Cross bite

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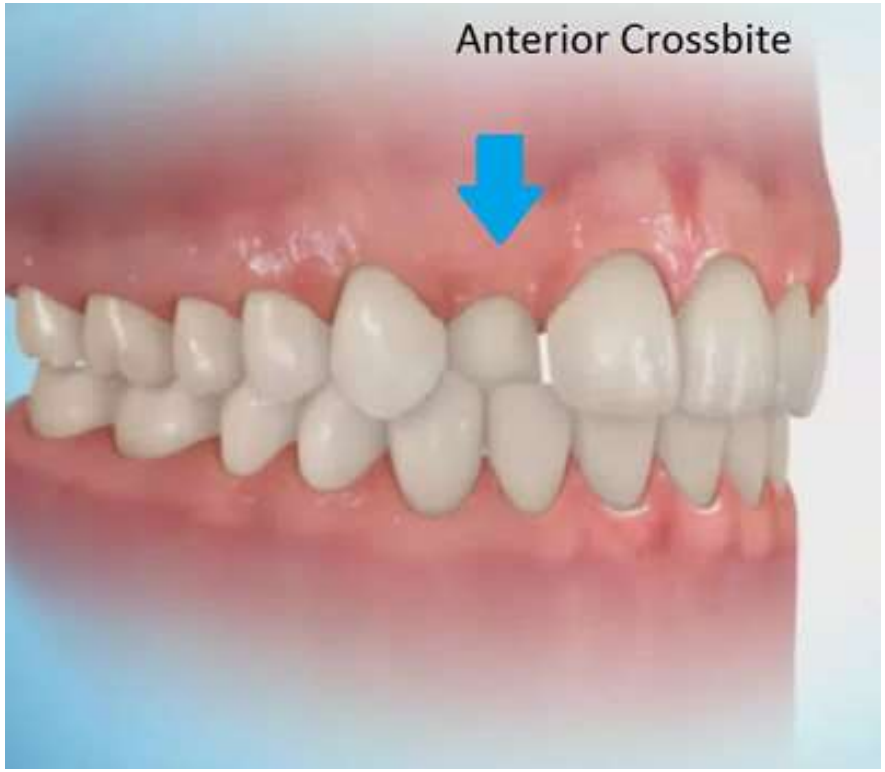
