

CASE REPORT

Maxillary Canine Transposition

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Although the frequency of dental transposition is only about .4%,¹ the difficulty of treatment makes this anomaly an event of clinical interest.²⁻¹⁰ The present case shows how a unilateral transposition of a maxillary canine with a premolar was treated orthodontically.

Diagnosis and Treatment Planning

A 22-year-old female presented with the chief complaint of mild mandibular crowding and a maxillary tooth malposition. Clinical examination revealed a straight profile and a pleasant smile (Fig. 1). Radiographic examination showed that the upper right first premolar and canine were in complete

transposition, while the upper right deciduous canine was still in place. The molar relationship was Class III and the canine relationship Class I. Cephalometric evaluation revealed a skeletal Class I relationship (Table 1).

The treatment plan was to extract the persisting upper right deciduous canine and to bring the upper right canine and premolar into the arch in transposition.

TABLE 1
CEPHALOMETRIC MEASUREMENTS

	Pretreatment	Post-Treatment
SNA	84°	86°
SNB	82°	82°
ANB	2°	4°
SN/ANS-PNS	7°	9°
SN/MeGo	28°	29°
Op/SN	10°	9°
$\frac{1}{1}$ -NA	24°	22°
$\frac{1}{1}$ -NB	24°	24°
IMPA	92°	90°

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Fig. 1 22-year-old female patient before treatment.

Treatment

The patient was treated for 20 months with edgewise appliances. At the end of treatment, a Class I molar and canine relationship had been achieved (Fig. 2). Hawley plates were used for retention.

The lingual tuberculum of the first premolar was ground to avoid occlusal interference with the opposing arch. Because of the mesiodistal size differential between the canine and the first premolar, which also could have prevented proper interdigitation, we ground the canine on the mesial and distal sides and rotated the first premolar mesially.

Thus, the first premolar took on the larger appearance of the canine.

Discussion

The maxillary canine is one of the most commonly transposed teeth,^{1,4,11-15} but its transposition generally occurs in combination with other anomalies such as agenesis (40%), deciduous canine retention (50%), and peg-shape maxillary lateral incisors (25%).^{2,6,16} The left side is more often involved than the right side (69%).^{2,6,16} The rate of bilateral transposition has been reported as 5%.^{1,3,17}

Although the causes most

frequently cited for transposition are primary canine retention or early loss,^{18,19} transposition of analog teeth during odontogenesis, deviation of the path of eruption, and heredity, no definitive conclusion has been reached.

If transposition is complete—in other words, if both the crowns and roots of the teeth are transposed—there is no chance to bring the teeth into their proper positions, because the palatal bone will be too thin. Since that was the case in this patient, the aim of treatment was to achieve good functional and esthetic results while keeping the teeth in transposition.



Fig. 2 After 20 months of treatment.

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