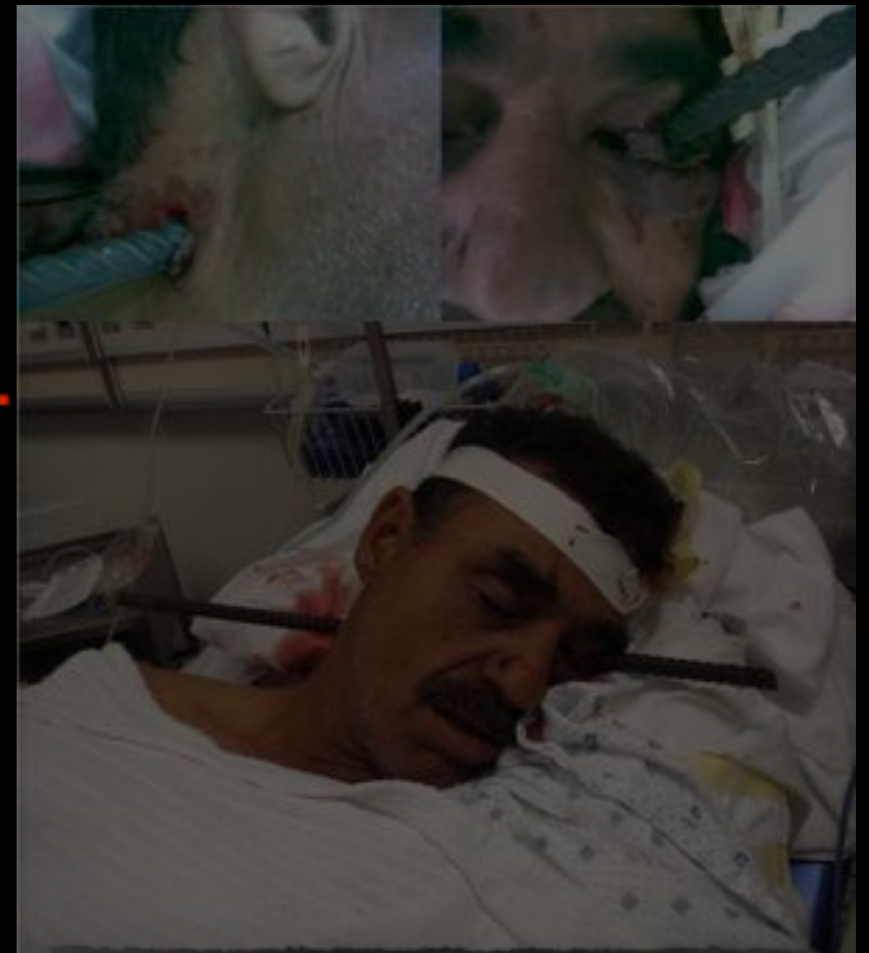
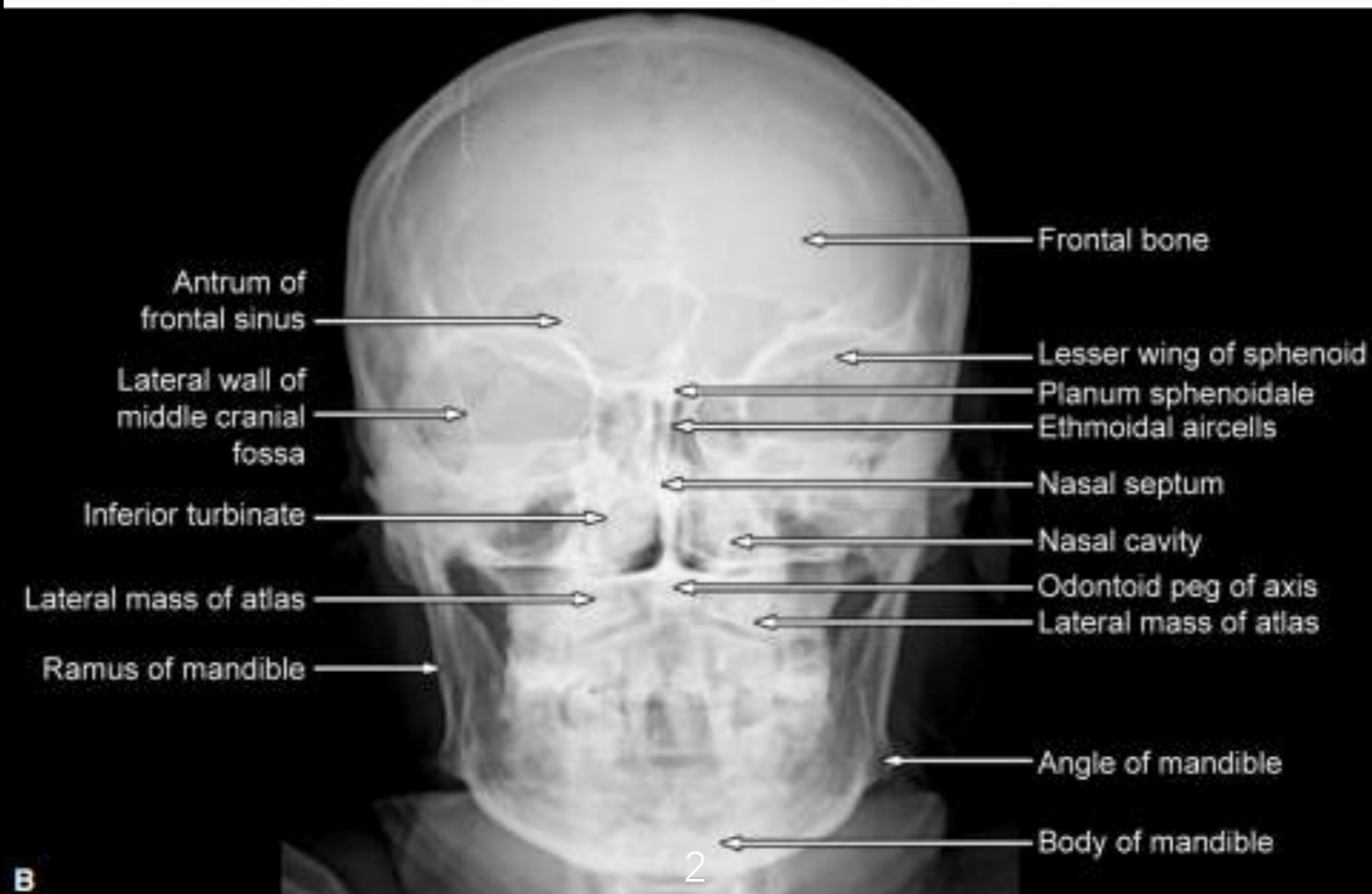
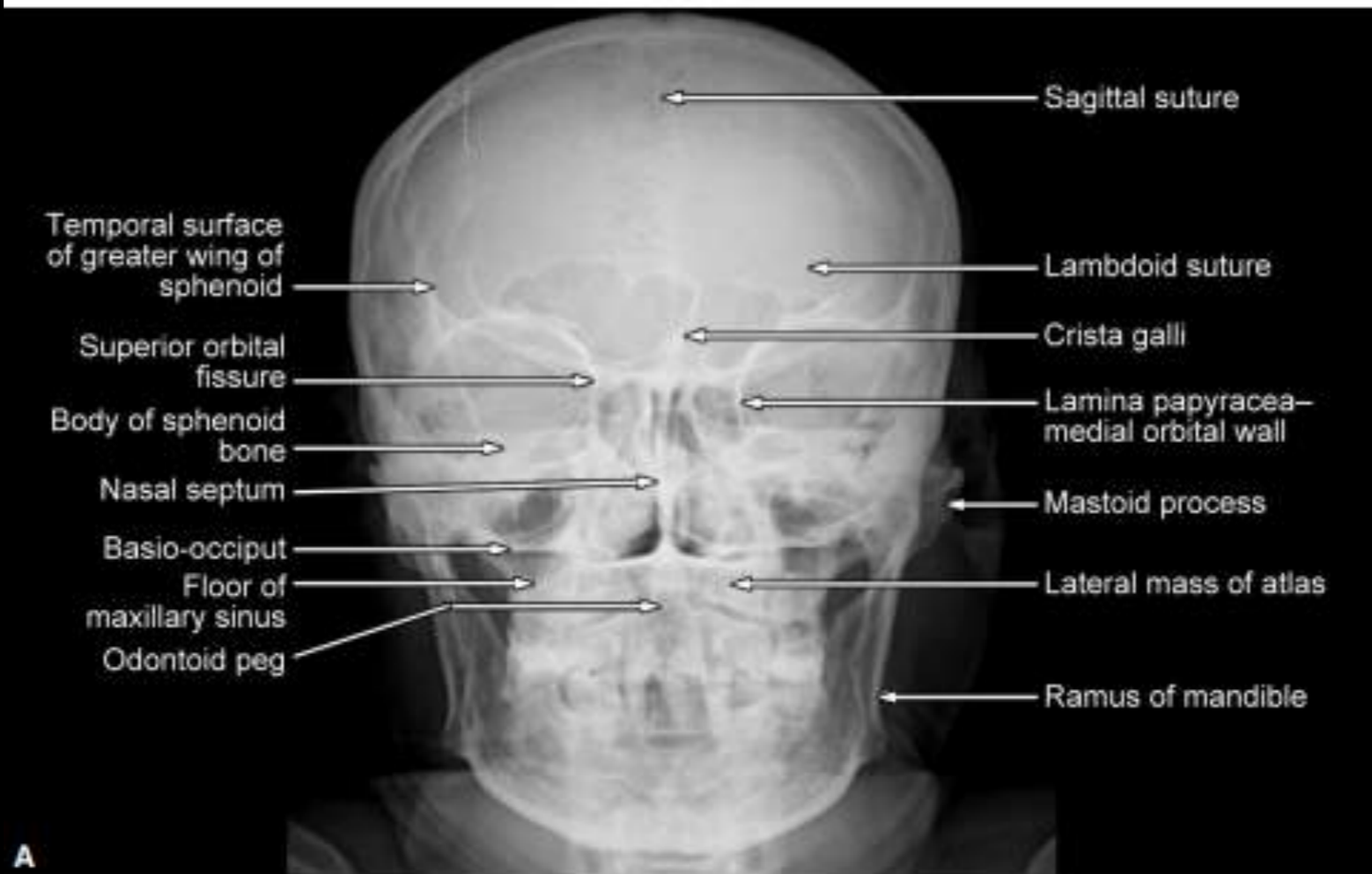




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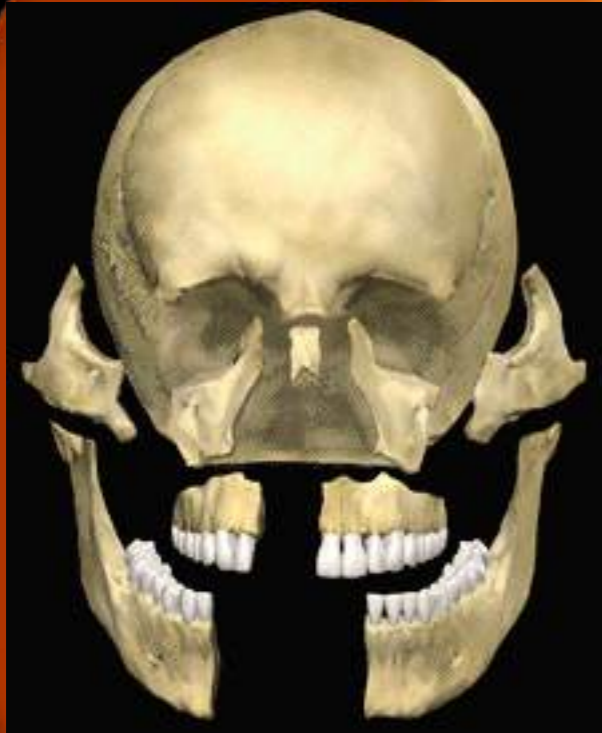
# MAXILLOFACIAL TRAUMA







# INTRODUCTION



Maxillofacial trauma (MFT) is a frequent injury

Injury within the head & neck may present neurologic, ophthalmologic, aerodigestive, skeletal, soft tissue or otologic complains

MFT may involve multiple organ system too in other regions

Surgeons must recognized the extensive nature & the associated injury

# STEP OF INITIAL ASSESSMENT

1. PREPARATION
2. TRIAGE
3. PRIMARY SURVEY (ABCDES) WITH IMMEDIATE RESUSCITATION OF PATIENTS WITH LIFE-THREATENING INJURIES
4. ADJUNCTS TO THE PRIMARY SURVEY AND RESUSCITATION
5. CONSIDERATION OF THE NEED FOR PATIENT TRANSFER
6. SECONDARY SURVEY (HEAD-TO-TOE EVALUATION AND PATIENT HISTORY)
7. ADJUNCTS TO THE SECONDARY SURVEY
8. CONTINUED POST RESUSCITATION MONITORING AND REEVALUATION
9. DEFINITIVE CARE


# INITIAL MANAGEMENT

## PRIMARY SURVEY

- **Airway & control of Cx spine** : Open & secure, Jaw thrust & chin lift, remove foreign bodies, cricothyrotomy if necessary
- **Breathing** : Ass of adequacy of ventilation
- **Circulation** : Control of bleeding, IV fluid resuscitation
- **Disability** : Level of consciousness & pupillary evaluation
- **Exposure** : Complete expose of the px

# Maxillofacial Trauma

## Life-threatening Emergency Treatment :



Maintenance of the airway

Prevention of the hemorrhage

Identification & prevention of aspiration

Identification of other (occult) injuries, such as eye, brain and cervical spine

## Trauma to the face demands aggressive but careful airway management

- Trauma to the midface can produce fractures and dislocations that compromise the nasopharynx and oropharynx.
- Facial fractures can be associated with hemorrhage, swelling, increased secretions, and dislodged teeth, which cause additional difficulties in maintaining a patent airway.
- Fractures of the mandible, especially bilateral body fractures, can cause loss of normal airway structural support, and airway obstruction can result if the patient is in a supine position.
- Patients who refuse to lie down may be experiencing difficulty in maintaining their airway or handling secretions.