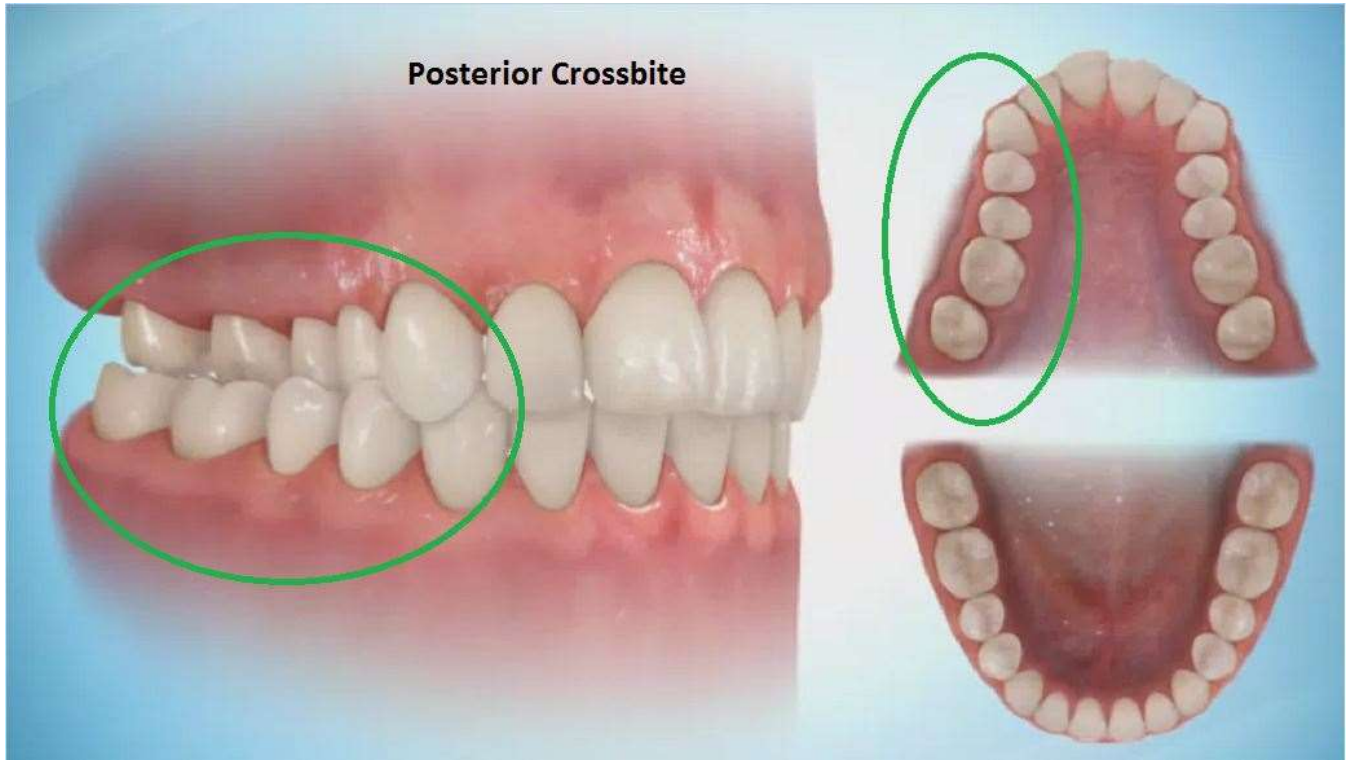
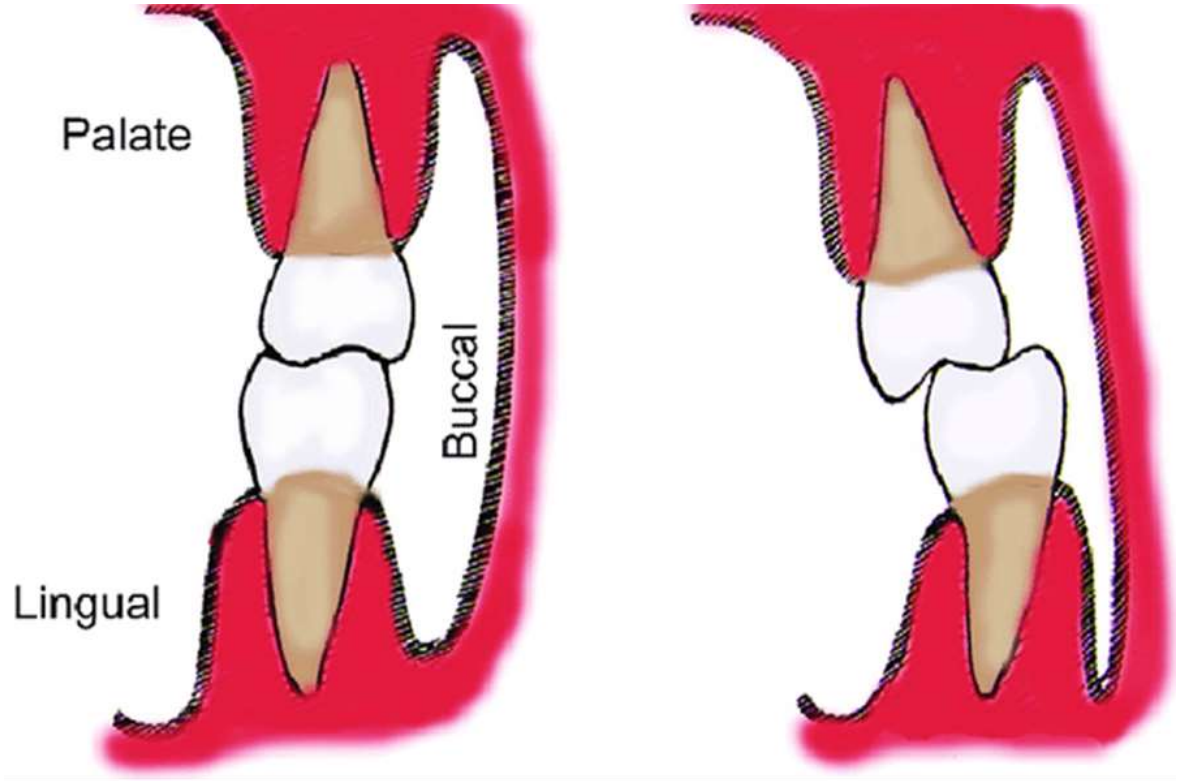
Definition

