

Diagnosis and management of Deep bite malocclusion

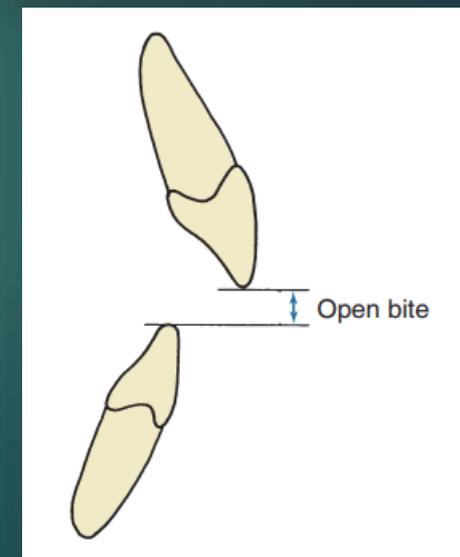
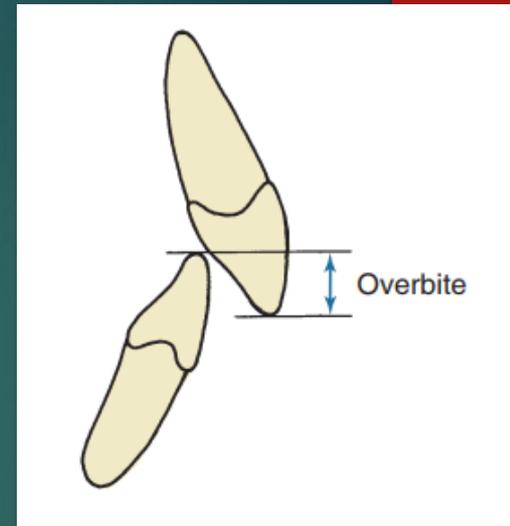
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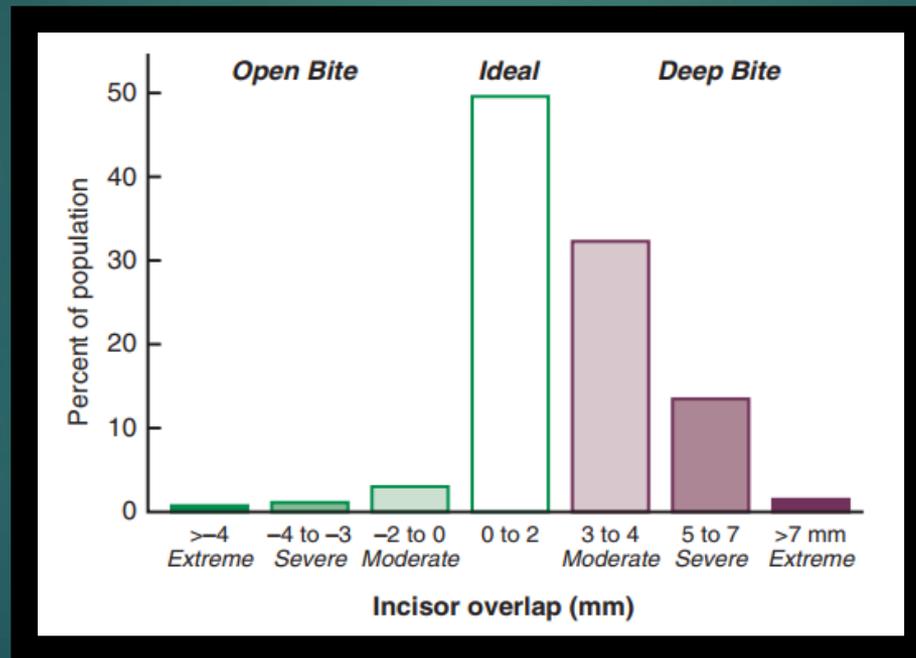


Definition of overbite by Proffit

- Vertical overlap of the incisors.
- Normally, lower incisal edges contact
 - ▶ the lingual surface of upper incisors
 - ▶ at or above the cingulum.

