



UNIVERSITY OF
BAGHDAD



جامعة بغداد
كلية طب الأسنان



Cuspid Transposition “treatment in a serene way”

Assist. Prof. Mustafa M. Al-Khatieeb

BDS, MSc. (Ortho.)

Terminology

Trans: used with the meanings “Across,” “Beyond,” “Through,” “changing thoroughly,”.

Position: Referring to place; location; or situation.

Trans + Position = *Transposition*

HISTORY

Transposition of teeth has been observed and reported since the early 19th century.

In **1849 Harris** in his first edition of “A Dictionary of Dental Sciences, Biography, Bibliography and Medical Terminology” described transposition as an **aberration in the position**.

French dentist, **E.M.Miel** wrote **in 1817** what is perhaps the earliest scientific report of maxillary central and 1st premolar transposition. He gives a detail description of bilateral occurrence of this dental positional anomaly in a 16 year old girl. He noted that her father presented with a unilateral left maxillary central incisor and first premolar transposition

DEFINITION

According to Mader and Joseph L. Konzelman (JADA, 1979:98).

It may be defined as an interchange of position of two teeth.

According to Sheldon Peck (AJO. 1995 : 107).

Tooth transposition is the positional interchange of two adjacent teeth, especially their roots, or the development or eruption of a tooth in a position occupied normally by a nonadjacent tooth.

According to Y. Shapira and M. M. Kuftinec (AJO, 2001 : 119).

They stated it as an interchange in the position of two adjacent permanent teeth within the same quadrant of the dental arch.

According to Elizabeth C. Weeks (BDJ, 1996: 181).

It may be defined as the migration of a tooth from its normal developmental position, such that the order of the teeth is changed.

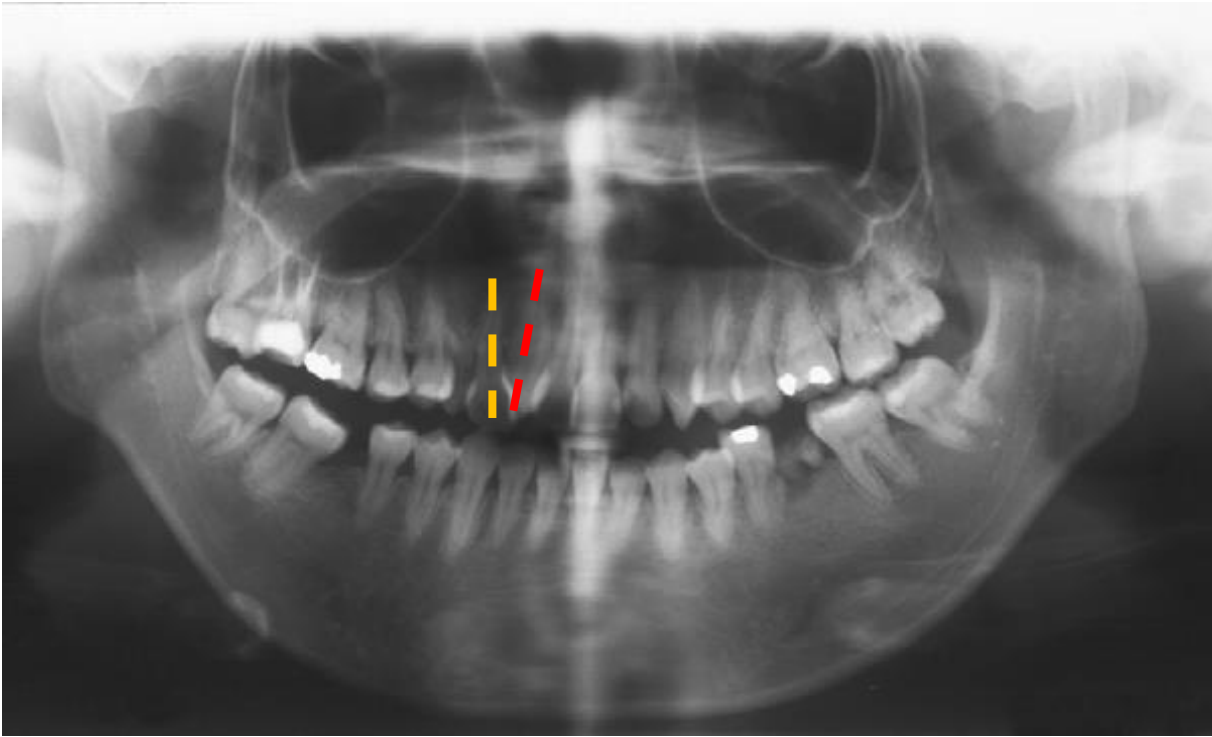
Tooth transposition

Is defined as the positional interchange of two adjacent teeth within the same quadrant.

