Basic life support and CPR

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ATLAS protocol for management of trauma

A: airway

B: breathing

C: circulation with control of bleeding

D: disability

E: exposure

The Basics	What to evaluate	Action to take
A: Airway	Assess the airway Look, listen, and feel	Open the mouth and airway Remove any foreign bodies or loose teeth Use head tilt-chin lift or jaw thrust maneuver if cervical spine injury is suspected.
B: Breathing	Assess breathing Is the chest rising & falling?	Provide assisted respirations if the patient is not breathing
C: Circulation	Check pulses	Start CPR if you don't feel a pulse
D: Disability	Is the victim able to talk? Is victim moving extremities?	Prevent neurological injury by making sure not to unnecessarily move the patient, especially don't turn the head.
E: Exposure	Look for all stab wounds and gunshot wounds in armpits, groins, etc.	Direct pressure if bleeding wound Do not remove impaled objects.

Management of Compromised Airway

Time is critical **(Loss of the airway is the most likely cause of death in injury to the face)**

1-Clear the lumen of the airway :

By finger sweep procedure remove any foreign body that obstruct the airway like clotted blood, fractured tooth or denture, shell…then inspect carefully.

2-Maintain its patency :

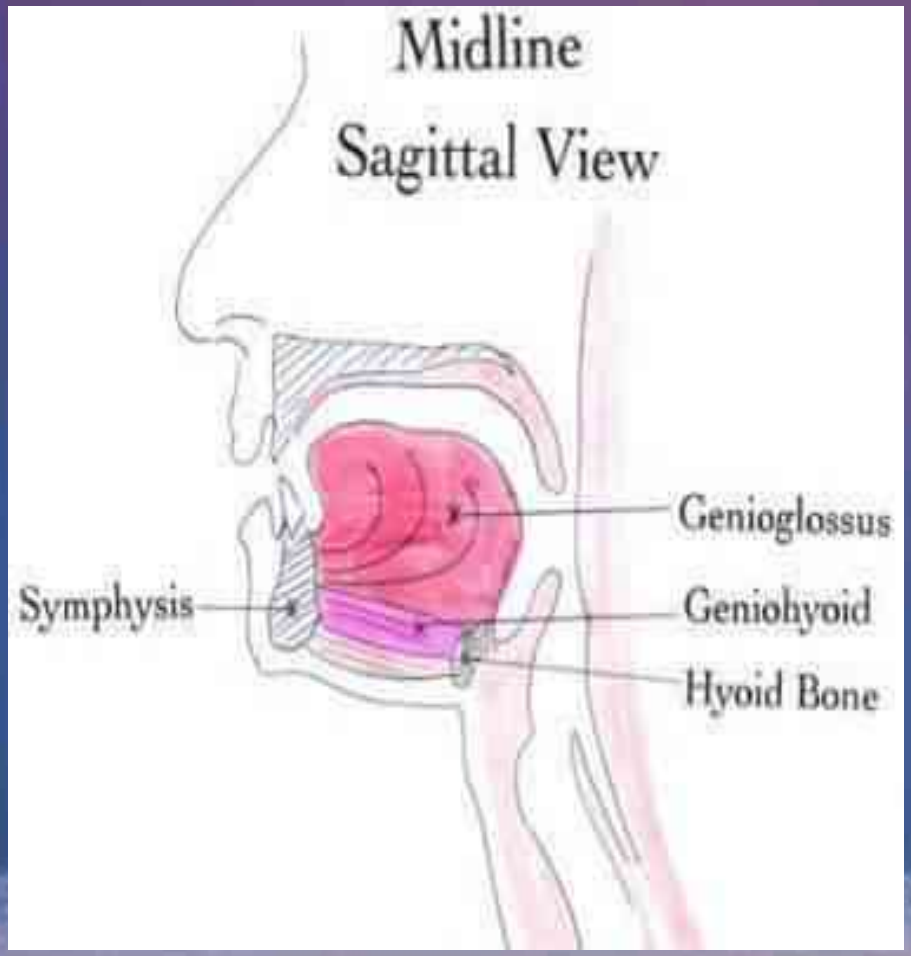
1-gravity:semiprone position

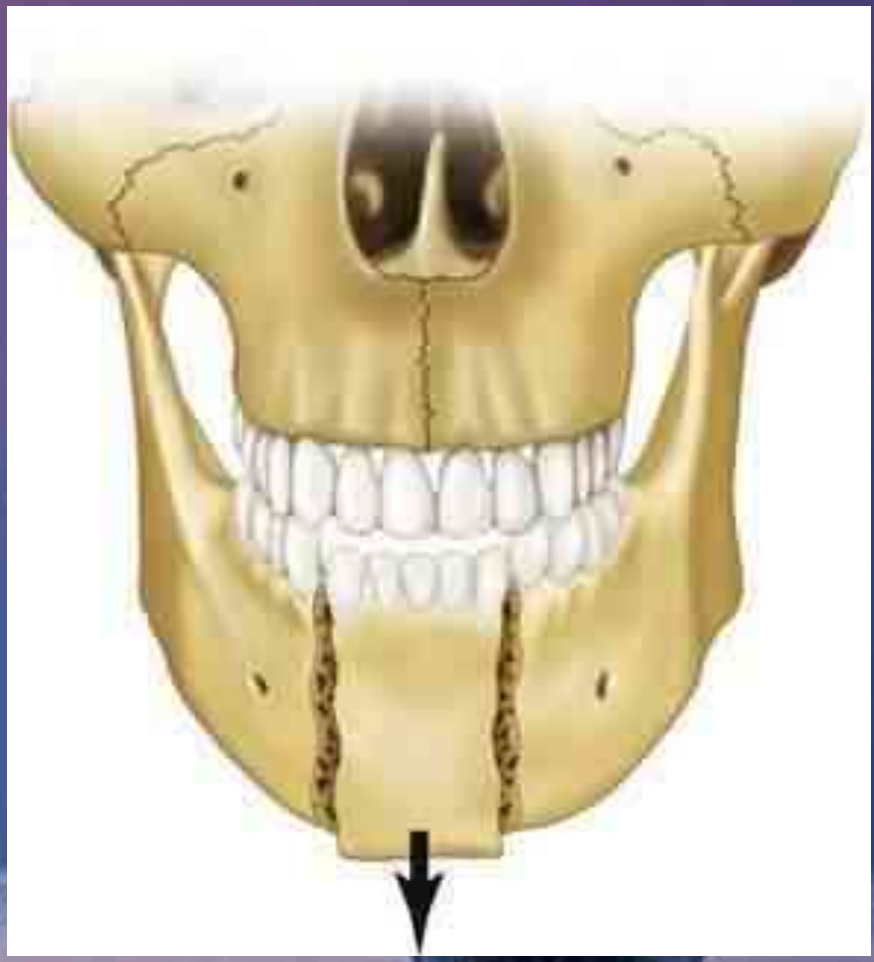
2-oro- & nasopharyngeal airways

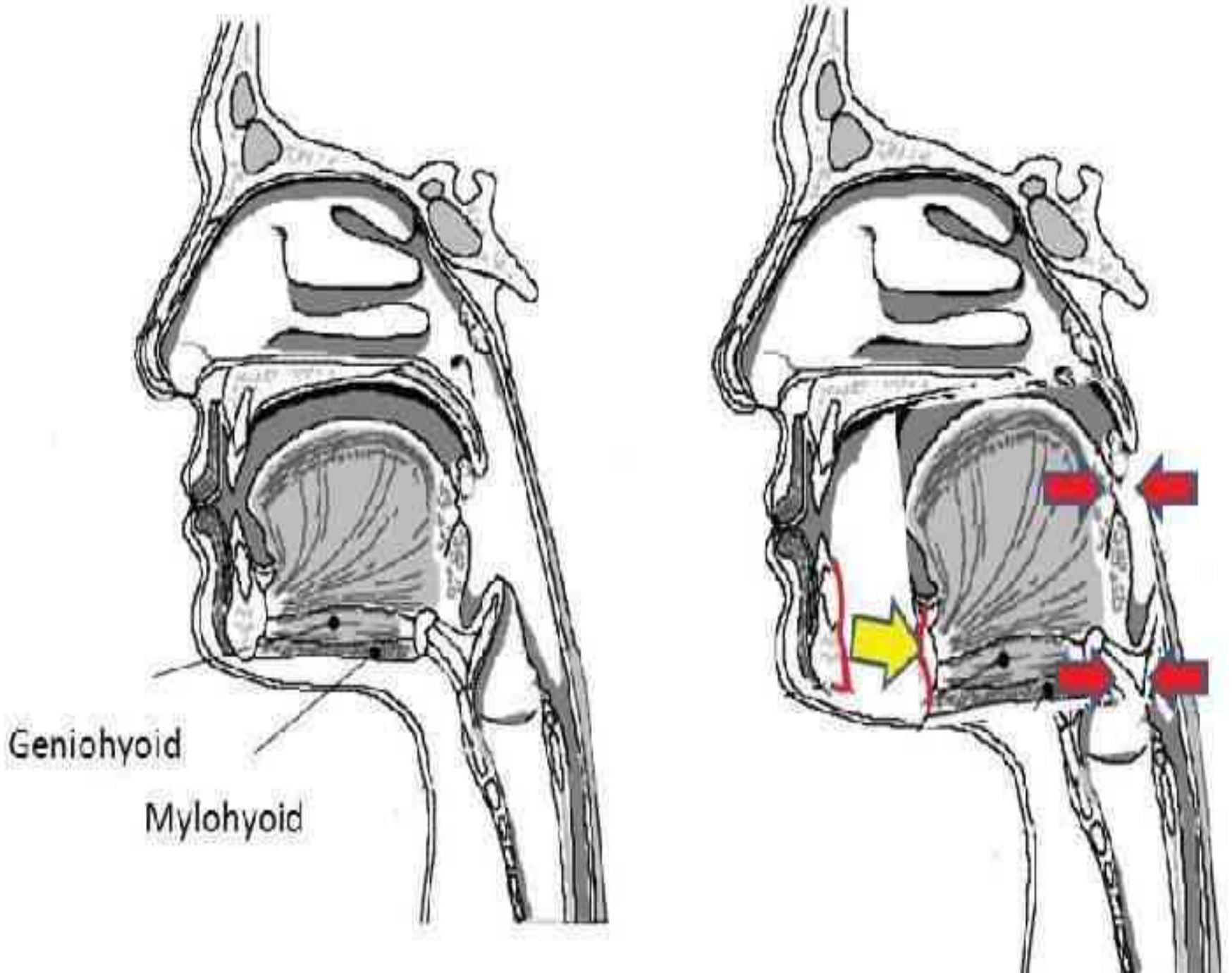
3-endotracheal intubations

4-upper airway bypass: cricothyrotomy, tracheostomy

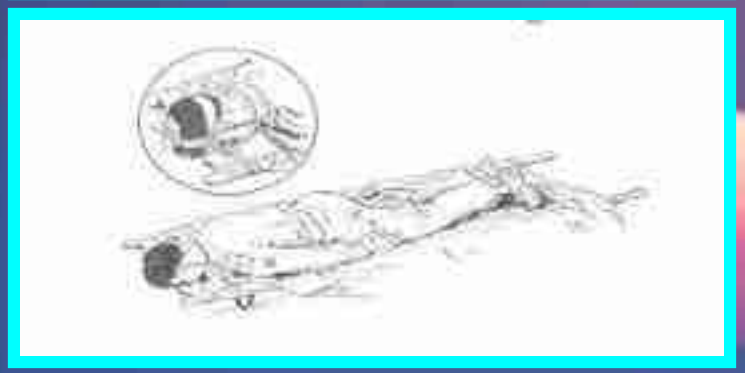

R


Midline
Sagittal View
Genioglossus
Symphysis
Geniohyoid
Hyoid Bone



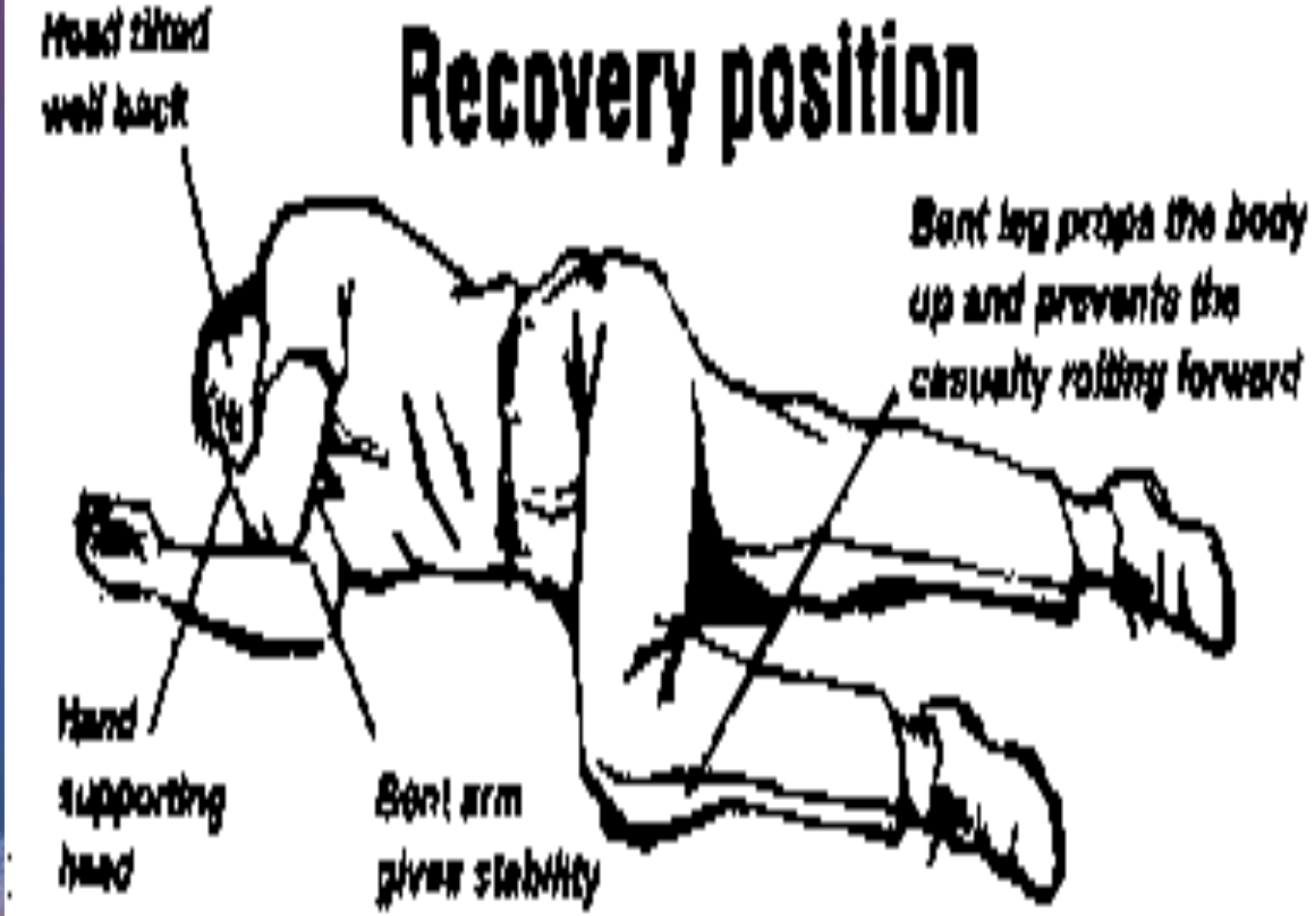

Geniohyoid
Mylohyoid

Maintain of airway patency



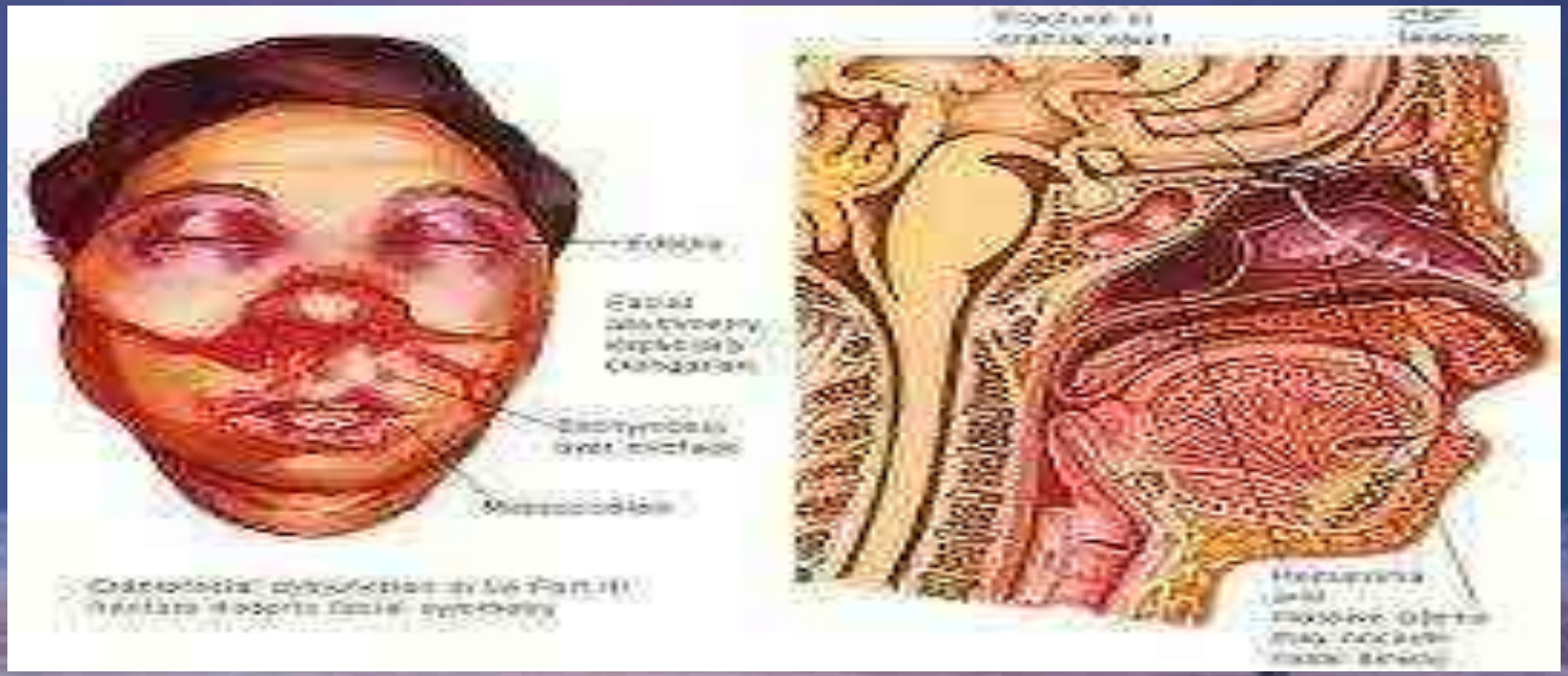
gravity

Recovery position

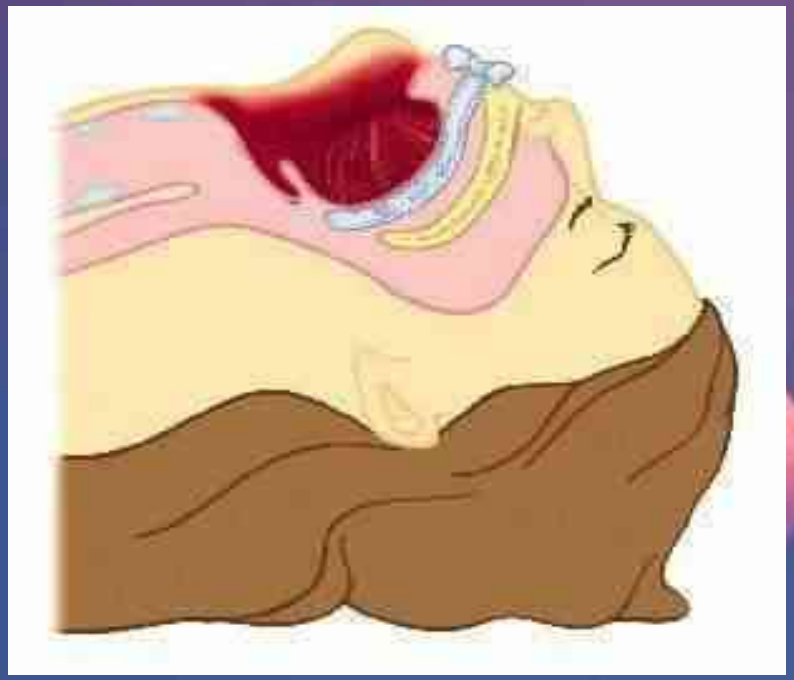


EMERGENCY MANAGEMENT OF MAXILLOFACIALLY INJURED PATIENTS

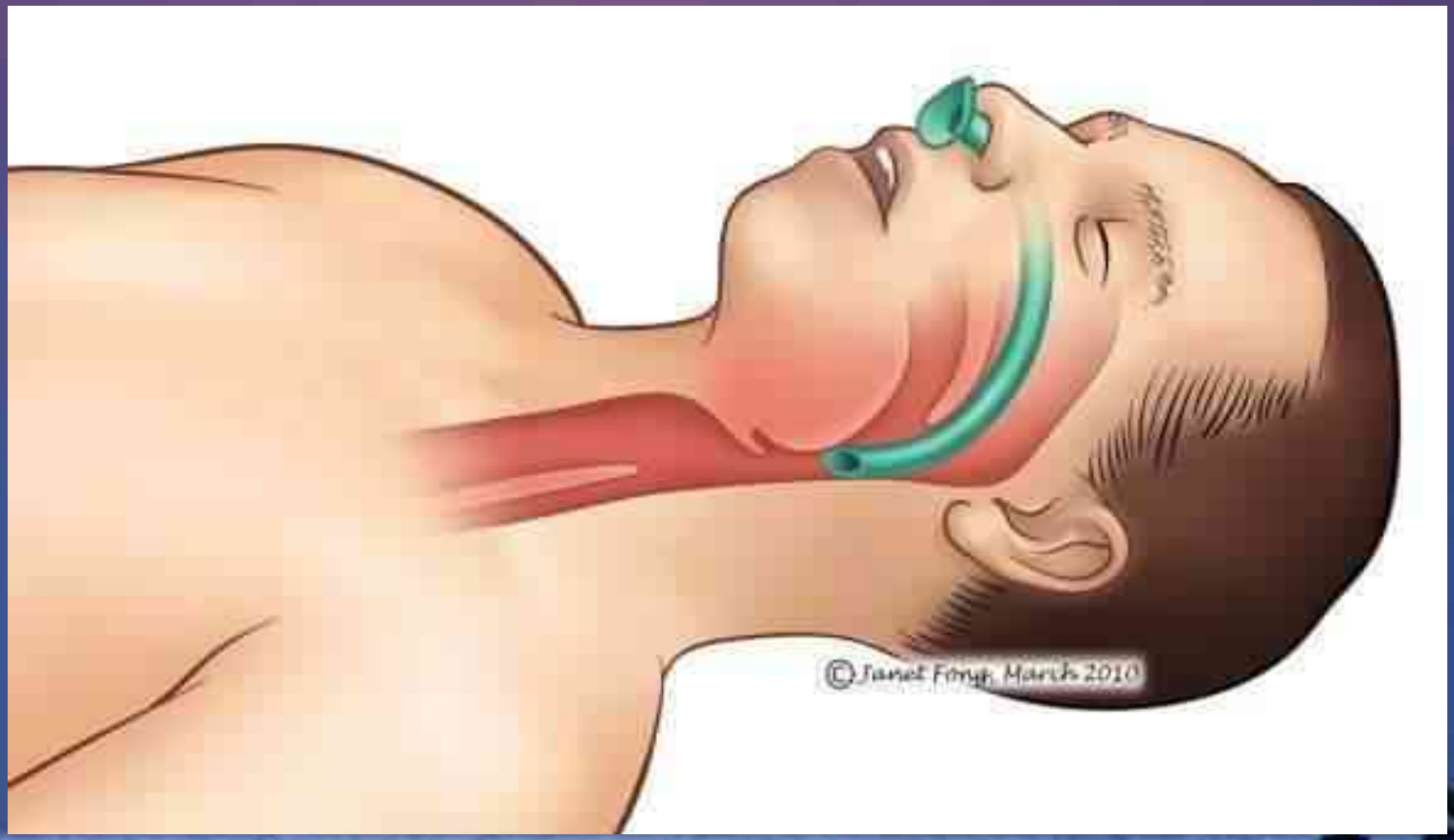
We may have late airway obstruction when edema -that develop within 60-90 minutes -of the soft palate or base of the tongue may obstruct the airway & necessate elective intubations or tracheostomy



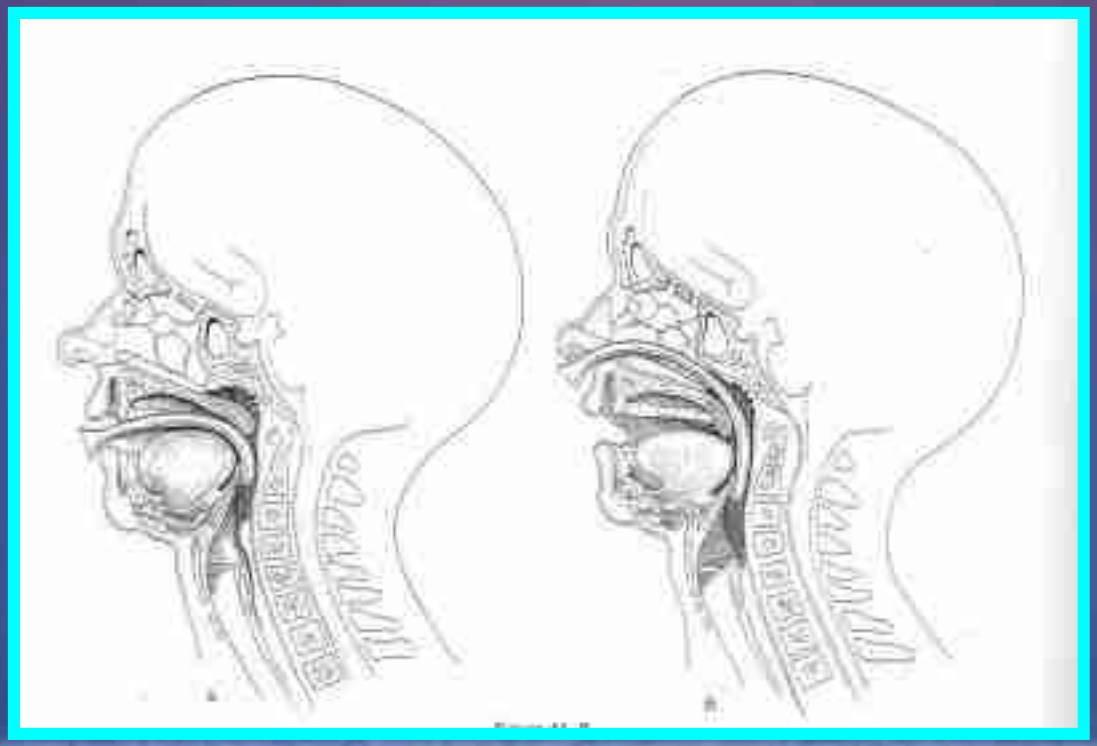
Oropharyngeal airway:



