In italiano, per favore

Case Report
Published on 01/04/97

# Maxillary canine-premolar transposition: Case Report

Alberto Mazzocchi MD, DDS

Note: The author has no financial interest in the products described in this article.

## INTRODUCTION

Maxillary canine - first premolar (Mx.C.P1) transposition is an uncommon dental anomaly involving positional interchange of the two teeth, especially their roots.
It appears to be the most common type of tooth transposition in man [7]. This anomaly is often accompanied with tooth agenesis and/or peg-shaped maxillary lateral incisors (49% of cases) [6].

Alignment of the teeth in their transposed position or orthodontic movement to their normal position in the arch are alternatives in treatment [8]. Most articles on tooth transposition agree that the position of the root apices is an important deciding factor in treatment [4].

## CASE REPORT

E.R. 13,4 years old.

Chief complaint was crowding of the upper arch (fig. 1).

Class I molar relationship on the right side, Class II molar relationship on the left side (fig. 2).
Skeletal Class III tendency, OB 1mm, OJ 1mm
Balanced profile. Moderate to severe upper crowding, upper left canine and first premolar transposed, upper lateral incisors rotated 90 degrees and abnormally shaped.

Radiographic findings: on the Panorex the upper left cuspid root appears to be distal to the adjacent first premolar root (fig. 3).

**Treatment plan:**
Non extraction treatment. Distalization of the upper left molars using a modified Pendulum appliance

to establish a molar Class I relationship.Fixed straight wire appliance on the upper arch to correct lateral incisor rotations, and to align the canines. Leave upper left canine in the original transposed position between the first and second premolars.

**Treatment Progress:**
The Modified Pendulum was placed initially. After 6 months the upper left molar was in a Class I relationship and sufficient space was created to align the left cuspid (fig 5). An 0.018" slot Straight Wire Appliance (Ormco mini Diamond) was placed in the upper arch. An Australian .016" wire with an open coil spring between the first and second left premolars was inserted.
An .016" NiTi wire was inserted to align the upper cuspids, and after 2 months the Pendulum was removed.
As the upper canines were aligned a .016 X .022" copper NiTi wire was placed for 3 months to completely correct the incisor rotations.
Finally a .017 X .025" rectangular stainless steel wire was inserted to complete root alignment.The patient was seen at 4-week intervals during active treatment.The appliances were removed after 20 months and a retainer was inserted. Fiberotomy of the upper lateral incisor transseptal fibers was performed 2 weeks after debanding.

**Result Achieved**

Class I molar relationship was established on the left side. Overbite and overjet were maintained close to the initial records (figs 6,7). The lingual cusp of the left first premolar was not reduced since it didn't interfere during opening and sliding movements (fig 8).The Panorex shows good alignment of the upper roots (fig 9).

**DISCUSSION**

As reported by Peck, EM Miel was the first to describe the maxillary canine- first premolar transposition in detail in 1817 [5]. Since then, this anomaly has been the most often reported transposition [7]. It was recently determined that the Mx.C.P1 transposition results from genetic influences within a multifactorial inheritance model. Supporting a polygenic cause were findings of associated dental anomalies (peg

shaped maxillary lateral incisors), elevated bilateral occurrence (25% of cases) and favored female expression (M:F = 1:1.55) [2-6]. There is no evidence that early dentofacial trauma or tooth loss are contributory factors in the cause of Mx.C.P1 transposition.

Several authors and clinical experience indicate that this kind of problem is best managed with non extraction orthodontic treatment, keeping the transposed order of the teeth. In fact, restoring the natural tooth order usually needs a prolonged orthodontic treatment with less than adequate results, due to difficulties in root movements and to the risk of creating bone loss around the vestibular root portion of the canine.

Esthetics and function can be achieved with transposed teeth since the lingual cusp of the first premolar may be reduced if it creates a functional interference.

REFERENCES


1. **Allen WA.** Bilateral transposition of teeth in 2 brothers.
   Br. Dent J 1967 ; 123 : 439-440
2. **Feichtinger CH, Rossiwall B, Wunderer H.** Canine transposition as autosomal recessive trait in an inbred kindred.
   J Dent Res 1977 ; 56 :1449-1452
3. **Gibilisco JA,.** Stafne's oral radiographic diagnosis.
   5th ed. Philadelphia : WB Saunders, 1985 : 31-32
4. **Laptook T, Silling G.** Canine transposition, approaches to tretament.
   J Am Dent Assoc 1983 ; 107 (5) : 746-748
5. **Miel EM.** Observation sur un cas tres rare de transposition de dents. J de Medicine Chirurgie Pharmacie ( Paris) 1817 ; 40 : 88-97
6. **Peck L, Peck S, Attia Y.** Maxillary canine first premolar transposition associated dental anomalies and genetic basis.
   Angle Orthod 1993 ; 63 (2) : 99-109
7. **Peck S, Peck L.** Classification of maxillary tooth transpositions.
   Am J Orthod dentofac Orthop 1995 ; 107 (5) : 505-517
8. **Shapira Y.** Transposition of canines.
   J Am Dent Assoc 180 ; 100 (5) : 710-712



HOME VJO 1.4

HOME VJO