Over bite

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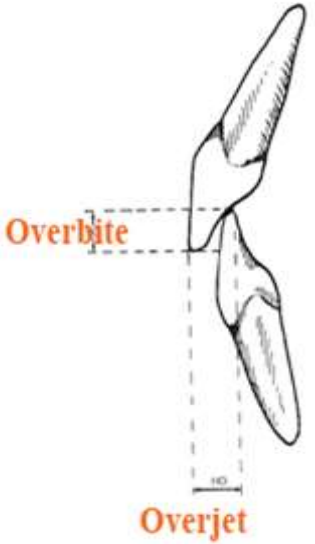
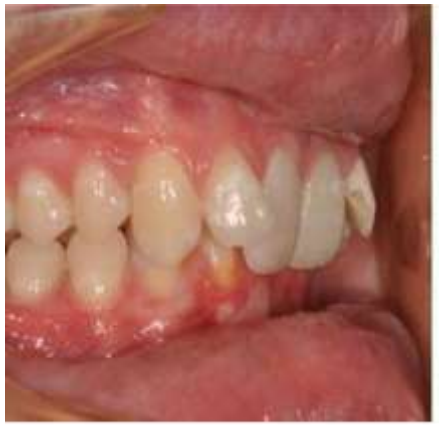
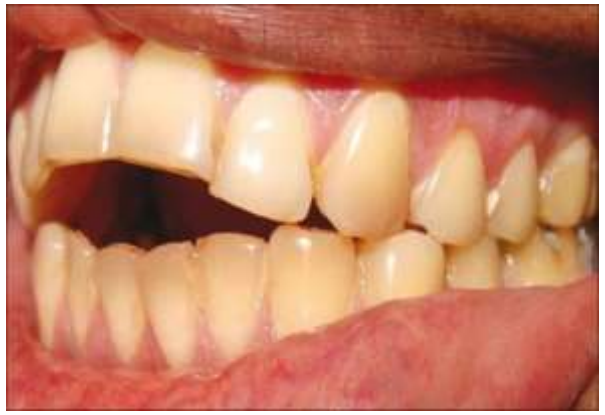
<u>Overbite</u> is the amount of the Overlap of the incisors in the vertical plane.



