# Maxillofacial Injuries

An Overview

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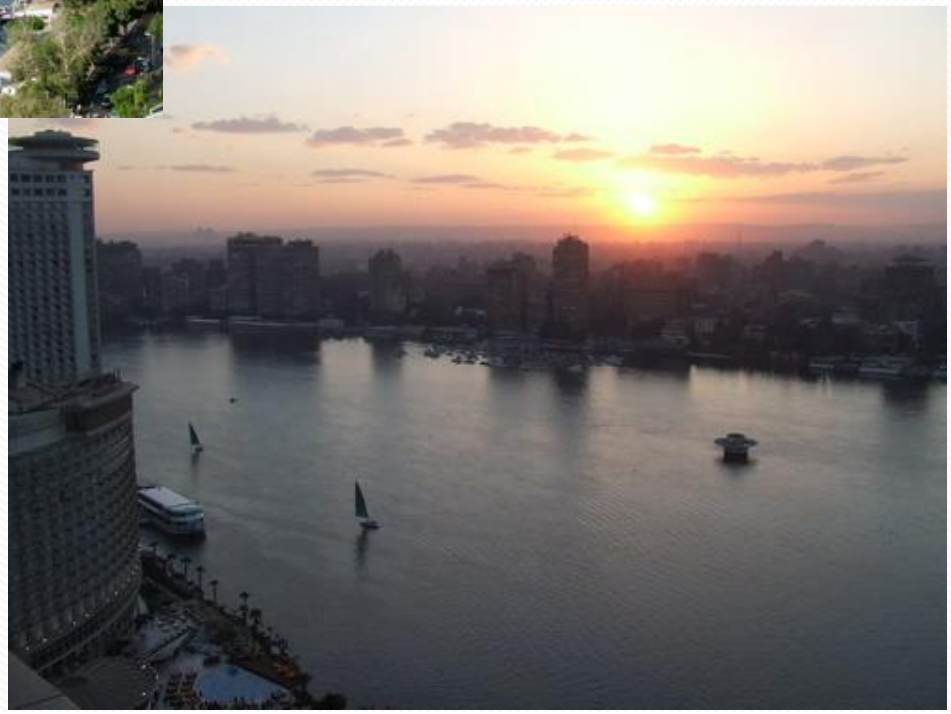
# Facial Injuries

- Facial injuries impact both function and esthetics.
- There is often a psychological aspect associated with the injury secondary to patient's concern regarding permanent scarring and subsequent facial disfigurement.
- According to a recent survey, cosmetic outcome is the single most important aspect of care to the patient.

# Maxillofacial injuries

- Soft tissues injuries
- Dental and alveolar bone injuries
- Fractures of Facial Bones
  - Mandibular Fracture
  - Middle Third Facial Fractures
    - Maxillary Fracture
    - Zygomatic Fracture
- Multiple Facial Fractures (Panfacial Fracture)

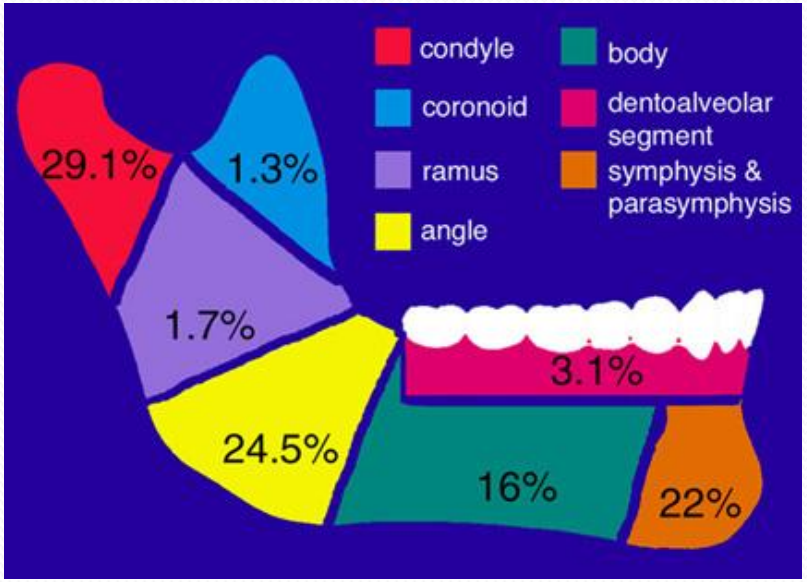


# Mandibular Fracture

The mandible is the second most commonly fractured part of the maxillofacial skeleton because of its position and prominence.

# Classification

- <u>According to exposure</u>
  - Simple (Closed)
  - Compound (Open)
- <u>According to # of fracture lines</u>
  - Single
  - Multiple
  - Comminuted
- <u>According to location of the fracture line</u>



# Signs & Symptoms

- Signs
  - Malocclusion
  - Dysfunction
  - Mobility of fragments
  - Crepitation
  - Ecchymosis

*Patient with significant lower face ecchymosis and asymmetry as a result of a symphysis fracture, bilateral subcondylar fractures, and a Le Fort I fracture resulting from a direct impact to the chin during a fall*

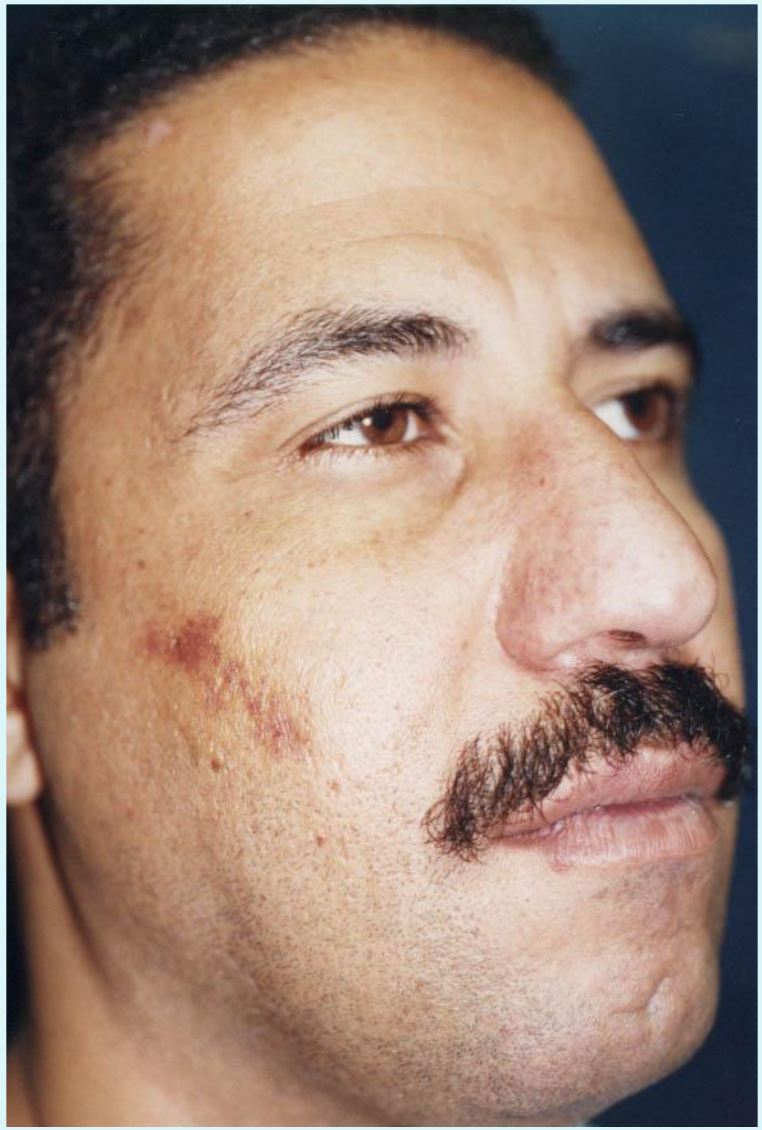
- Symptoms
  - Pain
  - Tenderness
  - Disability
  - Deformity
  - Swelling

# Goals of Treatment

1. Obtain stable occlusion.
2. Restore interincisal opening and mandibular excursive movements.
3. Establish a full range of mandibular excursive movements.
4. Minimize deviation of the mandible.
5. Produce a pain-free articular apparatus at rest and during function.
6. Avoid internal derangement of the temporomandibular joint on the injured or the contralateral side.
7. Avoid the long-term complication of growth disturbance.