POSITION OF COMFORT

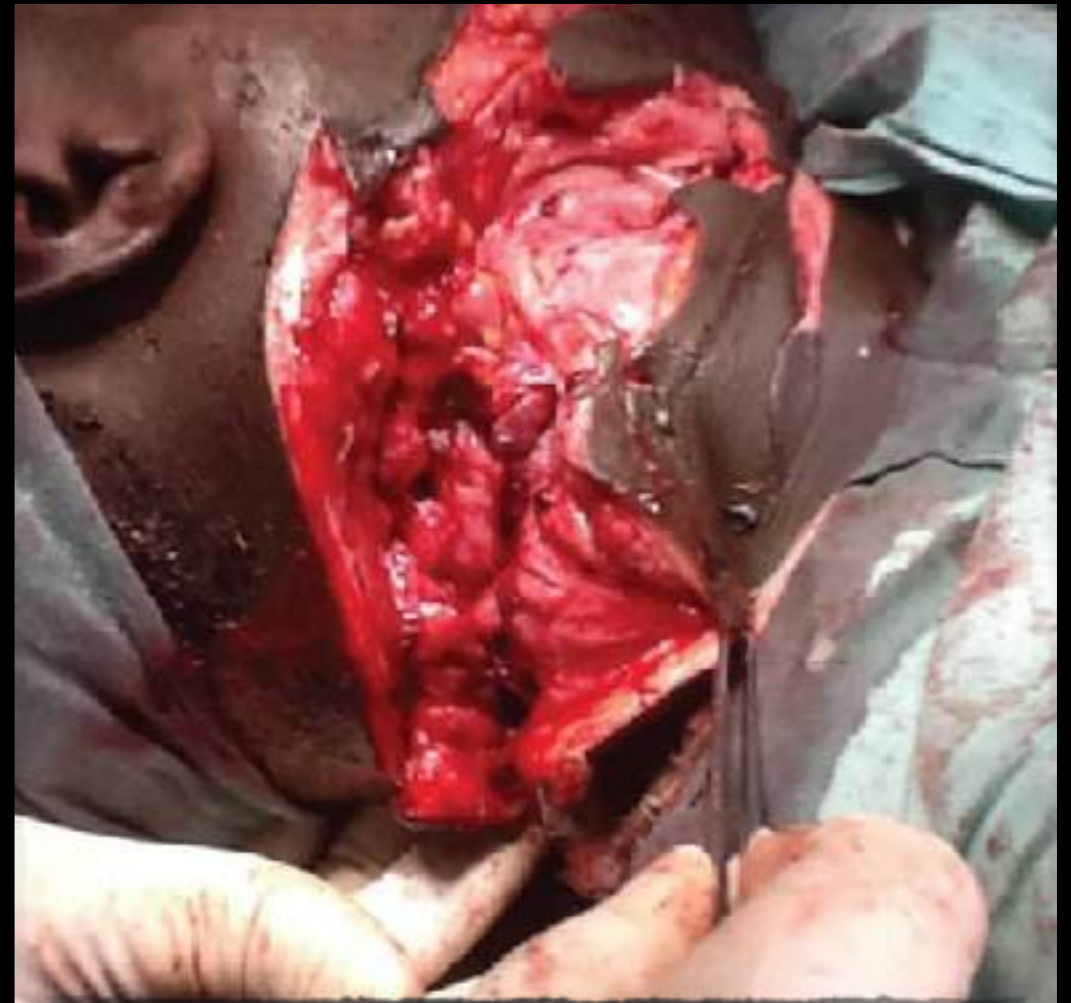
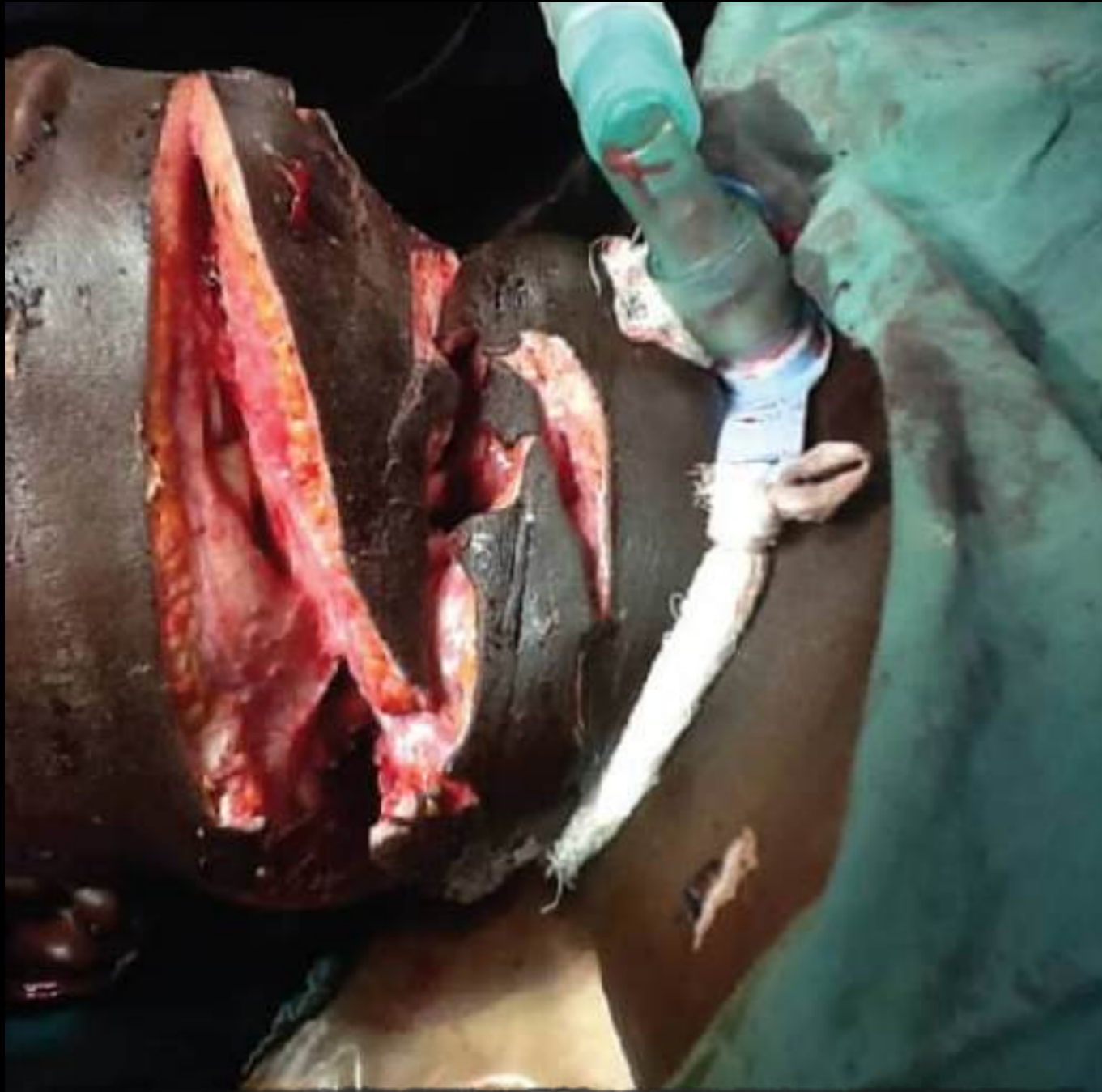
# PITFALLS

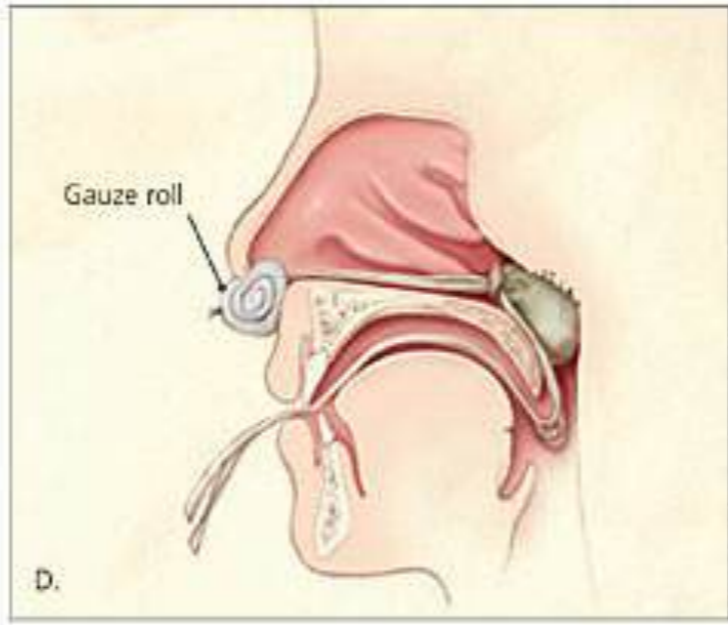
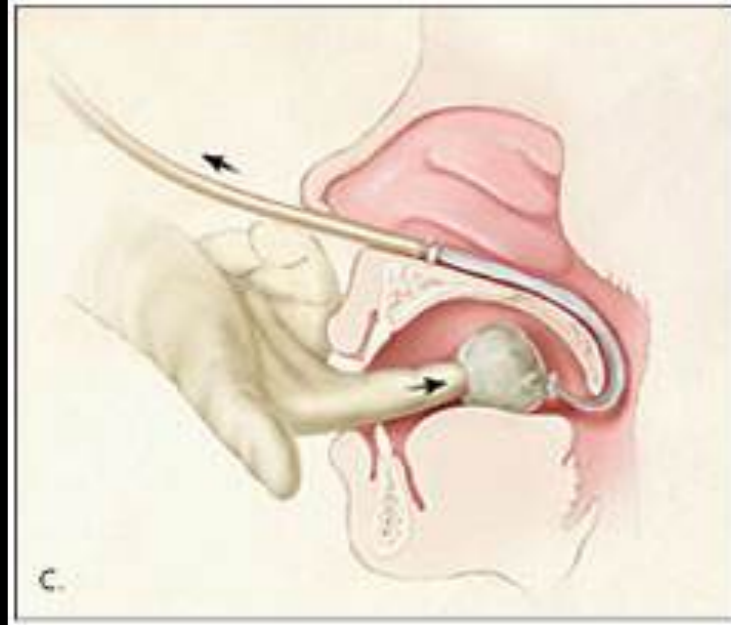
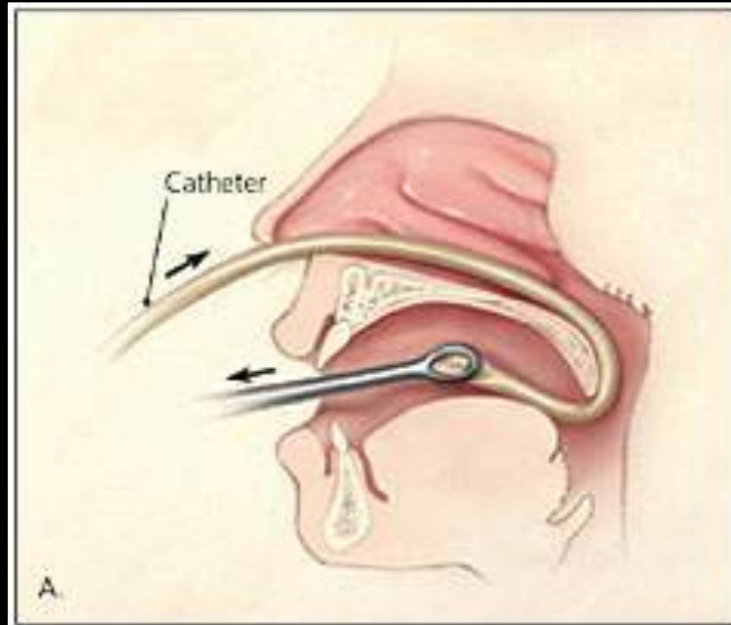
Facial edema in patients with massive facial injury can preclude a complete eye examination.