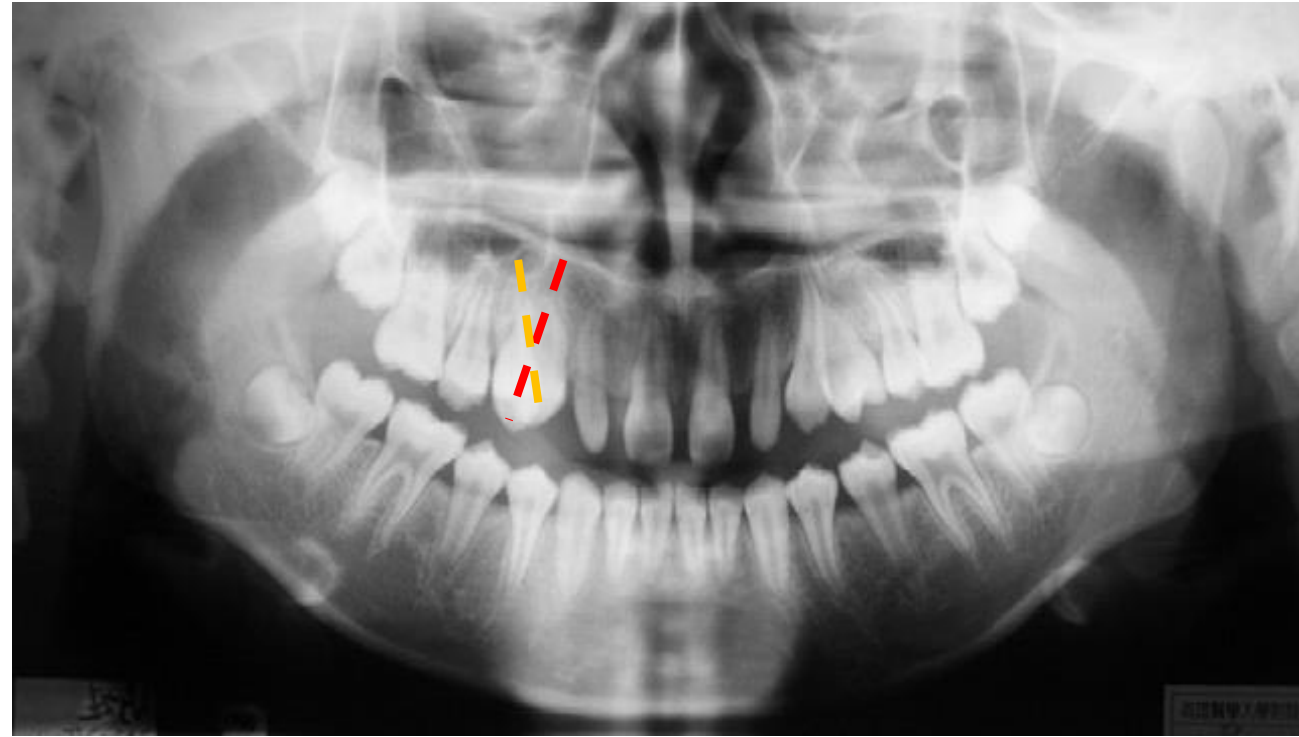
Classification

- **Complete transposition:** When the crowns and the roots of the involved teeth exchange places in the dental arch.
- **Incomplete transposition:** When the crowns are transposed but the roots remain in their normal positions.

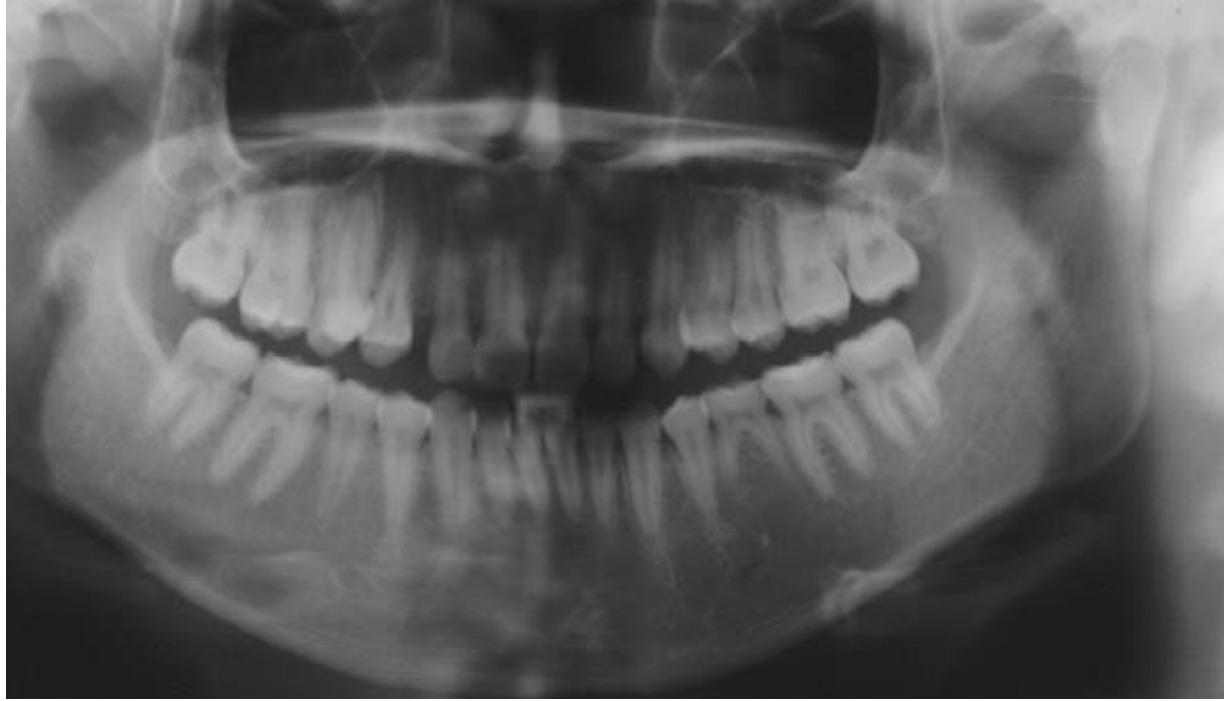
Shapira Y and Kuftinec MM, 1989
Talbot TQ and Hill AJ, 2002