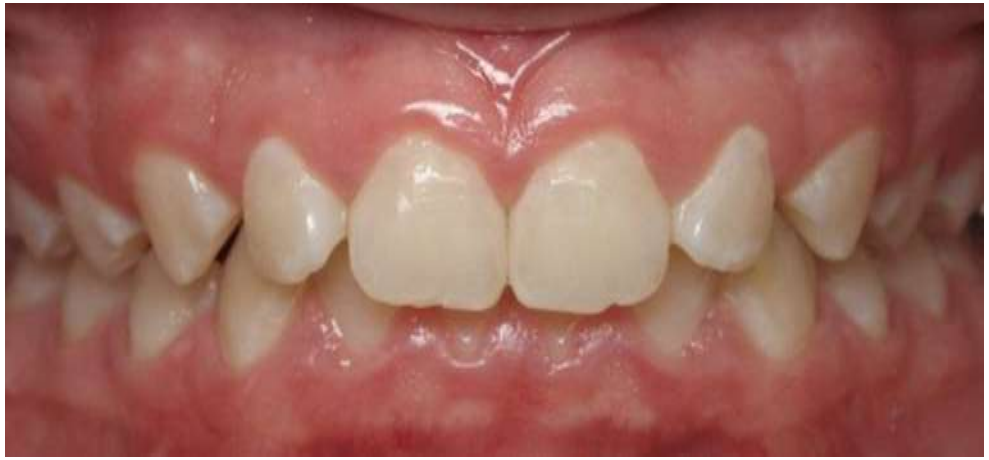


Deep bite

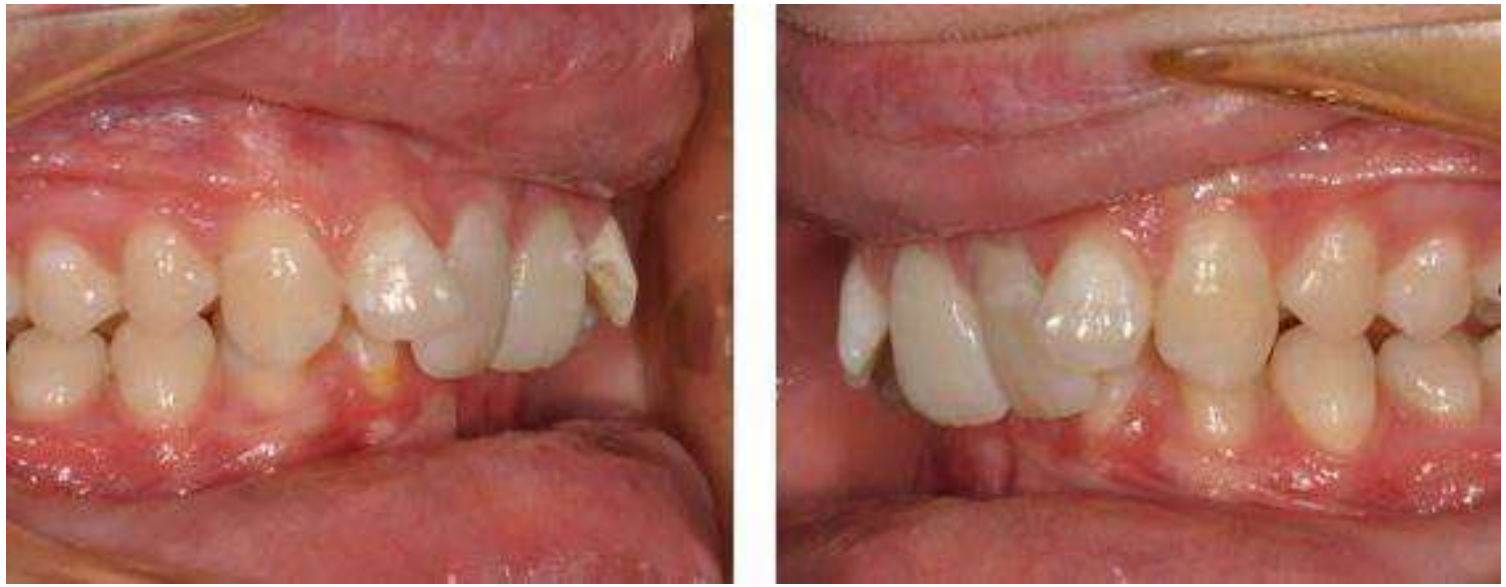


open bite

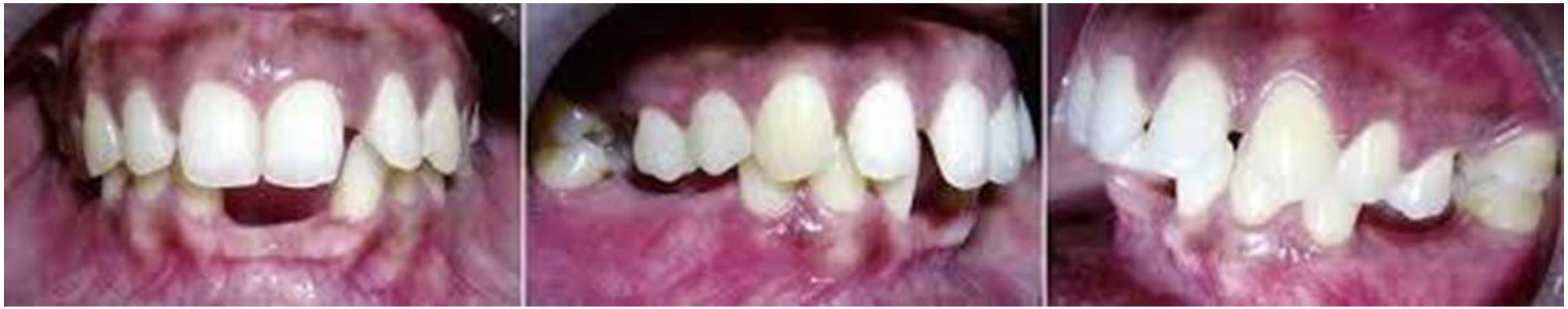
Deep bite : overlap greater than 4 mm or the incisal edge of lower incisor contact the cingulum of upper central incisor should be considered as "excessive" deep bite.



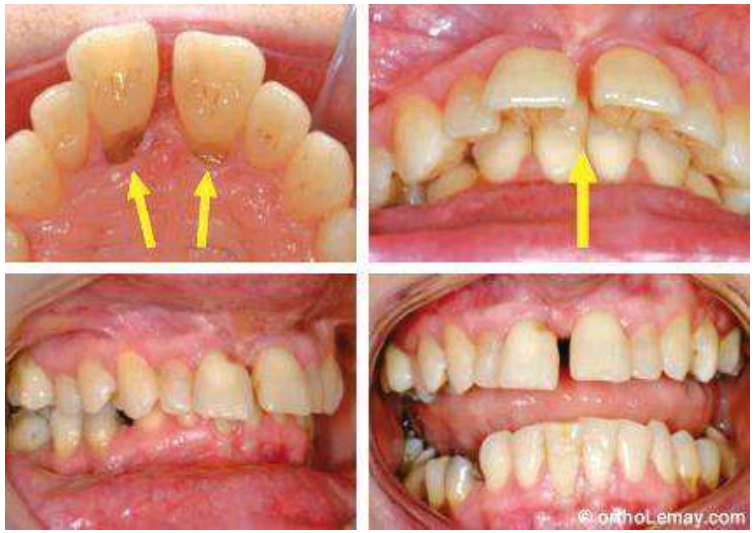
Cover bite : **is characterized by complete covering (concealment) of the mandibular incisor crowns resulting from excessive overbite and retroclination of the maxillary incisors. Cover bite is associated primarily with the Class II, Division 2 malocclusion.**

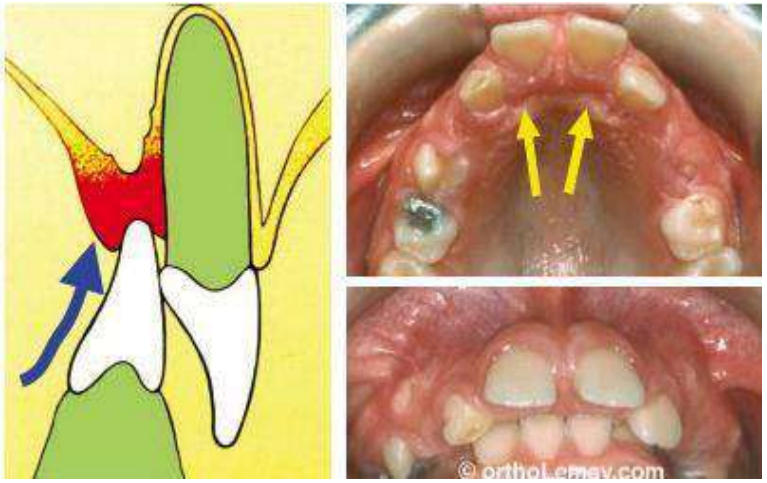


Closed bite: **is mainly seen in adults and rarely in young children and is characterized by excessive overbite resulting from loss of posterior teeth.**

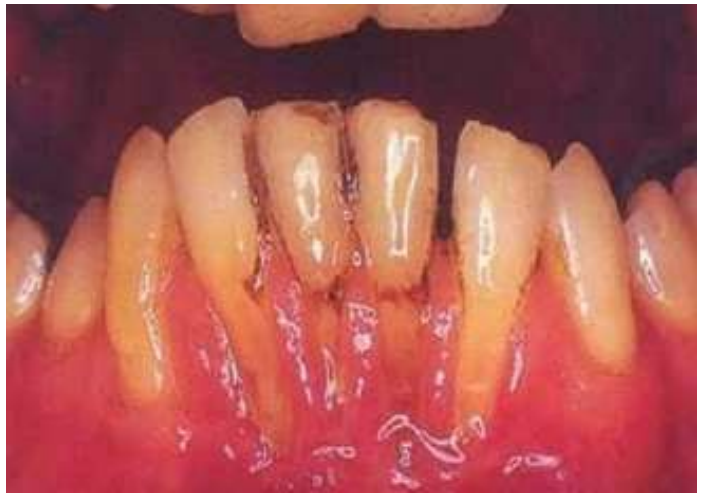


Traumatic over bite or complete overbite: **the lower incisor edges occlude with the upper masticatory mucosa when the buccal segment teeth are in occlusion.**