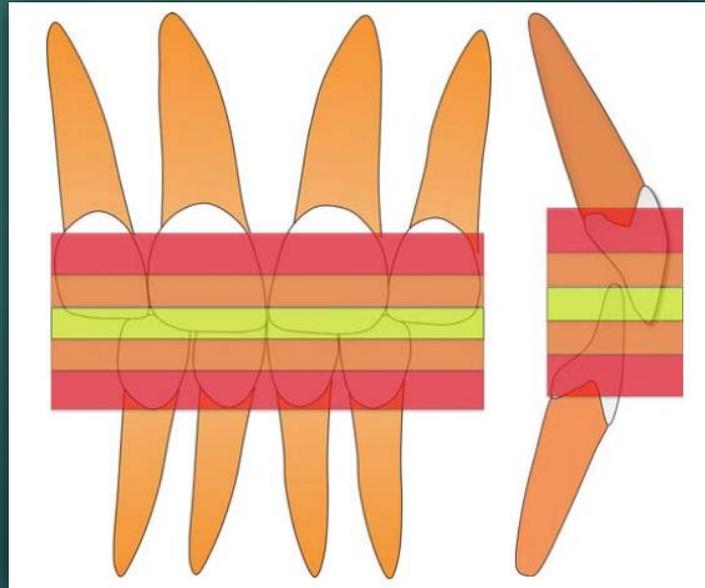


- Normal overbite : 1 - to 2 - mm
- Ideal overbite : 0 - to 2 - mm
- In open bite (**negative overbite**), there is no vertical overlap .



Definition of overbite by Nanda

- Amount & percentage of overlap of lower incisors by upper incisors :
 - Ideal (Normal) overbite : 5 - 25 % (2 - 4 mm)
 - Increased overbite : 25 - 40 %
 - Excessive overbite (Deep bite) : > 40 %







Cover bite

- One of the most severe forms of excessive overbite
- Class II, Division 2 malocclusion
- Complete covering of mand. Incisors' crowns
- Retroclination of max. incisors



Closed bite

- A severe form of deep bite
- Mostly seen in adults
- Very rarely in young children
- Loss of posterior teeth



Epidemiology

- Vertical deviation from ideal overbite (0 – 2 mm) are less frequent in adults than children.
- ▶ severe deep bite ($ob \geq 5\text{mm}$) } children % 20 – adults % 13
% 95.2 of vertical problems
- Occur in half the adult population .
- In adults , excessive overbite is much more than open bite.
- ▶ severe open bite ($n. ob \geq - 2 \text{ mm}$) : less than % 1

- 
- Great differences between racial / ethnic groups :
 - severe deep bite (ob \geq 5mm) : twice more in whites
 - open bite $>$ 2 mm : five times more in blacks
 - vertical problems are less prevalent in Mexican- American than blacks or whites

• **BOX 6.5** Patient F.P.: Analysis of Diagnostic Records^a

1. Facial Proportions and Esthetics

- Deficient chin projection, mandibular deficiency
- Mildly short lower third of face
- Maxillary incisors tipped lingually, short crowns

2. Dental Alignment and Symmetry

- Moderate maxillary incisor crowding
- Dental midline off, maxillary incisor displaced

3. Transverse Relationships

- Normal arch widths, no crossbite

4. Anteroposterior Relationships

- Moderate mandibular deficiency
- Class II buccal segments, minimal overjet

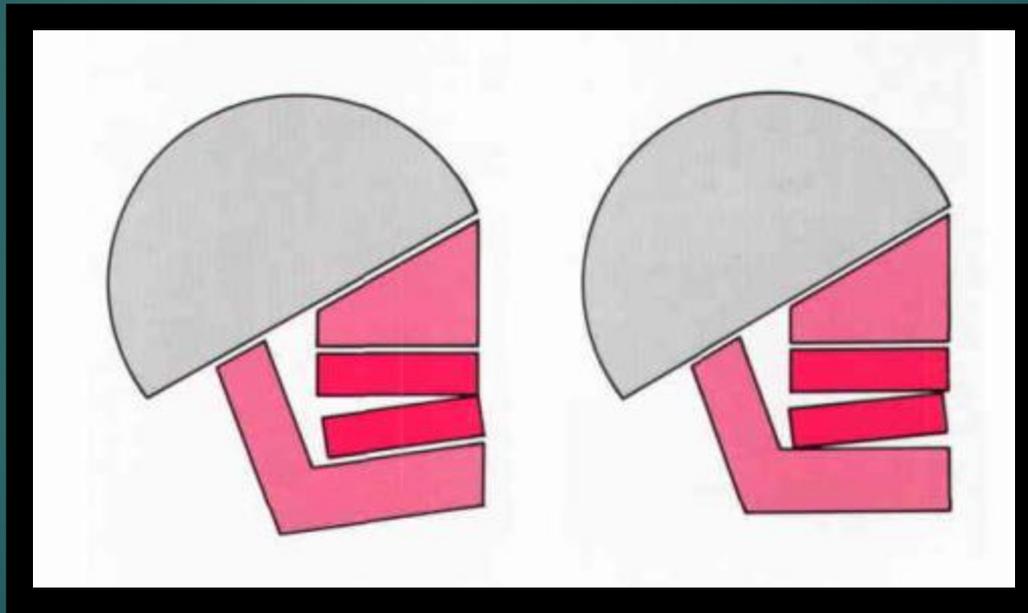
5. Vertical Relationships

- Deep bite, excessive eruption of lower incisors
- Mildly short face

^aUsing the Ackerman-Proffit classification to generate the initial problem list.