Nasopharyngeal airway

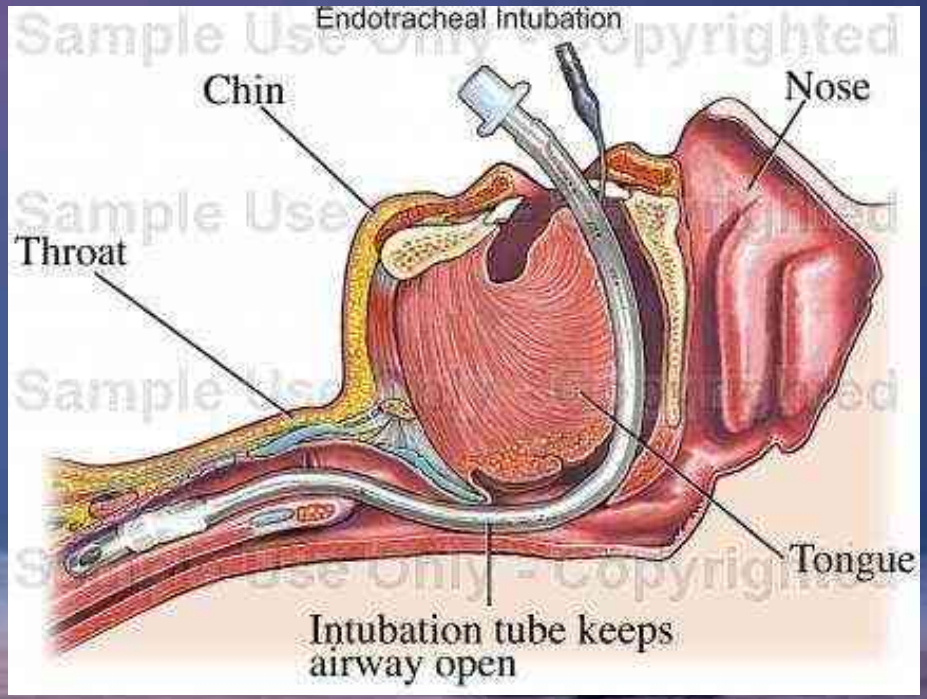


Oro- & Nasopharyngeal Airways

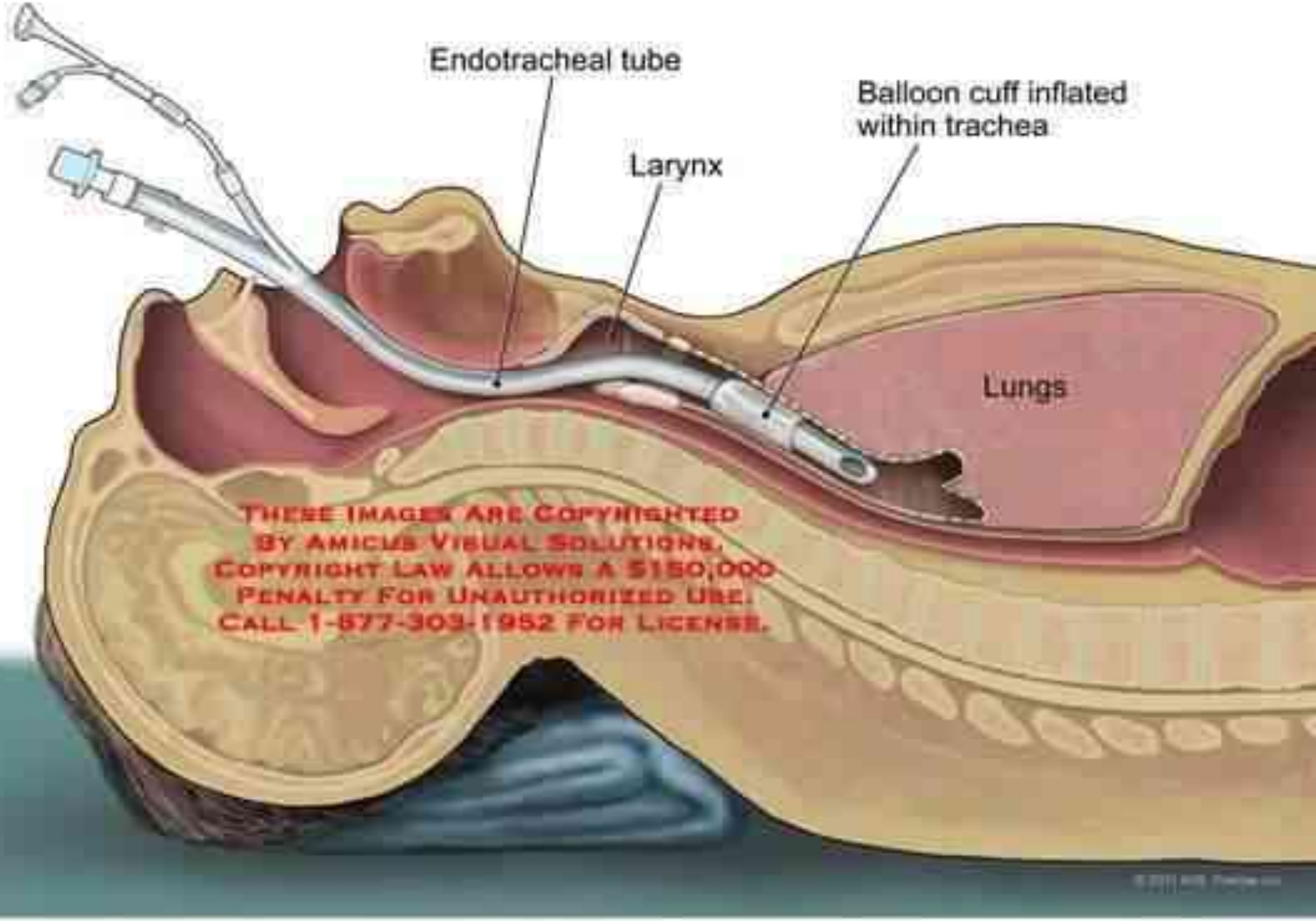


Endotracheal intubation

- *cuff tube inserted either by oral or nasal route*
- *It is difficult to be placed in conscious patient ,highly distressed and hypoxic , not tolerate it*