Crossbite: A deviation from the normal bucco-lingual relationship. May be anterior/posterior &/or unilateral/bilateral.

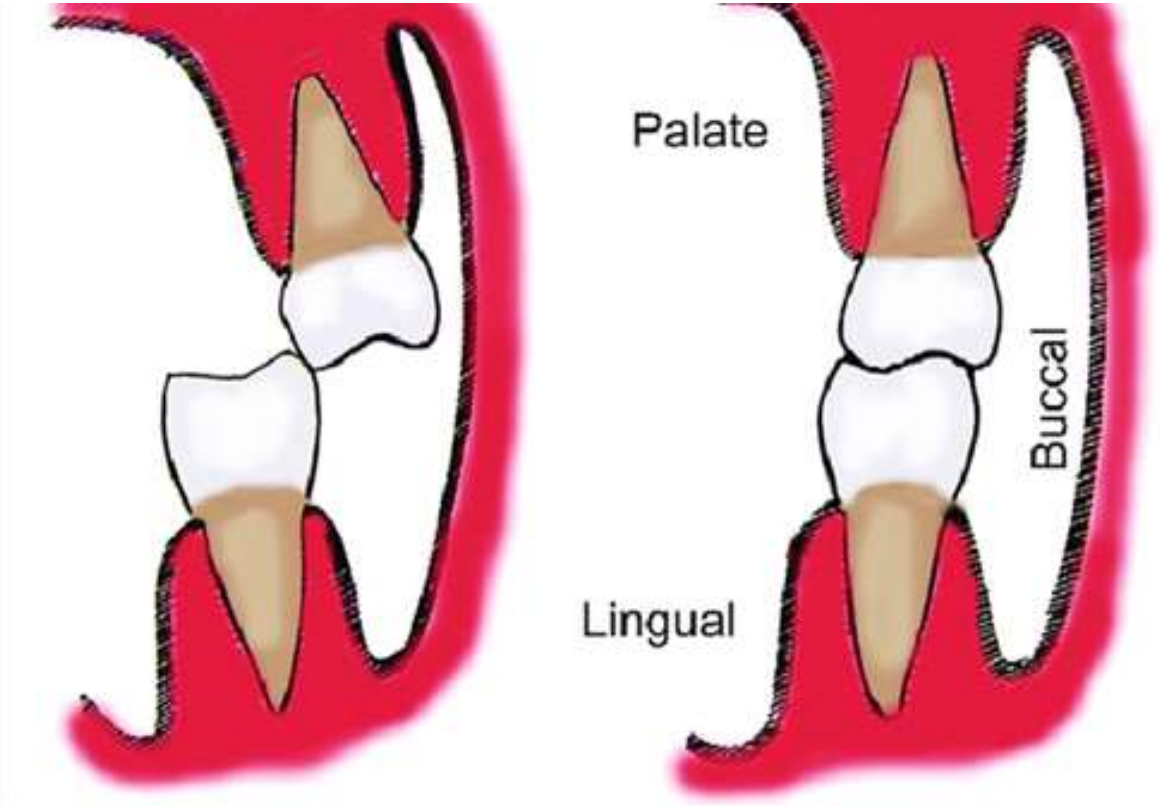


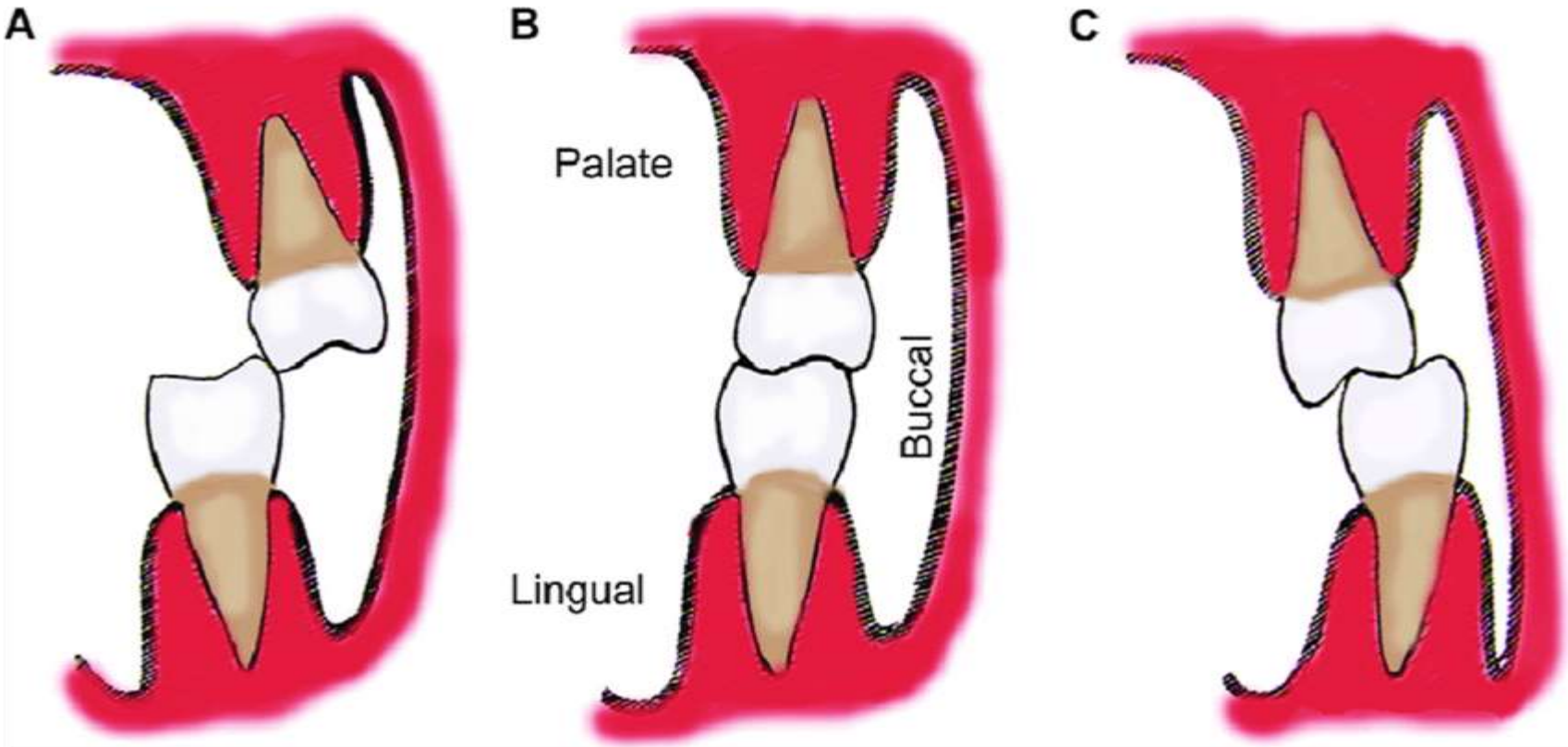


Buccal crossbite: Buccal cusps of lower premolars or molars occlude buccally to the buccal cusps of the upper premolars or molars.