# PREVENTION

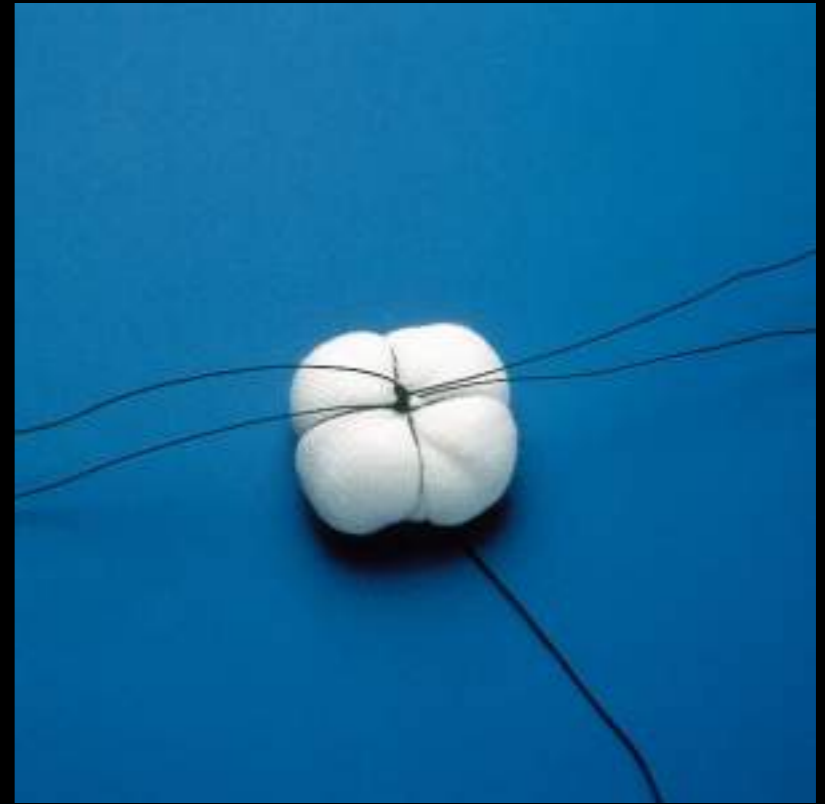
Perform ocular examination before edema develops.  
Minimize edema development by elevation of the head of bed (reverse Trendelenburg position when spine injuries are suspected).

# SECURE THE AIRWAY





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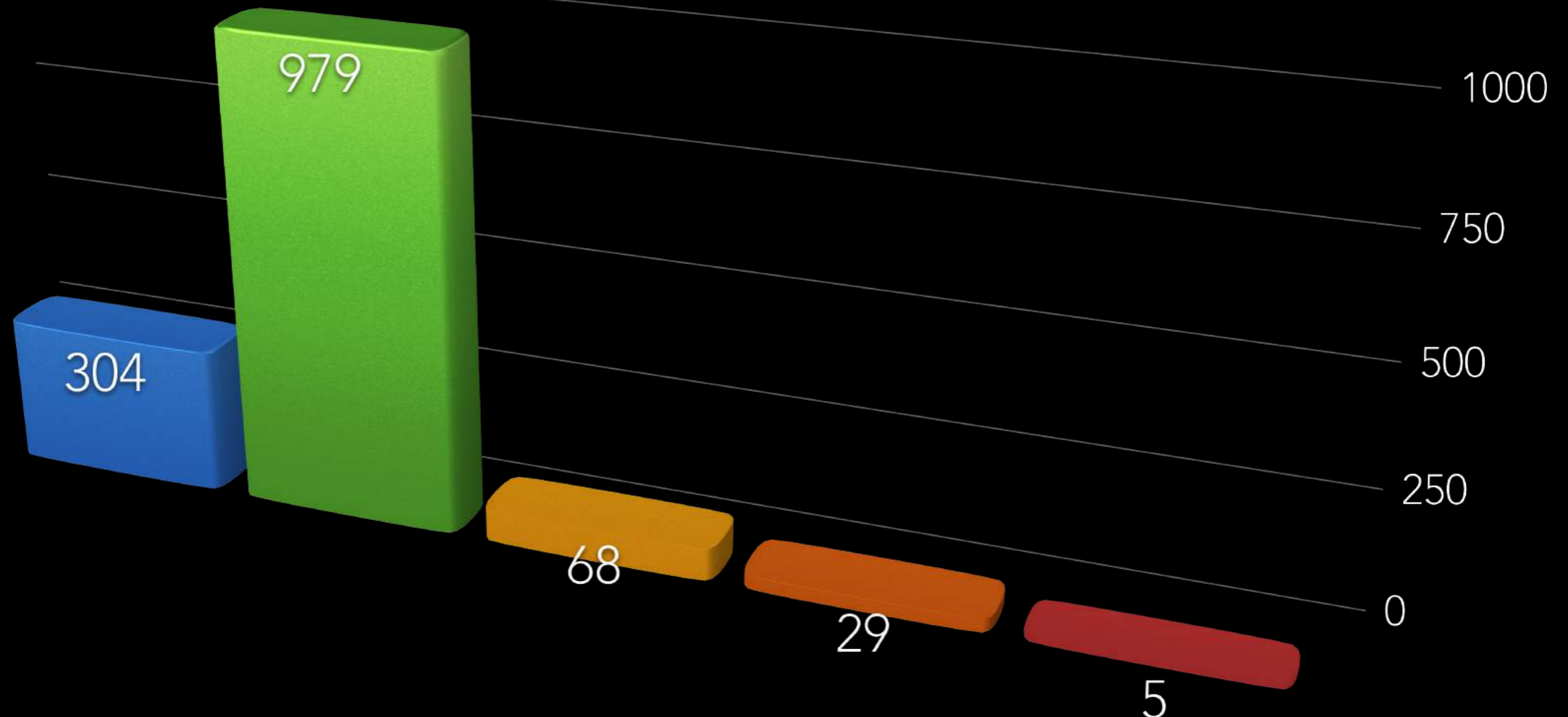


RACCON EYES



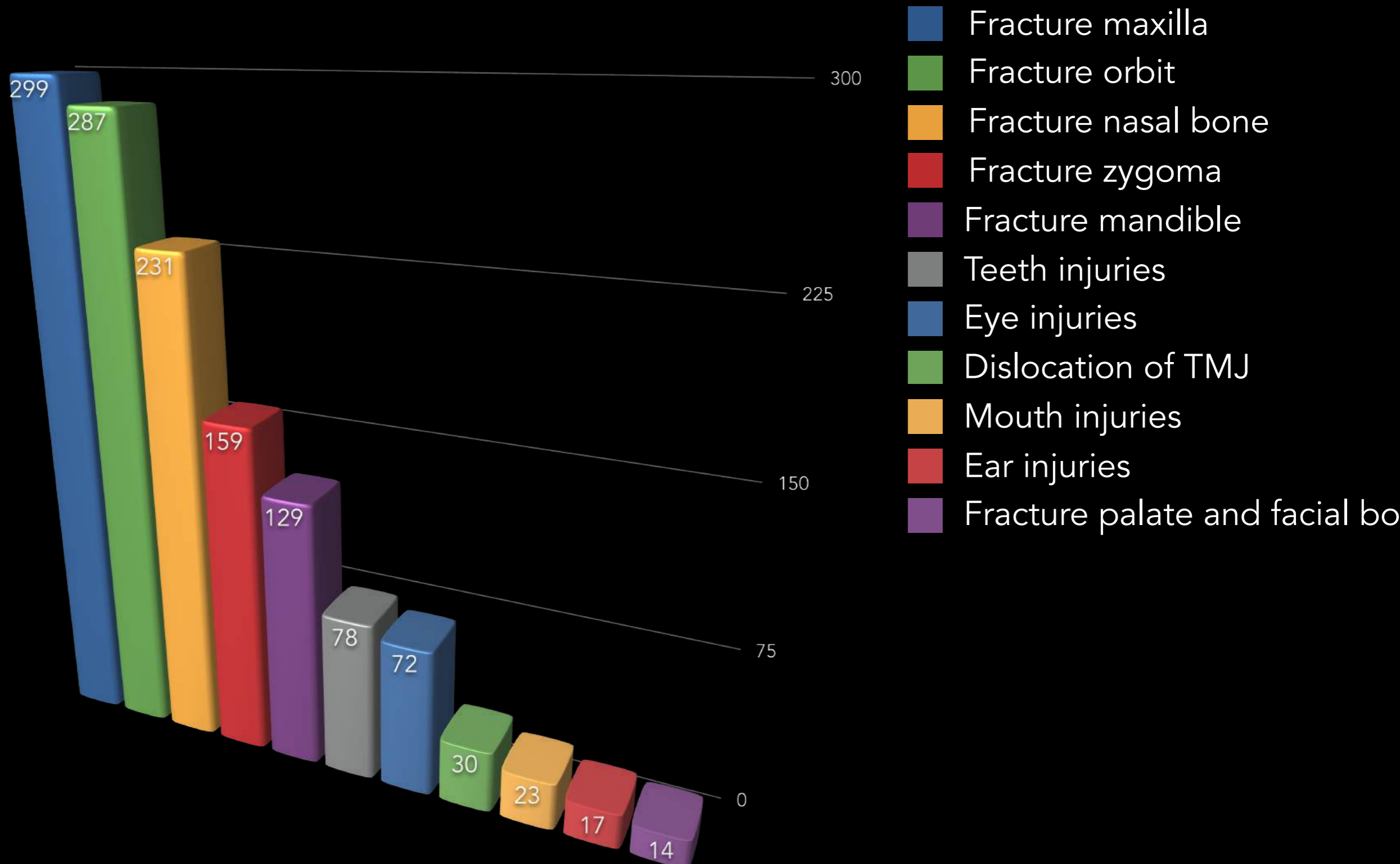
# SEVERITY OF TRAUMA

- Minimal (bruises, hematomas, excoriations)
- Minor (lacerations, dental trauma)
- Moderately severe (jaw and facial bone fracture)
- Serious (anterior skull base, LeFort fractures type II or III, combined fractures of facial skeleton and skull)
- Lethal



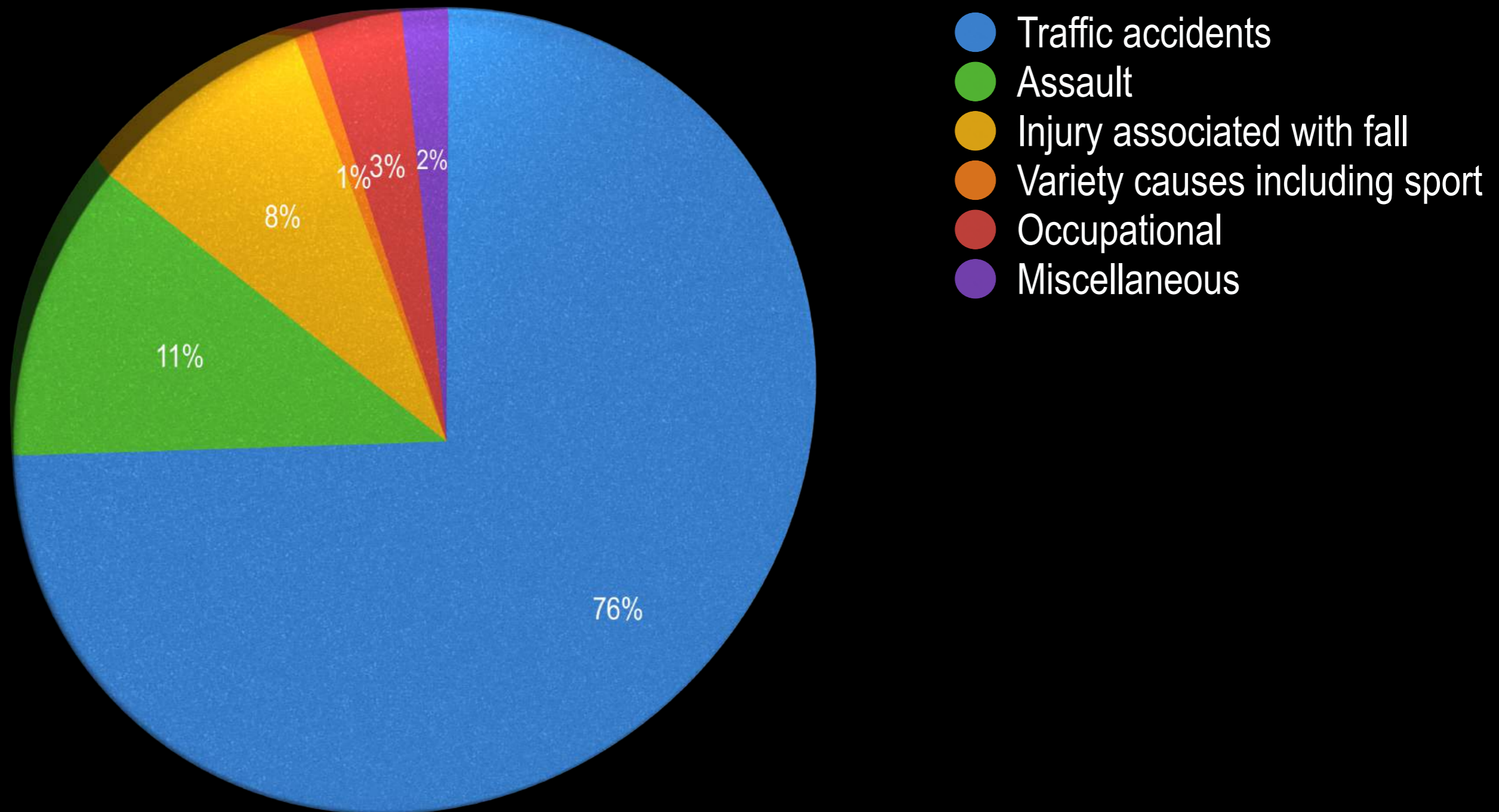
Shahim, F.N., Cameron, P. and McNeil, J.J., 2006. Maxillofacial trauma in major trauma patients. *Australian Dental Journal*, 51(3), pp.225-230.