# Steps of Treatment

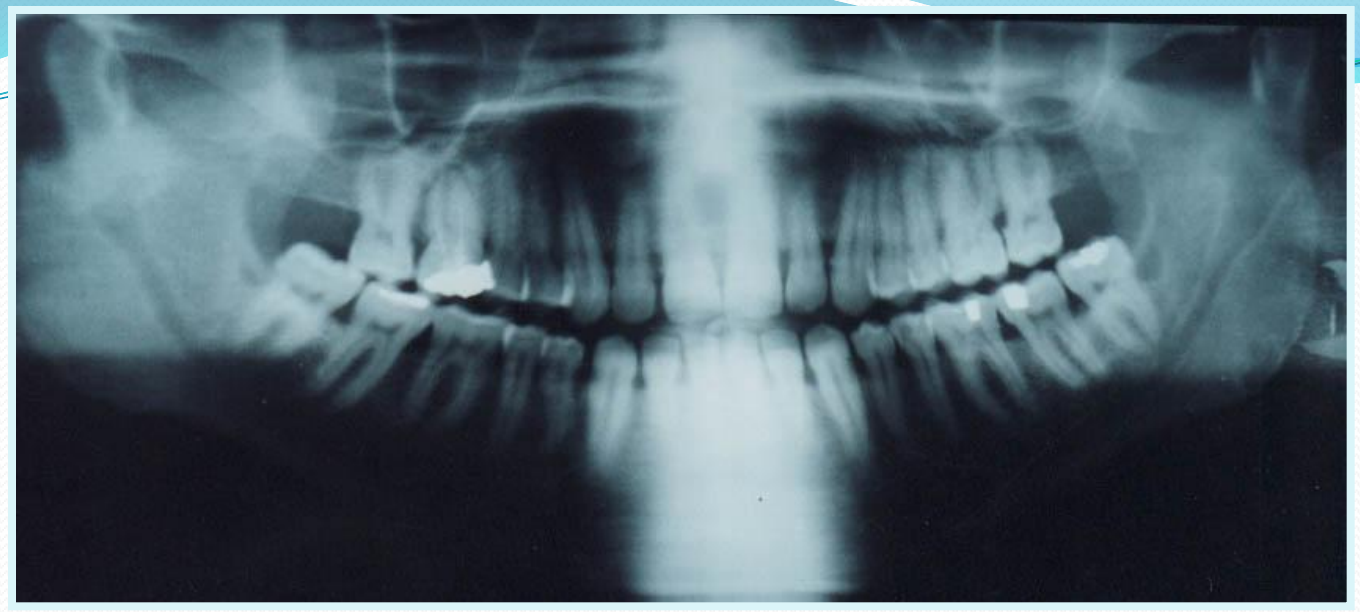
- Reduction
  - Closed
  - Open
  - Gradual
- Fixation
  - Non-rigid
  - Semi-rigid
  - Rigid
- Immobilization
- Rehabilitation