Complete transposition



Incomplete transposition



Unilateral complete transposition



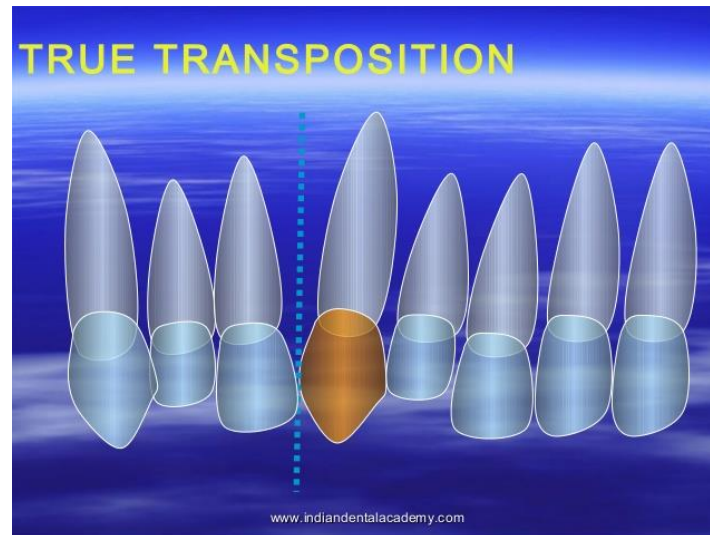
Bilateral complete transposition

True transposition :

The both involved teeth ex. Central incisor and canine do occupy each others respective positions. This again sub divided into.

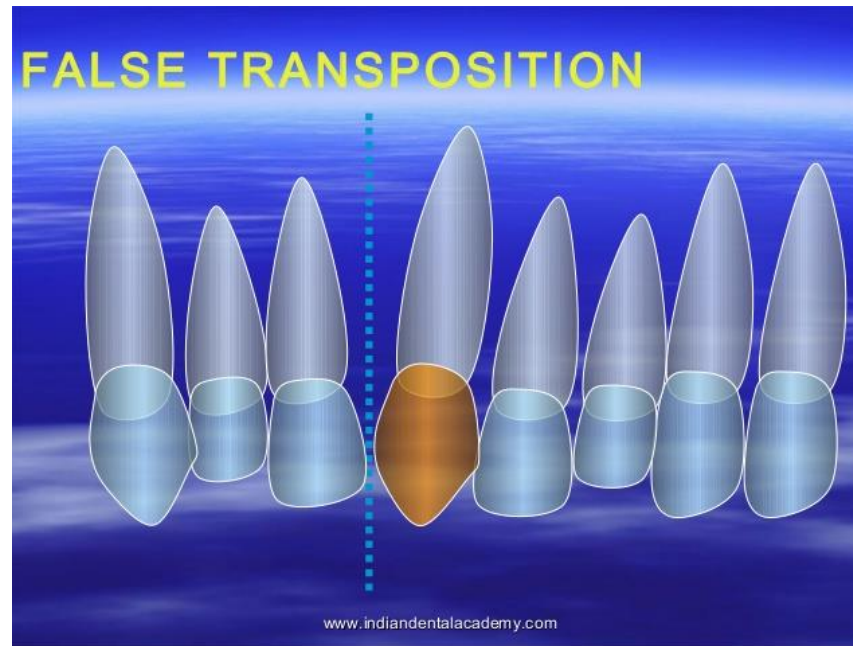
Unilateral : Transposition taking place on one quadrant of the respective arch

Bilateral : Transposition taking place on both sides of a arch.



False Transposition:

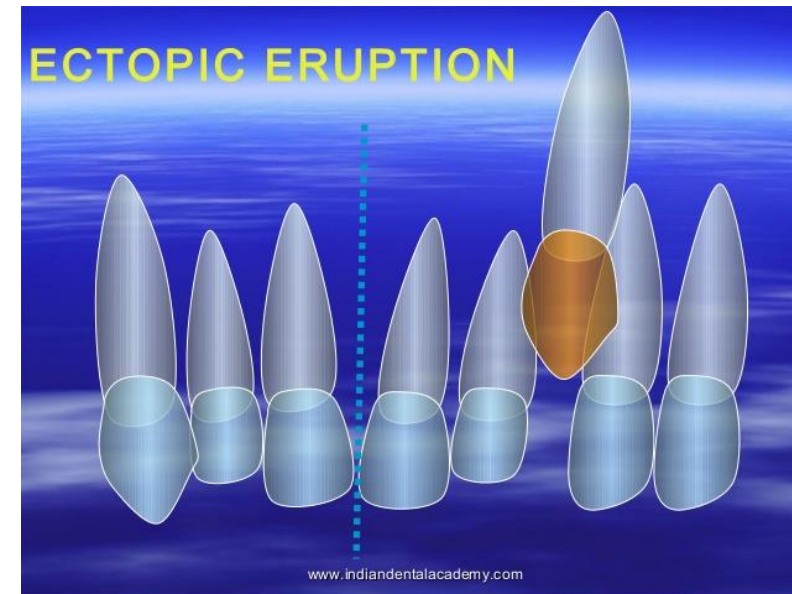
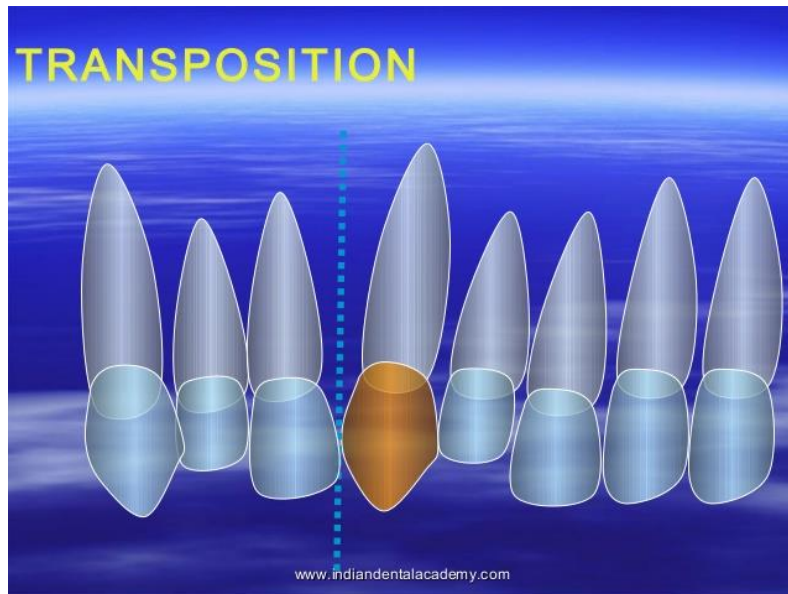
In this the involved teeth do not occupy each others normal respective position. For example in case of canine and central incisors transposition, the canine has taken the position of central incisor by migrating mesially and central incisor and lateral incisor which are in normal sequence have simply migrated or been forced distally.