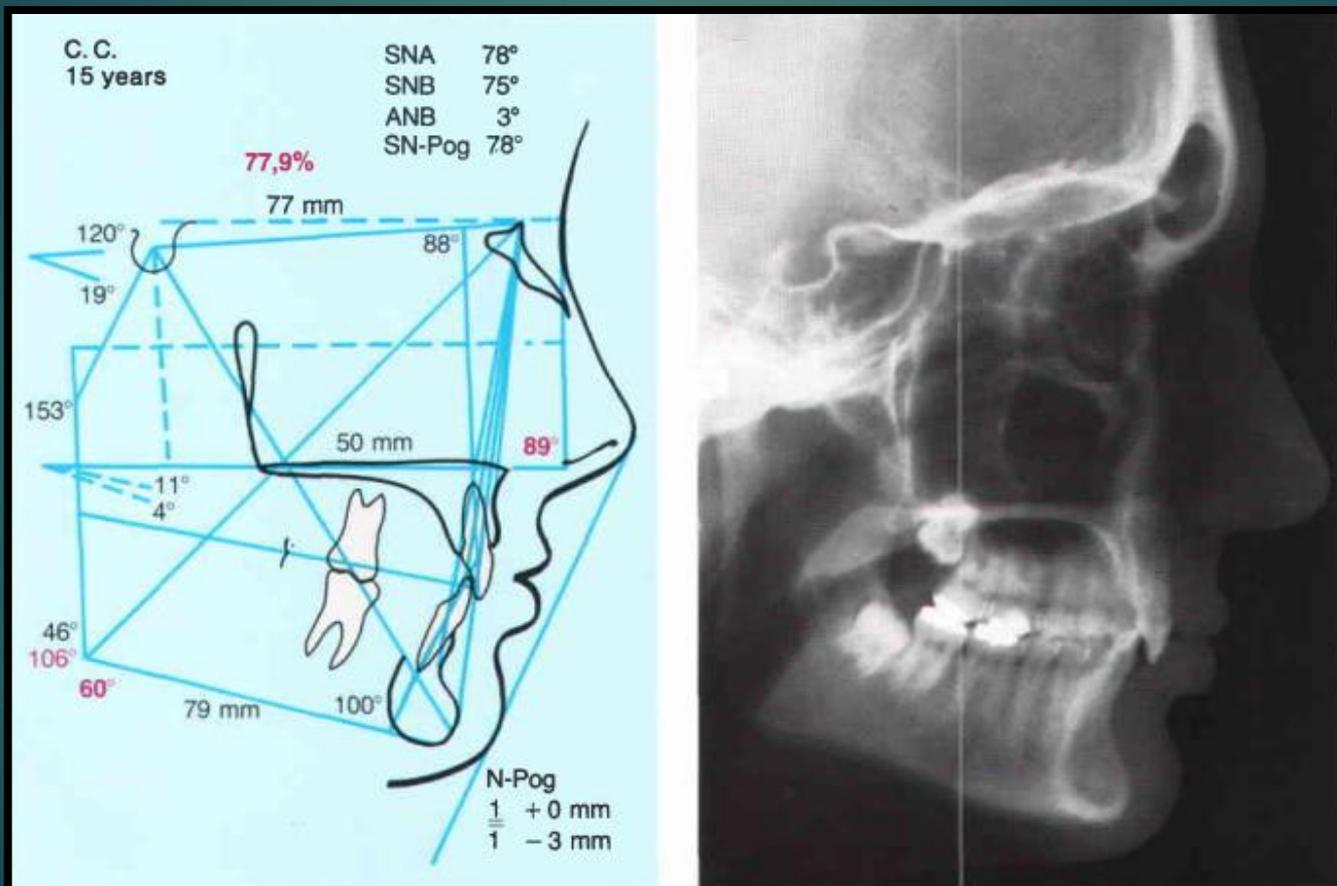
Types of deep bite

1. Skeletal deep bite
2. Dentoalveolar deep bite



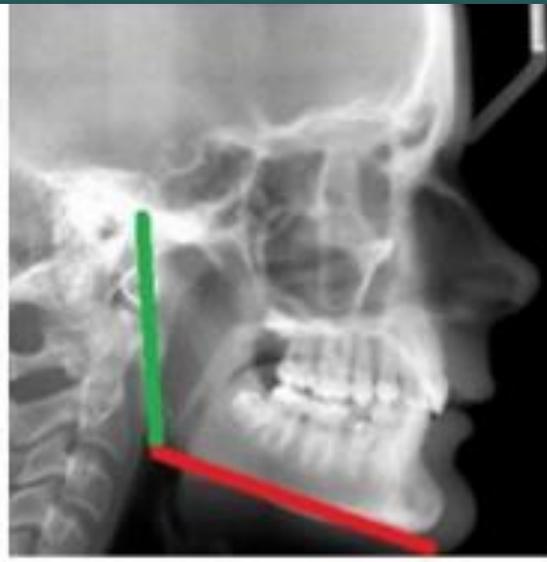
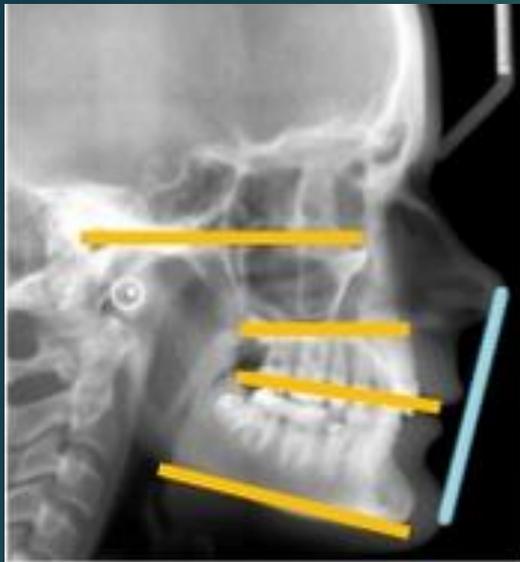
1. Skeletal deep bite :

- horizontal growth direction
- retroinclination of maxillary base



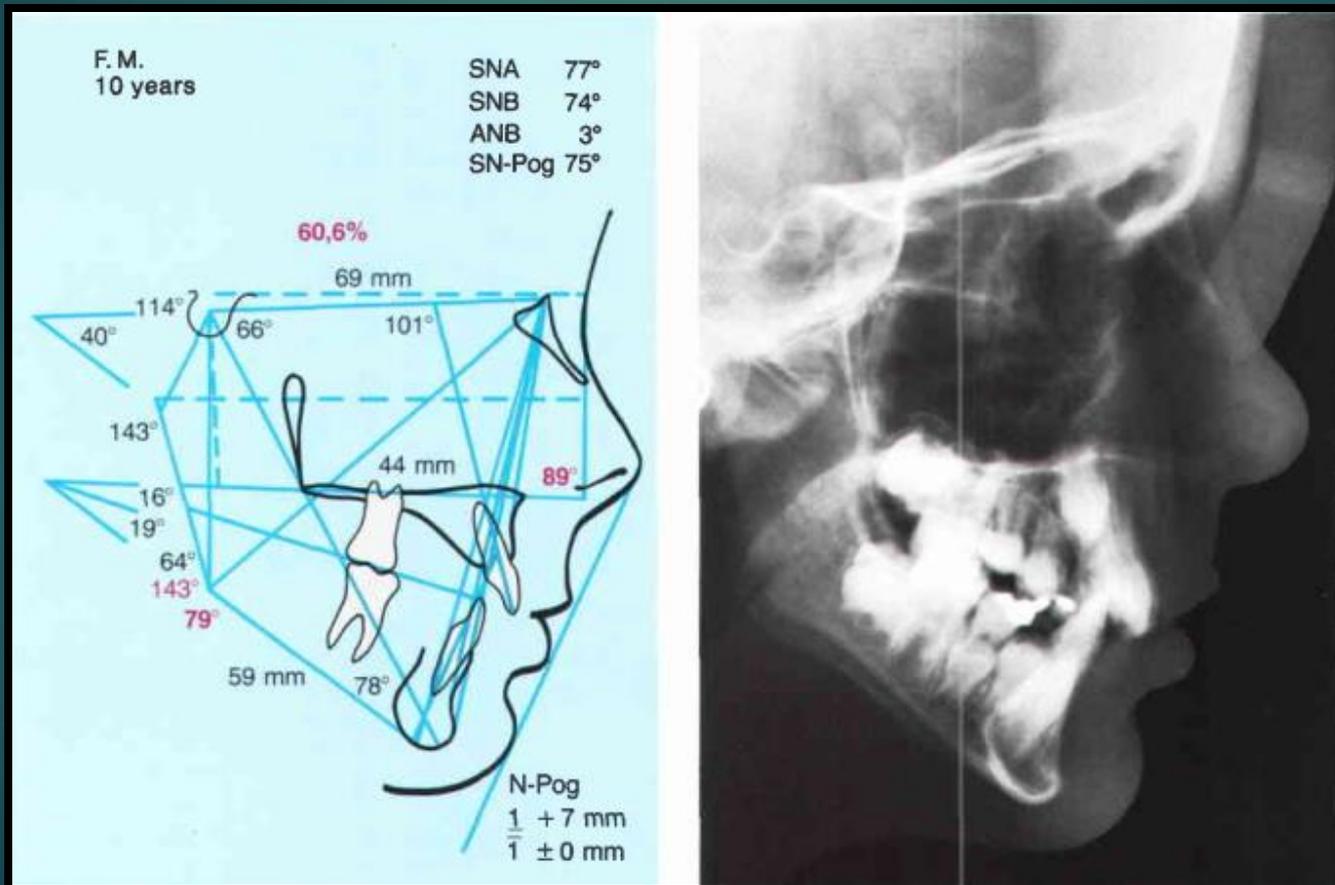
- Reduced lower facial height
- Excessive free way space
- Increased ramus height and width
- Large coronoid process
- Strong temporalis and masseter muscles
- Small gonial angle
- Counterclockwise rotation of mandible
- Competent lips
- Curled appearance of lips
- Deep mentolabial sulcus