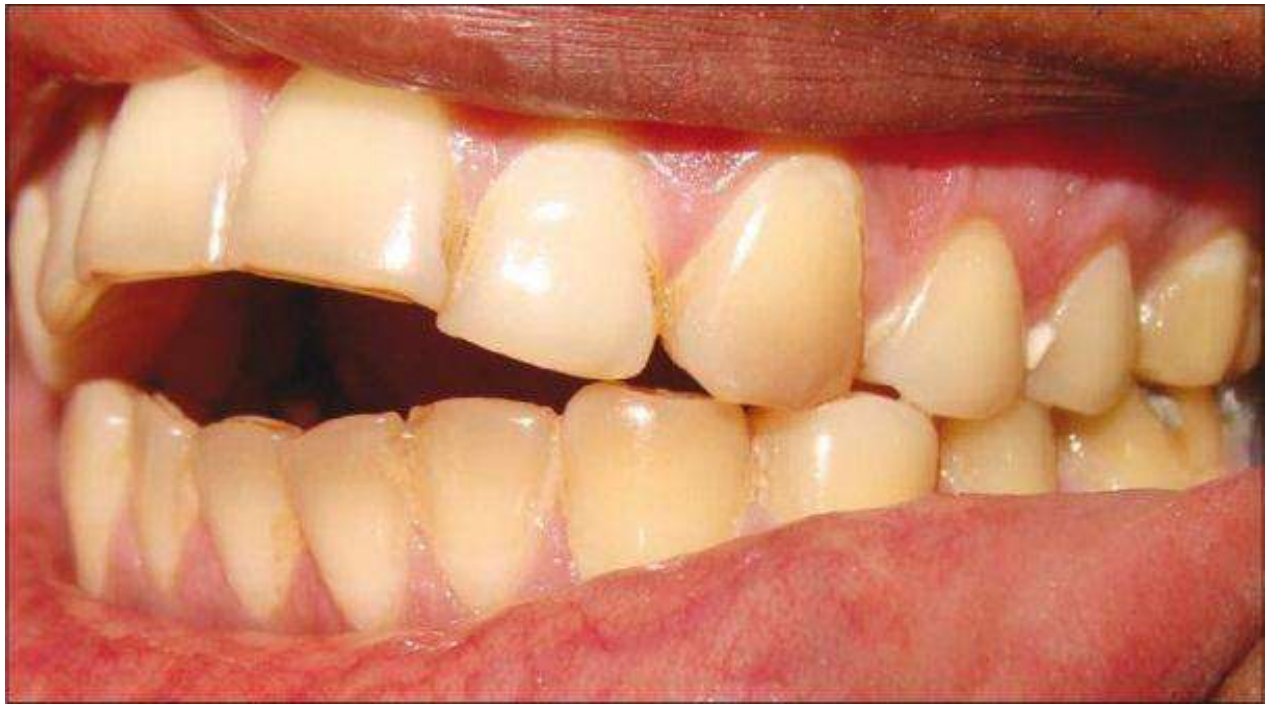




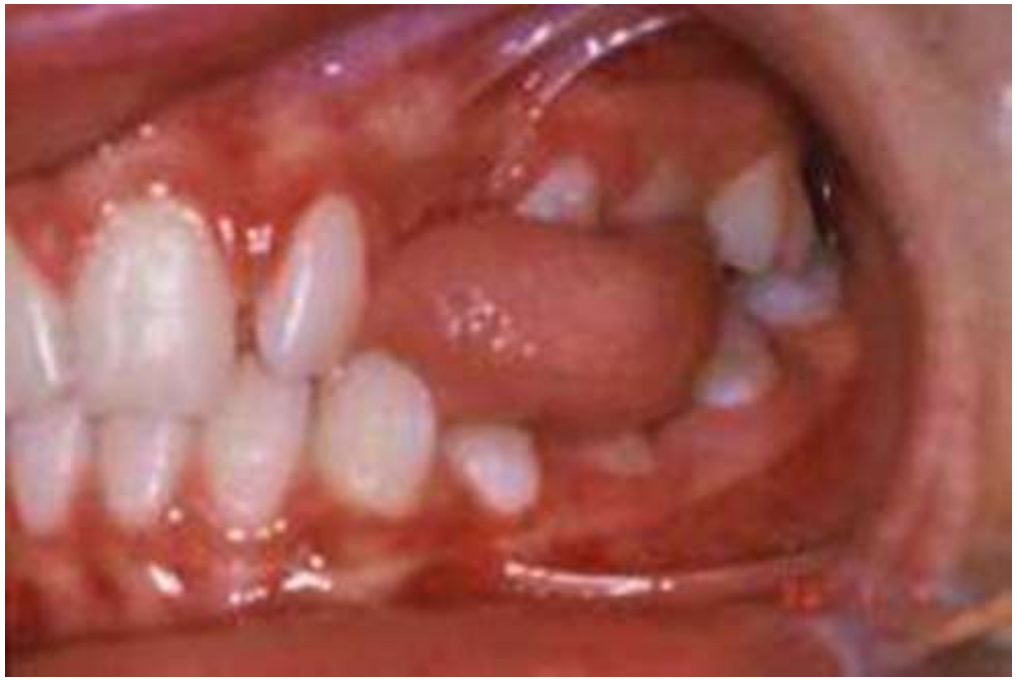
Bitraumatic over bite: the lower incisor edges occlude with the upper masticatory mucosa and the upper incisor edges occlude with lower labial gingiva when the buccal segment teeth are in occlusion.



<u>Anterior open bite:</u> there is no vertical overlap of the incisors when the buccal segment teeth are in occlusion.



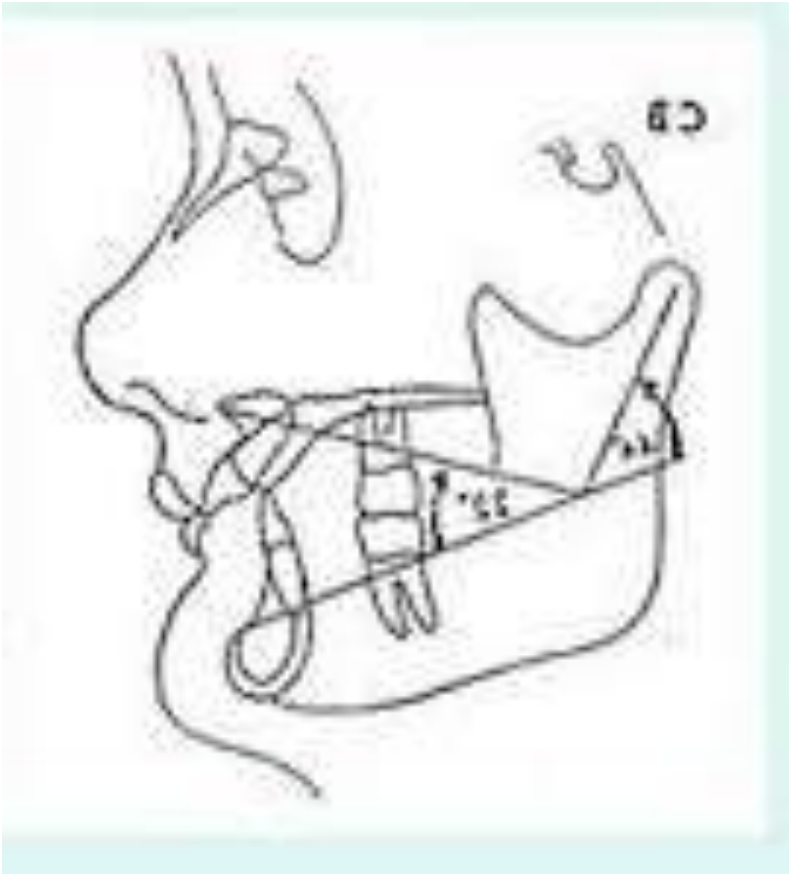
<u>Posterior open bite</u>: when the teeth are in occlusion there is a space between the posterior teeth.