Lingual crossbite: Buccal cusps of lower molars occlude lingually to the lingual cusps of the upper molars.





Lingual crossbite

Buccal crossbite

Buccal crossbite

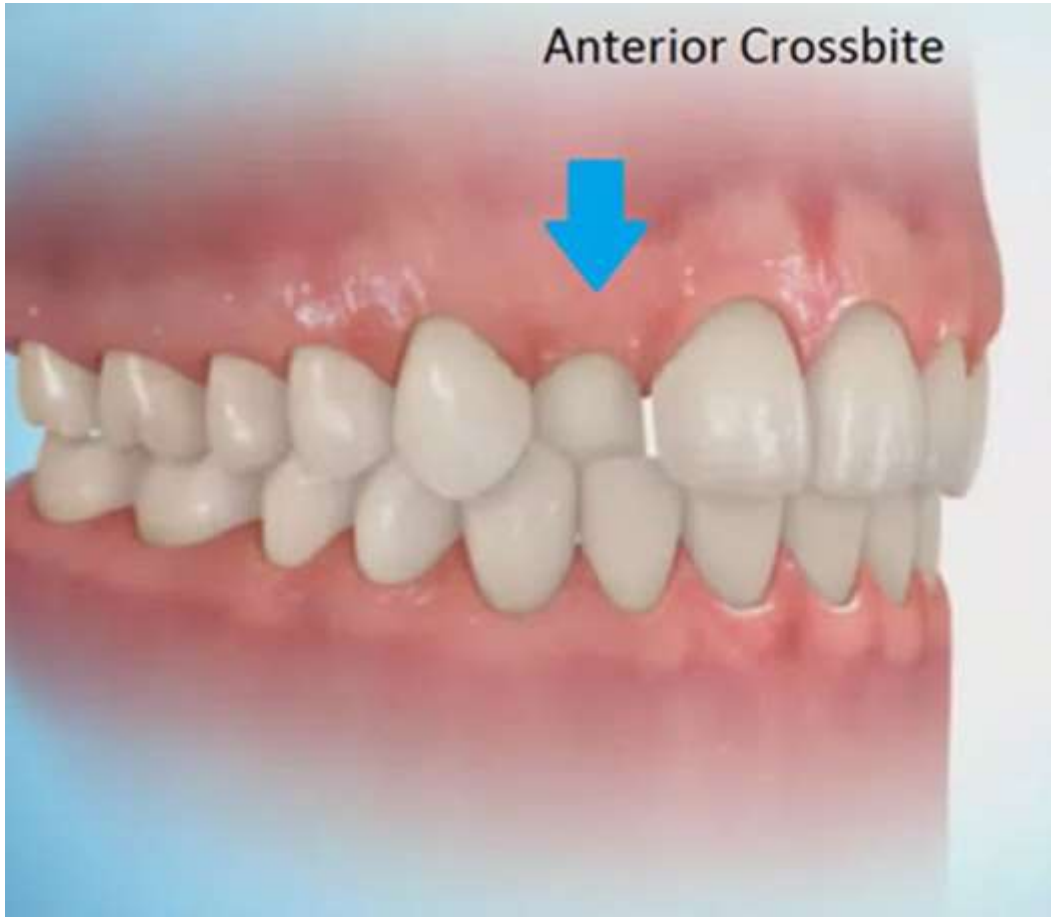
Lingual crossbite

Displacement: on closing from the rest position the mandible encounters a deflecting contact(s) and is displaced to the left or the right, and/or anteriorly, into maximum interdigitation