TRANSPOSITION VS ECTOPIC ERUPTION

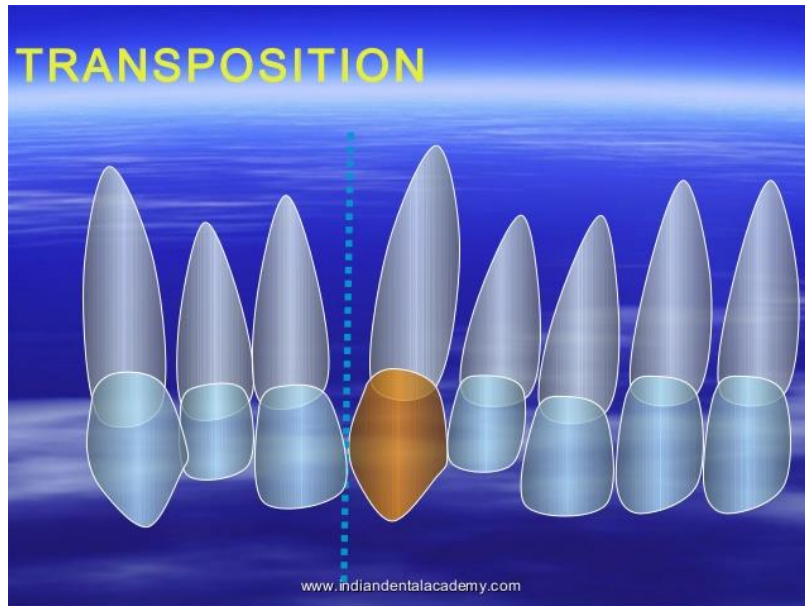
Ectopic Eruption it is a broad category referring to any abnormal or aberrant eruptive position taken by a tooth. For example buccally placed maxillary canines.

In Transposition the teeth exchange their places thereby reversing their sequence in the mouth. Thus transposition must be considered a subdivision of ectopic eruption. All transpositions are examples of ectopic eruption, but few ectopic eruptions are transpositions.



Transposition Vs Transmigration:

Transposition by definition is an interchange in the position of two adjacent permanent teeth within the same quadrant of the dental arch. Transmigration It is referred as displacement of teeth from one quadrant across the midline to the other quadrant. Thus transmigration teeth should be considered ectopically erupted teeth not transposed teeth.



Incidence and Occurance

- The incidence has been reported as about 0.4%.
- Tooth transpositions occur more commonly in the maxilla than the mandible.
- The maxillary permanent canine has been reported as the tooth most frequently involved in transposition.

Chattopadhyay A and Srinivas K, 1996

Plunkett DJ, et al 1998

Shapira Y, Kuftinec MM, 2001

Anshu R, Avesh S , Vinay K, 2016

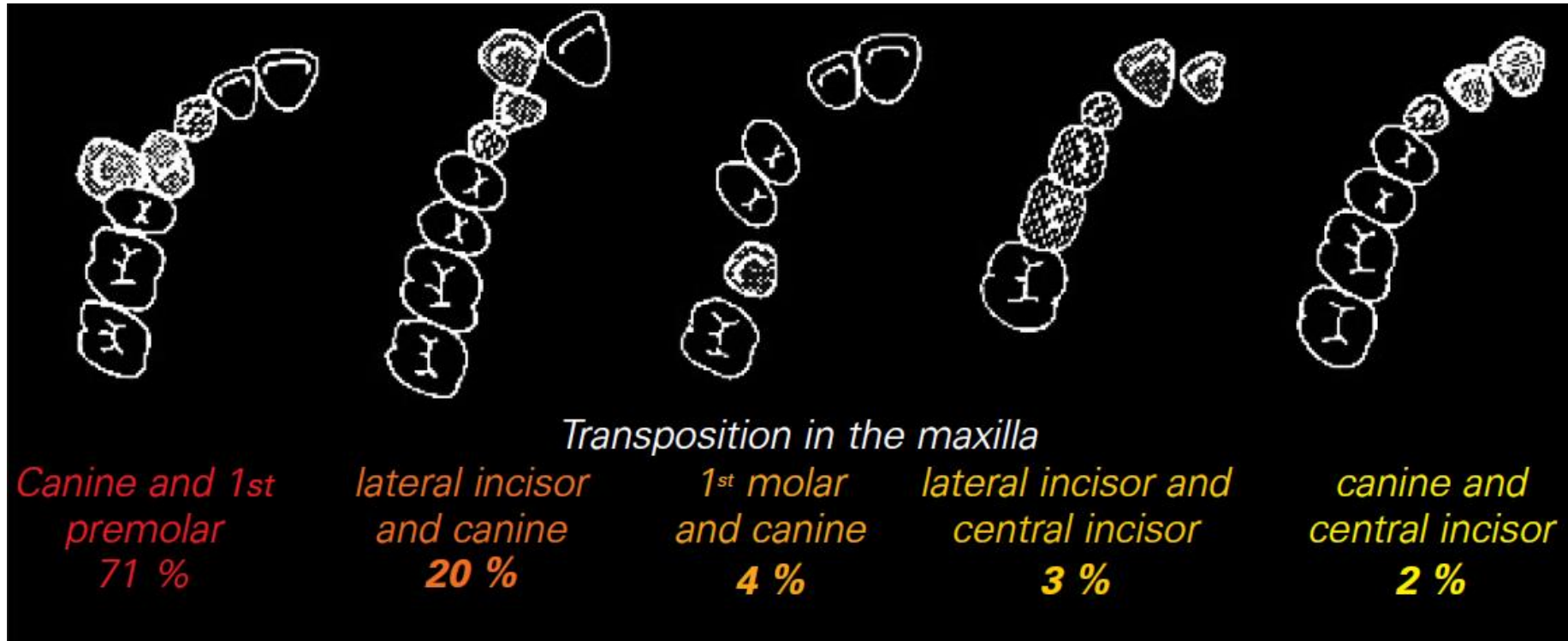
- Usually both **males and females** are affected. However some studies show higher male predilection. According to study conducted at **Dharwad** in 1993 showed **higher male** predilection and **Peck et al** also cited higher male predilection.
- According to recent studies done by **Y. Shapira** et al cited **higher female** predilection.
- In mandible it is found to occur in the site off lateral incisor to canine.
- Among unilateral **left side** is more frequently involved then right side in ratio of 2:1.
- The preponderance of left sided expression of transposition remains unexplained at present.