# TYPE OF MAXILLOFACIAL TRAUMA



Shahim, F.N., Cameron, P. and McNeil, J.J., 2006. Maxillofacial trauma in major trauma patients. *Australian Dental Journal*, 51(3), pp.225-230.

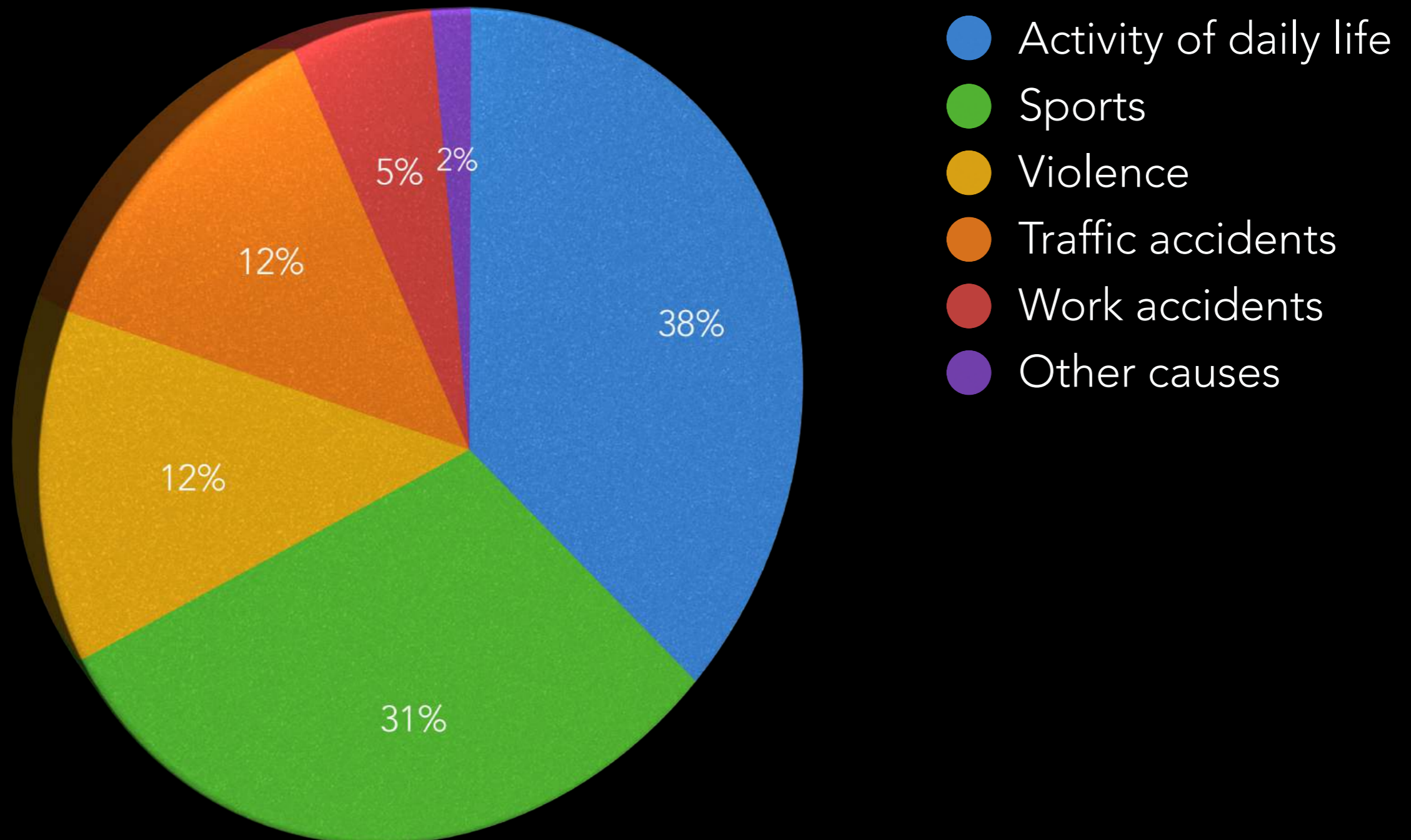
# FIVE MAJOR CATEGORIES/ MECHANISMS OF INJURY



Sunita, M. and Gurdarshan, S., 2013. Incidence of maxillofacial trauma in Sonapat (Haryana), India. *International Journal of Medical Dentistry*, 3(1), p.80.



# FIVE MAJOR CATEGORIES/ MECHANISMS OF INJURY



Gassner, R., Tuli, T., Hächl, O., Rudisch, A. and Ulmer, H., 2003. Cranio-maxillofacial trauma: a 10 year review of 9543 cases with 21 067 injuries. *Journal of cranio-maxillofacial surgery*, 31(1), pp.51-61.

# SOFT TISSUE INJURY



- DEBRIDEMENT
- ASSESMENT OF VIABILITY
- PRECISION

1

# CARA FOTO KLINIS





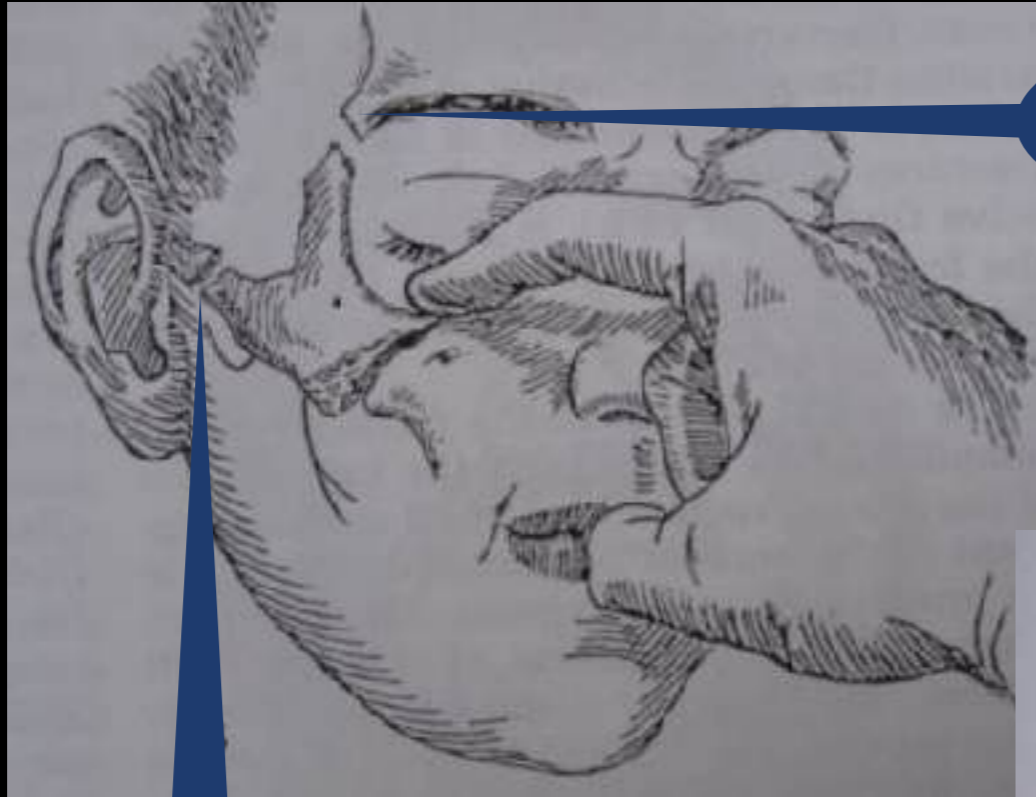


2

# FRACTURES OF THE ZYGOMA

- Most common injury after Nasal Fracture
- Prominent position → Susceptible to traumatic injury
- Changes in facial appearance & function
- Associated with ocular & periocular injury