What is anterior or forward rotation growth rotation of the mandible?

• If the incisor occlusion is stable, the overbite remains unchanged during the growth period & the fulcruming point is located at the front teeth.

• If the incisor occlusion is unstable, the fulcruming point is located further **back along** the occlusal plane. In this situation the bite normally becomes increasingly deep over time as the result of greater **posterior face height increase in combination with lack of anterior tooth contact**. This deterioration of the occlusion is most pronounced during puberty when growth intensity is at its greatest, but continues throughout the growth period. Patients with a pronounced tendency to anterior growth rotation and a deep bite should therefore be treated early and the occlusion supported throughout the growth period. **Retention**, especially in the mandibular arch, must also be maintained until mandibular growth is completed.

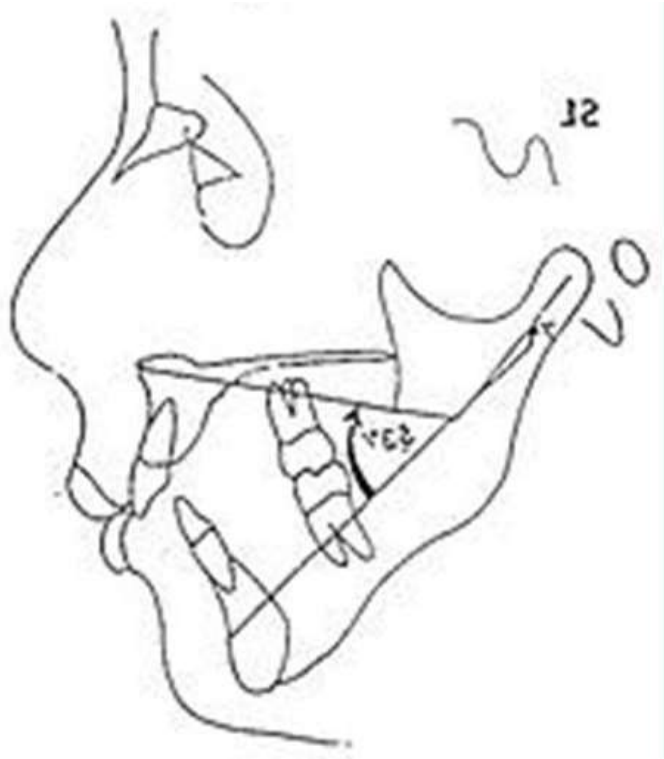


• The erupting dentition in this type of mandibular growth characteristically undergoes a considerable amount of **mesial migration** of both the maxillary and mandibular teeth with some degree of **proclination** of the mandibular incisors. Where the amount of mesial migration of the lower posterior teeth does not equal the advancement of the incisors by proclination (due to trapping behind upper incisors), **secondary crowding** of the front teeth frequently develops

What is the posterior growth rotation of the mandible?

• If dentoalveolar growth is greater than vertical condylar growth, the resulting change in mandibular position is back ward or posterior rotation of the mandible. The increase in AFH is greater than in PFH, the mandible rotates posteriorly with the fulcrum at the condyle.

• This posterior growth rotation may result in an anterior open bite, depending on the extent of vertical dentoalveolar compensation.

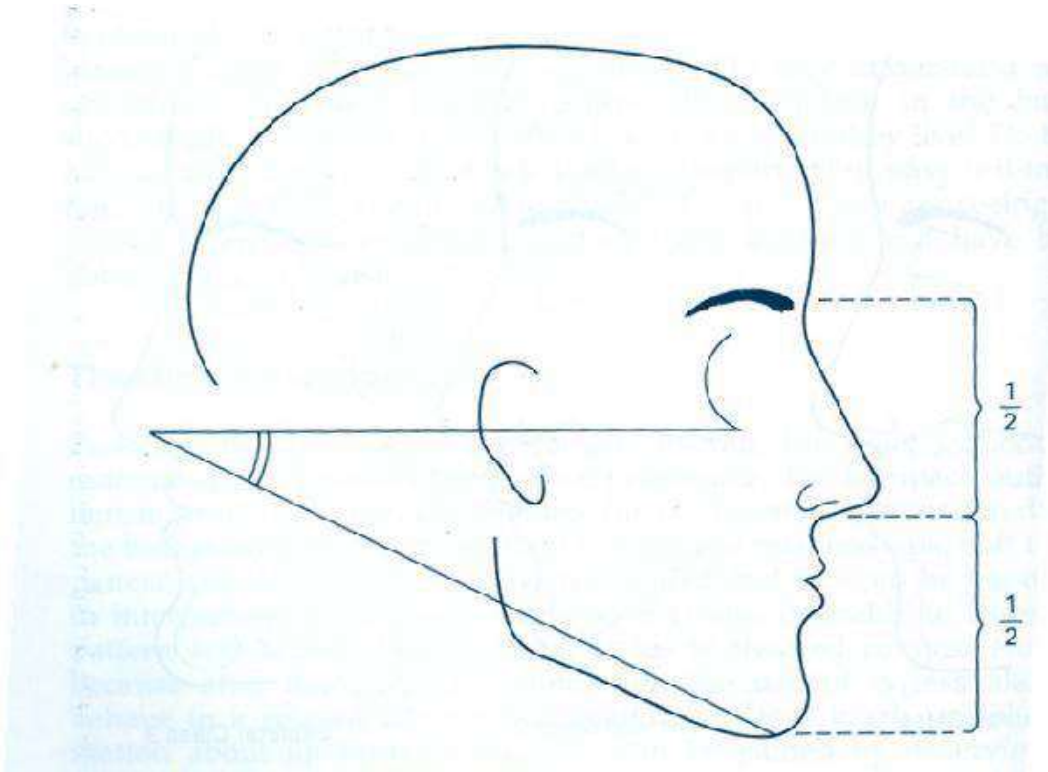


Clinical Examination

Extra Oral Examination

A. Facial Height :

B. Frankfurt – Mandibular plane angle:



Intra Oral Examination

It is depend on the measurement of over bite.

Etiology of Deep Bite

Skeletal

✓ Growth discrepancy of the maxillary and mandibular jawbones.

✓ An overgrowth or undergrowth of one or more alveolar segments.

✓ An excess of growth of the **ramus** and **posterior cranial base** permits the mandible to rotate upward. Thus Long ramus and short body with decreased gonial angle is characterstic feature.