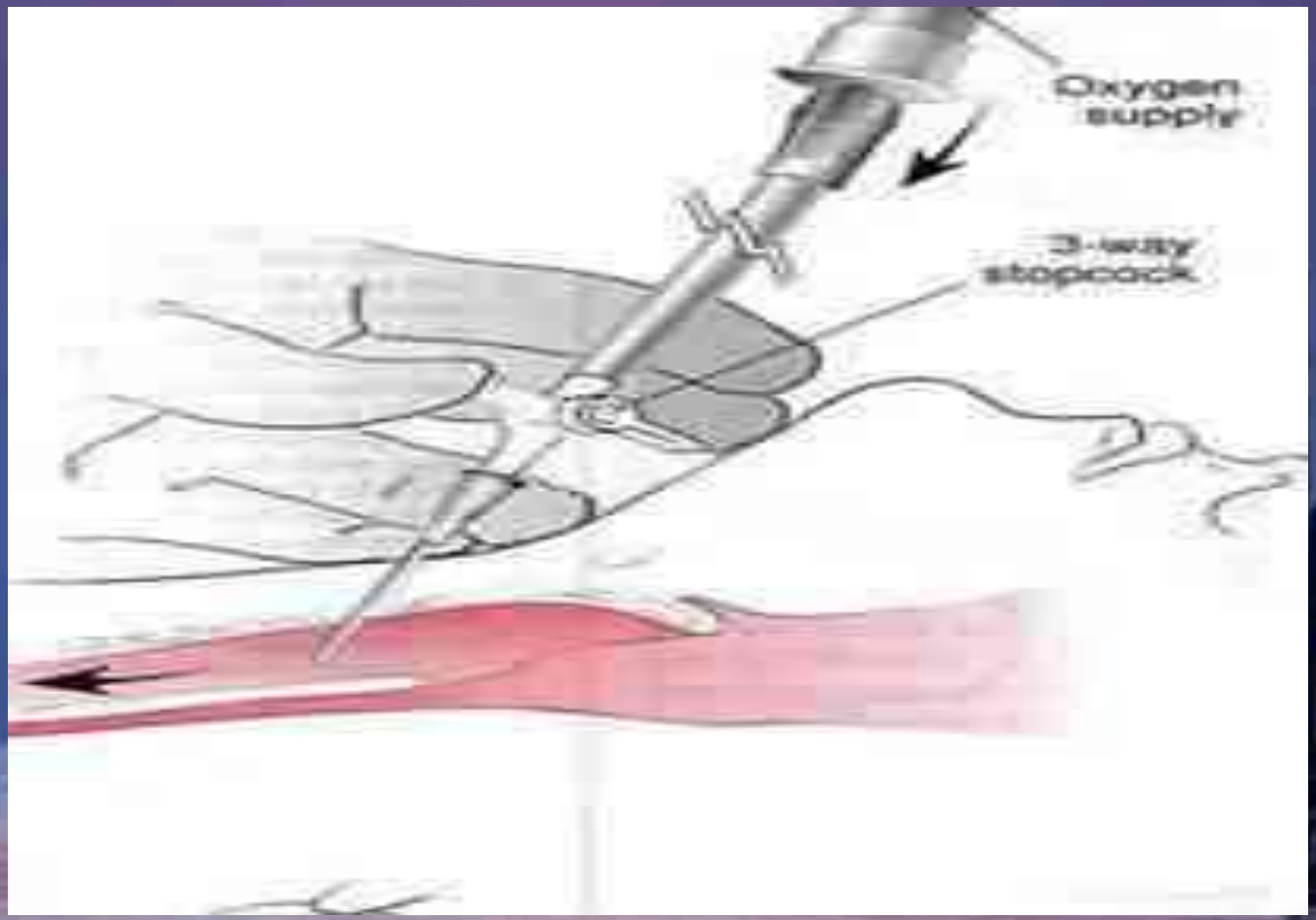


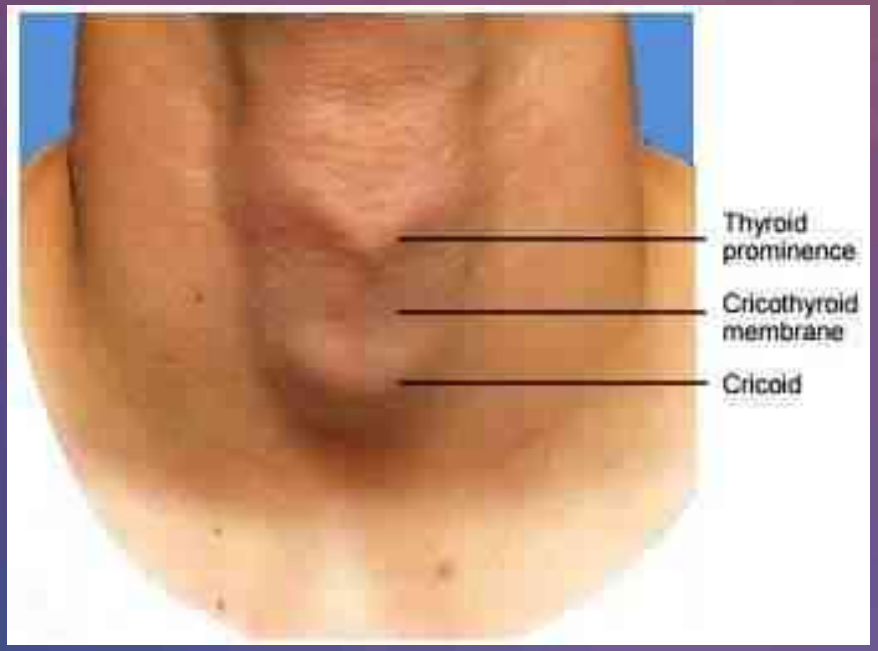
Endotracheal Intubation

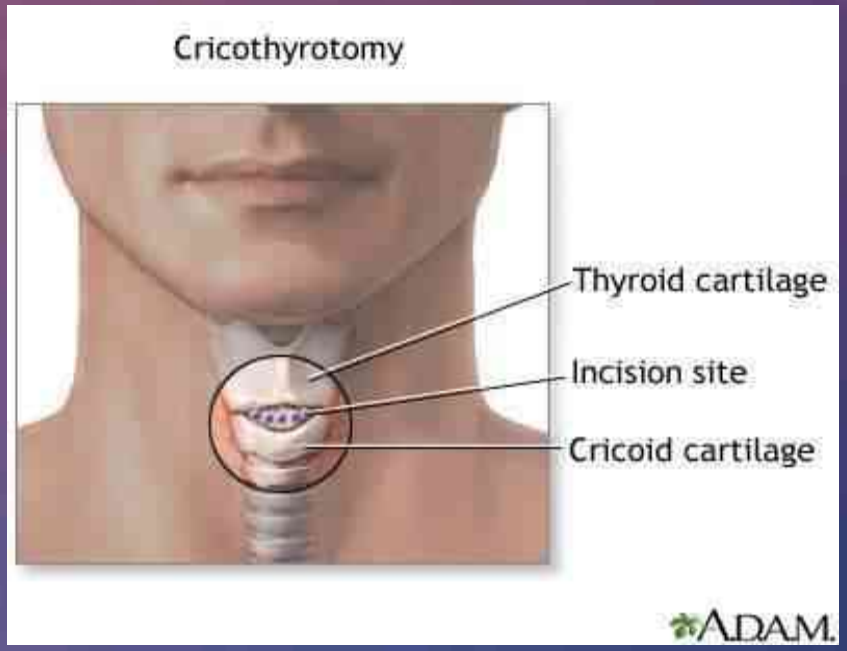


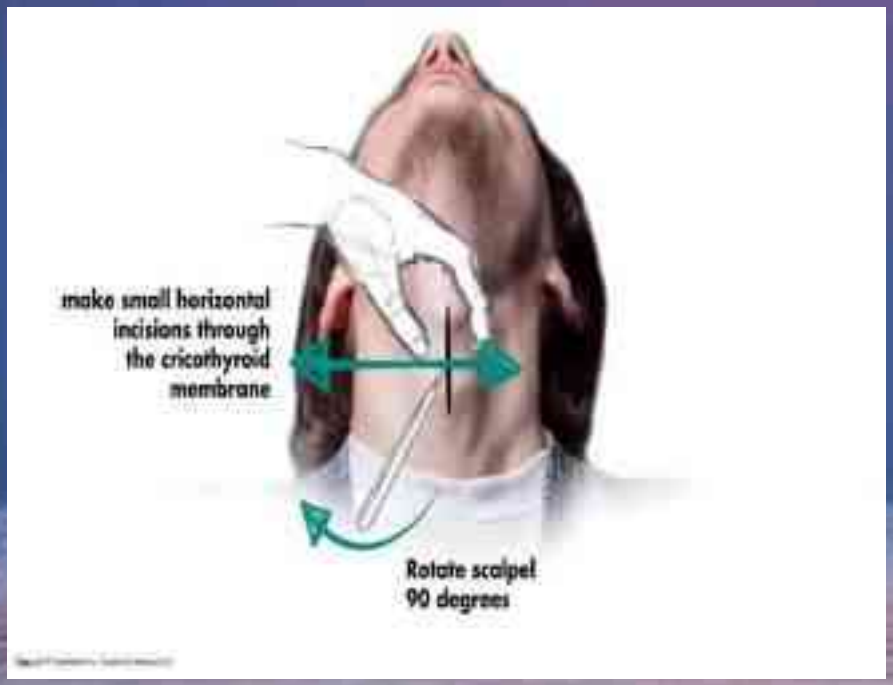
Surgical airway:

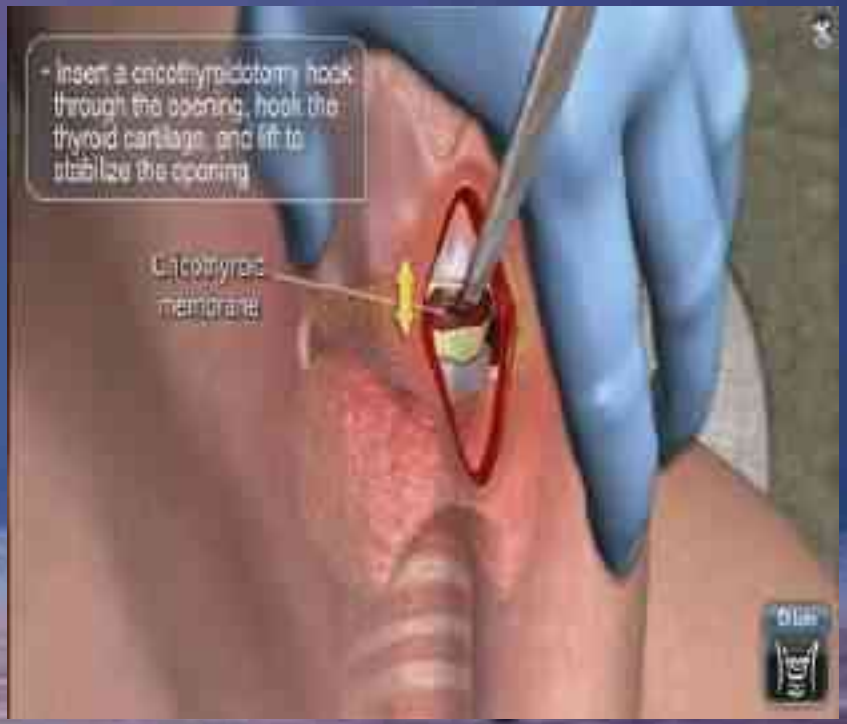
1-Cricothroidotomy:



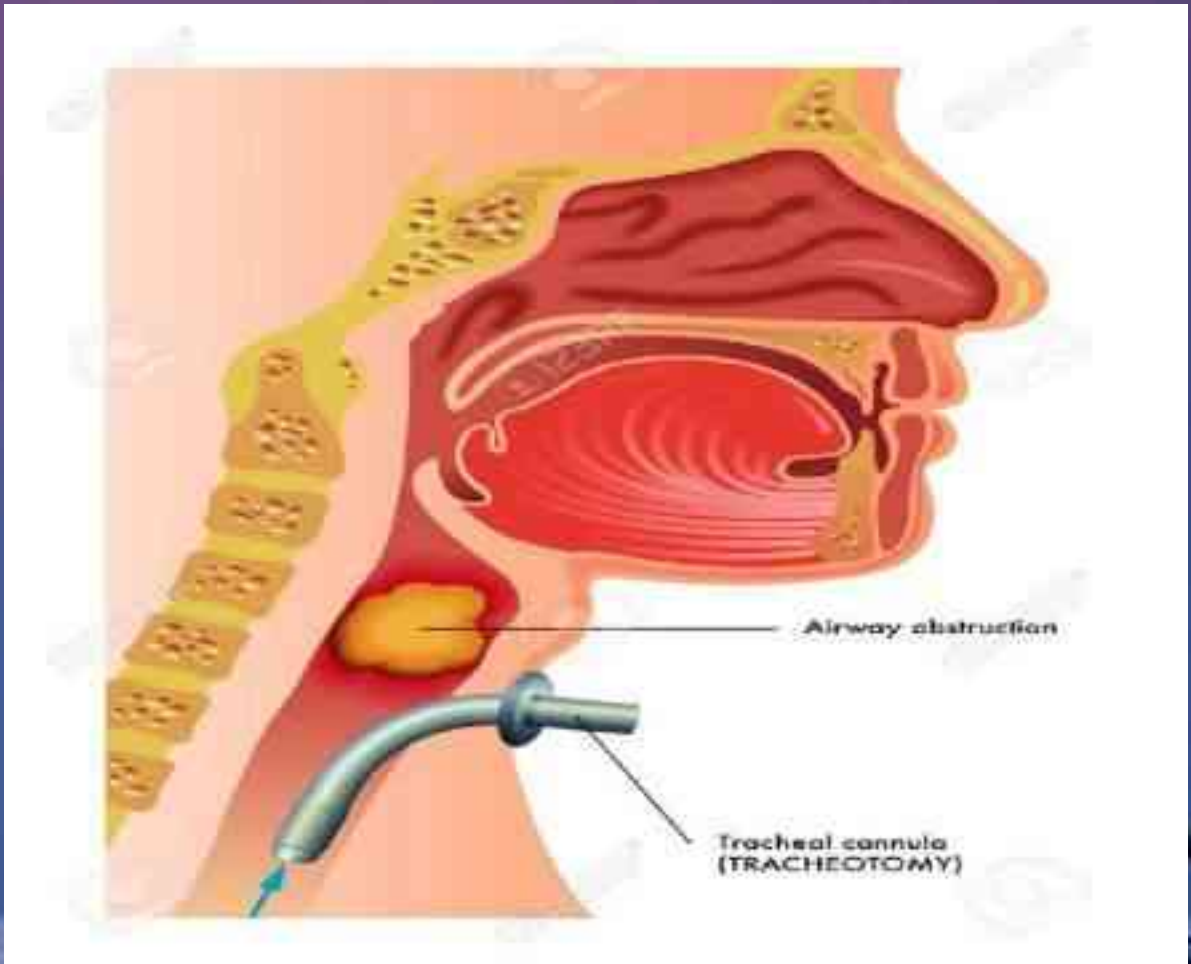

Thyroid prominence
Cricothyroid membrane
Cricoid


Cricothyrotomy
Thyroid cartilage
Incision site
Cricoid cartilage
A.D.A.M.

