



## Bilateral transposition of Maxillary Canine and Premolar -2 Rare Case Reports

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### ABSTRACT

*Tooth transposition is a rare positional dental anomaly. Maxillary canine-Premolar transposition is the most prevalent one according to the studies. Tooth transposition when occurs may compromise the esthetics and function to a significant extent. Bilateral tooth transposition is extremely rare with only a few cases being reported in the literature. Here, we present two cases of bilateral maxillary canine premolar transposition in 48-year-old female and 30-year-old male respectively.*

### KEYWORDS :

#### Introduction

Tooth transposition refers to the exchange of the position of the two adjacent teeth within the same quadrant. It is a relatively rare dental anomaly with the reported incidence of 0.4%.<sup>1</sup> Maxilla is affected more frequently than the mandible. The tooth most frequently involved in transposition is the permanent maxillary canine, usually with the premolar. Maxillary canine first premolar transposition has been reported with the prevalence between 0.135-0.51 percent.<sup>2</sup> Unilateral transpositions are found more often than bilateral transpositions and left side is more prevalent.<sup>3</sup> Tooth transposition can be complete or incomplete. Complete is called when both the crown and the entire root of the involved teeth exchange places in the arch and are fully parallel while in incomplete transposition crowns may be transposed but the root apices remain in the normal position.<sup>4</sup> Developmental dental anomalies are often found in association with maxillary tooth transposition. Most frequently reported anomalies have been microdontia of the maxillary lateral incisors, congenitally missing lateral incisors, retained primary canines, rotations and malpositions of the adjacent teeth. This article presents two rare cases of bilateral tooth transposition.

#### Case -1

A 48-year-old female patient reported to the dept of oral medicine with a complaint of pain in upper left back teeth region. Deep caries was found with 26 and patient was advised root canal treatment after taking IOPA. On further examination it was observed that maxillary lateral incisors were missing bilaterally and maxillary 1st premolar and canine were in transposition bilaterally (Fig-1). Premolars were rotated and midline diastema was present. Her face was proportional and symmetric. Intraoral findings were confirmed with the radiographic examination, Orthopantomograph was taken (Fig-2). Alginate impression was also taken (Fig-3). No treatment was indicated considering the patient's age and also no maxillo-mandibular discrepancy was observed.



Fig1- Bilateral Mx. C.P1 transposition



Fig 3- Impression taken using Alginate



**Fig-2 OPG showing Maxillary Canine-Premolar transposition bilaterally with congenitally missing maxillary lateral incisors bilaterally.**

#### Case-2

A 30-year-old male patient reported to the dept of oral medicine with a complaint of decayed tooth in upper right back teeth region. Root stump was present with 16 for which extraction was advised to the patient. On further examination it was observed that maxillary deciduous retained canine was present on left side. 1<sup>st</sup> premolar and canine were in transposition bilaterally (Fig-4-a,4-b). Intraoral findings were confirmed with the radiographic examination, Orthopantomograph was taken (Fig-5). Harmonic facial profile was present with no maxillo-mandibular discrepancy.



**Fig-4a,b- Bilateral Mx. C.P1 transposition with retained deciduous canine on left side.**



**Fig-5-OPG showing Bilateral Maxillary Canine-Premolar transposition with retained deciduous canine on left side.**

### Discussion

Gholston and Williams described Transposition as a rare case of ectopic eruption.<sup>5</sup> It may be considered the result of some disturbance early in the developmental period of the teeth. Maxillary teeth are more frequently transposed as compared to mandibular teeth. Transposition in primary dentition has never been reported. Maxillary tooth transpositions have been classified into 5 types by Peck S. and Peck L.<sup>6</sup>

1. Canine—first premolar (Mx.C.P1)
2. Canine—lateral incisor (Mx.C.I2)
3. Canine to first molar site (Mx.C to M1)
4. Lateral incisor—central incisor (Mx.I2.I1)
5. Canine to central incisor site (Mx.C to I1)

Maxillary canine-Premolar transposition is the most prevalent one. In this article both the cases were found to have transposition of canine and premolar. A higher prevalence in females is reported in the studies but similar frequencies in both the genders have also been described.<sup>7</sup> We found one case in male and one in female. Maxillary canine is the tooth most frequently involved in tooth transposition as it has longest period of development and long way to travel from early formation stage to its complete eruption. The preeruptive position of the permanent maxillary canine increases its potential for ectopic eruption. From its high position, the canine could travel too far distally and be transposed with the premolar, if the canine travels mesially, transposition with the incisor occurs.<sup>8</sup>

Etiology behind tooth transposition is not clear, still several causes of transposition have been suggested like transposition of the dental lamina of the involved teeth during odontogenesis, migration of a tooth during the eruption, mechanical interference to the erupting canine due to retained primary tooth, heredity and trauma.<sup>2</sup> Tooth transposition is often accompanied by several congenital dental disturbances like microdontia of the maxillary lateral incisors, congenitally missing lateral incisors, retained primary canines.<sup>9</sup> In these case reports in female patient congenitally missing lateral incisors were found bilaterally and rotated premolars were present while in male patient deciduous retained maxillary canine was present in left side.

Tooth transposition may hinder esthetic and function. As the maxillary canines are the most frequently affected teeth they should be regularly monitored after early loss of deciduous teeth. Timely detection in the position of teeth and early diagnosis reduces the incidence of tooth transposition and makes the treatment possible. Late diagnosis when the canine has already reached the occlusal plane, prevents any attempt at its orthodontic correction.<sup>10</sup>

Treatment options include alignment of the transposed teeth in their transposed state, extraction of one of them or complete correction of the transposition. Factors such as positions of root apices, facial esthetics, malocclusion, age of the patient, should be taken into consideration for the treatment of transpositions.

### Conclusion

Careful observation of position of teeth during their eruption and diagnosis at an early age may prevent the phenomenon of tooth transposition. As it has a clinical significance it should not be neglected by the dentists.

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