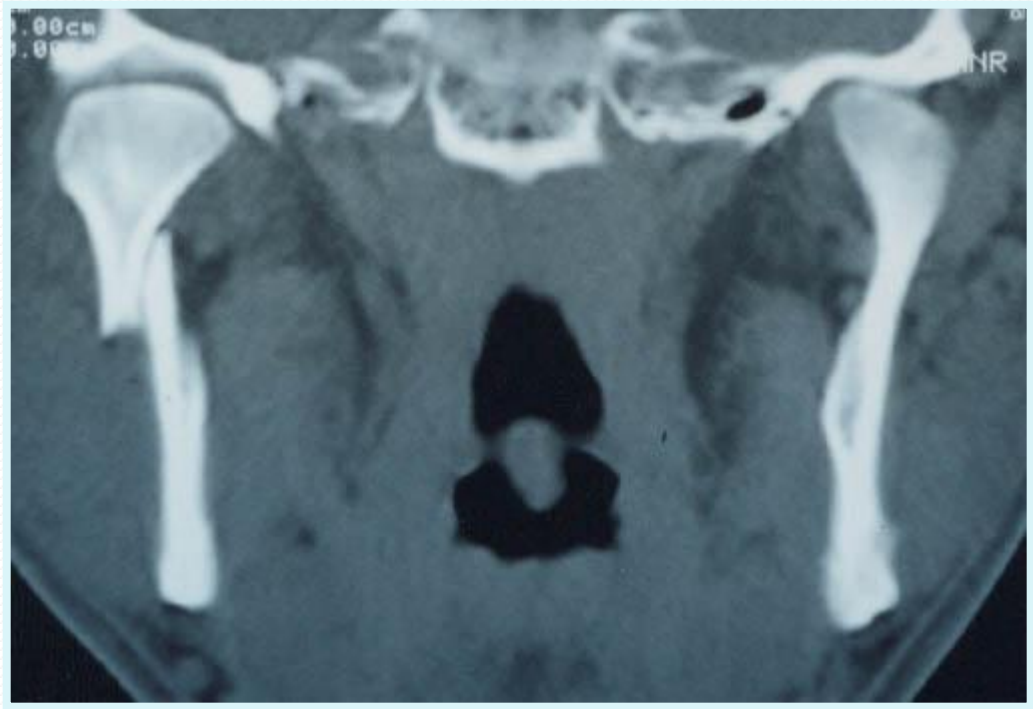


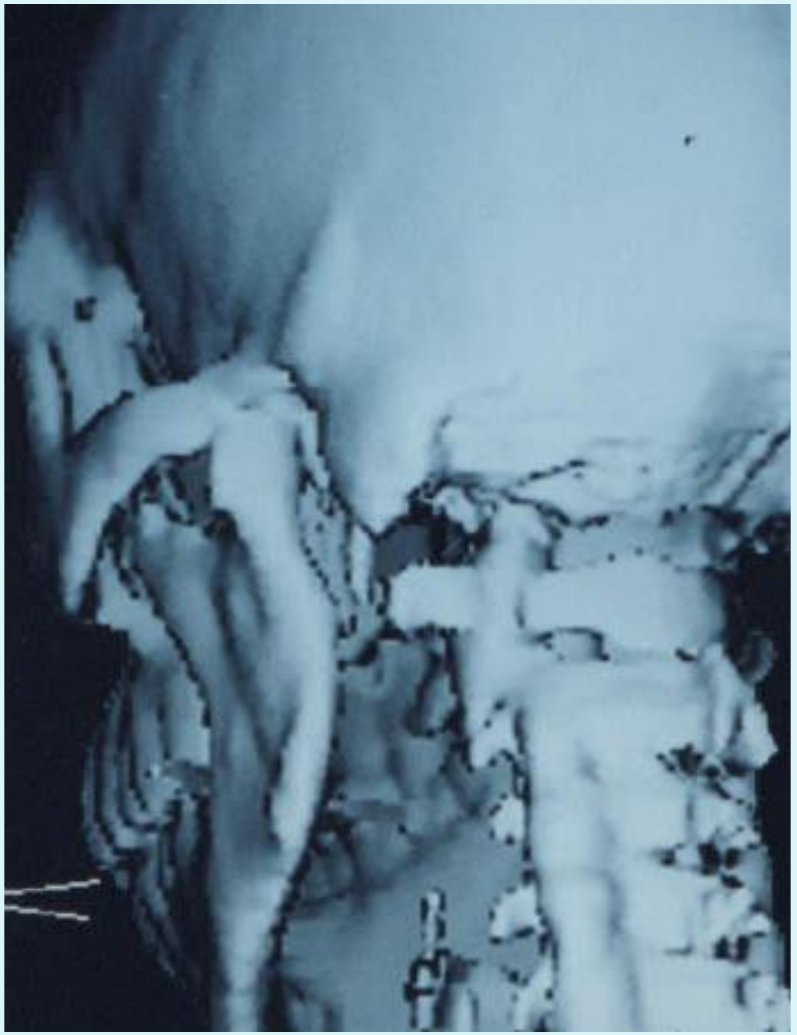
# Case Presentations

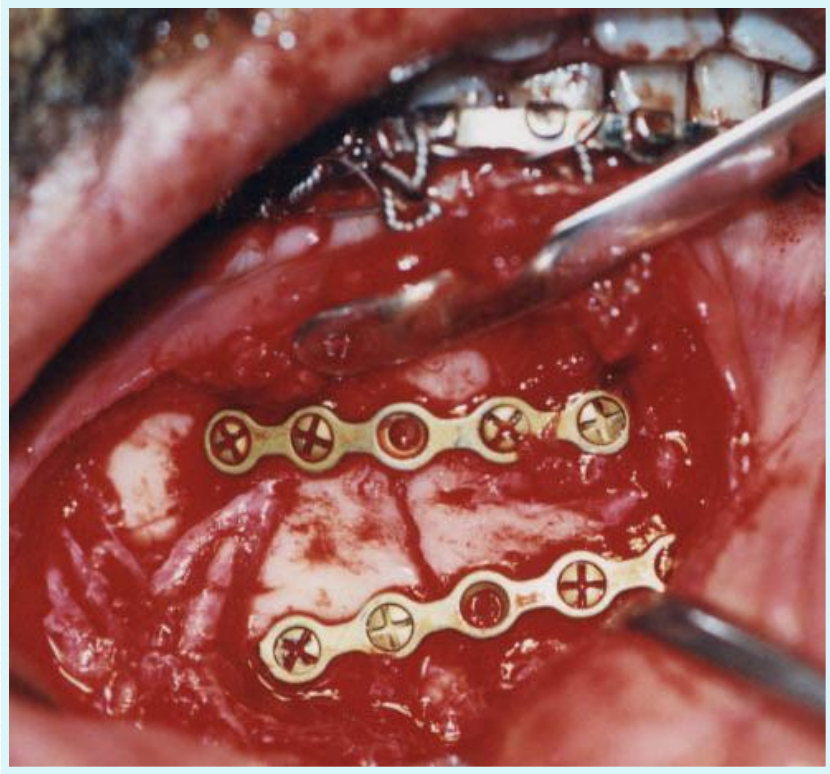
## Case I

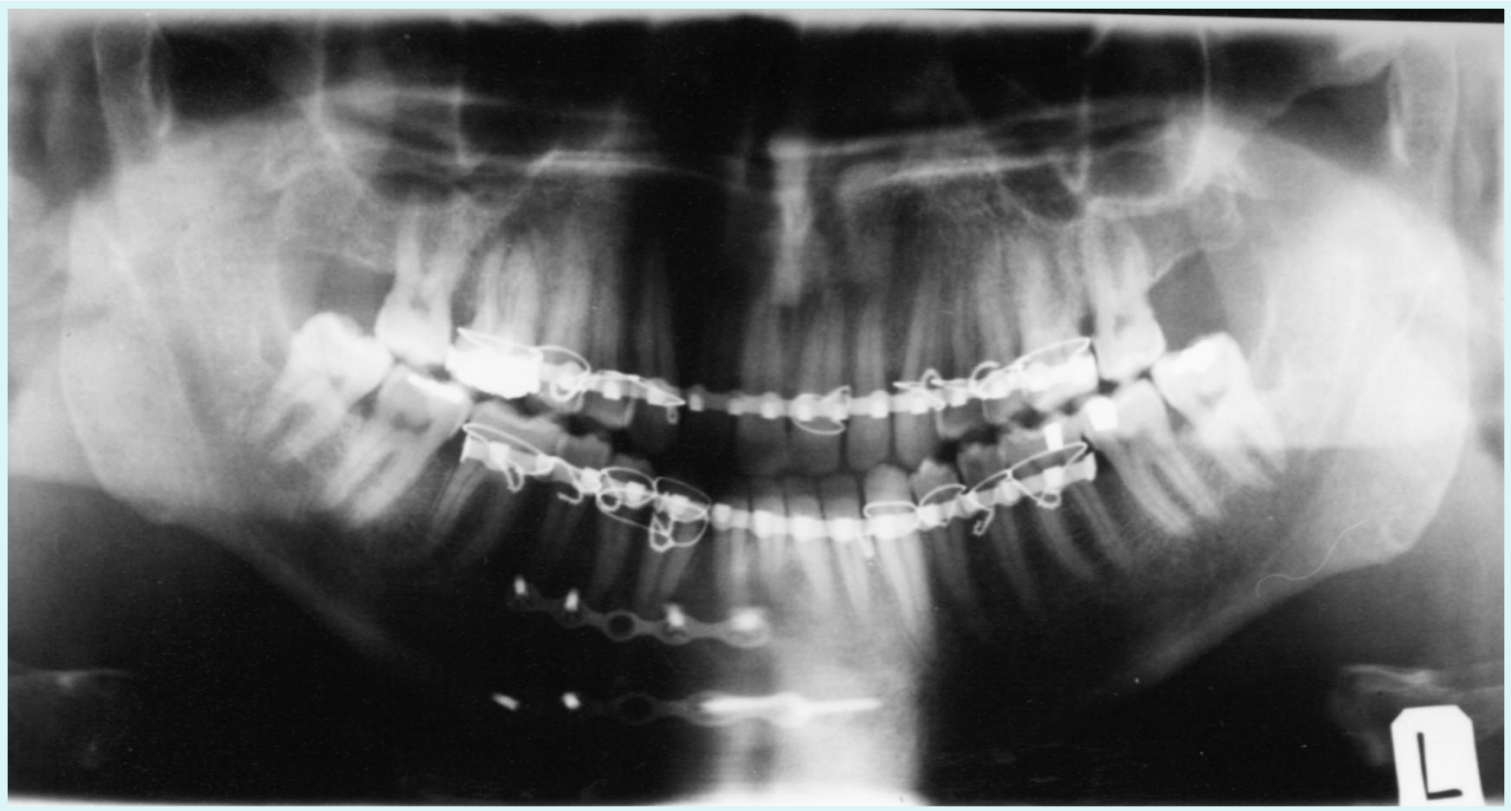
Subcondylar &