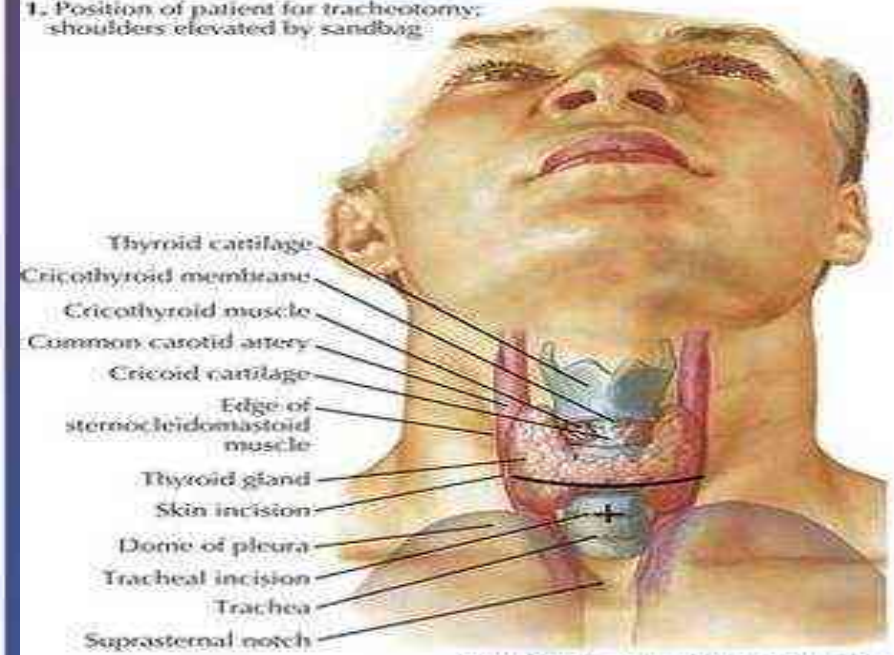

make small horizontal incisions through the cricothyroid membrane
Rotate scalpel 90 degrees


- insert a cricothyroidotomy hook through the opening, hook the thyroid cartilage, and lift to stabilize the opening

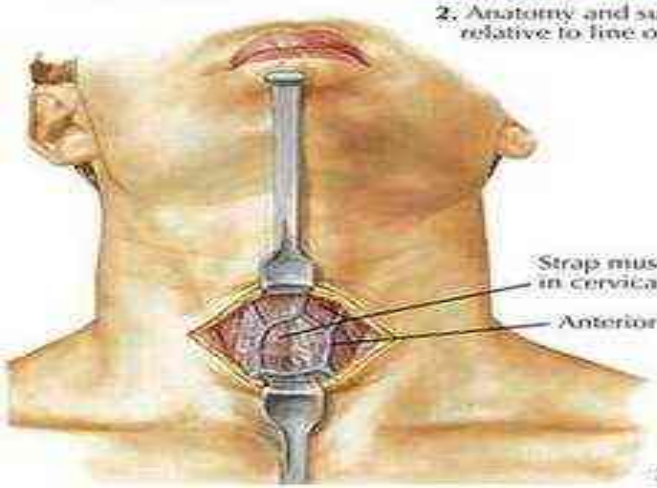
2-Tracheostomy:



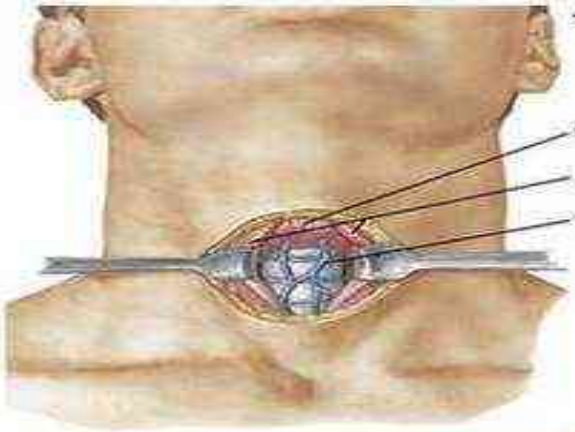
1. Position of patient for tracheotomy; shoulders elevated by sandbag



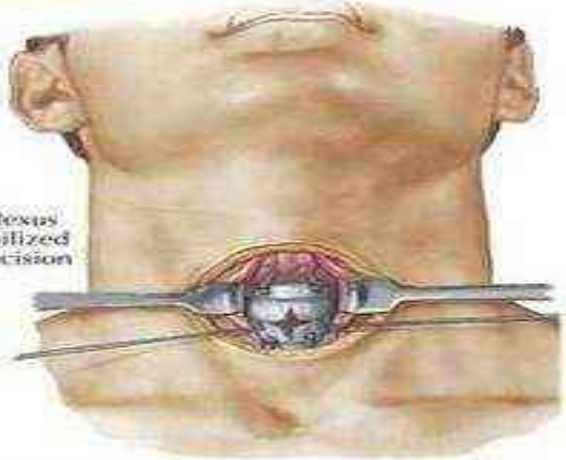
2. Anatomy and surface topography relative to line of incision



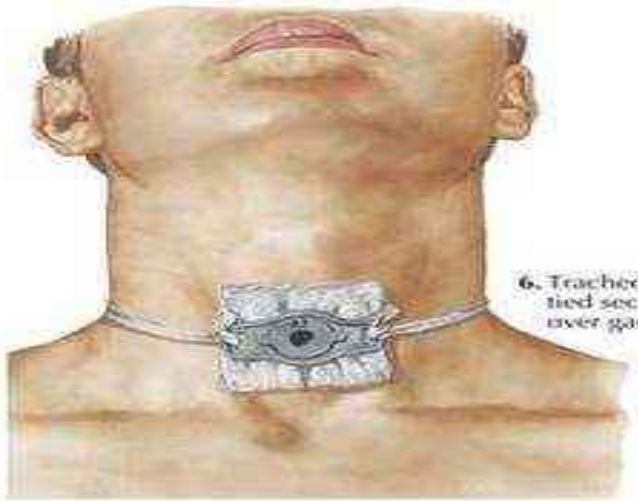
3. Skin and fat retracted



4. Strap muscles retracted to expose trachea



5. Pretracheal venous plexus divided. Trachea stabilized by hooks. Cruciate incision in trachea.



6. Tracheotomy tube tied securely in place over gauze square

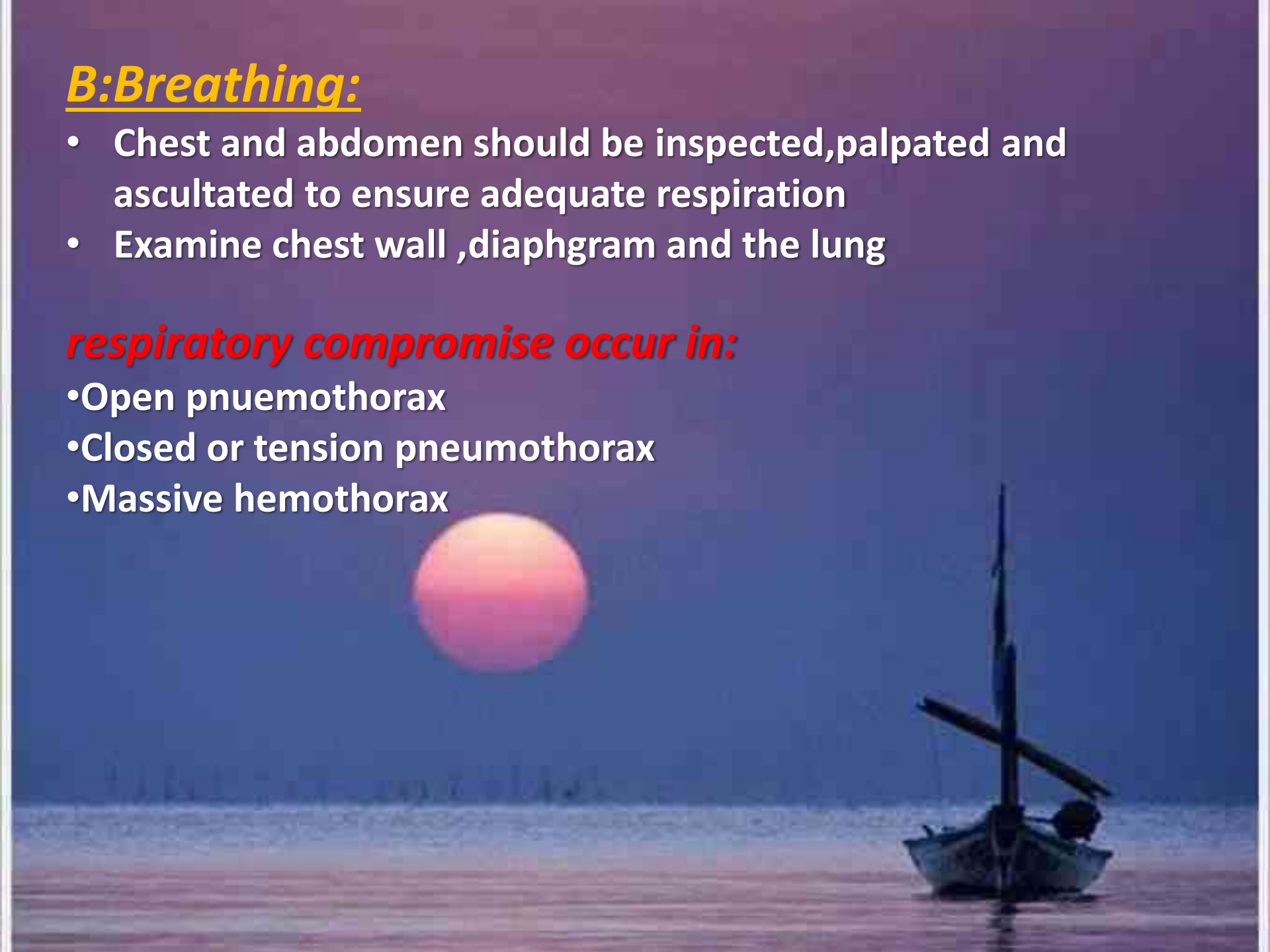
F. Netter M.D.