Variants:

The five maxillary transposition types are arranged in descending order according to prevalence (AJO. 1995 : 107).

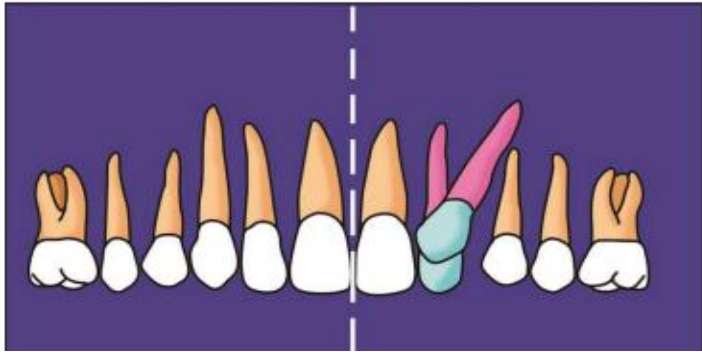
1. Canine to first premolar.
2. Canine to lateral incisor.
3. Canine to first molar .
4. Lateral incisor to central incisor.
5. Canine to central incisor

Peck's classification

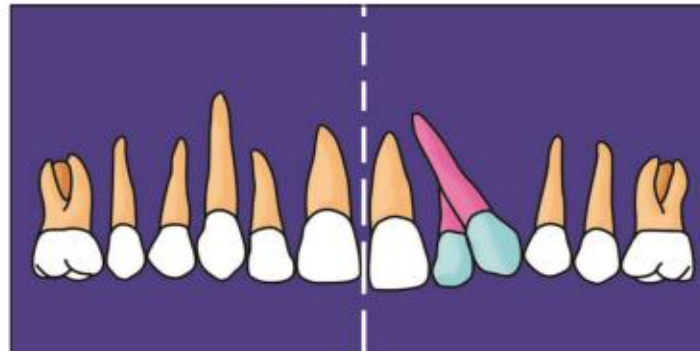


Transposition classification system: (Rai et al, 2016)

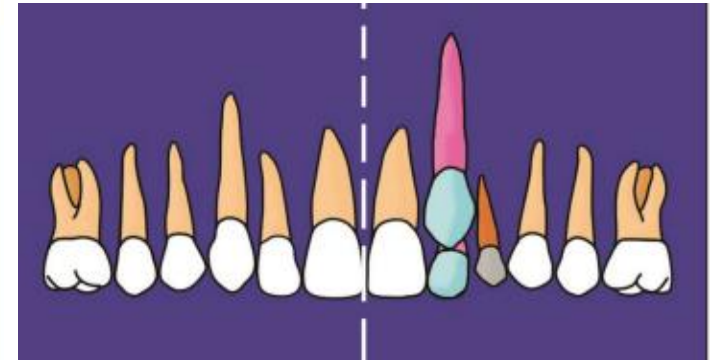
Class 1 type A



Class 1 type B



Class 1 type C



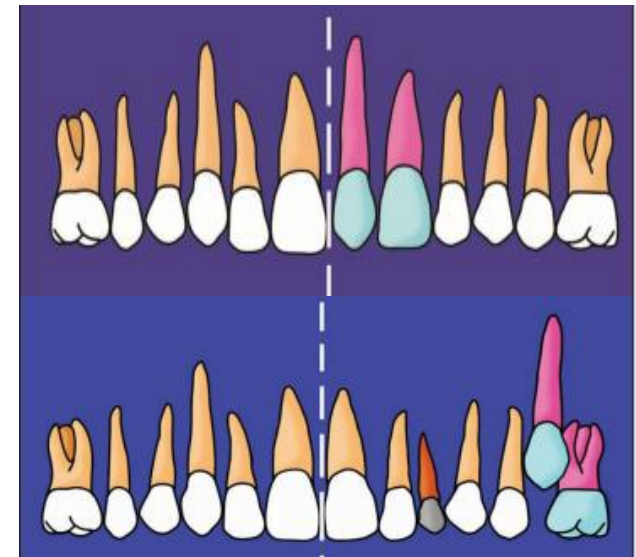
Class 2 type A



Class 2 type B



Class 2 type C



ETIOLOGY

- 1) Migration / Deflection / Drift theory.
- 2) Interchange in Position of Tooth Buds .
- 3) Trauma.
- 4) Genetic.