Parasymphysial Fr







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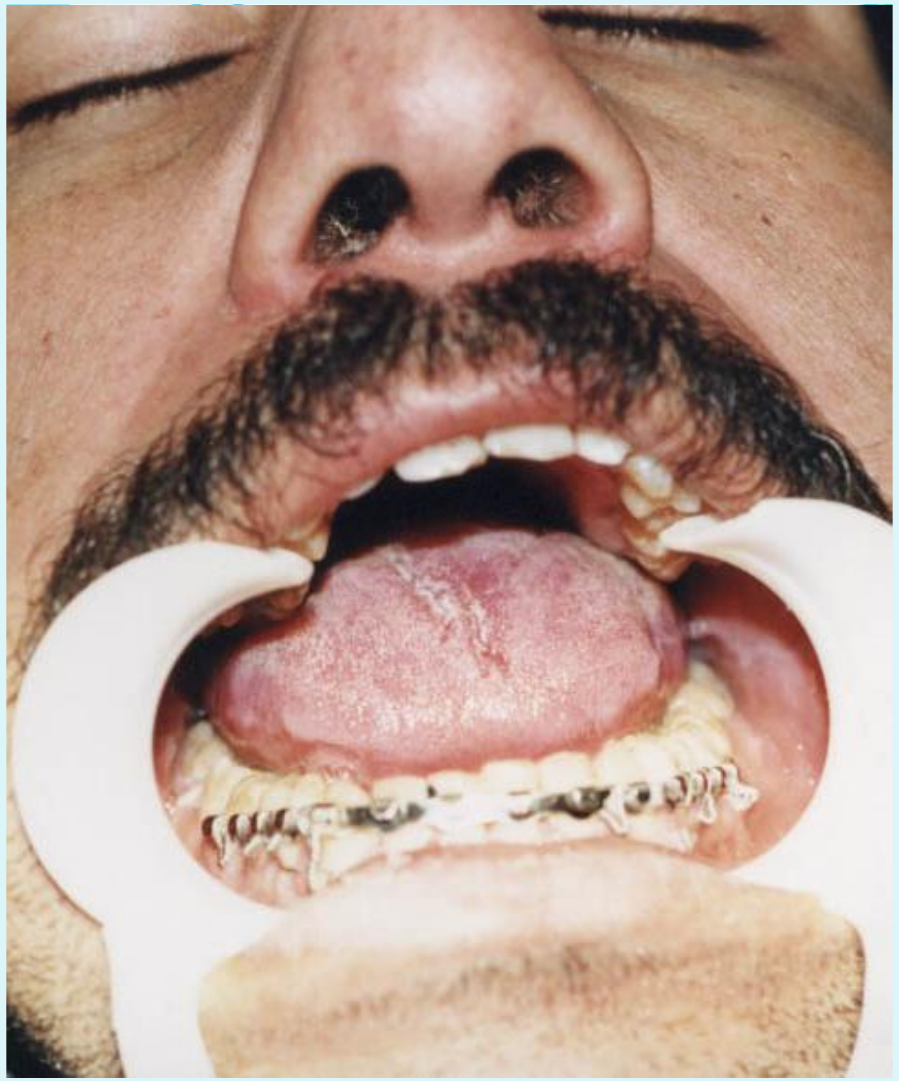
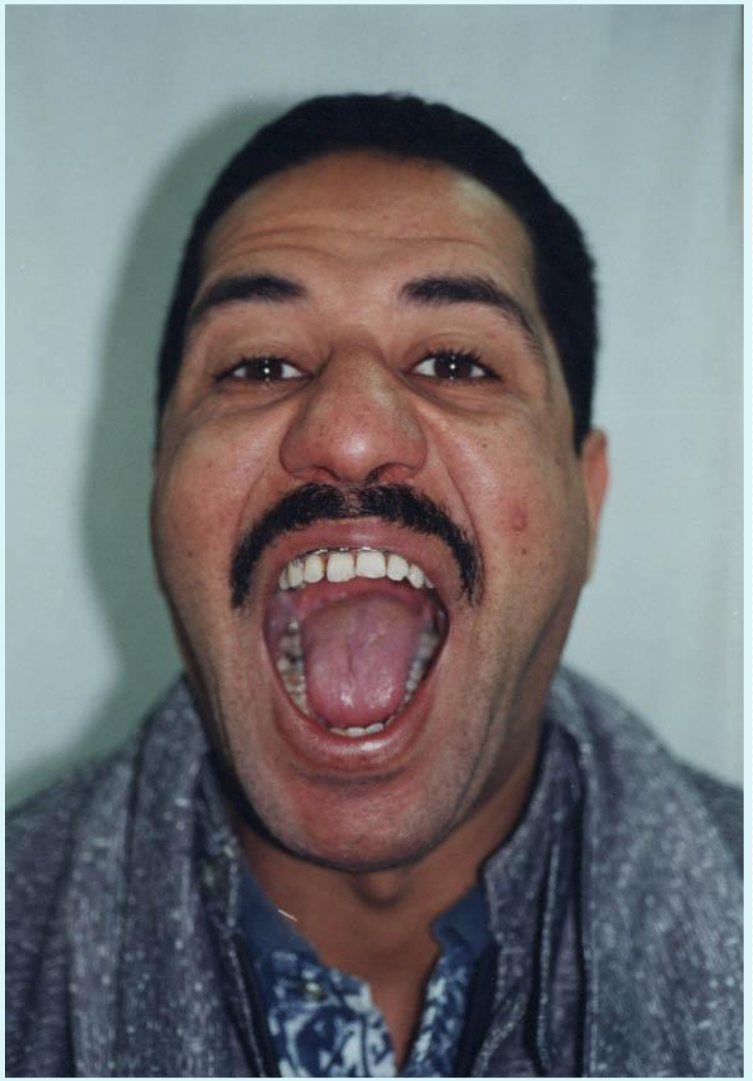
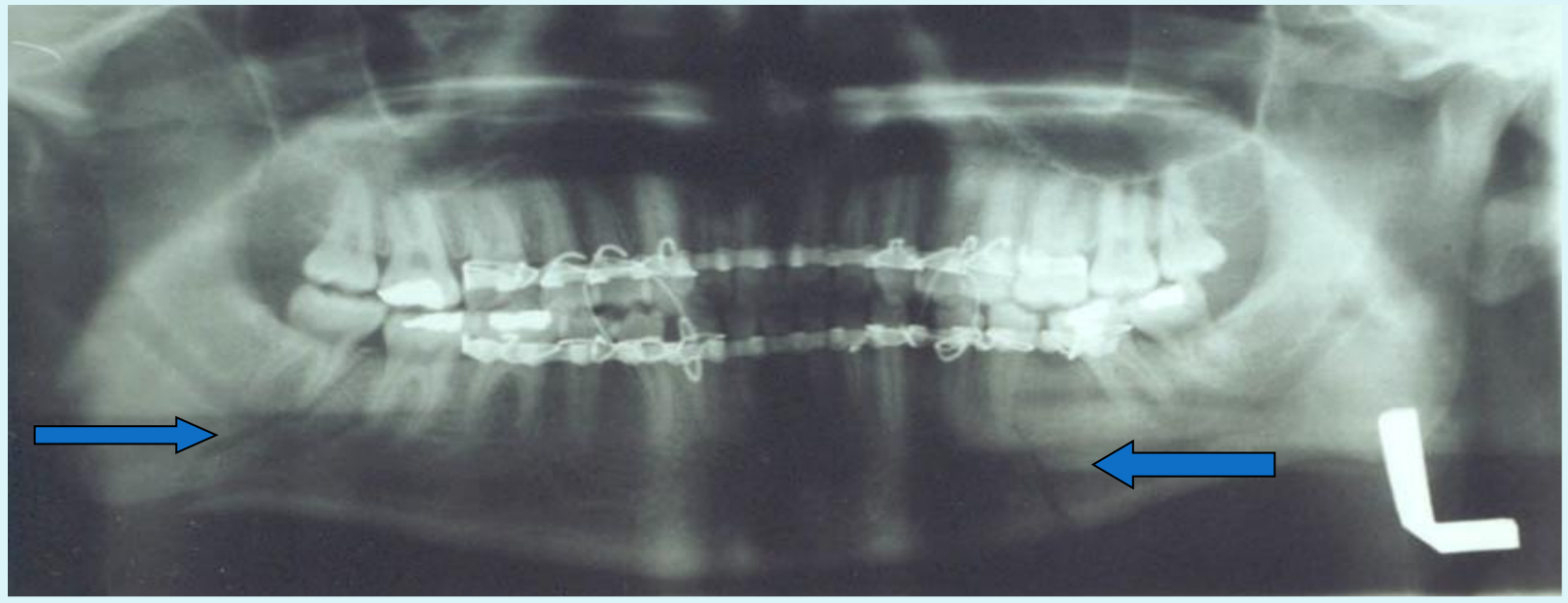


