

data may contribute to a better understanding of the mechanisms regulating tooth movement and to improve the accuracy of orthodontic treatments.

Transmigrated mandibular permanent canine: an orthodontic-surgical management

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Aim. Migration of an impacted tooth across the midline is a phenomenon called transmigration. Transmigration is unusual, however it was reported that canine is the only tooth in both maxillary arches that can migrate across the midline, in opposite side of the arch.

In this study we describe a particular clinical situation where a transmigrated mandibular canine was treated with an orthodontic and surgical approach. This challenging treatment approach is described in detail, including the mechanics used to align the impacted canine.

Methods. A 12.9 year-old boy was referred to our ward in permanent dentition with a dento-skeletal Class II malocclusion. Slightly constricted maxillary arch without crossbite, slight lower midline deviation and mild crowding in both arches were observed. All mandibular teeth were erupted except lower right canine and third molars whereas the right deciduous mandibular canine was still present. The panoramic radiograph showed an impacted transmigrated mandibular right canine, positioned mesio-angularly across the midline, labial to anterior teeth, with the crown portion between the roots of the left incisors.

The treatment objectives were to get the impacted mandibular canine into the arch, achieve bilateral Class I canine and molar relationship, correct the mild crowding and the midline deviation.

The orthodontic treatment plan included extraction of the deciduous canine and surgical exposure and ligation of the permanent one. This option was favoured because it avoided implants or permanent tooth extractions and would result in all teeth being in their correct positions. Eruption was properly guided, and great care was taken to prevent contact between the crown of the canine and roots of the lower incisors.

Results. At the end of the treatment, through the collaborative efforts of an orthodontist and an oral surgeon, an excellent esthetic and functional outcome was achieved.

The occlusion showed a well-aligned dentition with Class I molar and canine relationships.

The patient had a consonant smile arch, the teeth had good interdigitation, and normal overjet and overbite were achieved. The maxillary midline was coincident with the facial midline. The posttreatment panoramic radiograph showed the right mandibular canine into its

correct position, associated with normal bone levels and a very light root resorption. The tooth responded normally to a vitality test with a minimal gingival recession observed.

The total treatment time was 3 years and 6 months and the final radiographs indicated normal bone levels and no root resorption. The cephalometric analysis at the end of the orthodontic treatment showed a good maxillary and mandibular relationship.

After 1 year-retention, the occlusion was well maintained with minimal gingival recession observed in the mandibular canine.

Conclusion. The presence of a transmigrated mandibular canine is one of the most difficult challenges that an orthodontist has to face. As shown by the aesthetic and functional outcome of this clinical case, early diagnosis and treatment are suggested, albeit this requires a complex and lengthy treatment protocol and a cost-benefit evaluation. Patient motivation and compliance is necessary for the success of the treatment.

The upper canine disinclusion to orthodontic purposes

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Aim. The upper canine disinclusion is a combined technique of different disciplines: surgical, orthodontic and periodontal, conditioned by the location of the item in question in order to recover the tooth in the arch. The upper canines are the more inclusive teeth after the third superior molar to be the last tooth in exchange and because it needs a path physiological longest of all to erupt.

Etiology includes two main groups of factors: local and general.

— Local factors: absence of space in the arch, crowding, presence of supernumerary elements, persistence of the deciduous correspondent, cysts, tumours, embryological factors

— General factors: endocrine, metabolic, Gardner's syndrome, Albers disease.

Methods. Patient female of 22 years had a palatal inclusion of the tooth 1.3 and presence in the arch of the corresponding 5.3, cross bite in 1.5 and 1.6. A BTP (Bar trans-palatal) and multibrackets therapy were applied to recover the molar ratio and an adequate form of arch. Subsequently, we proceeded with the surgical technique to "cloudy" and covering the tooth engaged with the flap performed for exposure. It was necessary also a slight osteotomy to release a portion of the tooth crown indispensable for the anchorage. After surgery, it necessary a system statically determined (cantilever TMA) to obtain the disinclusion which can be used for the extrusion, distalization and vestibular extension in the absolute respect of periodontal tissue support. In this way it is possible to get aesthetic and functional recovery. The deciduous canine was extracted later for aesthetic needs of the patient.