Arch fracture

Inferior Orbitalrim

Lateral Orbitalrim



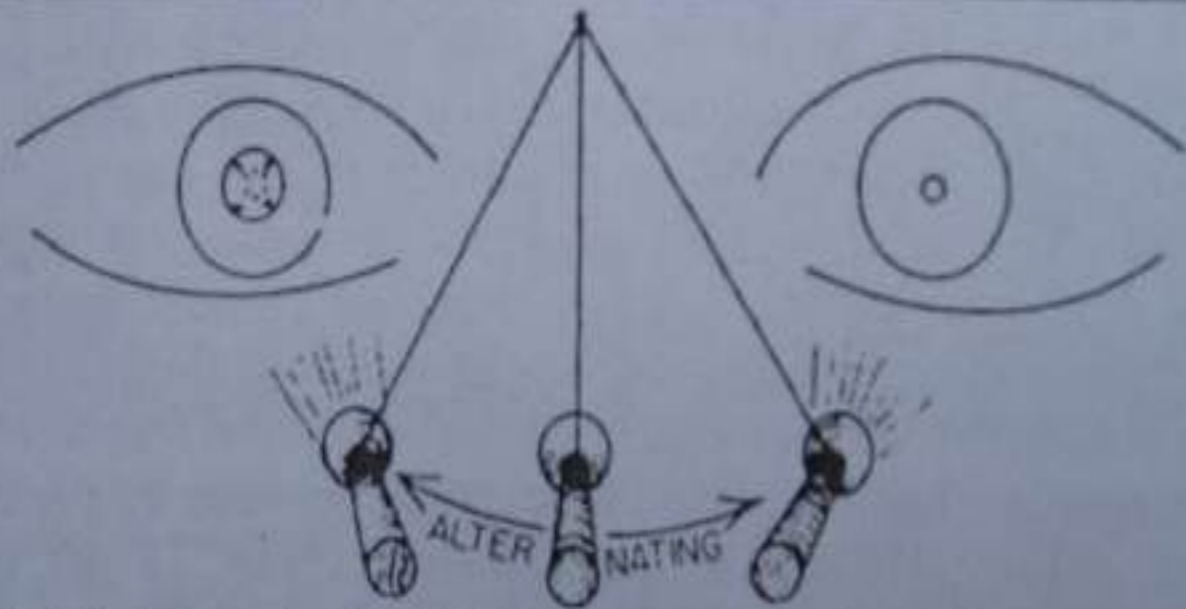


-SYMPTOMS :  
ANESTHESIA OR HYPESTHESIA  
DIPLOPIA : BLOW OUT  
FRACTURE!!!  
LIMITATION OF MOUTH  
OPENING

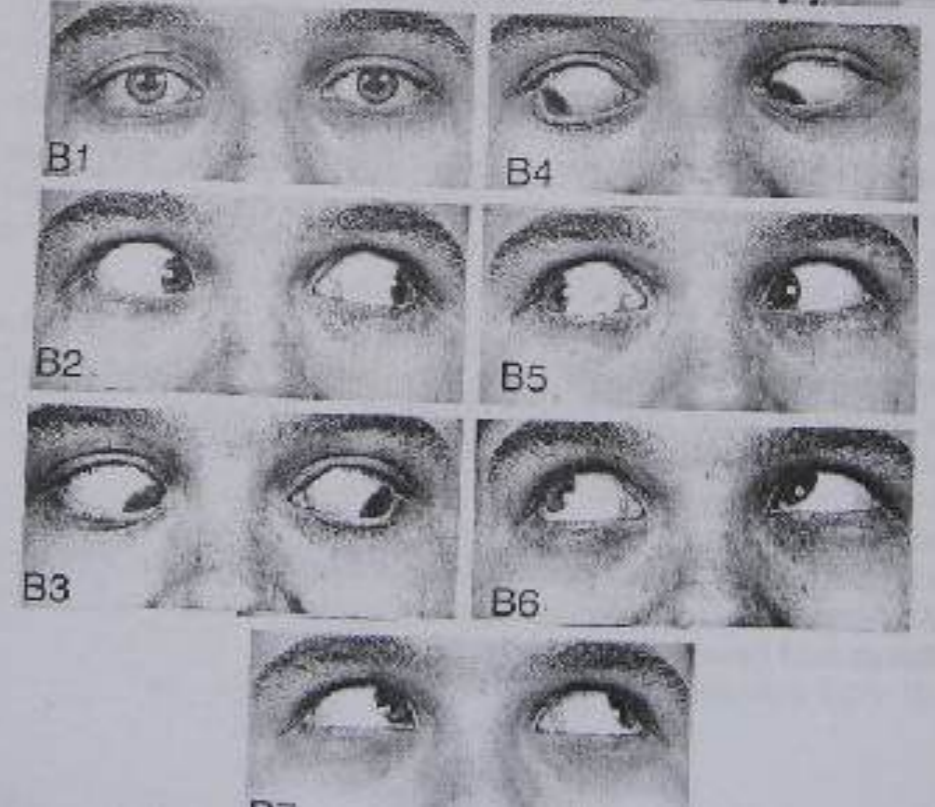
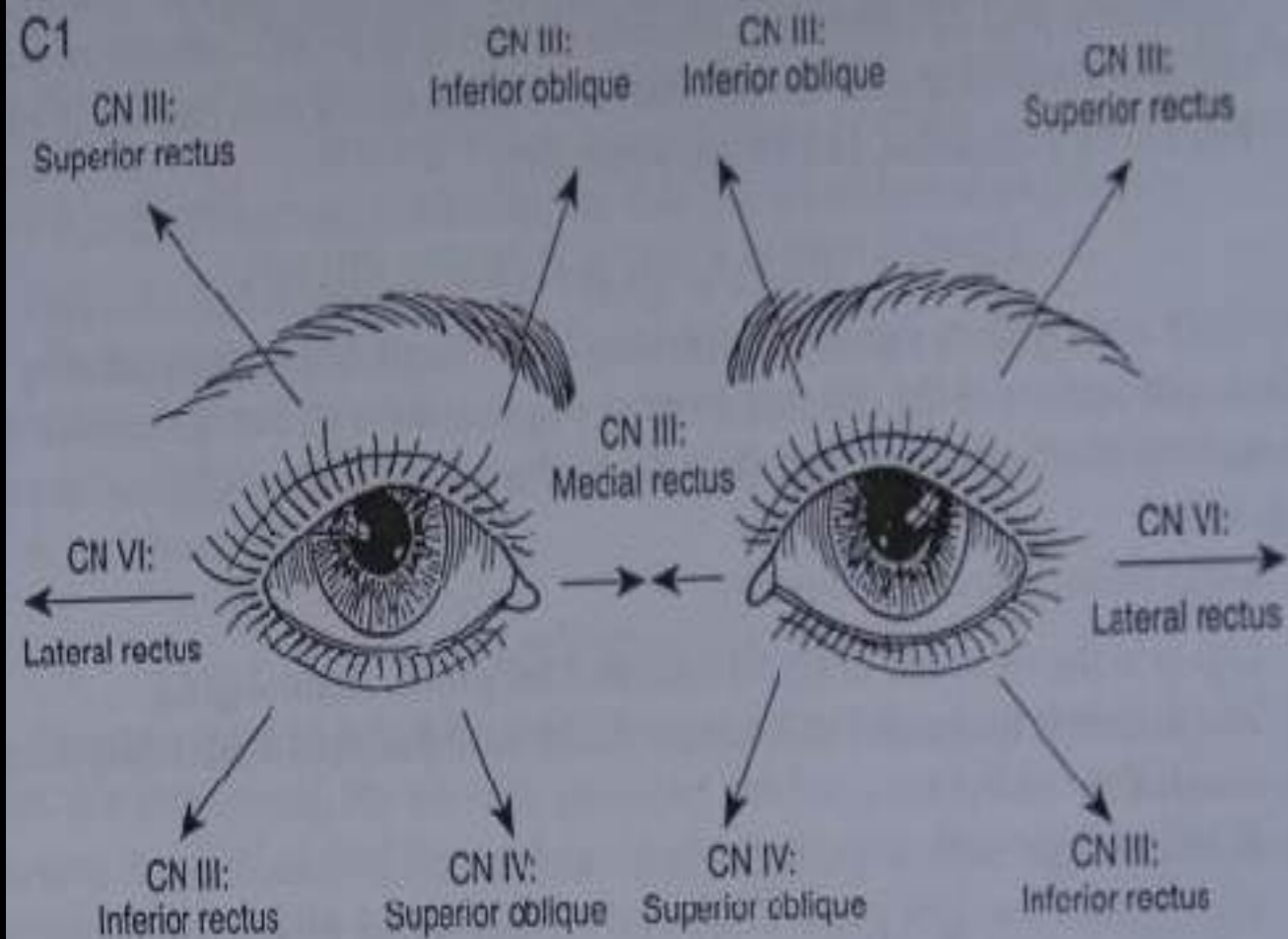


FRACTURE OF  
ORBITAL  
FLOOR &  
MEDIAL WALL





SWINGING LIGHT PRODUCES PARADOXICAL DILATATION OF AFFECTED PUPIL ON DIRECT STIMULATION

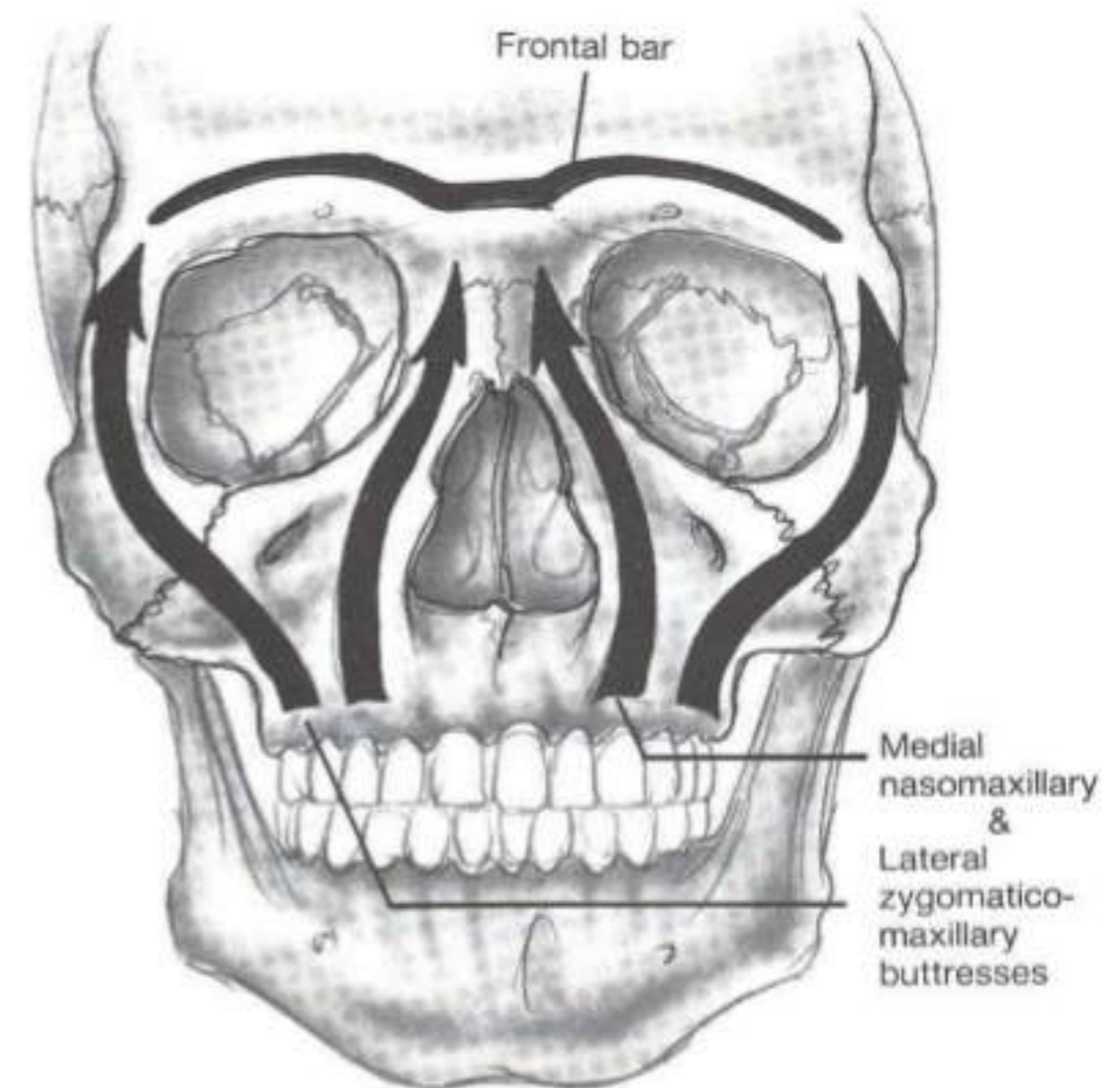


# ROENTGENOGRAPHIC VIEWS :

- Plain photo :
  - Water's View
  - Submentovertex View
  - Caldwell view
- CT :
  - Axial & Coronal projections

## Facial Buttress system

*From : Stanley RB. Maxillary and Periorbital Fractures. In : Bailey BJ ed., Head and Neck Surgery-Otolaryngology, third edition, Philadelphia, Lippincott Williams & Wilkins 2001, pg 777.*



**FIGURE 66.1.** The nasomaxillary and zygomaticomaxillary buttresses of the midfacial lattice are suspended from the frontal bar.

# 3

## FRACTURES OF THE NOSE

- The most frequent fracture of facial bone
- The most personal & identifiable feature of human face
- Dx , Tx, & follow-up care important to reduce incidence of unfavourable sequele

# DIAGNOSIS

Sangat ditentukan oleh Anamnesis

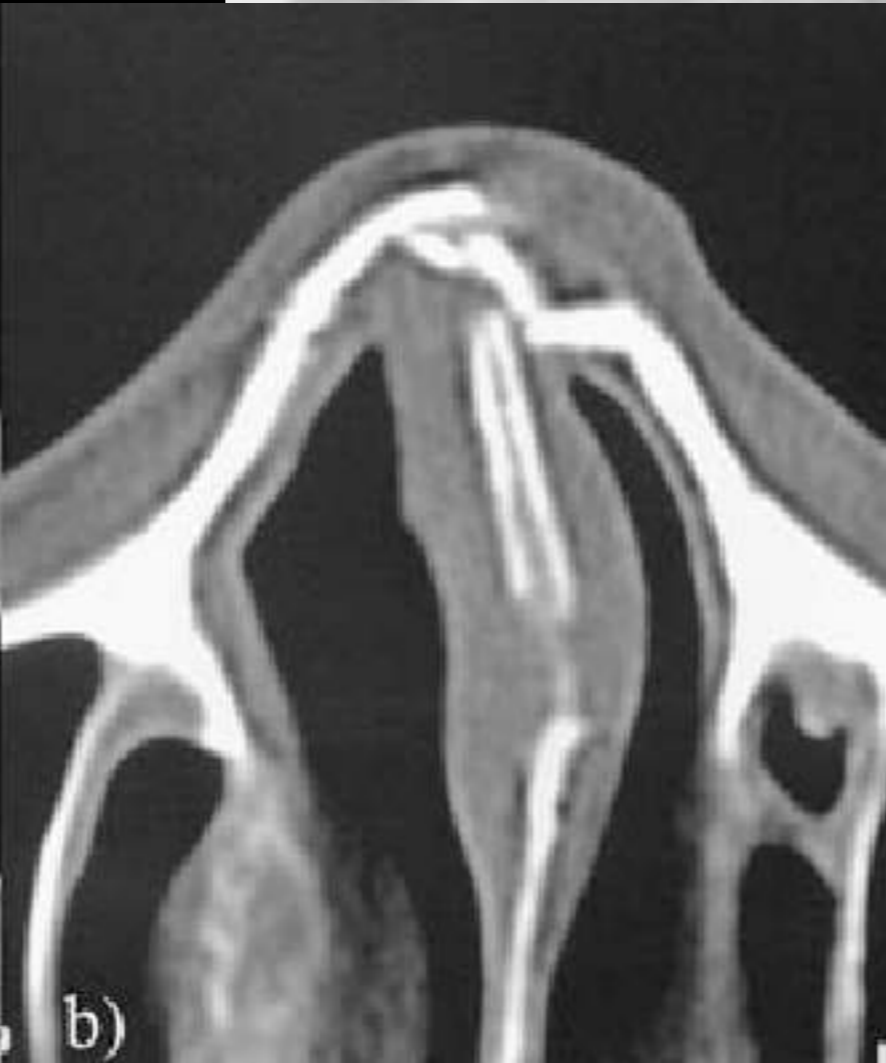
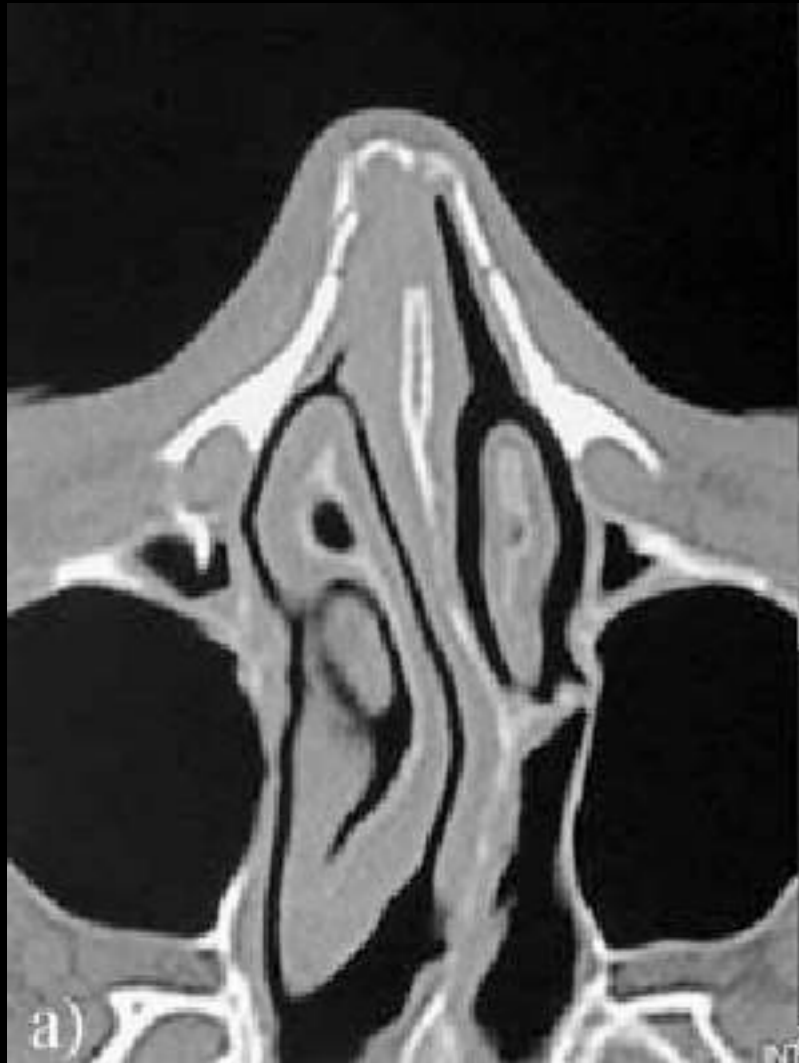
Riwayat trauma yang jelas mengenai hidung harus dicurigai kemungkinan fraktur nasal.