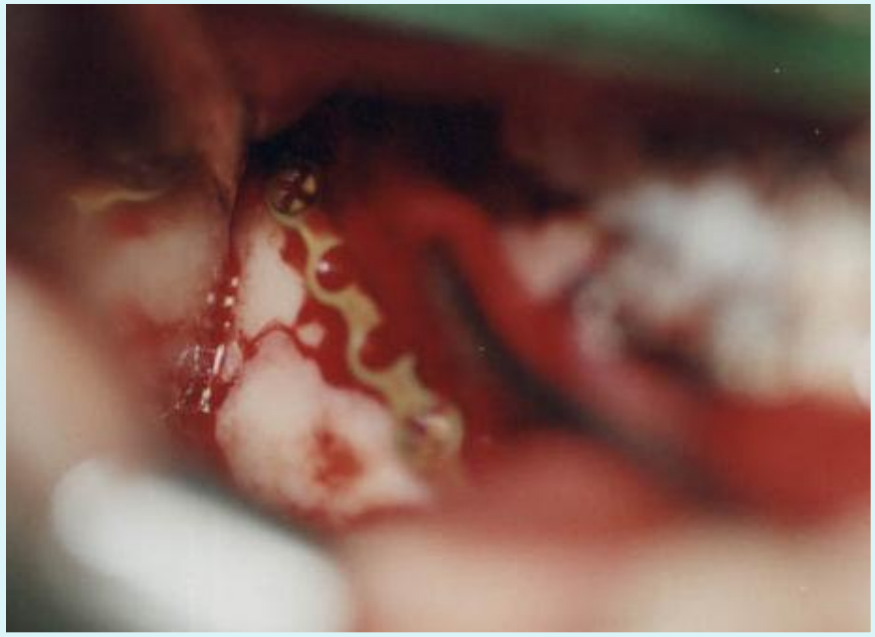


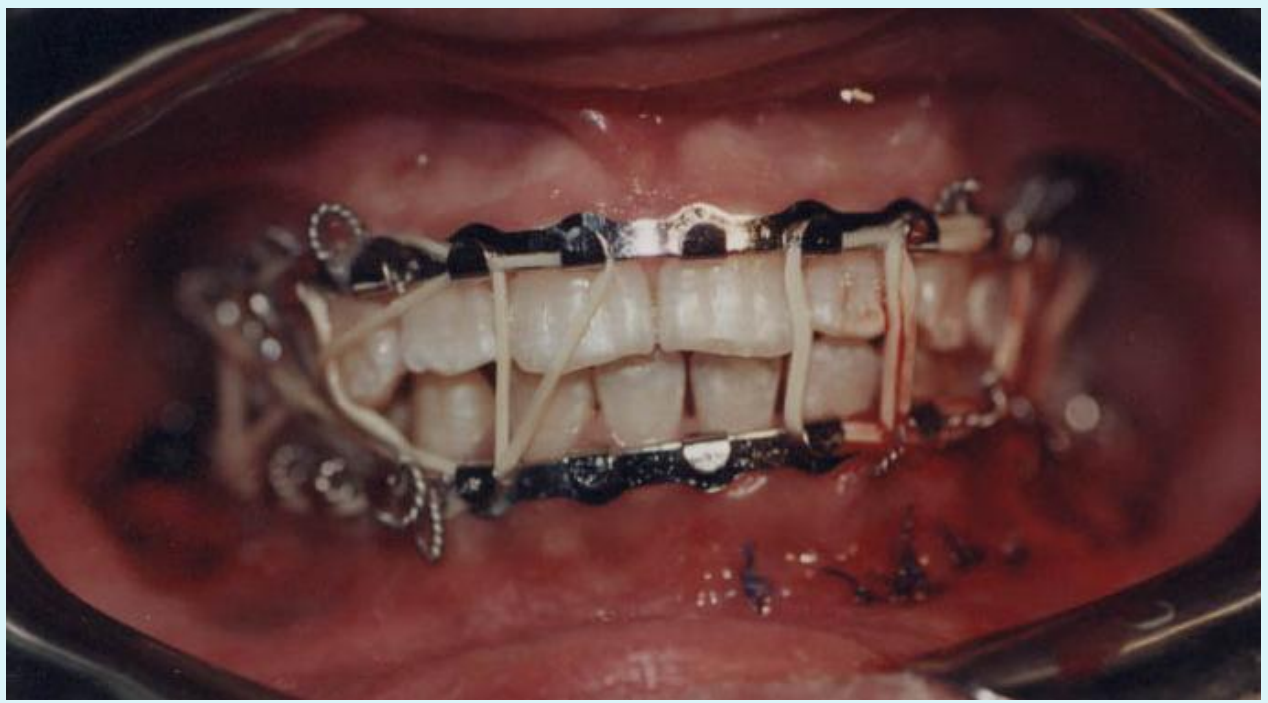
# Case Presentations

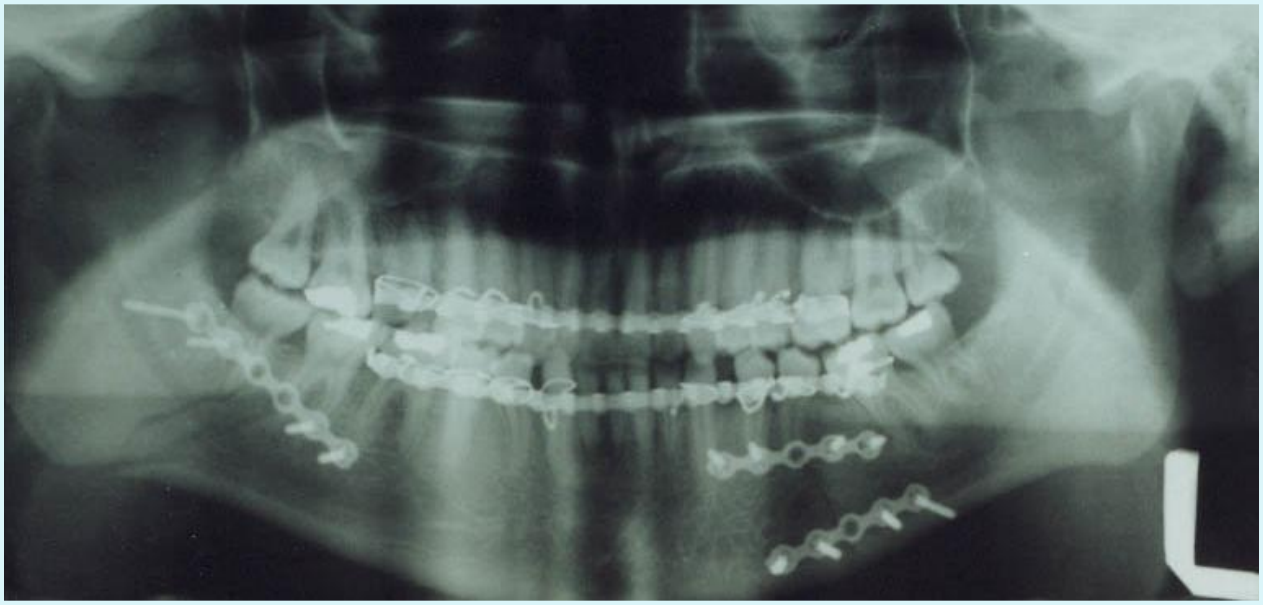
## **Case II**

Body & Angle Fr

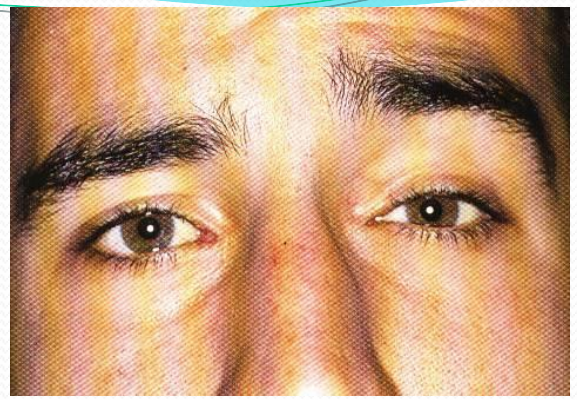






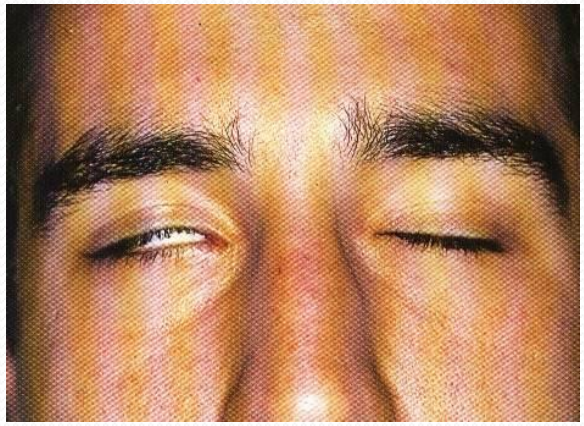


# Condylar Fracture



**Result in**
- Pain
- Dysfunction
- Deformity

**May be Associated with:**
- Facial Nerve Injury
- Spine injury
- Displacement into M Cr Fossa
- Ext Auditary Canal Injury
- Occlusion of the ICA



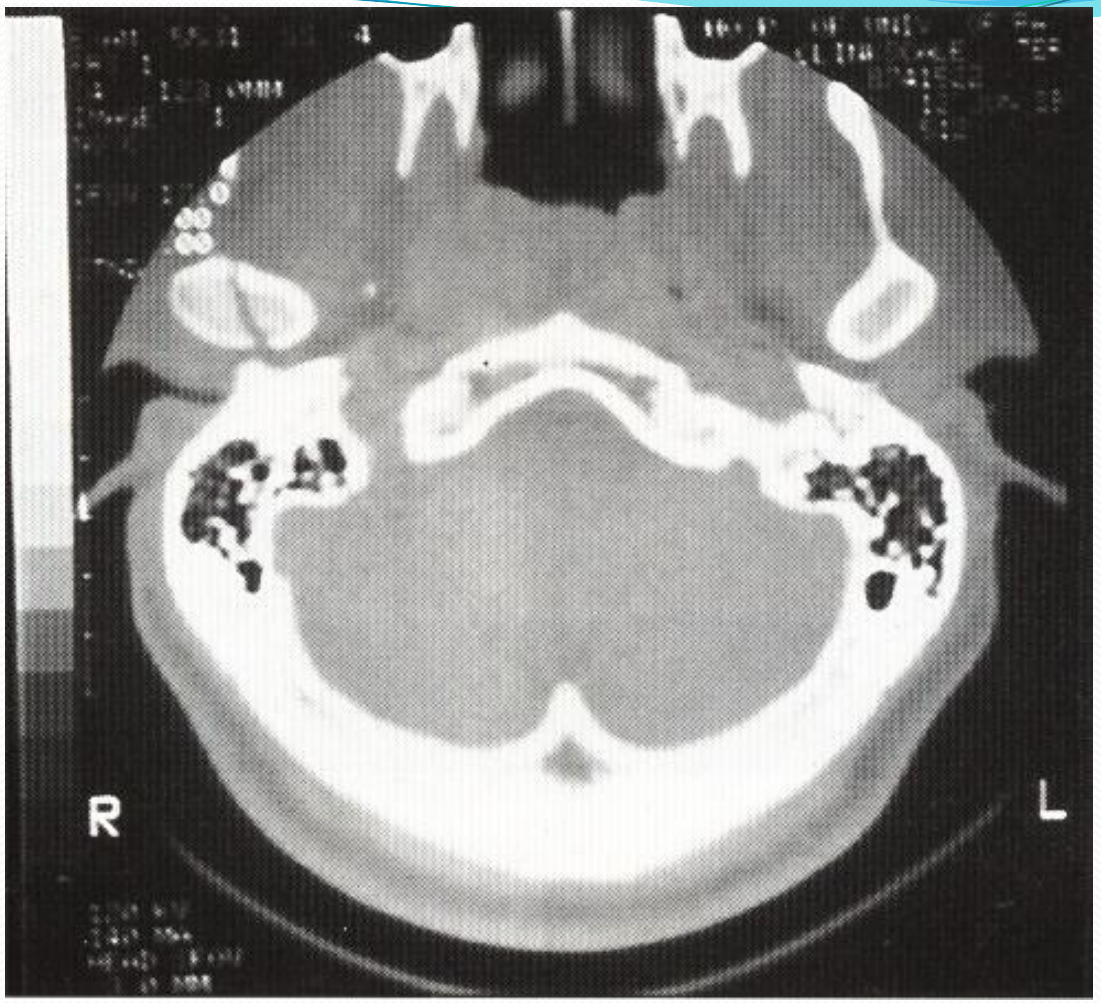
Condyle is a major **GROWTH CENTER** (Mandible + Facial Skeleton)
Damage to the condyle – early in life – result in panfacial deformities

A thorough understanding of the anatomy and physiology of the masticatory system is therefore essential in understanding and treating fractures of the condylar/subcondylar region

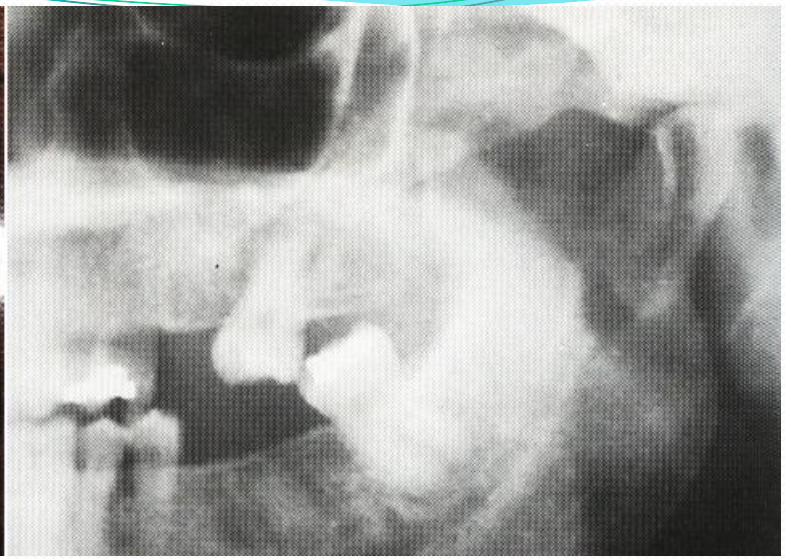
# Presentation and Diagnosis

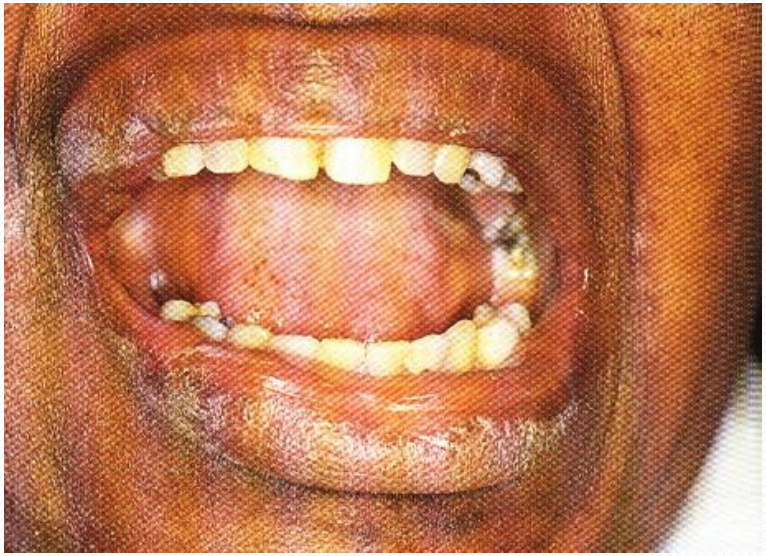
## Clinical Diagnostic Criteria

- Pain on mandibular movements with or without soft tissue swelling
- Restriction of mandibular movement
- Deviation of mandibular movement (to affected side)
- Alteration of occlusion
- Laceration of the anterior wall of the external auditory meatus or blood on the external auditory canal
- Disturbed function of the facial nerve




Axial CT for an 18-years-old male who reported pain and discomfort following blunt trauma to the face. The patient was otherwise normal. Plain radiograph was normal. Axial CT shows intracapsular fracture of the right condyle with minimal displacement. This type of fracture should be treated with closed method with early mobilization to prevent ankylosis





46-years-old male with untreated telescoped Lt SC Fr resulting in:

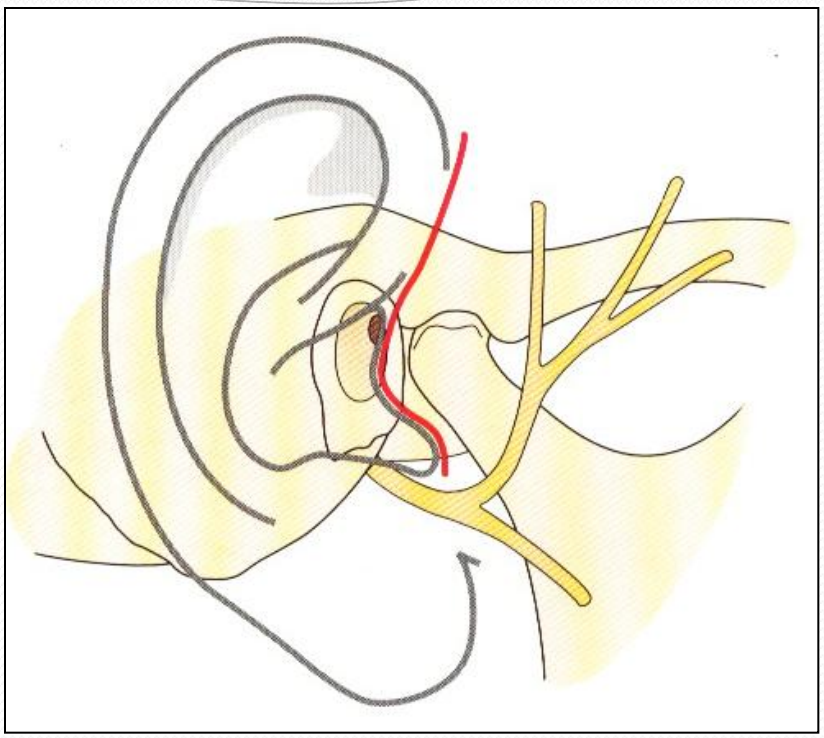
- laterognathia
- increase laterognathia on open

OPG shows lateral over-riding of condylar and ramus fracture segments

Chin laceration and anterior open bite - - investigate possible condylar injuries.

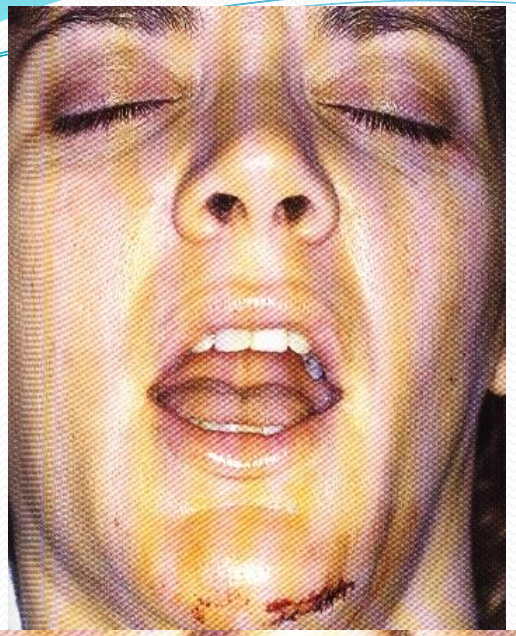
Shift of the mandibular midline toward the fracture side

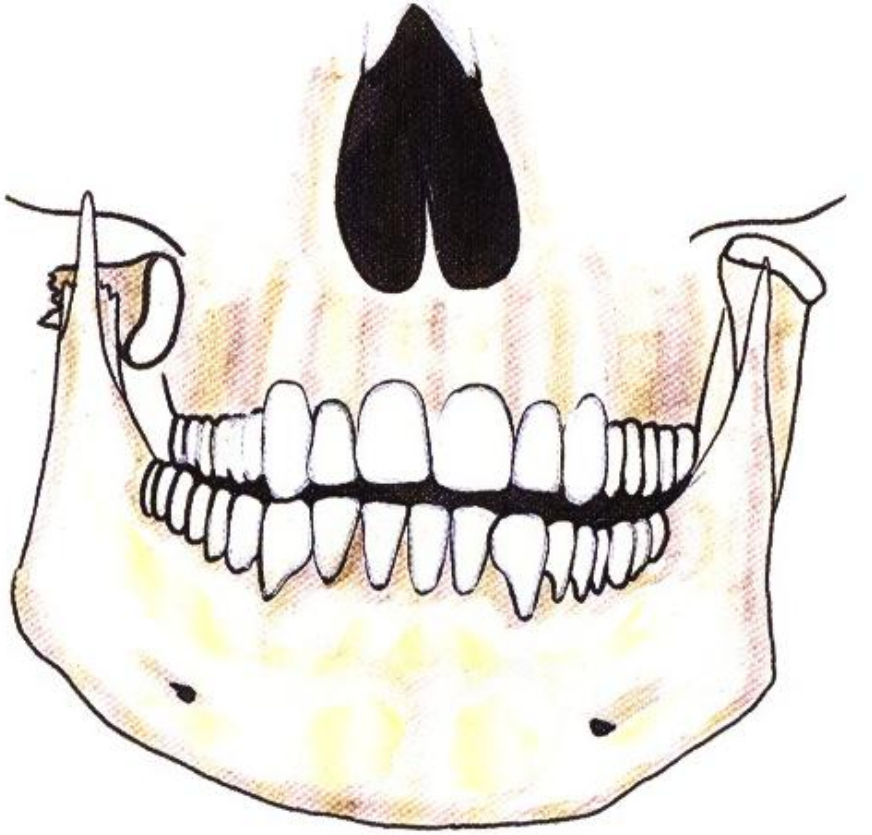
Shift increase when the patient open his/her mouth



Laceration of the ant wall of the ext. auditory meatus or

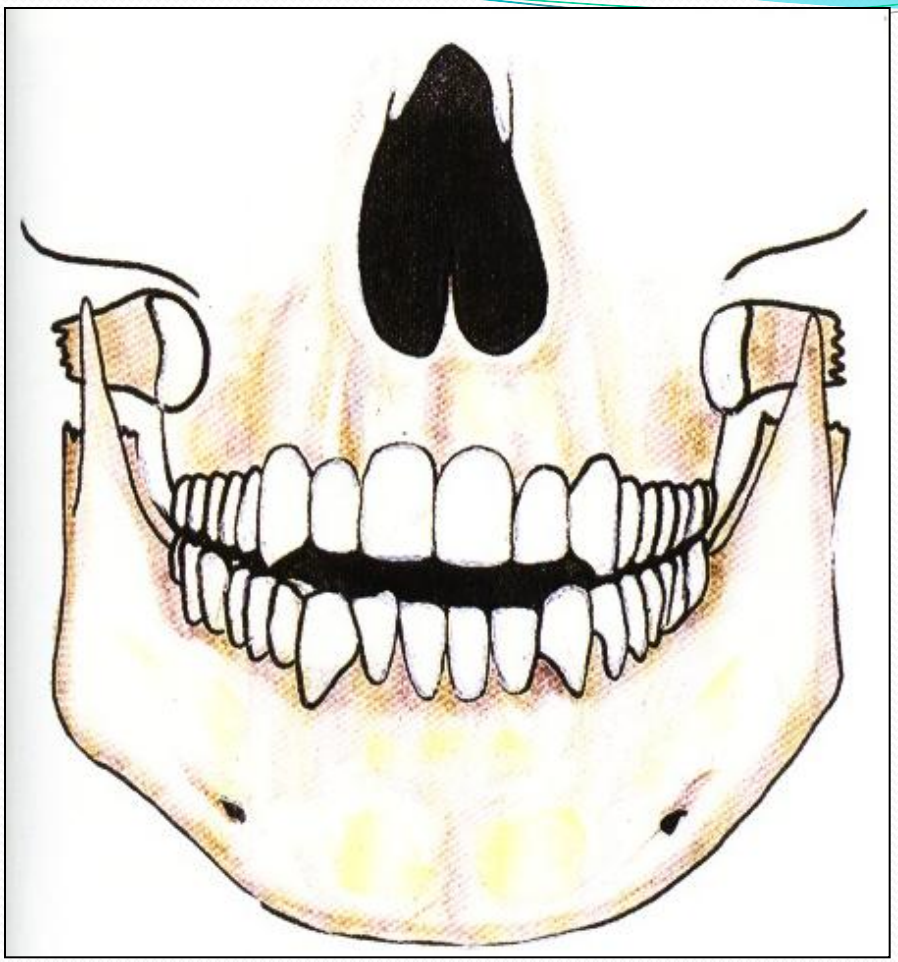
Blood in the external auditory canal





Two of the clinical signs suggesting of possible condylar injury:

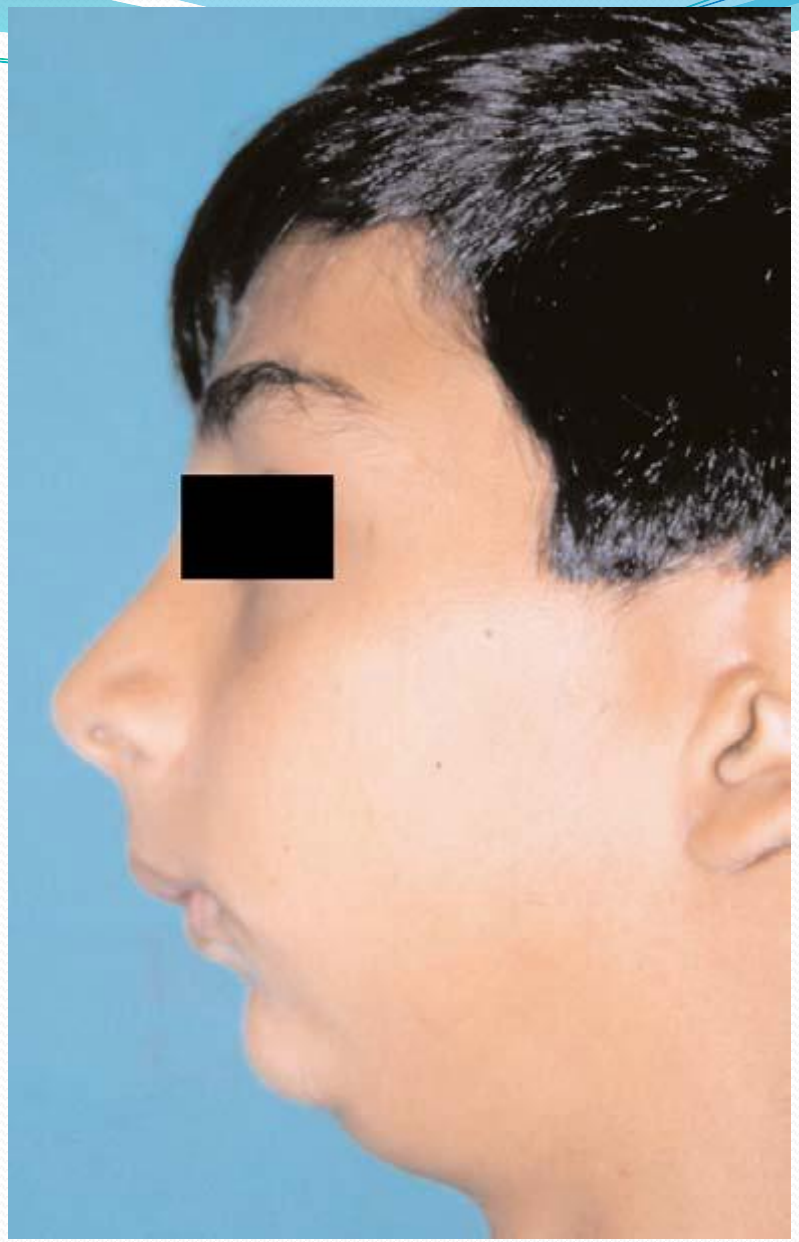
- chin trauma or laceration
- malocclusion

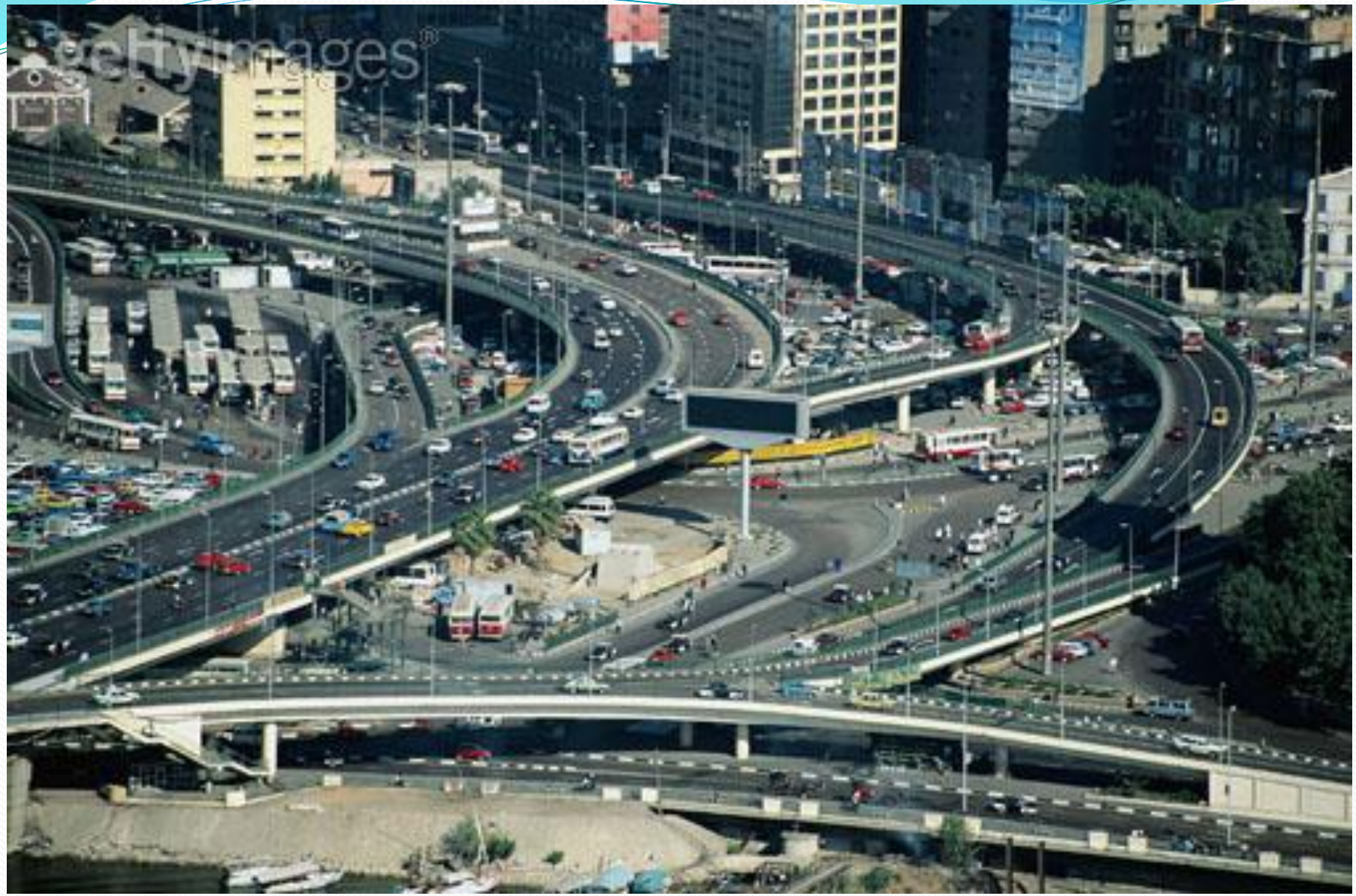


Bilateral SC Fr result in anterior open bite (apertognethia)

An 16 years old young adult male reported pain and dysfunction for 4 days. His discomfort started after he fall during sport practice. Clinical examination revealed slight malocclusion. Panoramic radiograph revealed fracture involving right sub-condylar region with no displacement

*Significant mandibular hypoplasia in a 12-year-old boy, resulting from bilateral intracapsular condylar fractures suffered shortly after birth.*

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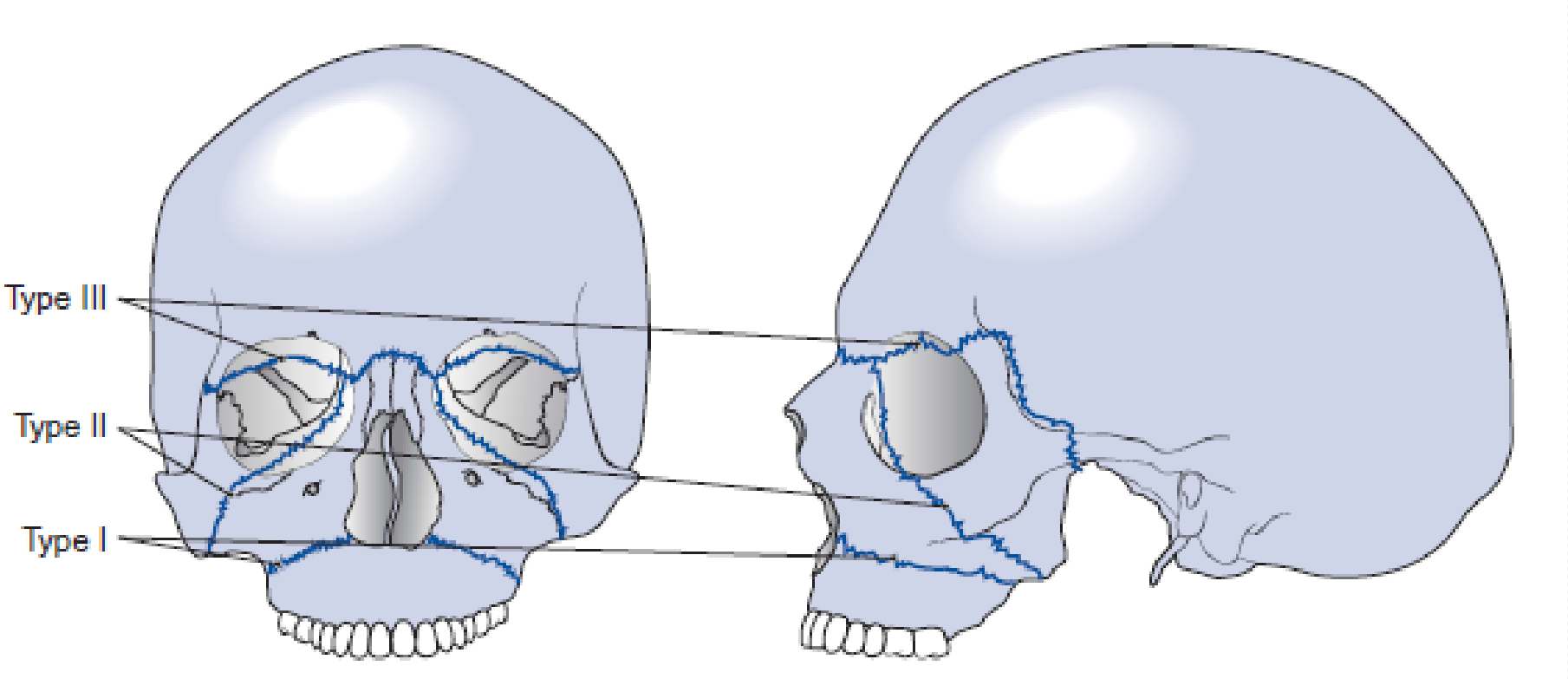
# Maxillary Fracture