✓ Convergent rotation of upper and lower jaw bases.

✓ Horizontal growth pattern or forward rotation or anticlock wise rotation of the lower jaw. The four planes of the face orbital (FH Plane), palatal, and mandibular) as seen from lateral cephalometric radiograph are horizontal and nearly parallel to each other.

Dental :

✓ Supraocclusion (overeruption) of the incisors teeth, infraocclusion (undereruptior of the buccal segment, or a combination of both.

✓ Loss and/or mesial tipping of posterior teeth. In other words diminished posterior dental height.

✓ Premature loss of permanent teeth resulting in lingual collapse of the maxillary or mandibular anterior teeth.

✓ Periodontal disease. Bite may deepen if the posterior tooth drift mesially during the pathological migration and worsen the existing condition.

✓ Wearing away of the occlusal surface or tooth abrasion.

Muscular

The posterior vertical chain of muscles (masseter, internal pterygoid, temporal) is strong and attached anteriorly on the mandible and stretches in nearly a straight line vertically. The molars are directly under the impact of the masticatory forces of this chain. When the posterior vertical chain of muscles is strong and anteriorly positioned, a greater depressive action is transmitted to the dentition.

Etiology of Anterior Open Bite

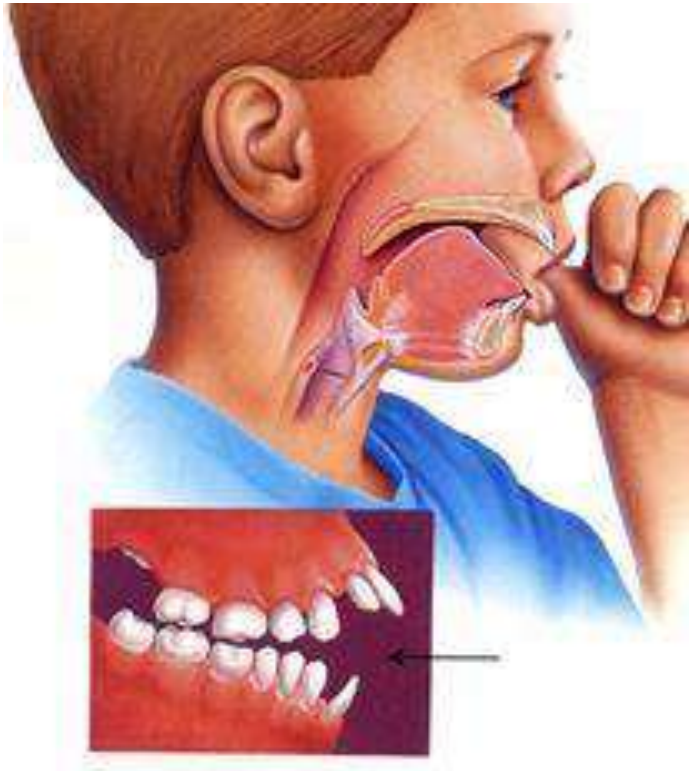
Skeletal Pattern

Individuals with a tendency to vertical rather than horizontal facial growth exhibit increased vertical skeletal proportions. Where the lower face height is increased there will be an increased inter-occlusal distance between the maxilla and mandible. Although the labial segment teeth appear to be able to compensate for this to a limited extent by further eruption, where the inter-occlusal distance exceeds this compensatory ability an anterior open bite will result. If the vertical, downwards, and backwards pattern of growth continues, the anterior open bite will become more marked. In this group of patients the anterior open bite is usually symmetrical and in the more severe cases may extend distally around the arch so that only the posterior molars are in contact when the patient is in maximal interdigitation. The vertical development of the labial segments results in typically extended alveolar processes when viewed on a lateral cephalometric radiograph

Soft Tissue Pattern

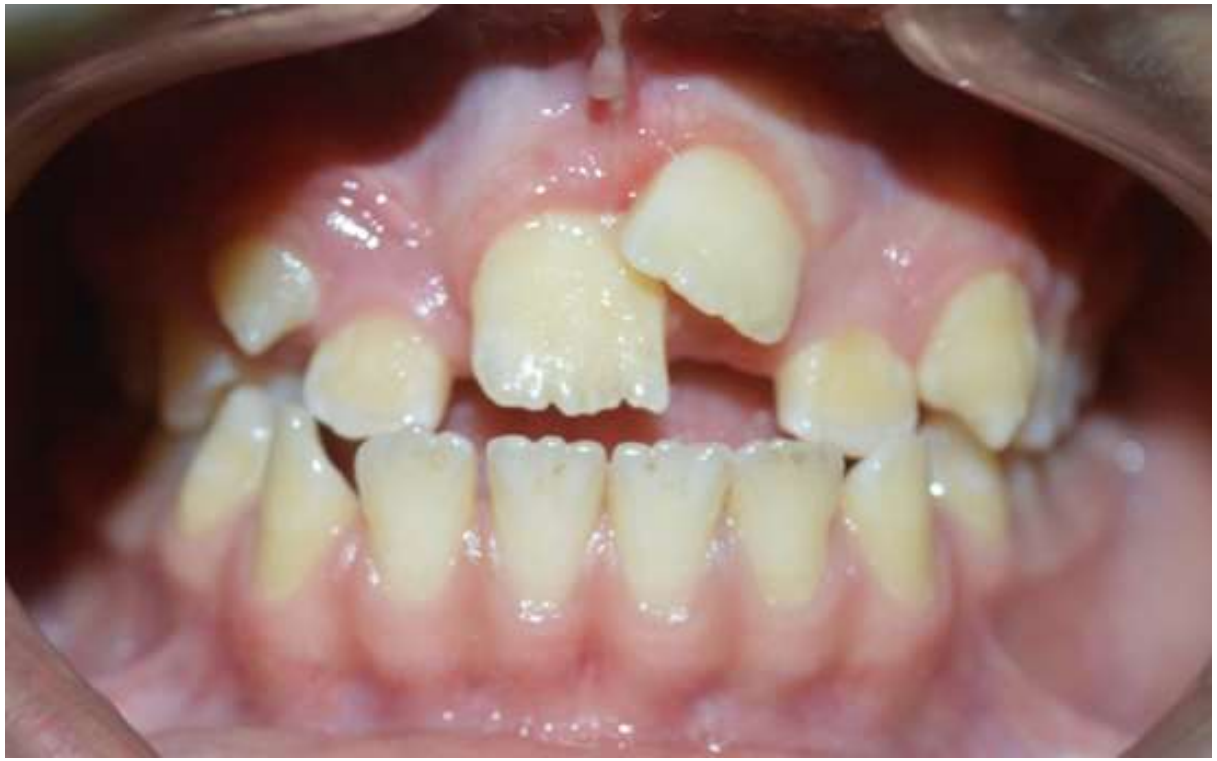
In order to be able to swallow it is necessary to create an anterior oral seal. In younger children the lips are often incompetent and a proportion will achieve an anterior seal by positioning their tongue forward between the anterior teeth during swallowing. Individuals with increased vertical skeletal proportions have an increased likelihood of incompetent lips and may continue to achieve an anterior oral seal in this manner even when the soft tissues have matured. This type of swallowing pattern is also seen in patients with an anterior open bite due to a digitsucking habit. In these situations the behaviour of the tongue is adaptive. An endogenous or primary tongue thrust is rare, but it is difficult to distinguish it from an adaptive tongue thrust as the occlusal features are similar. However, an endogenous tongue thrust is associated with sigmatism (lisping), and in some cases both the upper and lower incisors are proclined by the action of the tongue