2. Dentoalveolar deep bite :

- supra position of anterior teeth
- infraposition of posterior teeth



Etiology



1. Reduced lower facial height (skeletal problem)
2. Undereruption (infraocclusion) of posterior teeth (dental problem)
3. Overeruption (supraocclusion) of anterior teeth (dental problem)

Etiology

Developmental standpoint :

- 1) **genetic**
- 2) **environmental (aquired) :**
 - *lateral tongue thrust or abnormal tongue posture*
 - *wearing away of occlusal surface or tooth abrasion*
 - *ant . tipping of post . teeth into extraction sites*
- 3) **combination of both**



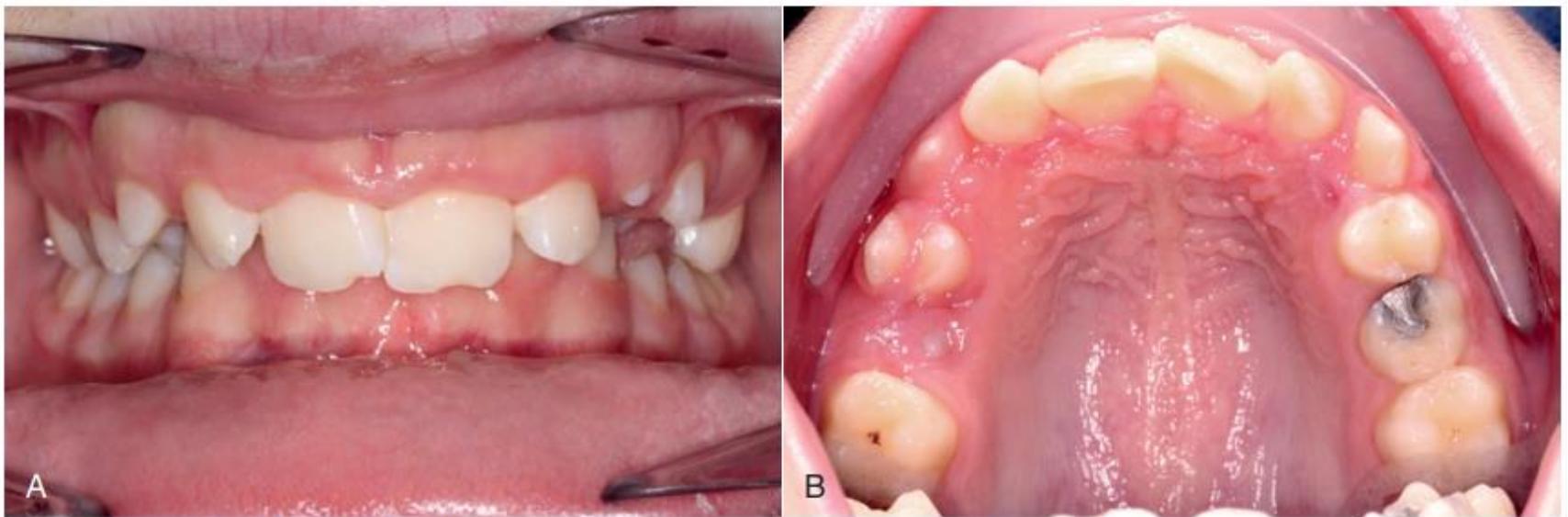
Treatment

- Etiology of deep bite
- Amount of growth anticipated
- Vertical dimension
- Relationship of teeth to adjoining soft tissue
- Desired position of occlusal plan