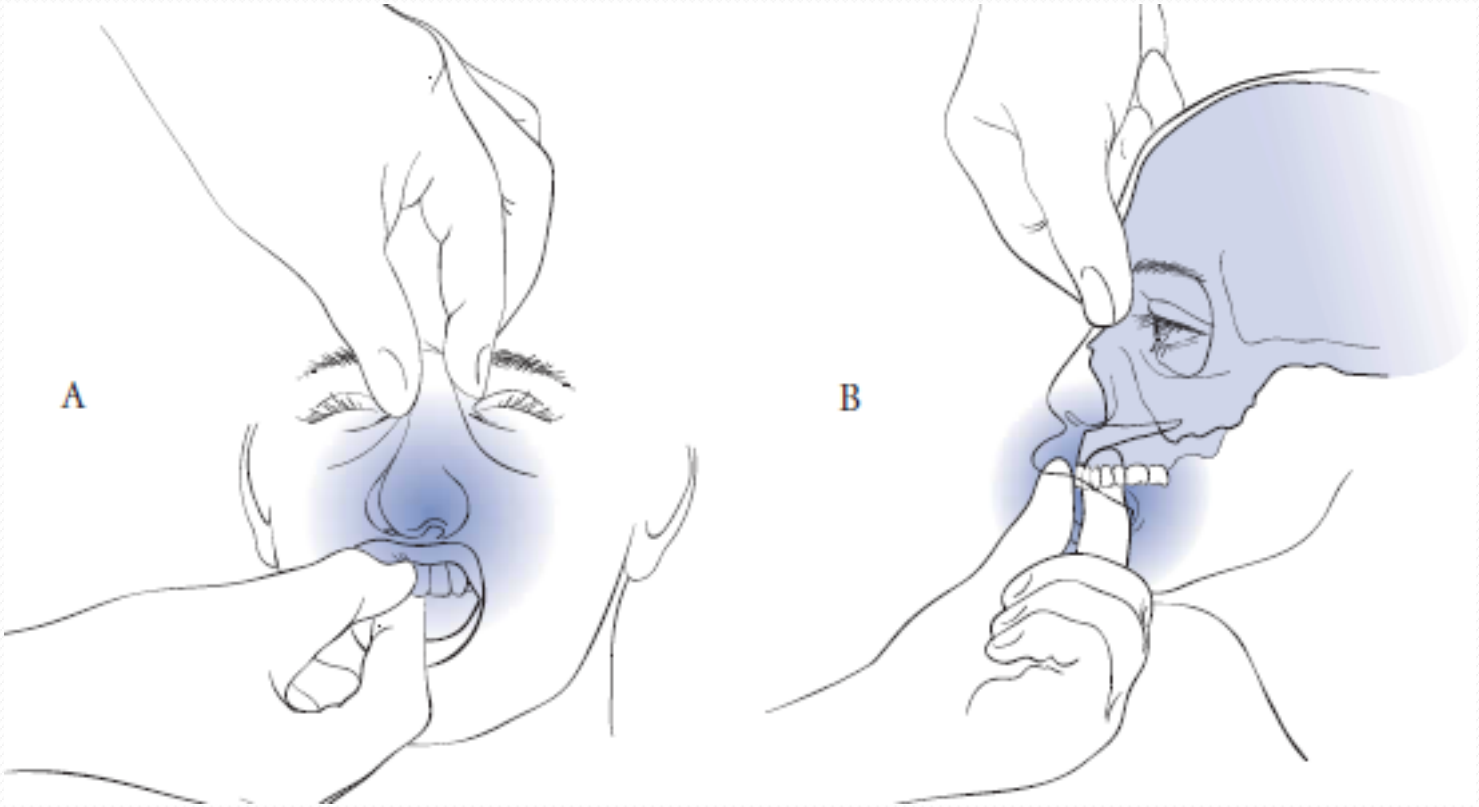



Le Fort Classification

I. Low level fracture

II. Pyramidal fracture

III. Craniofacial Dislocation

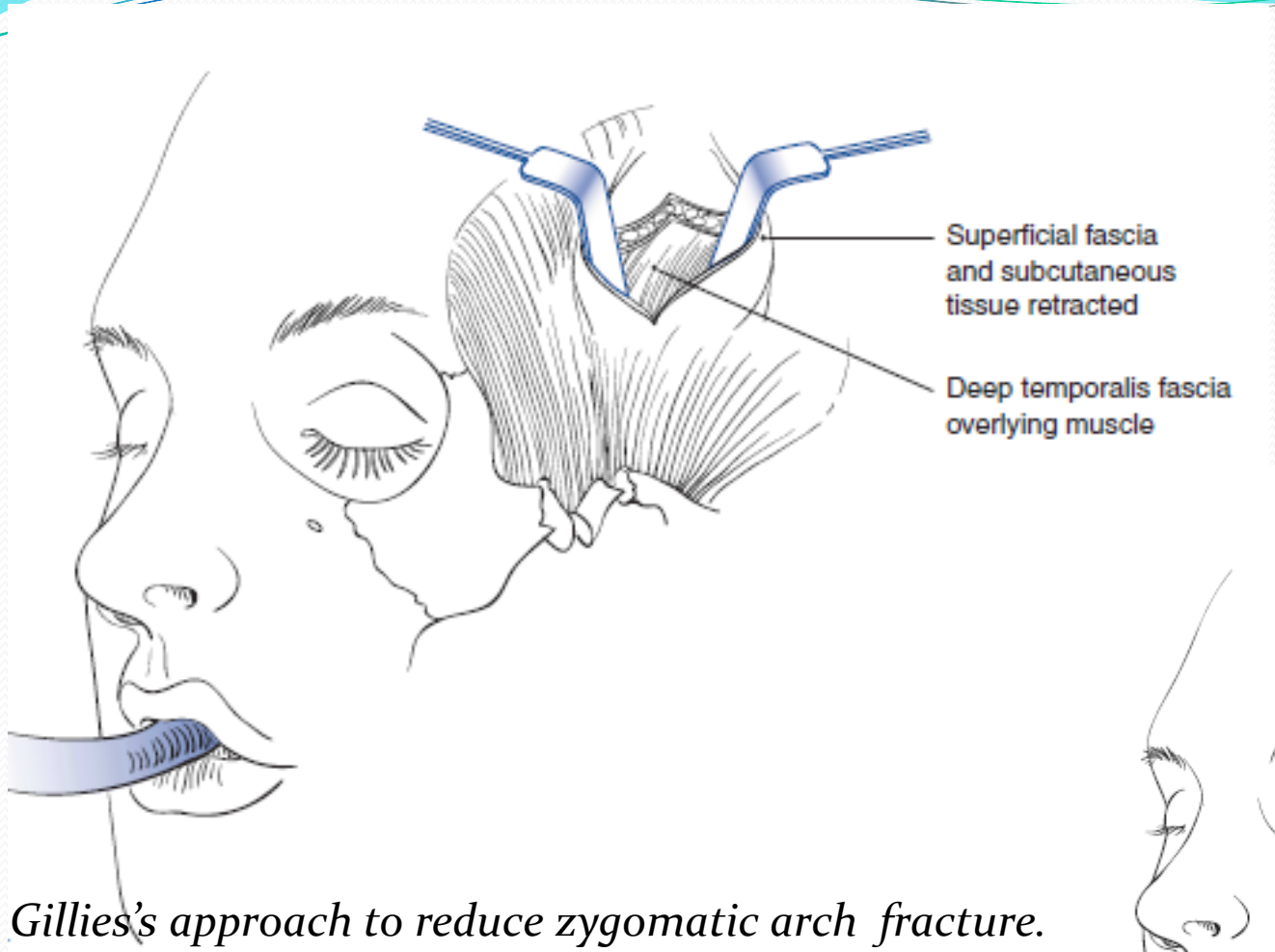


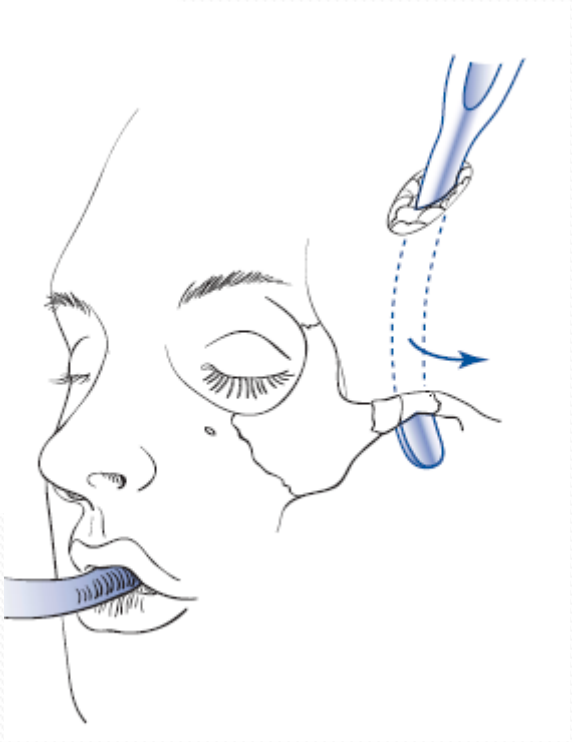

A. *When the maxilla is examined for fracture the head is stabilized and the dentoalveolar process is manipulated so that gross movements of fractured segments can be detected.*

B. *Checking for Le Fort II or III fractures requires that one hand holds the bridge of the nose while the other manipulates the maxilla.*

C. *Movement at the nasofrontal suture suggests a Le Fort II or III fracture.*

Clinical images showing a case of Lefort I fracture with comminuted left side
The use of disimpaction forceps was necessary to mobilize and reduce the maxilla which was fixed using bone miniplates



*Gillies's approach to reduce zygomatic arch fracture.*

1. *Temporal incision through subcutaneous and superficial fascia down to the deep temporal fascia.*
2. *Reduction of fracture with elevator*