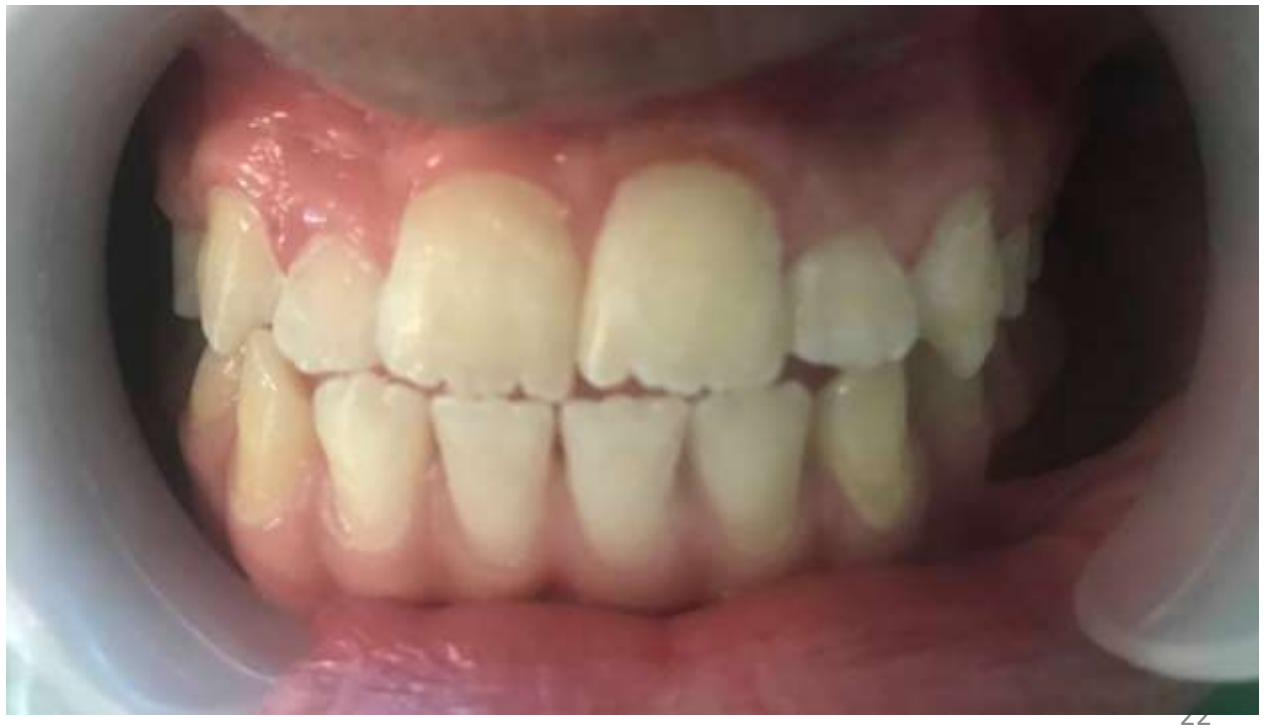
Habits



Localized Failure of Development

This is seen in patients with a cleft of the lip and alveolus, although rarely it may occur for no apparent reason.



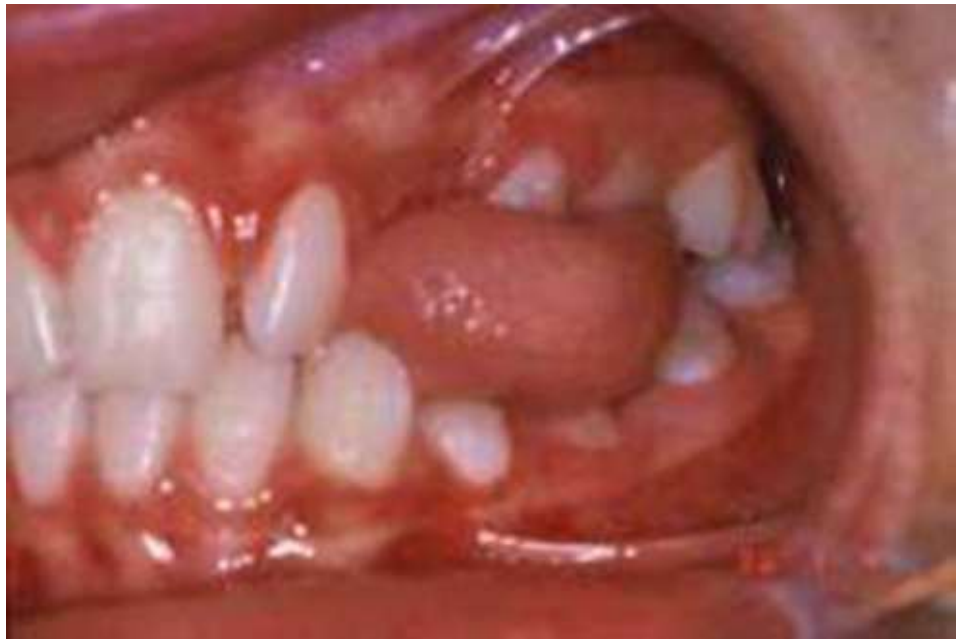


Mouth Breathing

The open-mouth posture adopted by individuals who mouth breathe, either due to nasal obstruction or habit, **results in over development of the buccal segment** teeth. This leads to an increase in the height of the lower third of the face and consequently a greater incidence of anterior open bite.