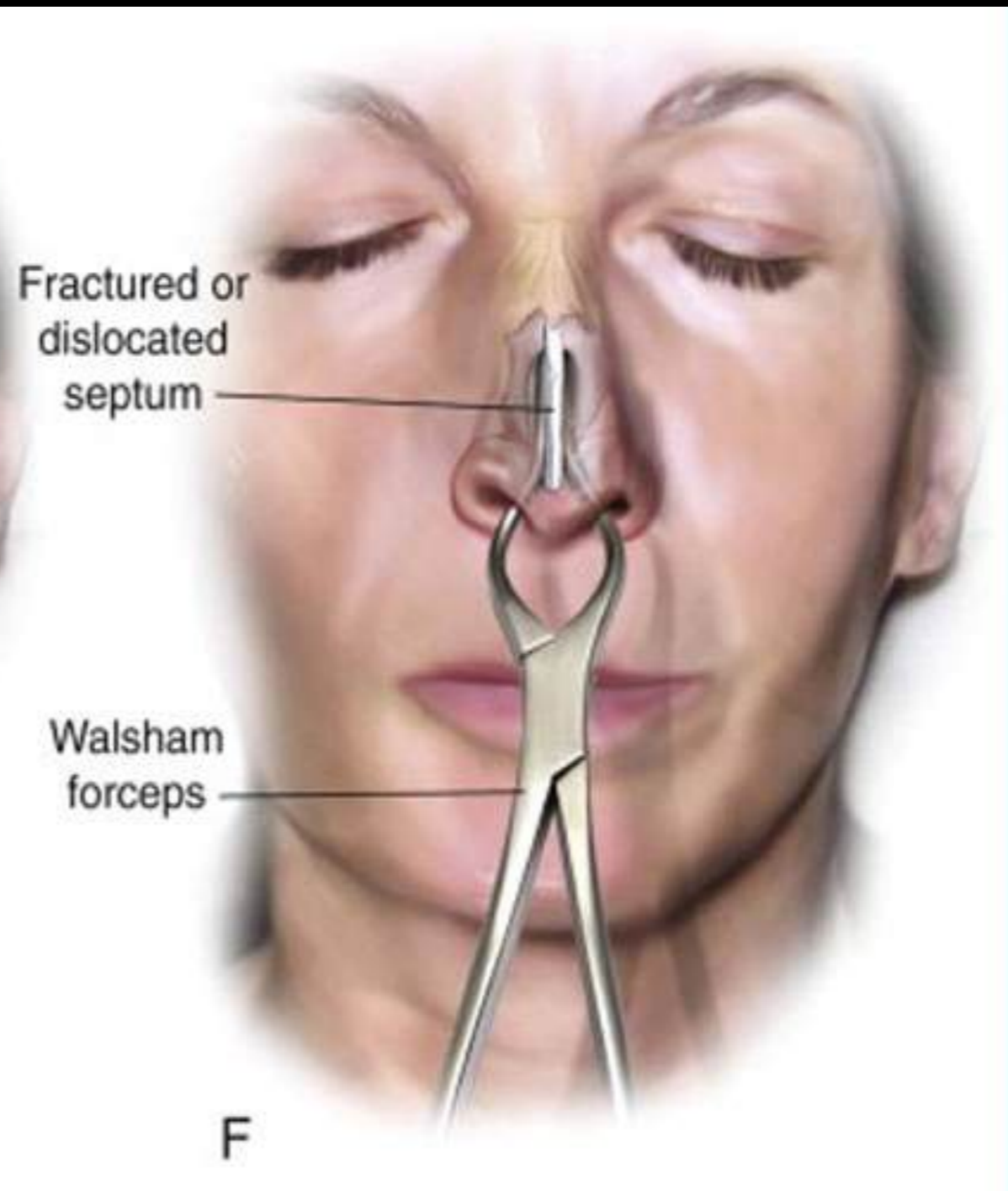
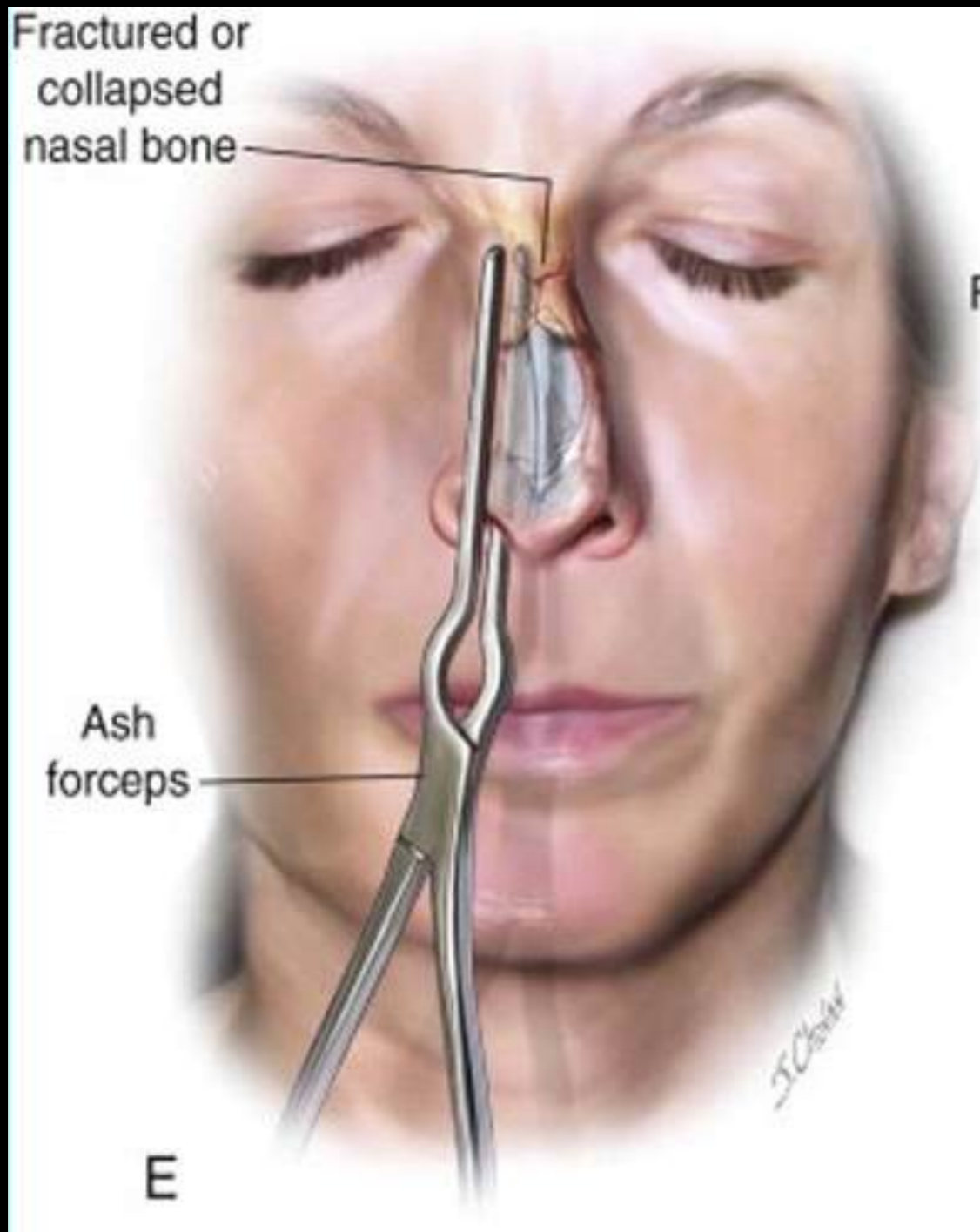
Jika epistaksis (+) kemungkinan besar adalah fraktur terbuka.

Jika pasien mengeluh adanya perubahan bentuk hidung/riwayat obstruksi jalan napas , fraktur nasal hampir selalu terjadi .

# PEMERIKSAAN FISIK

- Merupakan kunci penegakan diagnosa.
- Inspeksi eksternal/internal :
  - deformitas, deviasi/ bentuk yang tidak normal.
  - Laserasi, robekan mukosa dan hematoma
  - edema pelupuk mata, kemosis sklera, kemosis periorbital, perdarahan sub konjungtiva.
- Palpasi
  - nyeri dan stabilitas, apakah ada depresi tulang hidung, displacement, false movement, mobilitas, krepitasi dan angulasi tulang