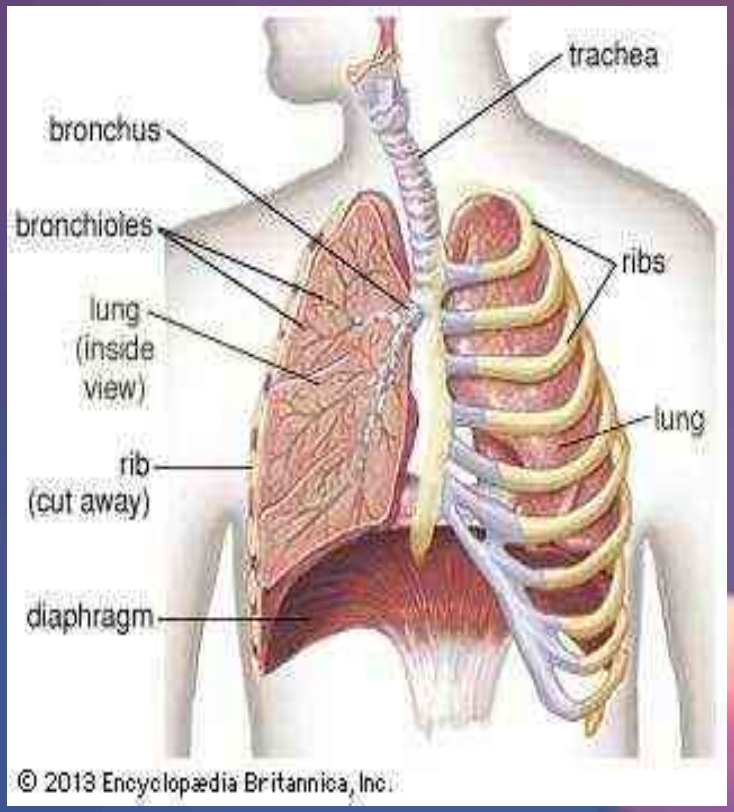
B:Breathing:

- Chest and abdomen should be inspected,palpated and ascultated to ensure adequate respiration
- Examine chest wall ,diaphgram and the lung

respiratory compromise occur in:

- Open pnuemothorax
- Closed or tension pneumothorax
- Massive hemothorax




trachea
bronchus
bronchioles
ribs
lung
(inside
view)
lung
rib
(cut away)
diaphragm
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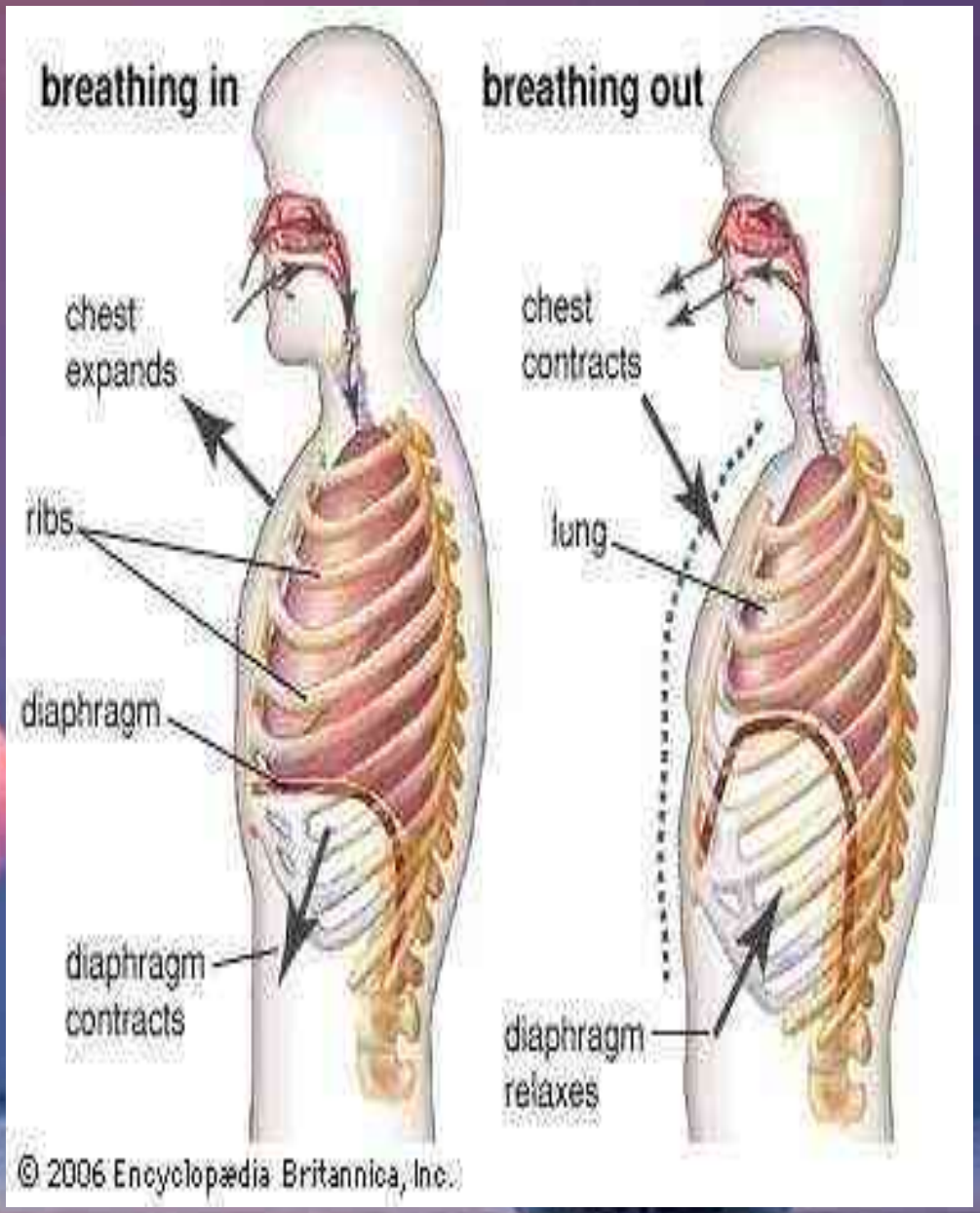
breathing in
breathing out
chest
expands
chest
