The aberrant extraction of a maxillary canine and two lower incisors

ABSTRACT

Extractions are a common place in orthodontics. The present article discusses a rare case, in which a left maxillary canine along with two lower incisors was extracted. Atypical extractions such as these need to be duly justified and thought over before being carried out. In the case mentioned, all these teeth in question were ectopically erupted. When attempts were made to retract the canine in its right position, it exhibited gingival recession which would only go on increasing further as the distance from the transposed position in between the left central and lateral incisor to the original position was considerably large. It was planned that the 1st premolar would be converted to canine on completion of the treatment. The lower incisors too would have shown severe periodontal damage had attempts to align them was made. Not only were these two teeth lingually erupted but they also were rotated along their long axis. Derotation along with labial movement would have caused breakage of the supracrestal and transseptal fibers resulting in periodontal breakdown leading to mobility of these teeth. An esthetically and functionally balanced outcome was achieved following these extractions. In the upper arch, although the midline remained compromised, it was not worsened. In the lower arch alignment was achieved with preservation of the intercanine width. Complicated cases such as these require a thorough scrutiny of all available options. Whatever the treatment plan may be, the ultimate goal of functional and esthetic balance should be achieved.

Keywords: Asymmetric extraction, atypical extraction, lower incisor extraction, maxillary canine extraction

INTRODUCTION

Orthodontics as a science emerged mainly to uphold the functional, structural, and esthetic integrity of the teeth and its supporting structures. Dr. Edward H. Angle determined that each dental unit was required to provide the desired skeletal, soft tissue, and dental health, as well as facial esthetic harmony.[1] However, different malocclusions, asymmetries, transposed teeth complexities, midline deviations, and severe arch length discrepancies require some of the dental units to be sacrificed—mostly premolars, yet often atypical teeth like lower incisors or even the cornerstone canines.

This article shows an adult case in which a complicated malocclusion called for the asymmetrical extraction of an upper canine and one lower central incisor and one lateral incisor of the contralateral side, to achieve a balanced functional and harmonious occlusion which was also esthetically acceptable to the patient.

CASE REPORT

A 21-year-old adult male patient reported with a chief complaint of irregularly placed upper front teeth. On cephalometric analysis, the patient was skeletal Class I with hypodivergent jaw bases with retrusive maxilla and mandible. Intraoral examination revealed patient had an Angle’s Class I malocclusion. Class I molar on both the sides with proclined upper and lower incisors with an overjet of 2 mm and overbite of 7 mm and protrusive upper and lower lip. Severe crowding in the upper and lower anterior, crossbite irt 24 and 34, 35, retained 62, 63, 83, labially...
erupted 23, rotated 21, 22, 24, 44, upper midline shifted to left by 2 mm, missing 22, protrusive upper, and lower lip [Figure 1].

The treatment objectives initially included the extraction of retained deciduous upper and lower canines along with a single lower incisor. It was decided that as the treatment progressed more extractions if necessary shall be carried out.

**Treatment progress**
The treatment was commenced by bonding lingual buttons on the upper left premolar on both the buccal and palatal surface. Derotation of the tooth was hence begun by giving power chains from both sides. Meanwhile, GIC turbos were given to raise the bite and prevent interferences in the derotation couple [Figure 2].

**Figure 1:** Pretreatment photographs and radiographs

**Figure 2:** Derotation couple placed on 24
Meanwhile, the retained deciduous teeth were extracted. After 4 months of derotation, the upper arch was bonded bypassing the upper left lateral incisor initially. Leveling and alignment were started by placing 0.14” nickel-titanium (NiTi) wire. A T-loop was given to the upper left canine to retract it to its correct position. In addition, lower right canine was bonded, and T-loop was used to retract it as well. Derotation couple was used on lower right 1st premolar as well [Figure 3].

After 5 months of canine retraction, T-loop was discontinued, and bracket was bonded on the palatal surface of the upper left lateral incisor as the presence of canine on the buccal aspect did not allow for bracket bonding on the labial surface. 0.12” NiTi wire was engaged in the upper arch. Meanwhile, lingually erupted lower right lateral incisor was extracted to create space for aligning the crowded lower anteriors [Figure 4].

Another 2 months later, the T-loop on the lower canine was discontinued and the lower arch was bonded. It was decided that left central incisor also needs to be extracted as there was severe arch length deficiency in the lower arch. Hence, alignment and leveling of the lower arch was begun.

At this point, extraction of the upper left canine was also required as transposing it from such a great distance caused its gingival recession of around 4 mm and would have further deteriorated its condition if its alignment in the arch was attempted. It was decided that the premolar will have to be converted to a canine [Figure 5].

After 7 months of leveling and alignment space, closure was started by placing 19 × 25” SS wire. An open coil spring was placed between 21 and 22 to maintain space between the two as the lateral incisor was peg shaped and it needed to be built up prosthetically.

Two months later, debonding was done. Although the left lateral incisor was built up, the premolar could not be converted to the canine as the patient did not report after that Figure 6.

**DISCUSSION**

The adult dentition usually presents with awry and asymmetrical complications that require unconventional extractions and treatment planning. Extraction decision should be taken to produce harmony between the upper and lower arches without any deficient or excess space left.[2] An ectopically positioned tooth is often associated with soft-tissue breakdown, which is expressed clinically as gingival recession.[3,4] When moved orthodontically into a new position, these teeth tend to show loss of attachment and further bone loss.

Hence, the case discussed above is a classic exemplification of how a transposed canine exhibited periodontal breakdown on being retracted to its original position which was clinically seen gingival recession. Ideally, in this case, the premolar should have been converted to a canine through articulate gingival contouring and crown reshaping. In addition, though the midline remained shifted to the left, it was not worsened further from the pretreatment shift.

Extraction of the two lower incisors though rare, yet was mandatory in this case. There are two major supporting arguments for the extraction of two lower incisors in the same patient. First, the ectopic eruption accompanied with rotation of these two incisors in question would have undergone severe periodontal damage had attempts to derotate and align them in the arch would have been made. Second, conservation of the intercanine width was mandatory for achieving a proper interarch occlusion.

Although these extractions may seem like an incongruity, yet for this case to achieve an acceptable esthetic and structural goal, these extractions were indispensable.
CONCLUSION

Atypical extractions when carried out judiciously can give quite satisfactory results. It is of utmost importance to take into account the midline of the dentition along with the periodontal health of the teeth in question before planning any extraction. No dental unit should be compromised without thoroughly justifying the need to get it extracted.

Whatever the treatment plan may be, the only goal that it should abide by should be to provide a stable occlusion along with a pleasing facial profile.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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