Etiology of crossbite

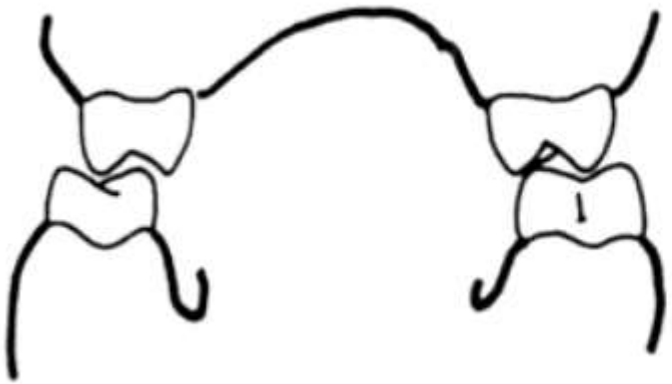
1. Local causes

The most common local cause is **crowding** where one or two teeth are displaced from the arch. For example, a crossbite of an upper lateral incisor often arises owing to lack of space between the upper central incisor and the deciduous canine, which forces the lateral incisor to erupt palatally and in linguo-occlusion with the opposing teeth. Posteriorly, early loss of a second deciduous molar in a crowded mouth may result in forward movement of the upper first permanent molar, forcing the second premolar to erupt palatally. Also, retention of a primary tooth can deflect the eruption of the permanent successor leading to a crossbite


Anterior Crossbite

2. Skeletal

Generally, the greater the number of teeth in crossbite, the greater is the skeletal component of the aetiology. A crossbite of the buccal segments may be due purely to a mismatch in the relative width of the arches, or to an anteroposterior discrepancy, which results in a wider part of one arch occluding with a narrower part of the opposing jaw. For this reason buccal crossbites of an **entire buccal segment are most commonly associated with Class III malocclusions, and lingual crossbites are associated with Class II malocclusions**. Anterior crossbites are associated with Class III skeletal patterns. Crossbites can also be associated with true skeletal asymmetry and/or asymmetric mandibular growth.

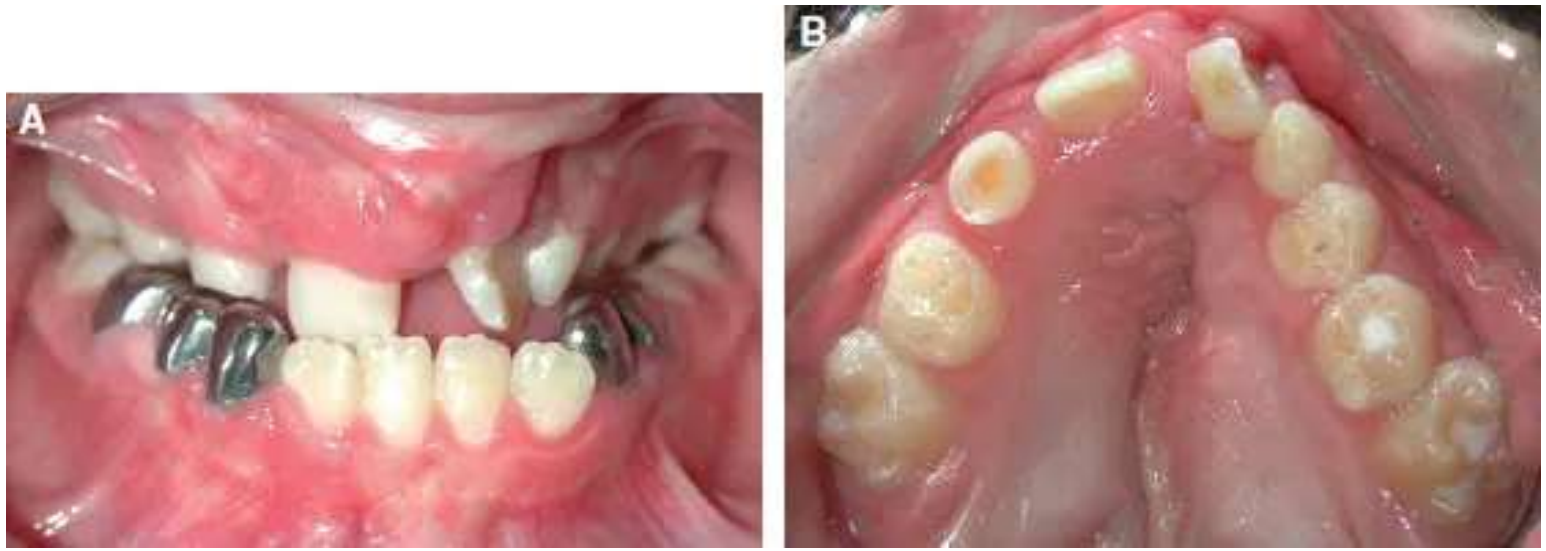


3. Soft tissues

A posterior crossbite is often associated with a digit-sucking habit, as the position of the tongue is lowered and a negative pressure is generated intra-orally mouth breathing as well .