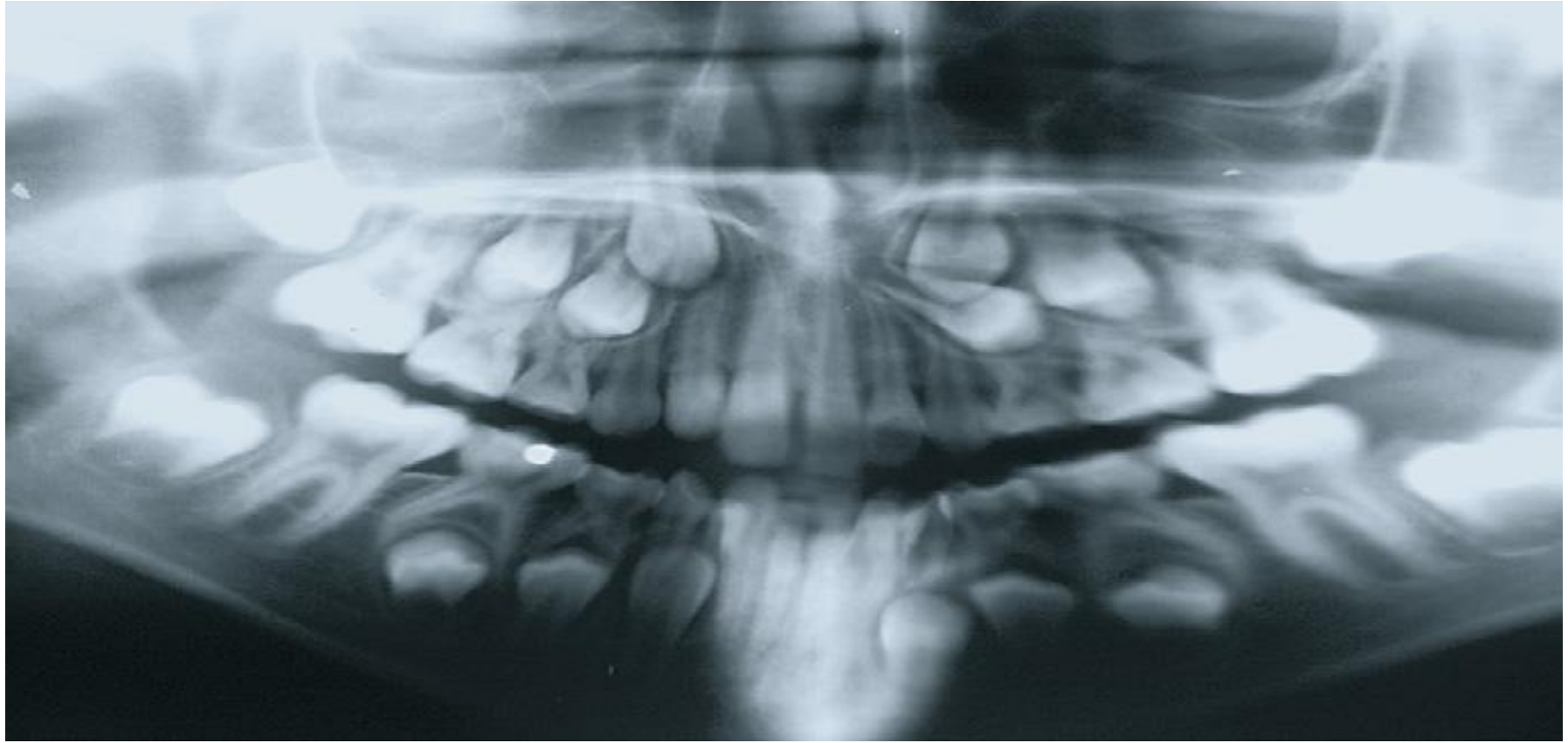
Factors need to be considered :

- 1) Position and condition of root apices. Whether it is complete or incomplete transposition.
- 2) Dental and facial esthetics.
- 3) Occlusion (both static and dynamic)
- 4) The underlying malocclusion and degree of crowding.
- 5) Clinical crown height and shape should be evaluate in case of reshaping the transposed teeth.
- 6) Patient motivation.

Early treatment:

Interceptive : This is carried out before the complete transposition have occurred. When incipient transposition is detected early enough, interceptive modality of orthodontic treatment can be initiated. This is made possible by changing eruptive path of permanent tooth by removal of retained primary tooth.

















Late treatment.

Various treatment options are :

1) **Leave teeth in respective position and align: For Complete Transposition**

Alignment in the transposed position followed by recontouring and reshaping of transposed teeth.