Treatment

Treatment of both long- and short-face problems usually can be deferred until adolescence because:

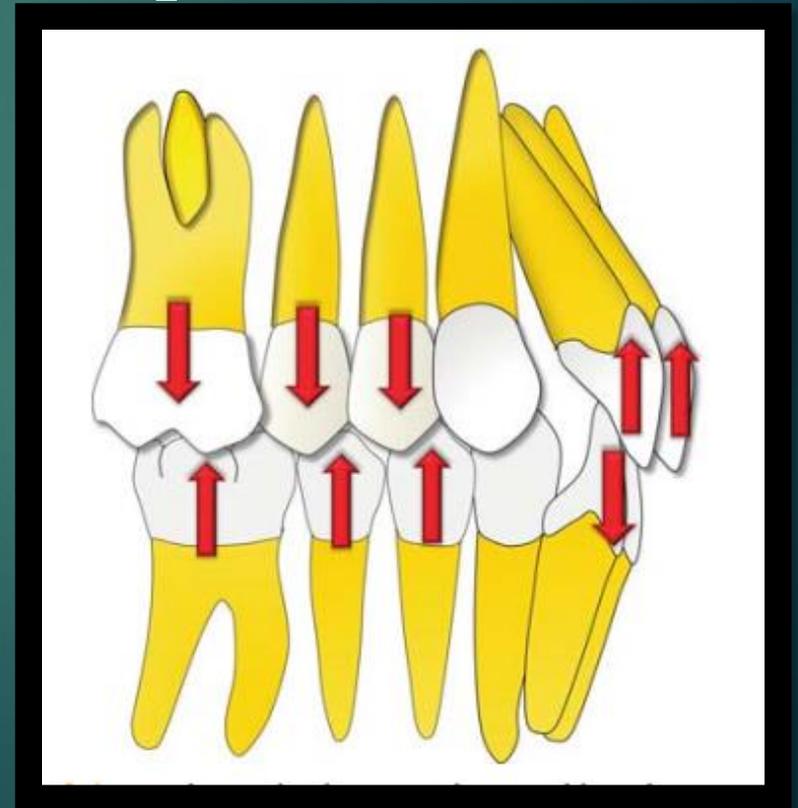
- Long-face or open bite problems can improve during pre-adolescent growth but can be aggravated by growth that persists until the late teens and can outstrip early focused intervention.
- Short-face problems usually can be managed well with comprehensive treatment during adolescence, unless there is maxillary palatal gingival damage due to a deep bite.



• **Fig. 11.10** This patient has an obvious deep bite, with (A) severe overbite and (B), resulting damage to the palatal tissue adjacent to the maxillary incisors.