4.Rarer causes

These include cleft lip and palate, where growth in the width of the upper arch is restrained by the scar tissue of the cleft repair. Trauma to, or pathology of, the temporomandibular joints can lead to restriction of growth of the mandible on one side, leading to asymmetry.



Types of Crossbite

1.Anterior crossbite

An anterior crossbite is present when one or more of the upper incisors is in linguo-occlusion (i.e. in reverse overjet) relative to the lower arch. Anterior crossbites involving only one or two incisors.

2. Posterior crossbites

Crossbites of the premolar and molar region involving one or two teeth or an entire buccal segment can be subdivided as follows:

A. Unilateral buccal crossbite with displacement

B .Unilateral buccal crossbite with no displacement

This category of crossbite is **less** common. It can arise as a result of deflection of two (or more) opposing teeth during eruption, but the greater the number of teeth in a segment that are involved, the greater the likelihood that there is an underlying skeletal asymmetry

C. Bilateral buccal crossbite

Bilateral crossbitesare more likely to be associated with a skeletal discrepancy, either in the anteroposterior or transverse dimension, or in both.

D .Unilateral lingual crossbite

E. Bilateral lingual crossbite (scissors bite)

Management of anterior cross bite

Removable appliances

The removable appliance incorporating palatal springs, like Z. spring if one incisor is in crossbite and R.Z. spring or anterior segmental screw for two or more maxillary incisors to achieve labial movement. Sometimes lower removable appliance with an active labial bow is used for lingual movement of mandibular incisors. The appliance should have multiple clasps for good retention. A removable appliance of this type requires nearly full-time wear to be effective and efficient. Posterior biteplate to reduce the overbite while the crossbite is being corrected usually is unnecessary unless the overbite is exceptionally deep. Whenever Posterior biteplate is used, it should be adjusted to just enough overbite clearance for the forward provide movement of the maxillary incisors. At the end of treatment, adequate

2.Fixed Appliance

Note: Sever crossbite caused by skeletal discrepancy can be controlled during growth by growth modification appliances, such as protraction face mask. If the skeletal factor were not managed during the growth period, an orthognathic surgery will be needed

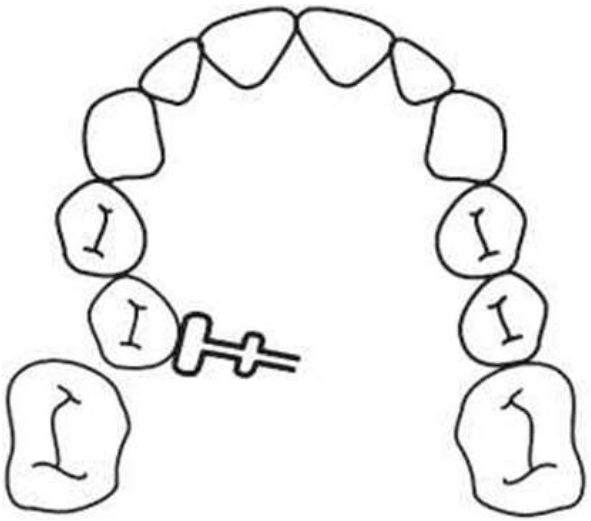
Appliances Used to Correct Posterior Crossbite

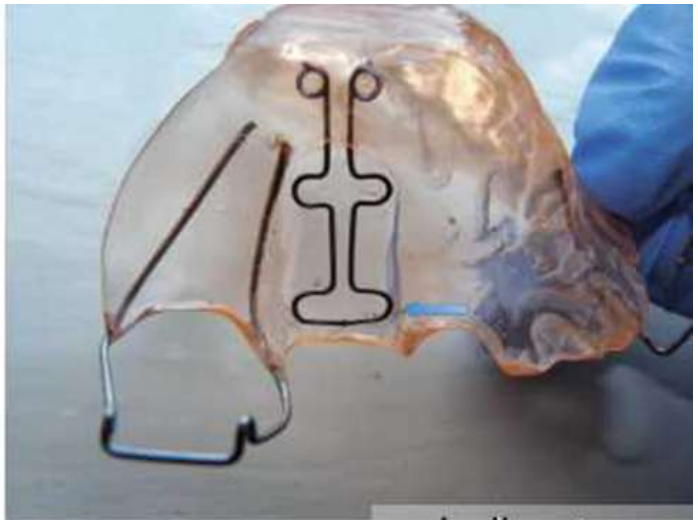
1.Removable Appliances :