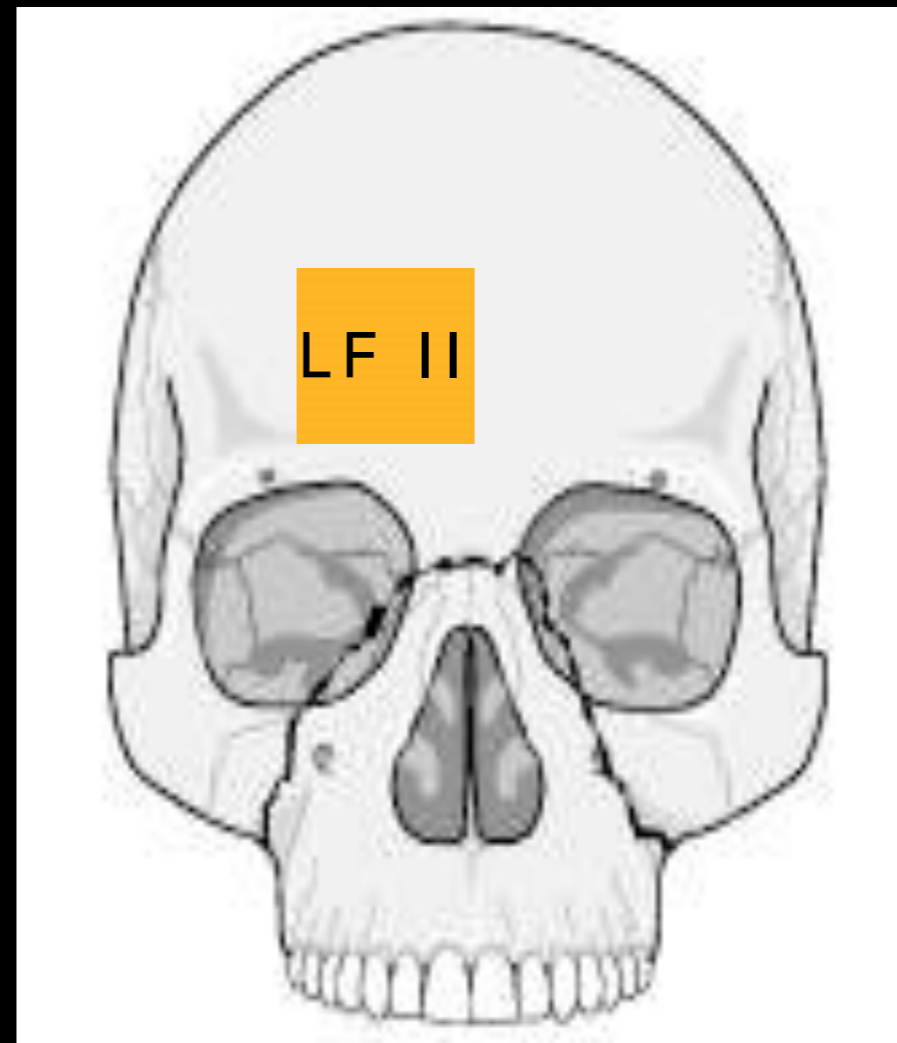
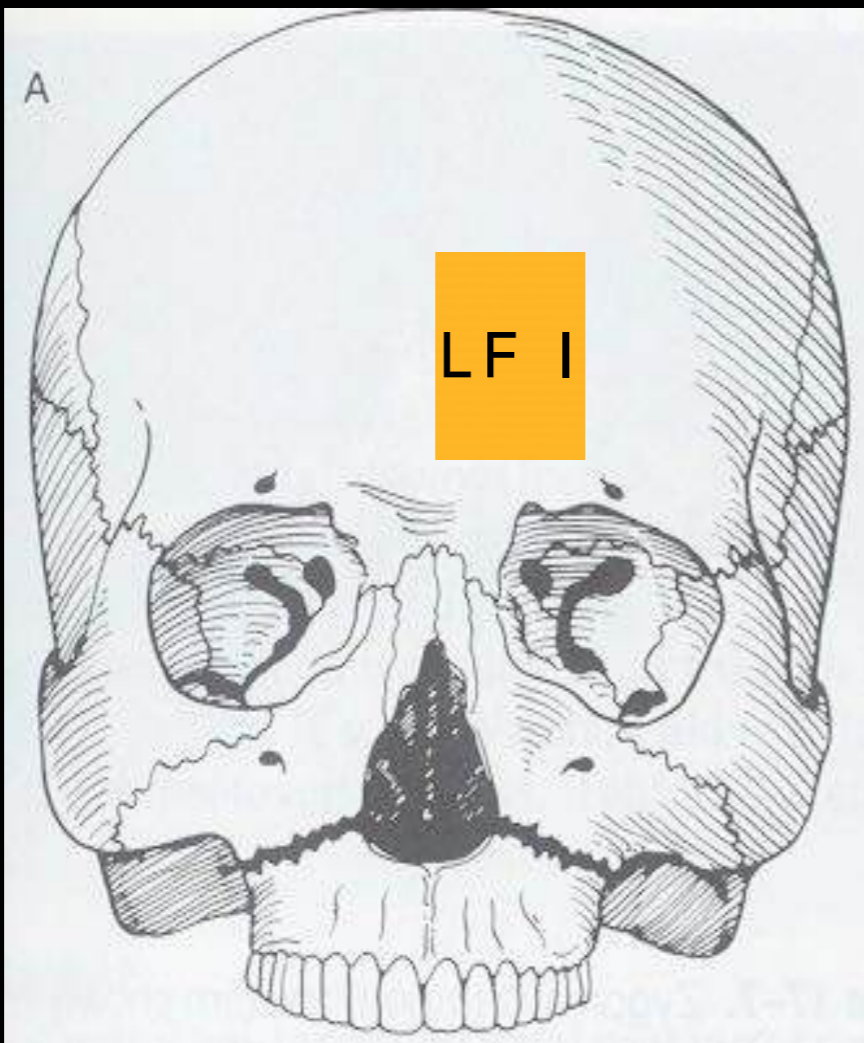


# FRACTURES OF THE MAXILLA

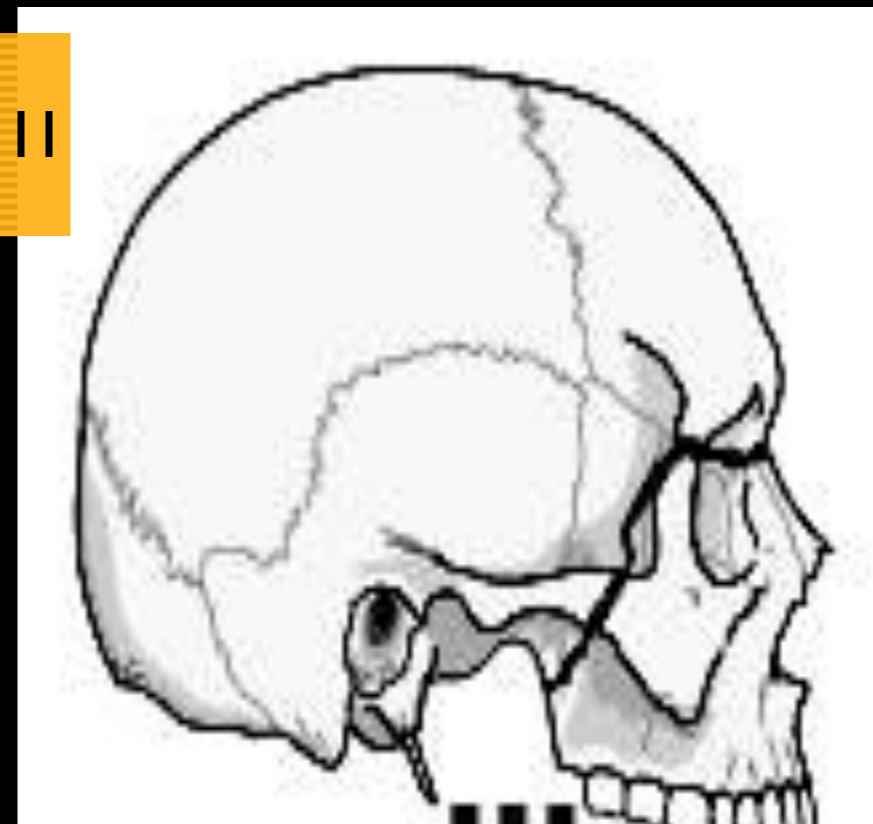
## CLASSIFICATIONS

1. Simple & isolated fractures
2. Complex & associated fractures : Le Fort I, II, III

A



LF III



# SIGNS & SYMPTOMS

- Tenderness, malocclusion & nasopharyngeal bleeding
- Facial elongation
- Midfacial swelling & periorbital hematoma
- Floating maxilla



46



**LF I**



**LF II**



**FLOATING MAXILLA**



**LF III**



# ROENTGENOGRAPHIC

- Plain Photo : Skull PA / Lateral & Water's
- CT Scan

WATERS

SKULL AP



# SKULL AP

# WATERS



LF II









PRE OP



POST OP



# FRACTURES OF THE MANDIBLE

- Prominent position → susceptible to trauma
- Caused by traffic or sport accidents and pathologic fractures

# CLASSIFICATION

- Alveolar bone alone or involve basal bone
- Single, bilateral & multiple fractures (segmental)
- According to the region of mandible

# SIGNS & SYMPTOMS

- Tenderness, limitation of mouth opening
- Deformity, deviation of midline
- Open bite malocclusion
- Palpable step defect of the jaw
- Pathologic / unnatural mobility of the mandible
- Sublingual hematoma



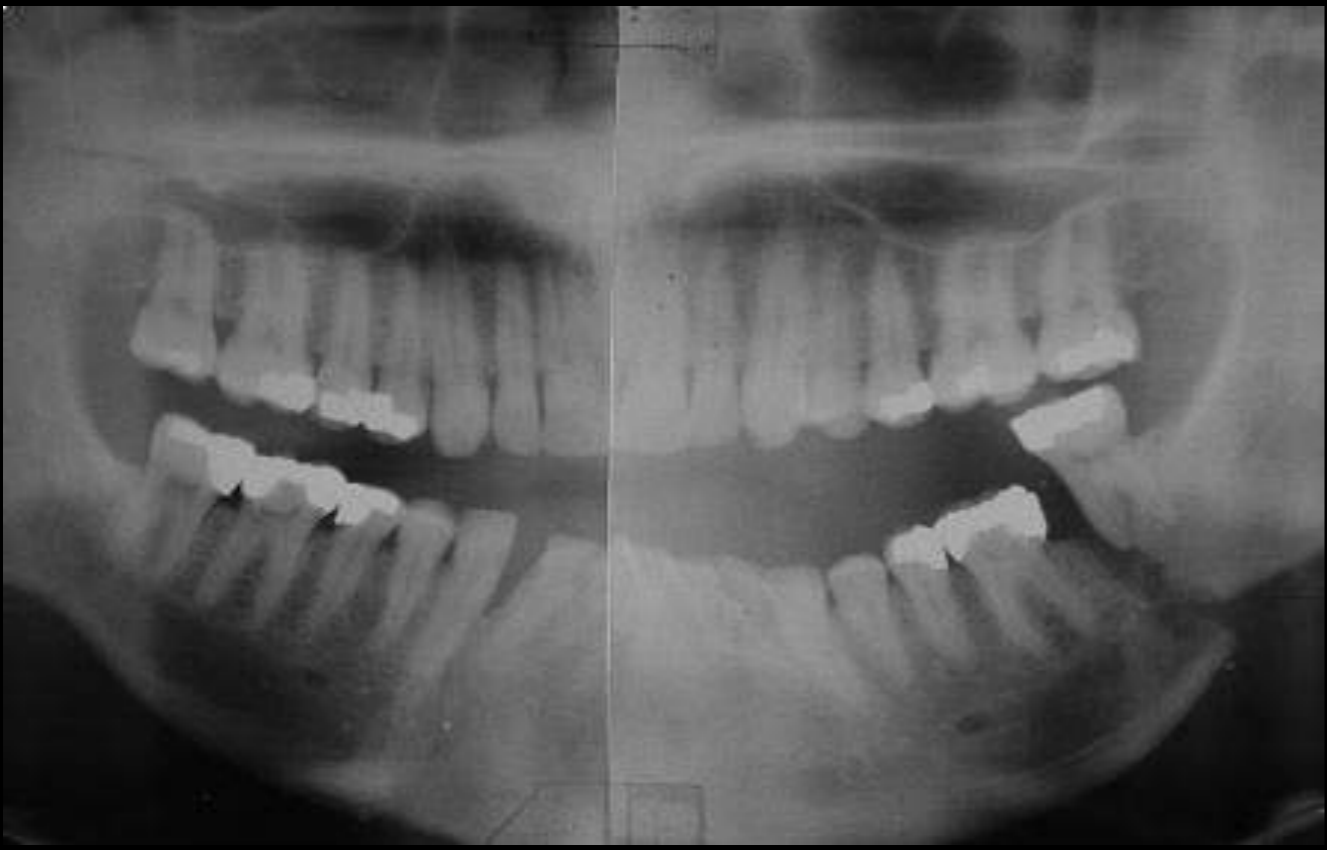
# ROENTGENOGRAPHY

- Plain photo : Skull PA / Lateral oblique
- Plain photo : Townes view
- Panoramic view
- CT Scan





NAME TAG 🙄



PANORAMIC



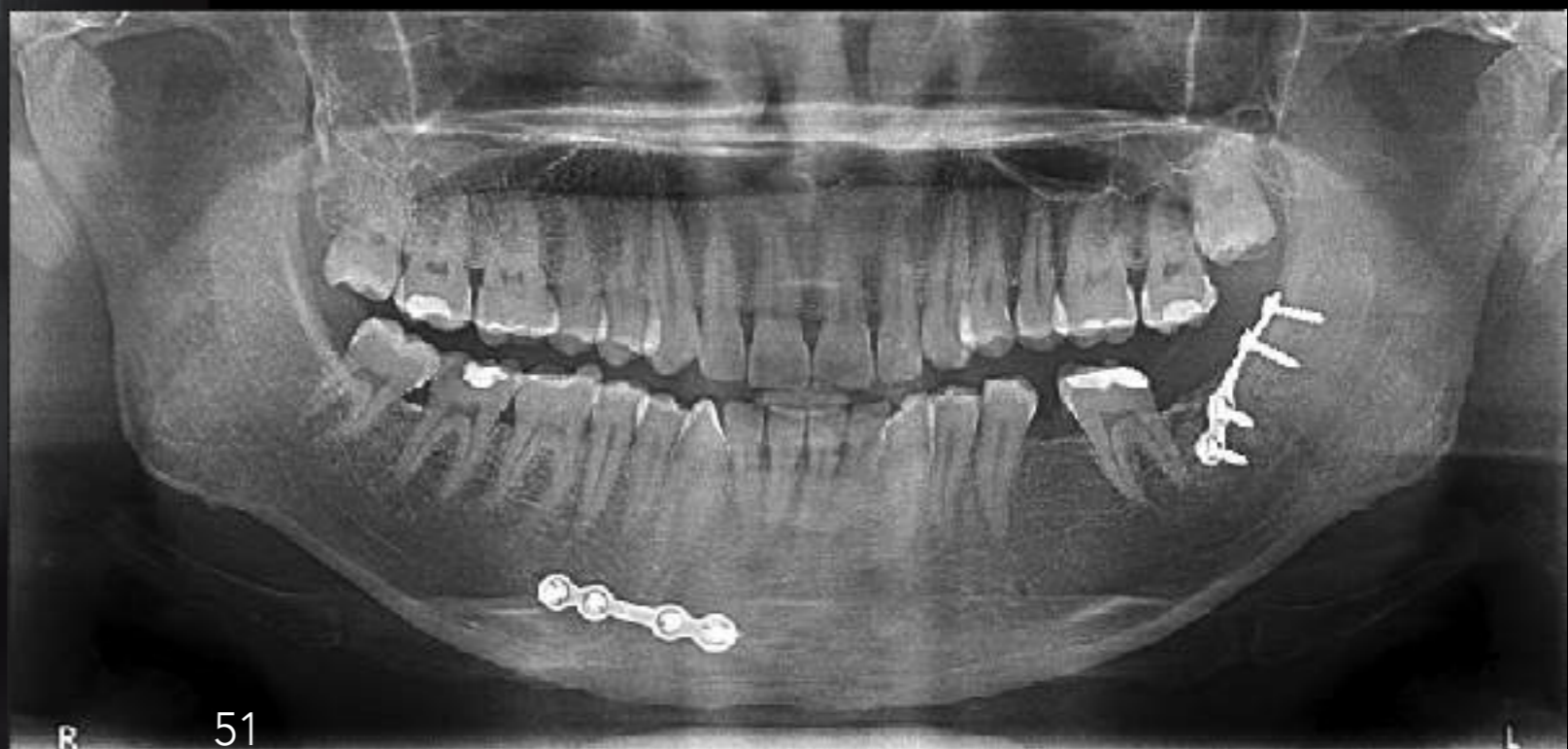
E Ellis

CT SCAN 3D



# PRINCIPLES OF TREATMENT

- Reduced & fixed earlier, the better is the outcome
- Antibiotics should be administered
- Fractured & caries teeth must be extracted
- The first measure : Restoring & securing occlusion

