in the upper arch and brackets were bonded (Fig 12).



Fig. 13



Fig. 14

3 months later, the right upper canine was uncovered with a full thickness mucoperiosteal flap (Fig 13). In the lower arch orthodontic traction of the second premolar was continued on a TMA .017X.025" wire (Fig 14).



Fig. 15



Fig. 16

When upper right canine was included and aligned in the upper arch a Nitinol .017X.025" with a selective torque for the lateral left incisor was placed. According to Boese (4), this procedure is very effective to correct root position of the palatally displaced teeth during the final 6 months. Treatment time was 28 months. Frontal photos (Fig. 15-16-17-18-19) show a balanced profile, good occlusion and good periodontal tissues around the ectopic teeth.



Fig. 17



Fig. 18



Fig. 19



Fig. 20



Fig. 21

Occlusal views (Fig. 20-21) show good alignment and good root position of the lateral upper left incisor (Fig 20-21).

Conclusion

Management of the ectopic teeth requires careful planning for many reasons: periodontal conditions (providing adequate gingival tissue around the teeth), additional room in the upper arch (permanent canines are bigger than deciduous ones), anatomic obstructions may involve the fabrication of auxiliaries during the traction process (5).

It's very important to localize an ectopic or impacted canine because uncovering a malpositioned tooth may be more hazardous to the adjacent teeth. Sometimes extraction of the deciduous canine is successful in allowing the malpositioned canine to erupt spontaneously (6).

Combined surgical orthodontic treatment of ectopic or impacted teeth may lead to varying amounts of injury to the marginal periodontal tissues (7). The advent of bonded brackets has allowed considerable flexibility in the exposure technique. Complete tooth crown exposure is not required yet, as a bracket can simply be bonded to small exposed surfaces (8).

Last, selective root torque can be provided to palatally displaced teeth to permit a stable position during and after the retention time (4).

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