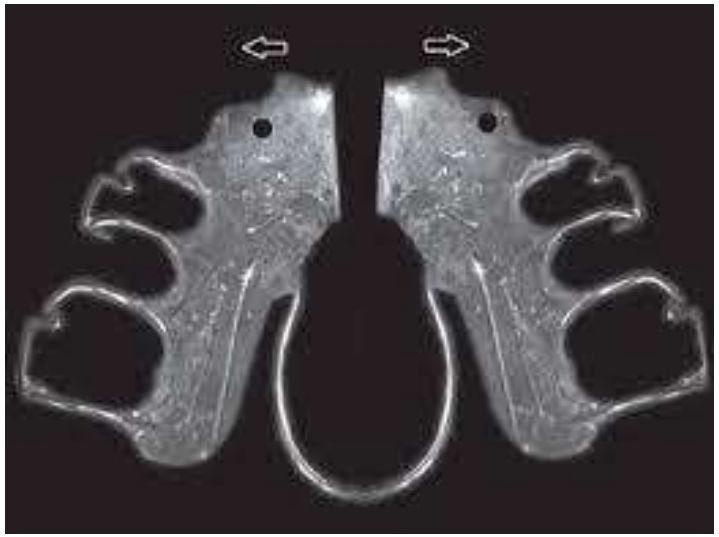
A simple removable appliance with a T-spring can correct posterior crossbite of single tooth like the premolars.

Upper removable appliance with a midpalatal jackscrew and buccal capping can be used in the treatment of posterior crossbite involving all or segment of posterior teeth which are being tilted palatally. It mostly used in the treatment of posterior crossbites of small magnitude in children and young adolescents.

Coffin spring can be used in arch expansion in anterioposterior and transverse direction.





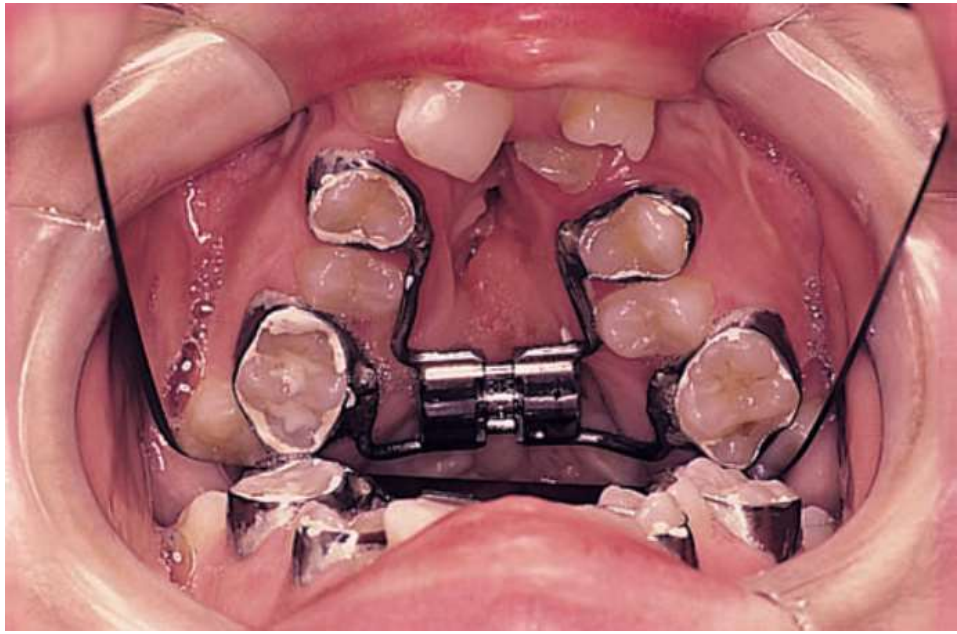


2.Fixed Appliances

The Cross-elastic is a simple fixed appliance useful in the correction of unilateral posterior crossbites consists of two banded or bonded attachments on upper and lower teeth in crossbite. Most effective when the upper tooth is inclined lingually and the lower tooth is inclined buccally. The elastics may extrude the teeth causing an opening of the bite

