Case Reports

CROWDING OF TEETH IN ADULTS
A CASE REPORT OF NON-TRADITIONAL TREATMENT

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A 21-year-old female patient, originally from Sri Lanka, reported to the Department of Orthodontics at the Dental Faculty in Bergen with a chief complaint concerning the high position of the upper right canine and lack of space for its alignment in the arch.

The extraoral evaluation revealed a symmetrical and pleasant facial appearance with straight profile [Fig. 1]. Intraorally, the molars on the left side were in supra Class I relationship due to missing # 34. On the right side, the molars were in cusp-to-cusp relation due to the anteriorly positioned upper left segment [Fig. 2]. The canines on both sides were in Class II relationship. Overjet was 5 mm and overbite was 4 mm. The upper midline was shifted 3 mm to the right side relative to the face midline. The lower midline was shifted to the left but to a lesser extent (0.5 mm) than the upper. The upper right canine was buccally infra-positioned having only its cusp erupted. The lower left second premolar was absent, but the patient couldn’t give any definite answer as to whether it had been extracted or has never erupted.

Analysis of space showed that there was a lack of 15.5 mm in the maxilla and 5.5 mm in the mandible. As to the Bolton analysis, there was no discrepancy between the mesiodistal widths of the maxillary and mandibular teeth.

Intraoral radiographs showed a rather curved apical part of the roots of the upper right and left canines. The radiographs failed to give any definite information on whether the root of the upper right lateral incisor was affected by root resorption [Fig. 3].

Case History

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Cephalometric measurements revealed a tendency for bite opening, since the intermaxillary angle was 28°. Both the lower and upper incisors were protruded. The distance from the tip of the upper and lower incisors to the NA and NB lines, respectively, was 6 mm. The protrusion of the incisors resulted in an inter-incisal angle of 123° [Fig. 4].
Treatment Plan

The objectives of the treatment were to correct the space deficiency, align the upper canine in the arch, correct the upper and lower midline deviations, reduce the overjet and maintain good facial balance.

As the patient was an adult, no attempt was made to change the sagittal or vertical basal relationship. Due to the 15.5 mm lack of space in the upper arch, extraction of the upper first premolar was decided. Cuspid extraction might have simplified the treatment but would not have solved the problem of the midline deviation and would have left uncertain the extraoral appearance of the nasolabial sulcus. In addition, cuspid extraction would have meant a surgical procedure which might be both unpleasant and hazardous for the patient. Further, the tip of the cuspid was already
erupted and accessible for bonding. The decision for extraction in the lower jaw was somewhat dubious. The patient lacked tooth # 34 and extraction of tooth # 44 would have been logical. Still, a pre-molar extraction would have lead to further distal tipping of tooth # 43. Hence, an extraction of tooth # 42 was made due to both the moderate curve of spew and the slight periodontitis of that tooth.

A transpalatal bur was placed between the upper first molars and a cervical headgear was used as anchorage. To avoid any damage of the upper right lateral incisor due to the malposition of the adjacent cuspid, the latter was moved buccally by segmental arch. Bonding of tooth # 12 was delayed. The upper right cuspid was moved distally by Class
elastics and the midline was corrected by asymmetrical Class II elastics. A contraction arch was used to retrace the upper front segment. In the lower arch, a coil was placed to move the lower right canine mesially and then a bull-loop was used to mesialize the lower right segment [Fig. 5].

The treatment was completed in 18 months. Pulling and alignment of tooth #13 took nine months and contraction was completed in one and half months. A long adjustment phase proceeded the debonding as the patient missed many appointments.

Results

The final facial photographs show a pleasing smile and a profile with good facial symmetry [Fig. 6]. The upper dental midline and the facial midline were coincident. The molars and the canines on the left side are in Class I relationship and so are the molars on the right side. The upper right canine is in Class III relationship with the lower right canine and is slightly rotated distopallatally [Fig. 7]. Reshaping of tooth #43 was not necessary neither for an aesthetic nor for a functional reason.

The important goal in this case was to correct the upper canine position without causing any damage to the neighboring teeth and to control the anchorage [Fig. 8]. Obtaining good intercuspation on the right side despite the asymmetrical tooth extraction was another goal.

There was a reduction in the ANB angle from 4° to 2°. The reduction of 2° can be attributed mostly to the mandibular auto-rotation following the mandibular molar mesialization which lead to anterior displacement of the B point.

The lower face height was decreased and the lower anterior teeth were protruded [Fig. 4]. The final study casts were taken seven months after debonding [Fig. 9] and the prognosis for future stability with prolonged retention appears to be good.

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References