Treatment

1. Intrusion of upper & lower incisors
2. Extrusion of upper & lower posterior teeth
3. Combination of both



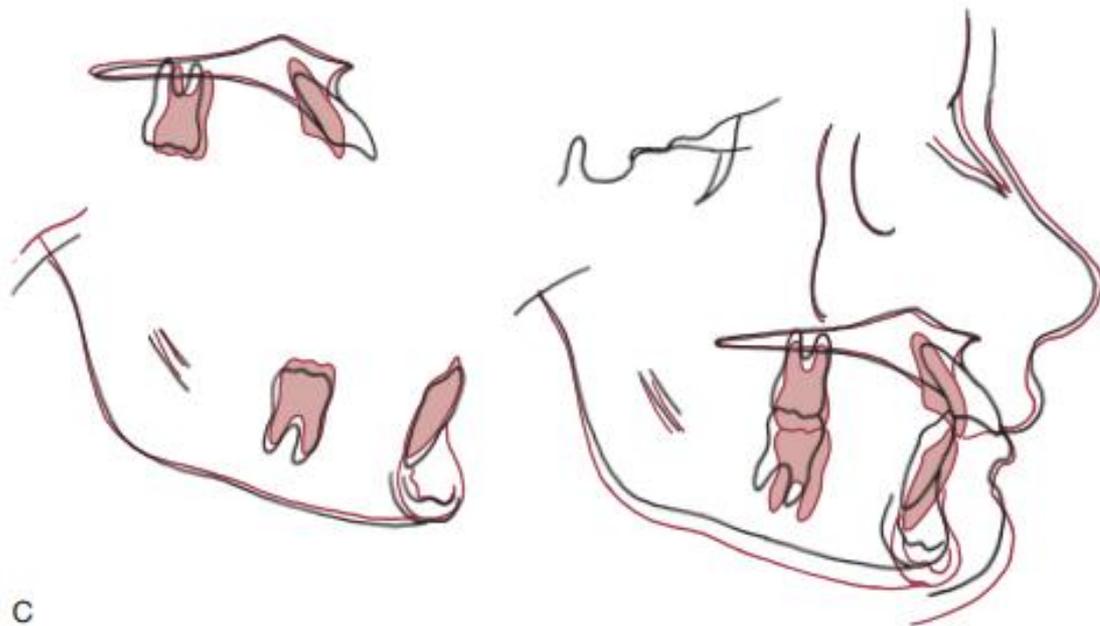
Treatment

Mixed dentition :

1. Cervical headgear

- extrusive tendency of extraoral force directed below the center of resistance of teeth & maxilla → elongation the upper molars

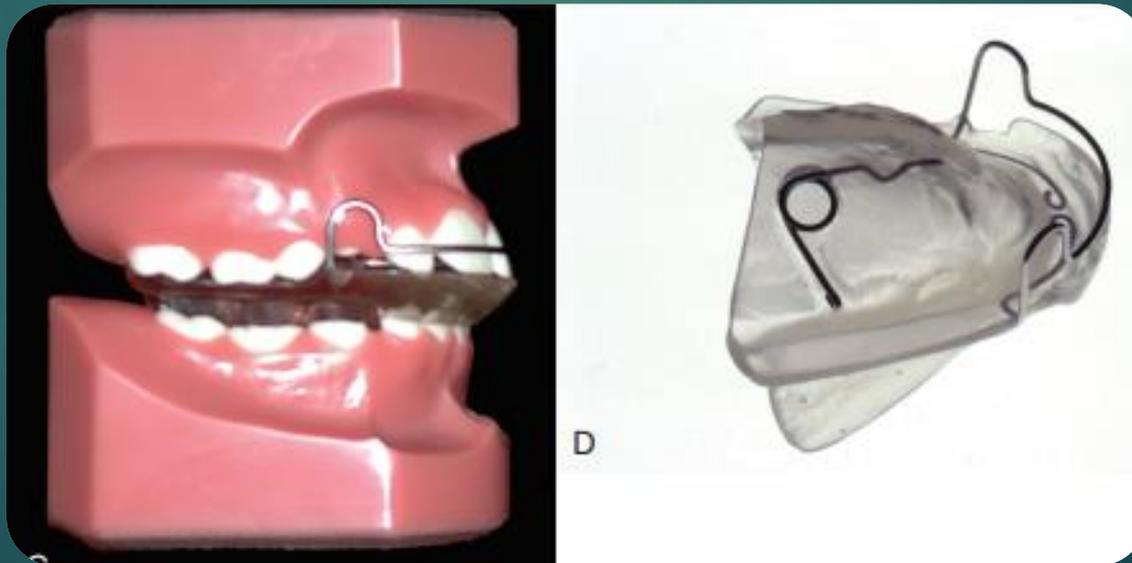




Treatment

2. Functional appliances

- inhibits eruption of maxillary post. teeth
- free eruption of mandibular post. teeth
- * fixed functional appliances are not good choices in treatment of short face problems *





A



B



C



D



E

F

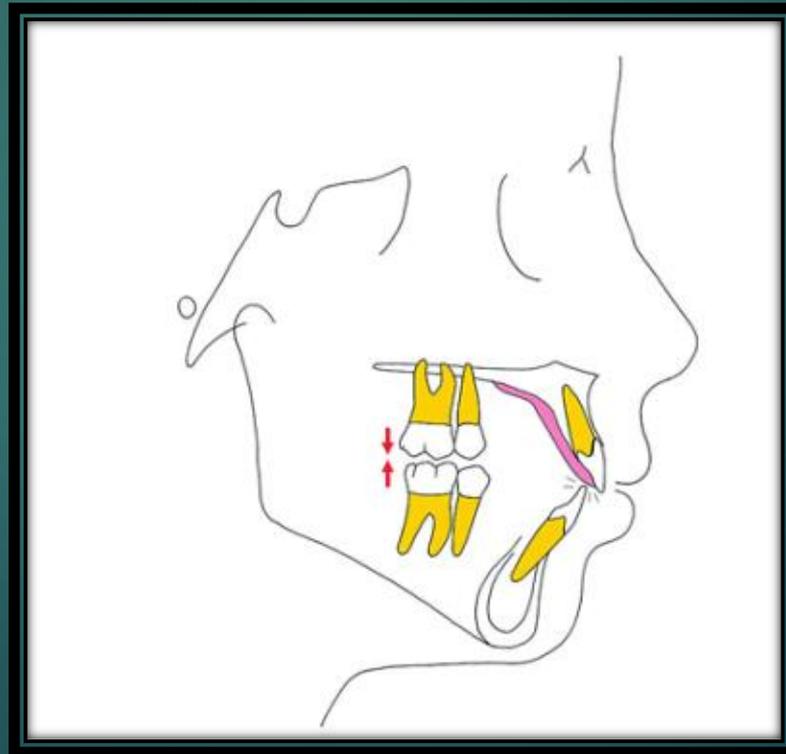
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Treatment