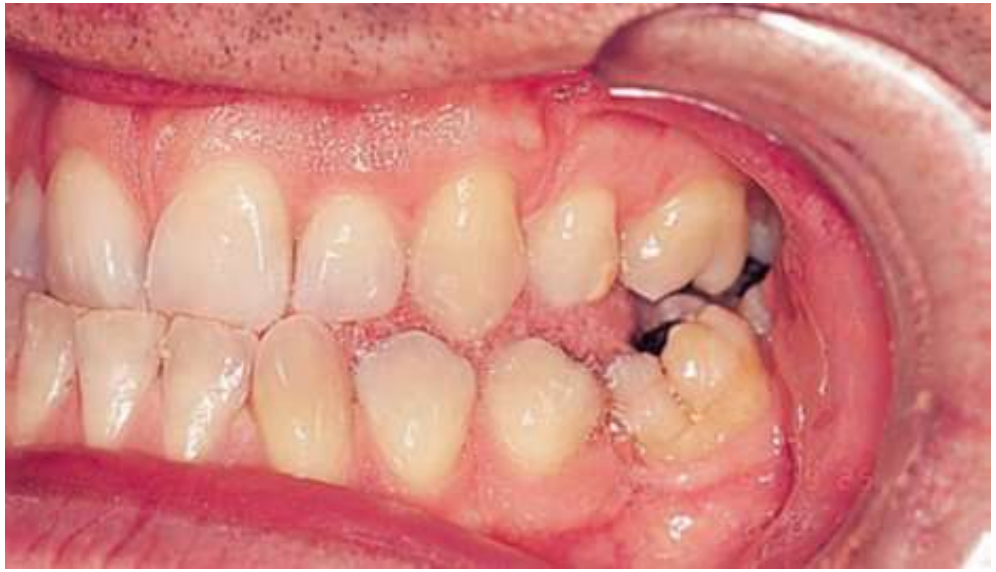
Posterior Open Bite

Possible cause include:
1. Increase vertical skeletal proportions, although it is more commonly associated with an anterior open bite which also extends posteriorly.
2. In association with early extraction of first permanent molars, possibly occurring as a result of lateral tongue spread.



3. With eruption disturbances. Primary failure of eruption is a genetic condition which affects molars. They may erupt slower than the vertical development becoming relatively submerged or may fail to erupt at all. Although these teeth are not ankylosed they do not respond normally to orthodontic force and indeed usually become ankylosed if traction is applied. Extraction is the only treatment alternative.

4. In association with unilateral condylar hyperplasia.



Treatment

Treatment modalities of deep bite include:

1. Intrusion of upper/lower incisors.

2. Extrusion of upper/lower posterior teeth.

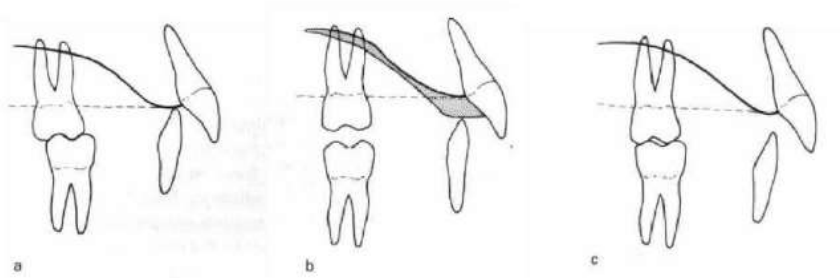
3. A combination of intrusion/extrusion.

4. Proclination of incisors.

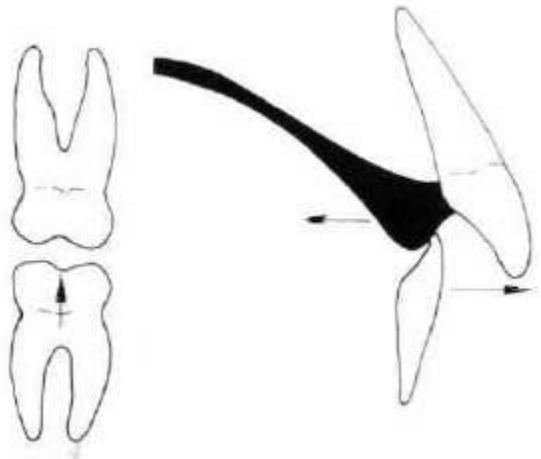
5. Surgical.

In growing patient deep bite can be treated by using:

Flat anterior bite-plane:

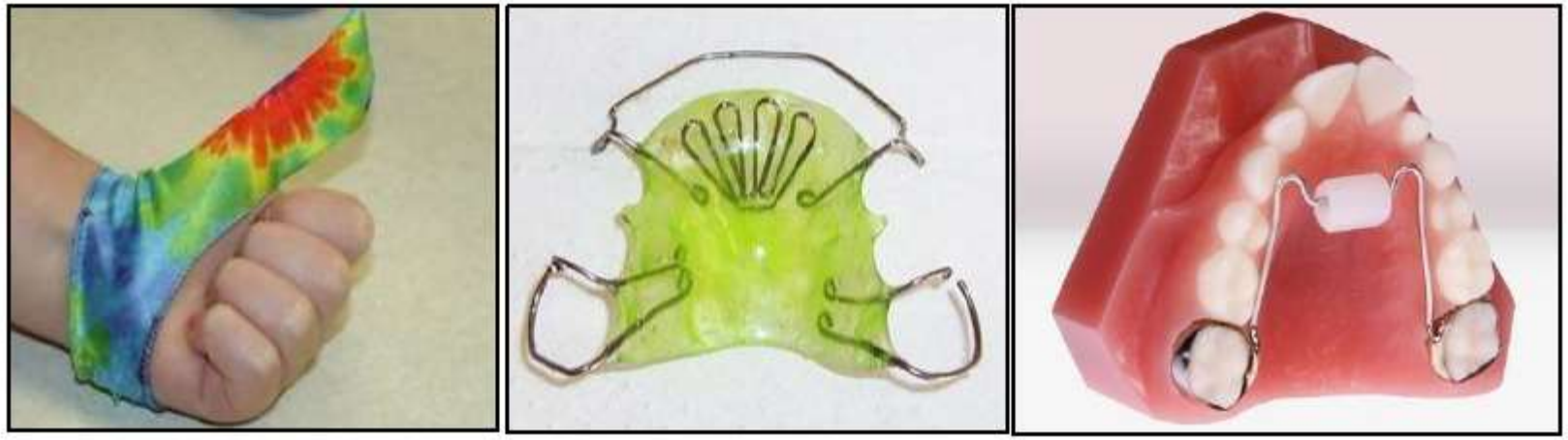


Inclined anterior bite-plane:



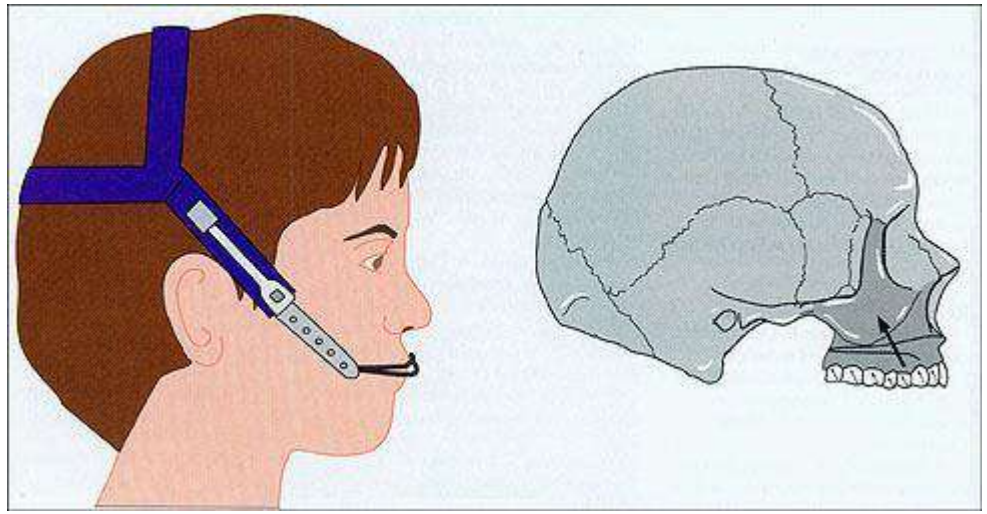
Treatment of Anterior Open Bite

Anterior open bite due to a digit-sucking habit:

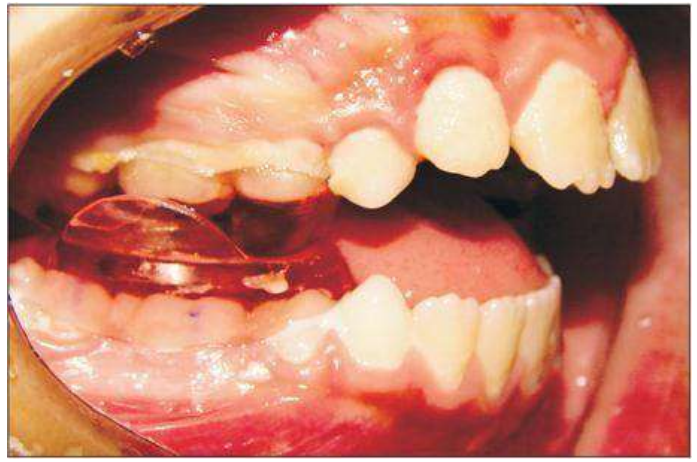


Skeletal anterior open bite:

In growing patient



adult patients



Fixed Appliances

Anterior open bites can be closed using fixed appliances with

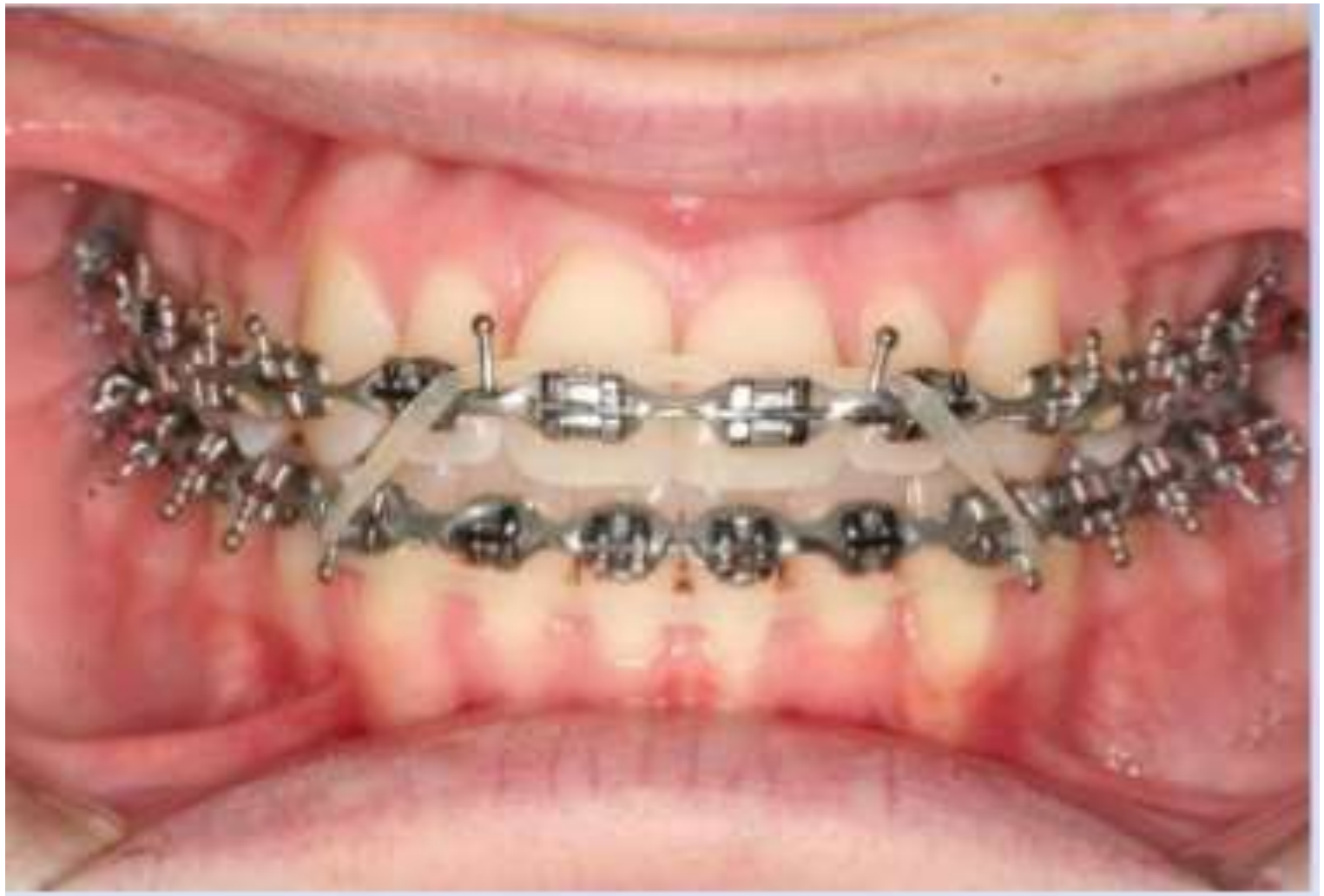
A. Extraction of terminal molars

B. Bracket set up (more gingival at anterior teeth, reduced canine tipping)

C. Wire bending to allow incisor extrusion

D. Tongue timer which act as a tongue thrust breaker

E. Vertical intermaxillary elastics to extrude the anterior teeth. Use of anterior elastics may be successful in patients in whom a digit sucking habit has artificially inhibited eruption, but should not be used if the etiology is primarily skeletal.




Thank You