2) **Move and align : For Incomplete transposition**

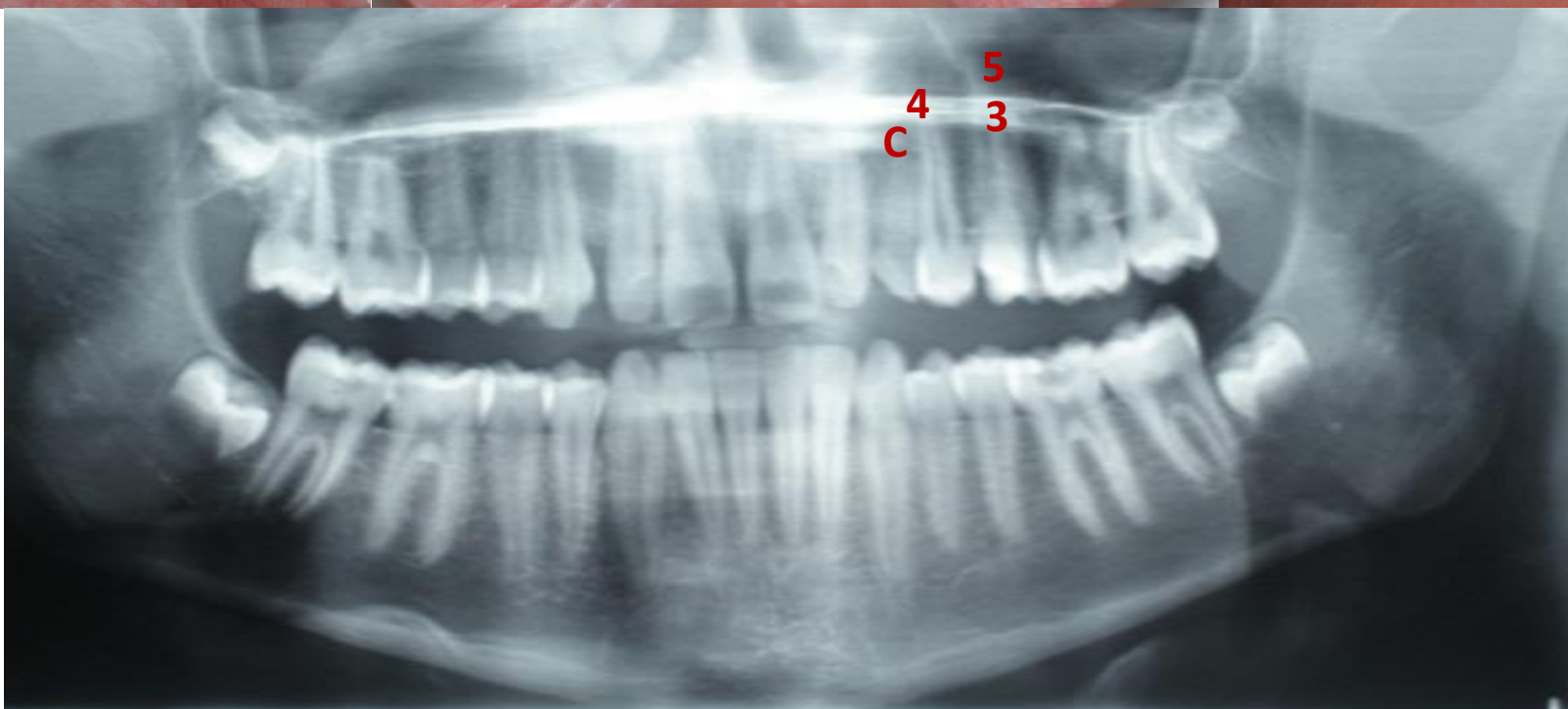
Orthodontic movement of transposed teeth into the normal arch positions.

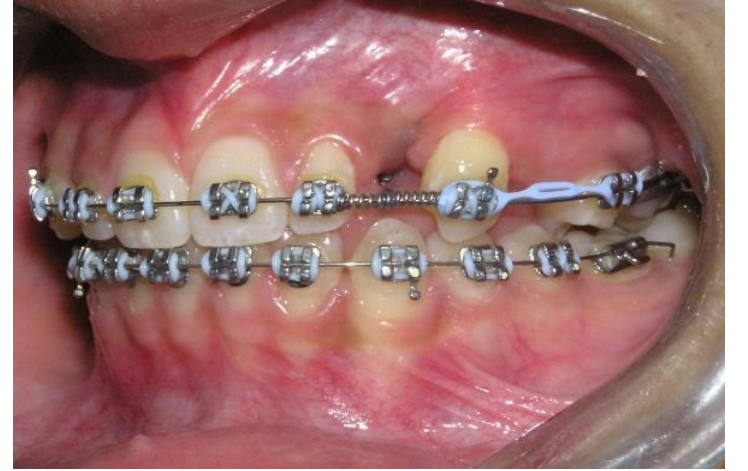
3) **Extraction :** of the transposed tooth. **For teeth in maximum intercuspation and stable occlusion**