3. Anterior Bite plates

- leveling the curve of Spee by post. Extrusion
- minimum intrusive effect on incisors
- not to disocclude post. teeth more than 2 mm



Treatment

Permanent dentition :

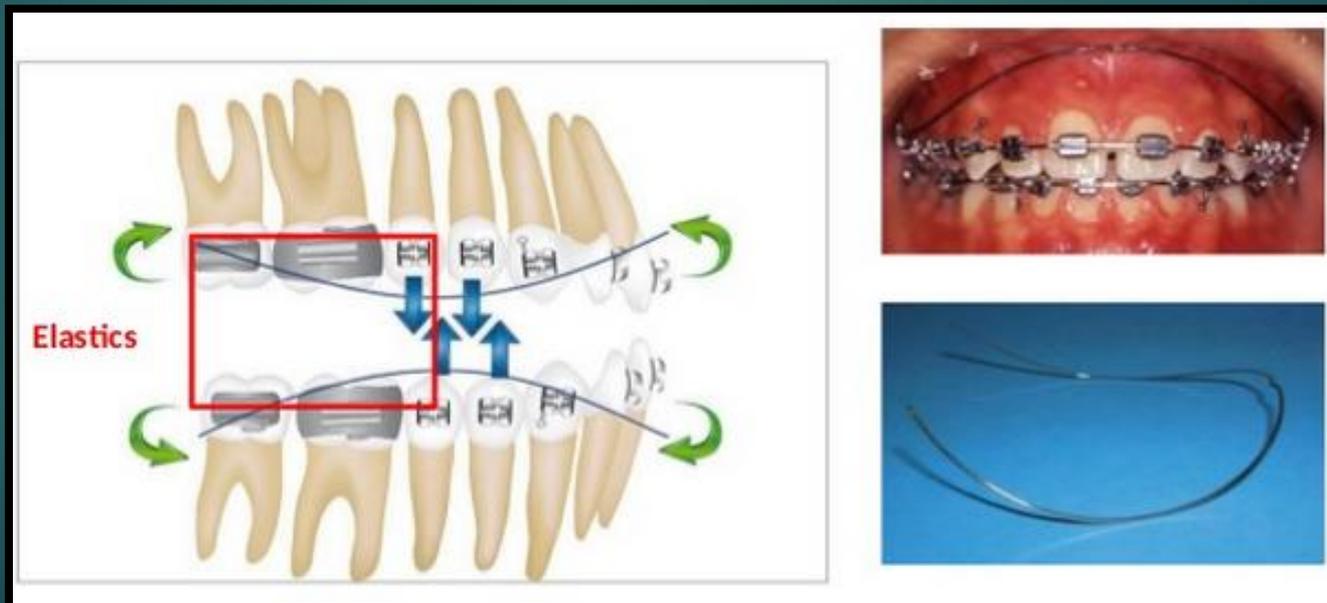
Intrusion of max. or mand. incisors or both ;

- intrusion arches
- utility arches
- segmental arch mechanics
- miniscrews



Treatment

2. Extrusion of max. or mand. posterior teeth or both;
 - archwires with a reverse curve of Spee
 - maxillomandibular vertical elastics (box elastics)
 - combination of ant. bite plate and vertical elastics
 - miniscrews



Consequences of delayed treatment

1. Interference with normal closure pattern of mandible
2. Periodontal disease
3. Malfunction of temporomandibular joint
4. Labial migration of maxillary incisors



Advantages of early treatment

1. Dentoalveolar growth and anterior facial height increase
2. Long – term stability
3. Better skeletal relationships
4. More positive muscular adaptation
5. Less need to comprehensive mechanics

Retention

Most patients require control of vertical overlap of incisors during retention .

Post-treatment growth in a short face pattern →
recurrence of excessive overbite more likely

Using a removable upper retainer :

- lower incisors encounter the baseplate
- does not separate posterior teeth
- several years (late teens)
- only at night



Thank you for your attention