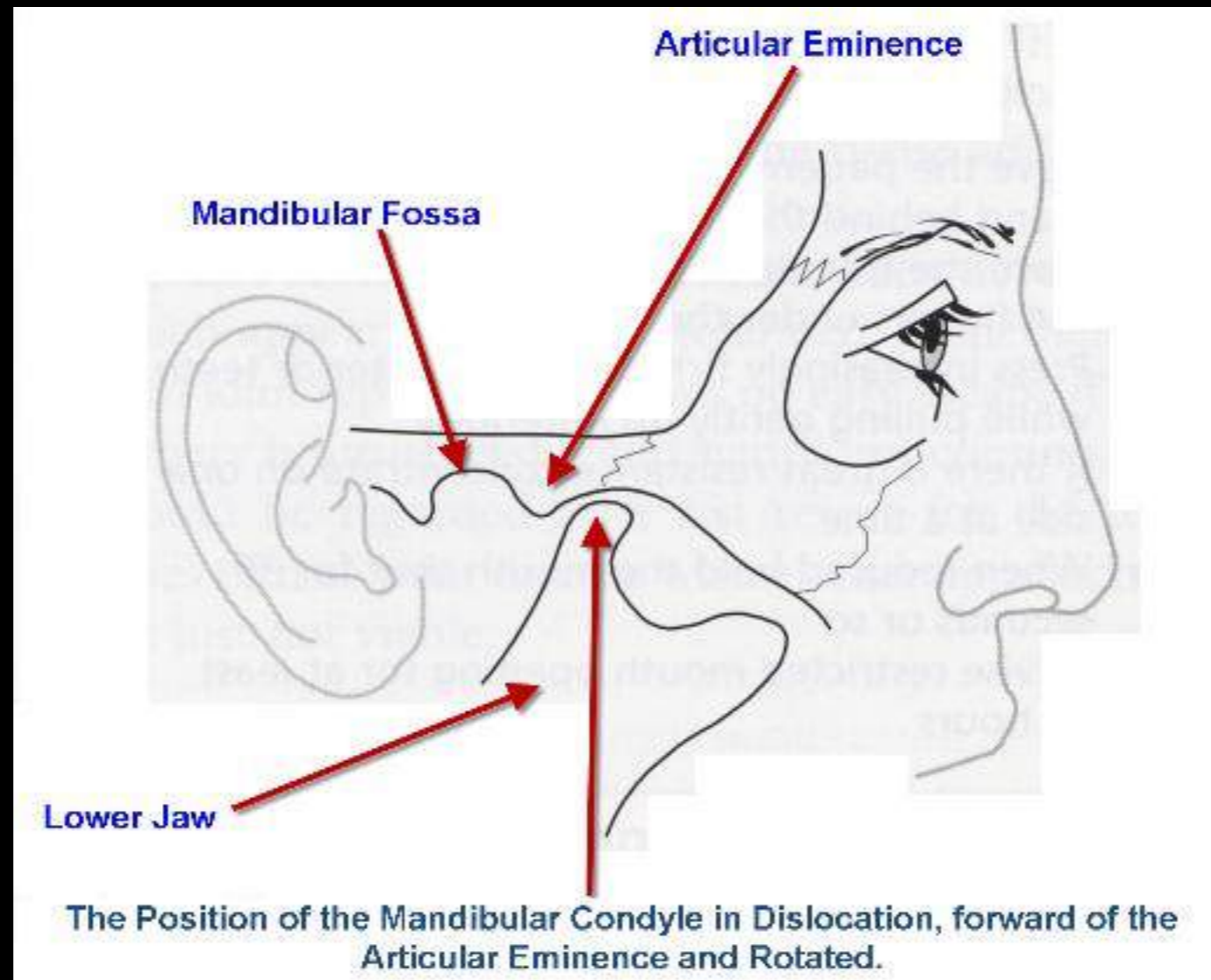


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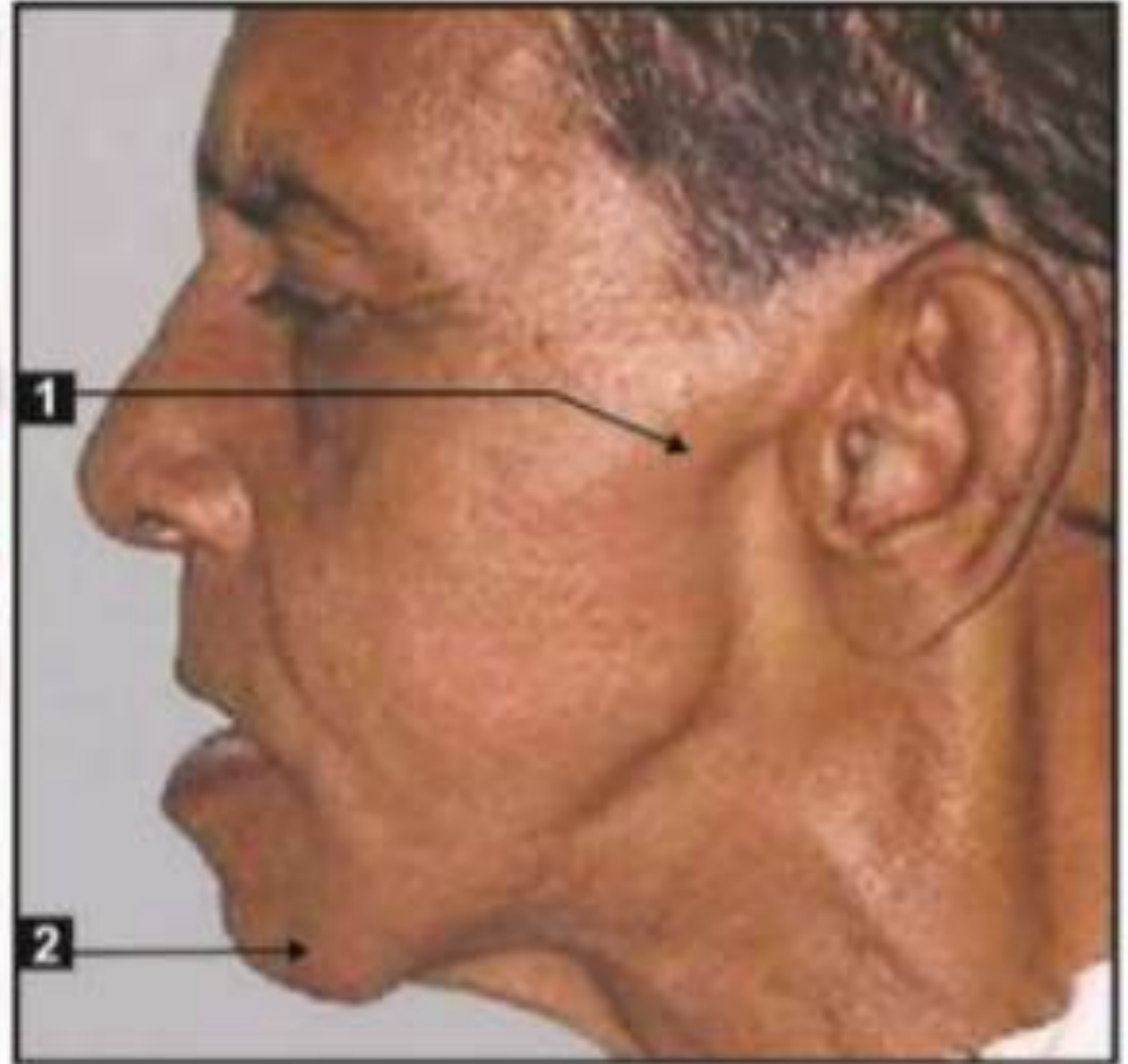
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L

# MANDIBLE DISLOCATION

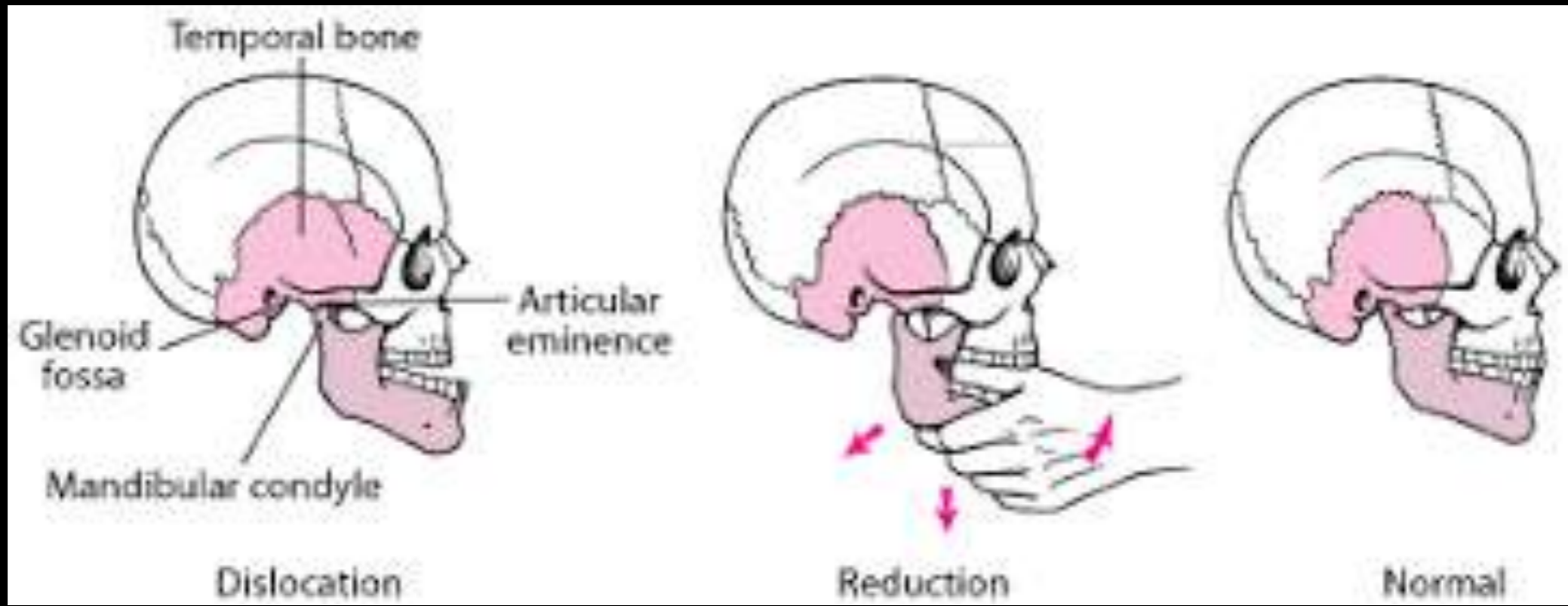






**Fig. 21.9B:** Unilateral acute dislocation of TMJ. Note the preauricular area depression (1) and (2) laterognathia of the mandible





# CONCLUSIONS

- Initial resuscitation : ABCDE
- Successful management is by complete examination
- failure often from the inability to recognised extent of an injury, then from the inability to treat the recognized an injury



# SPORT ACTIVITY

## DURATION OF BONY HEALING

1. No activity for first 20 days
2. Light activity after 21–30 days
3. Non-contact drills after 31–40 days
4. Full contact after day 41
5. In combat sports - no activity before three months

TERIMA KASIH