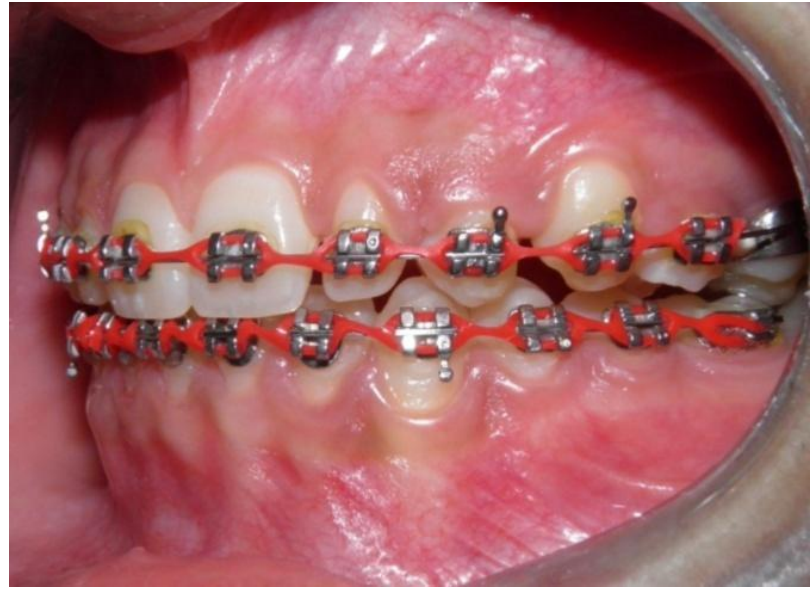
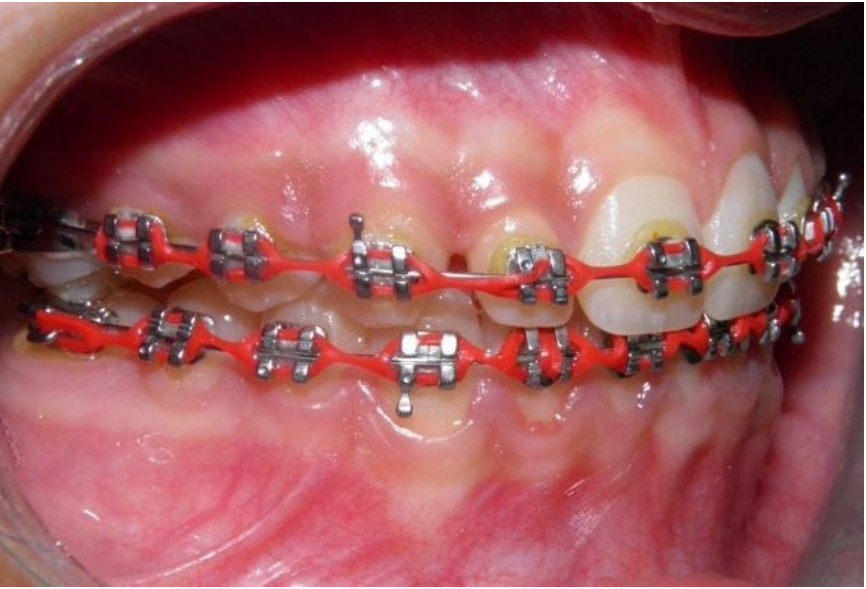
My Golden rule

Complete Transposition  Leave respective position
And align

Incomplete Transposition  Correct respective
Position And align

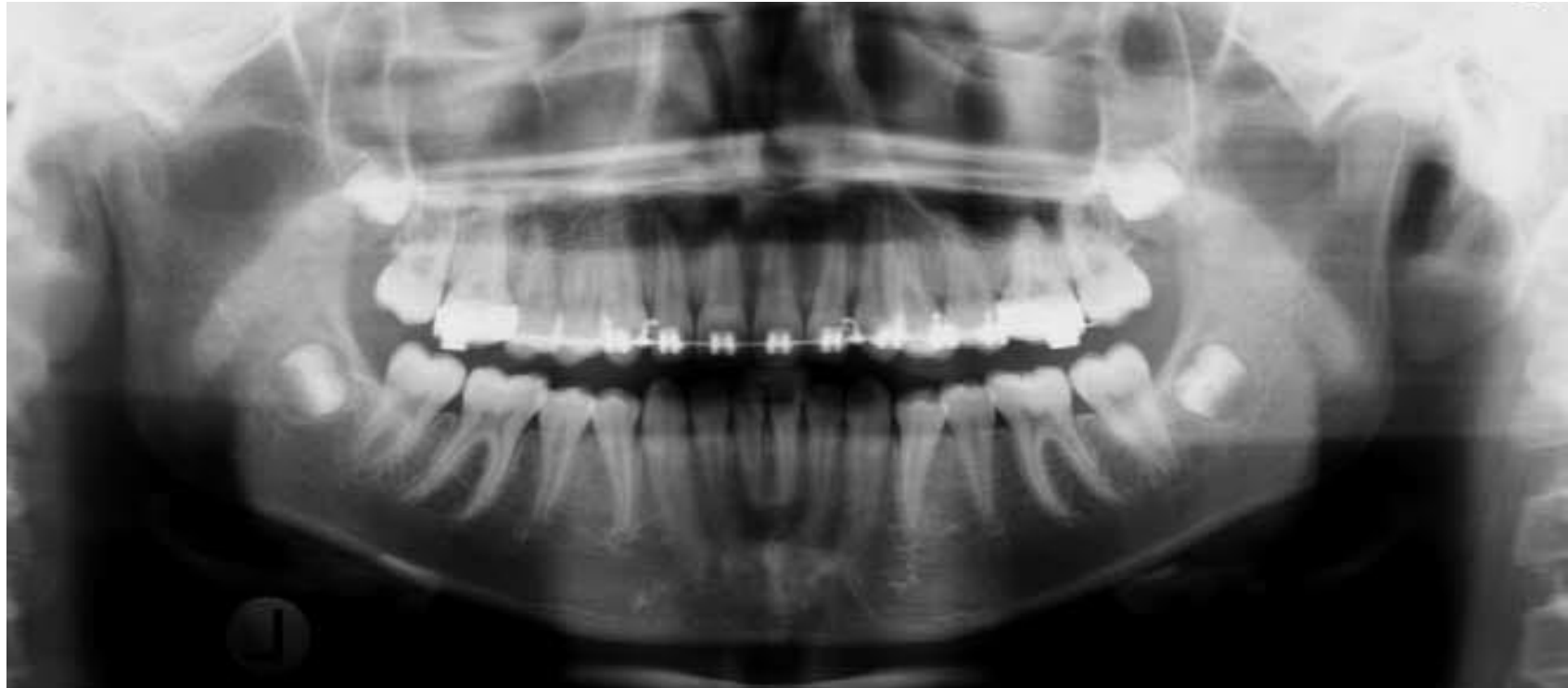












Thanks for your
attention