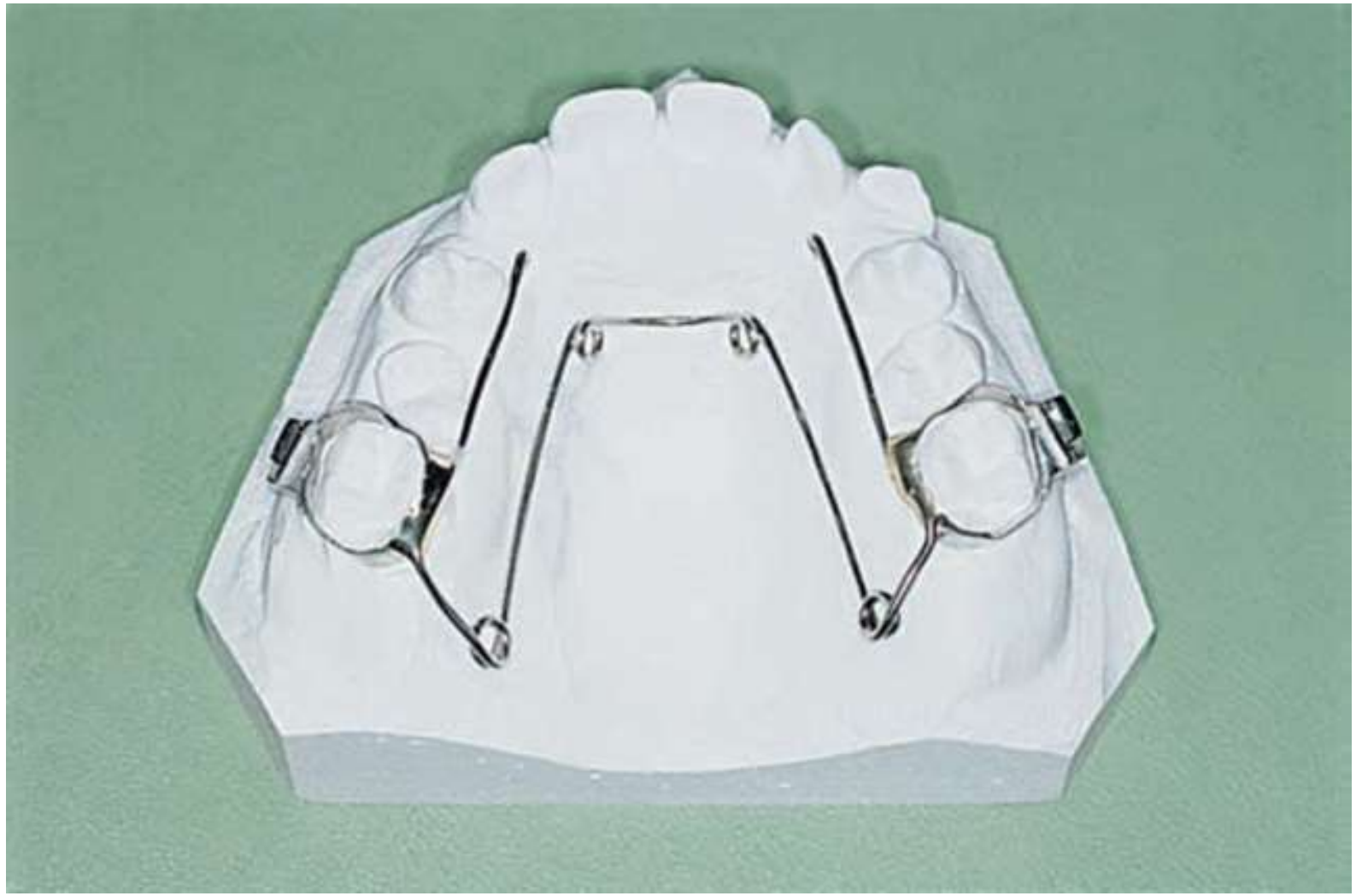
Rapid maxillary expansion

Involves a screw appliance comprising bands attached to 64|46 and connected to a midline screw. The object is to expand the maxilla by opening the midline suture and is therefore more successful in younger patients. Large forces are required to accomplish this—the screw is turned 0.2mm twice a day for about 2 weeks. Over-expansion is necessary as the teeth relapse about 50% under soft-tissue pressure.



Quad helix

is a very efficient fixed slow expansion appliance. The quad helix appliance can also be adjusted to give more expansion anteriorly or posteriorly as required and can also be used to de-rotate rotated molar teeth. When active treatment is complete, it can be made passive to aid retention of the expansion. A quad helix is fabricated in 1 mm stainless steel wire and attached to the teeth by bands cemented to molar tooth on each side. Pre-formed types are available which slot into palatal attachment welded onto bands on the molar and can be readily removed by the operator for adjustment. However, the appliance can also be custom-made in a laboratory. The usual activation is about half a tooth width each side Over-expansion can occur readily if the appliance is over activated, and therefore its use should be limited to those who are experienced with fixed appliance.




Thank You