contracts
ribs
lung
diaphragm
diaphragm
contracts
diaphragm
relaxes
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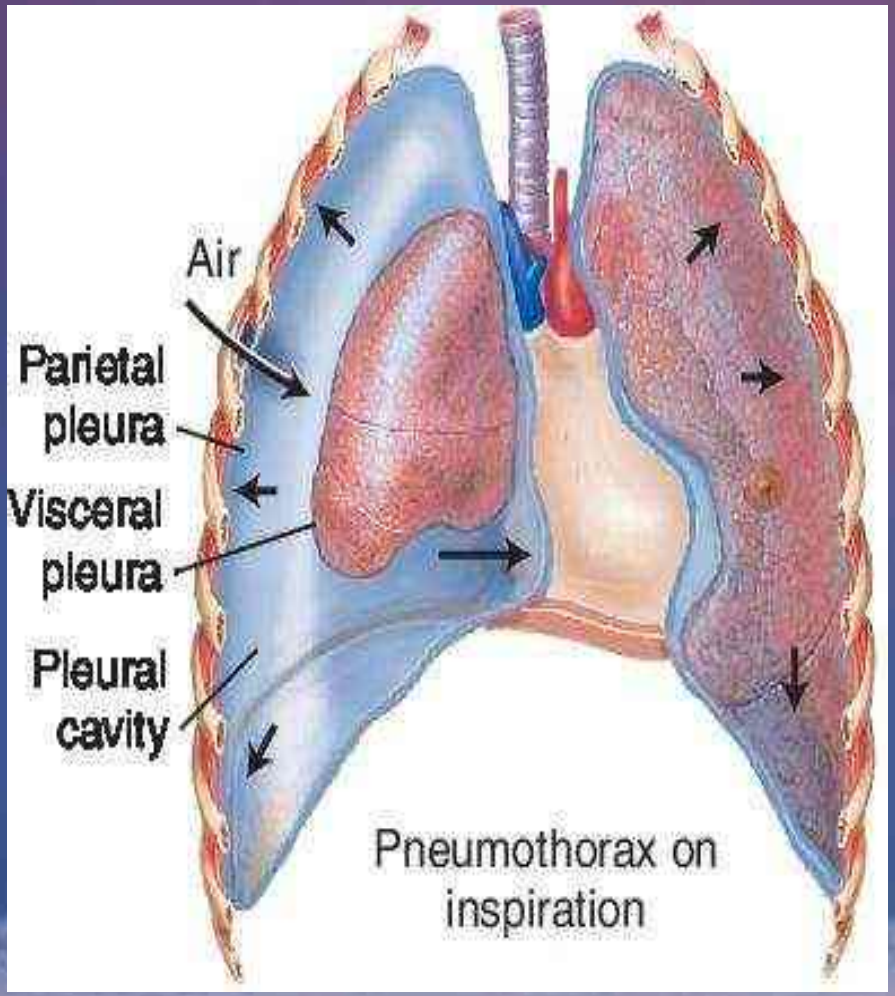
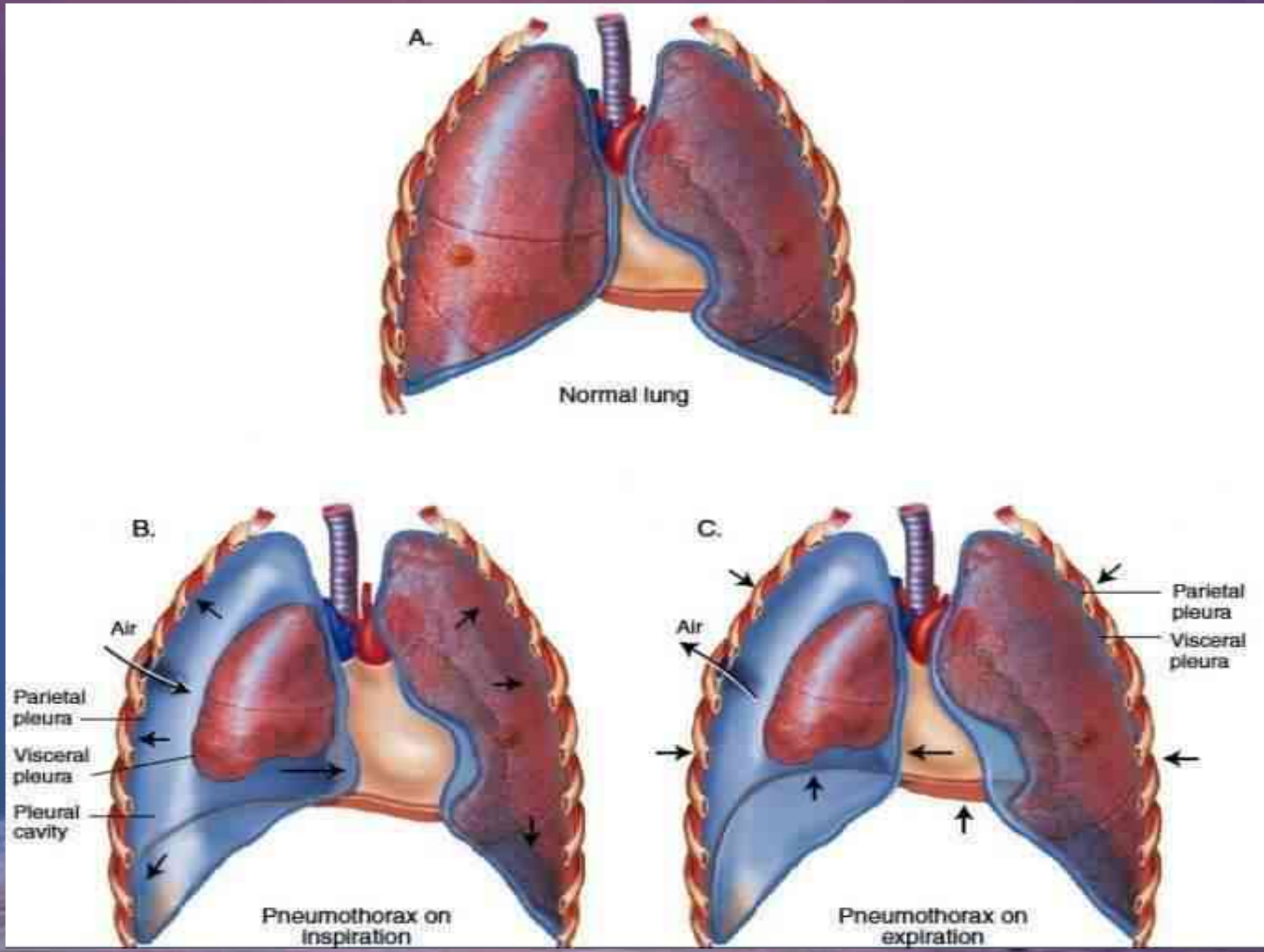
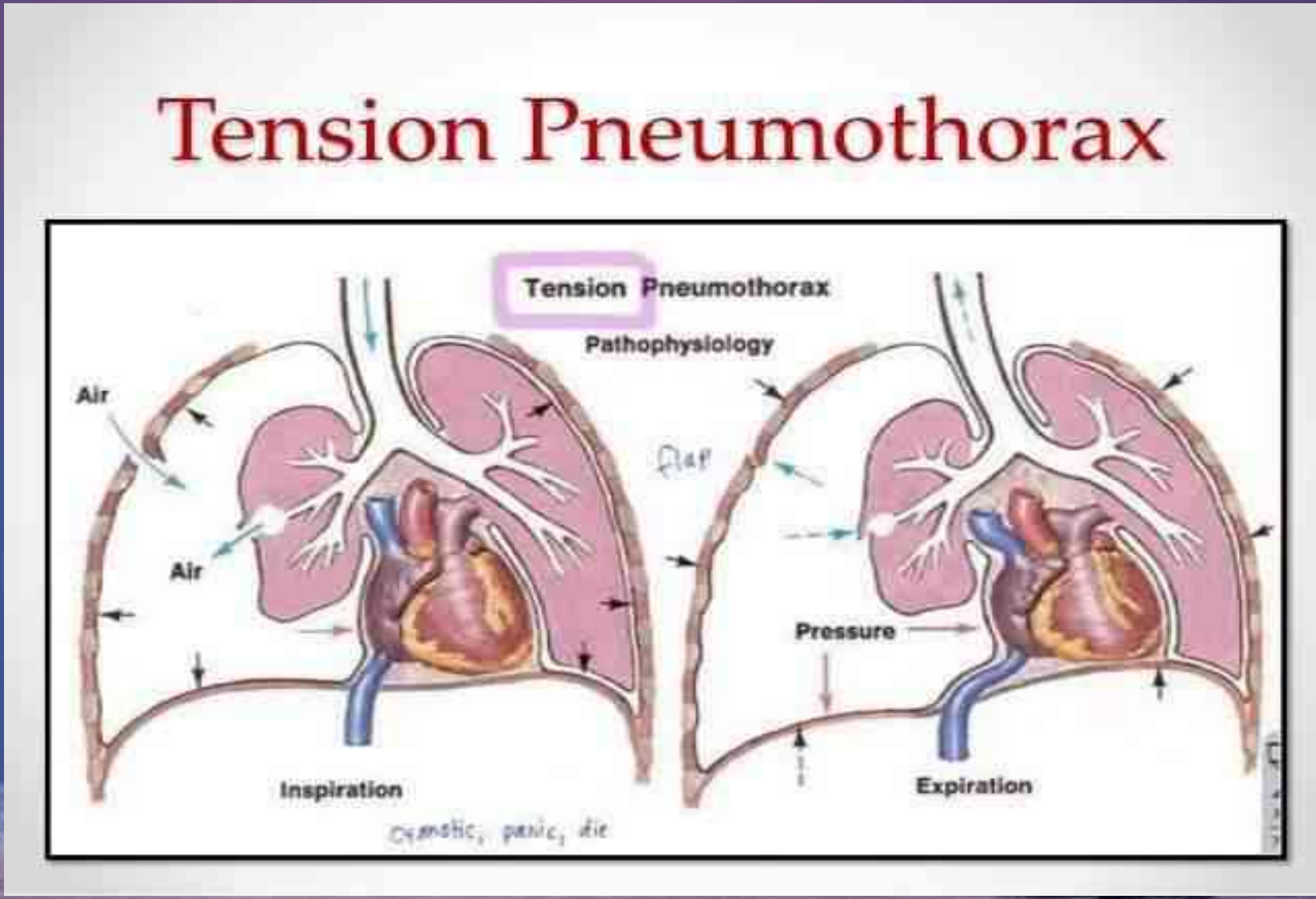
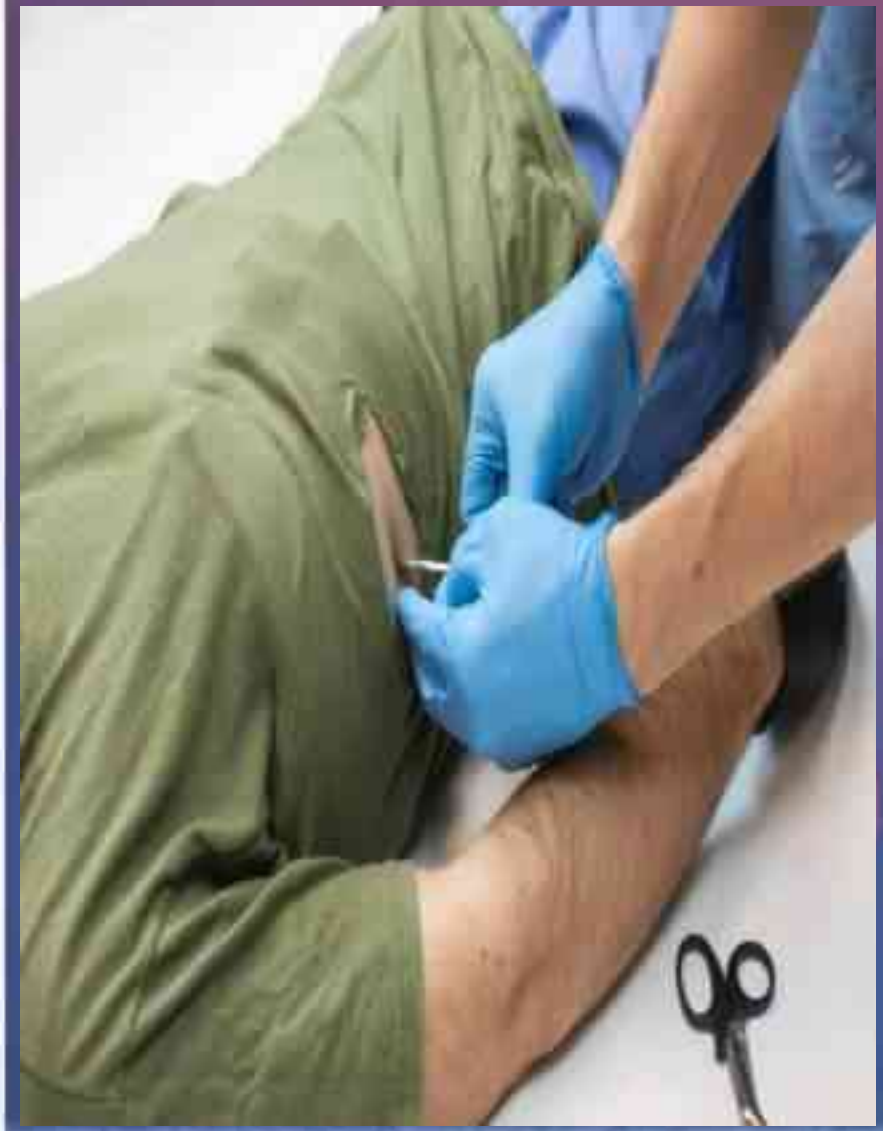
open pneumothorax:

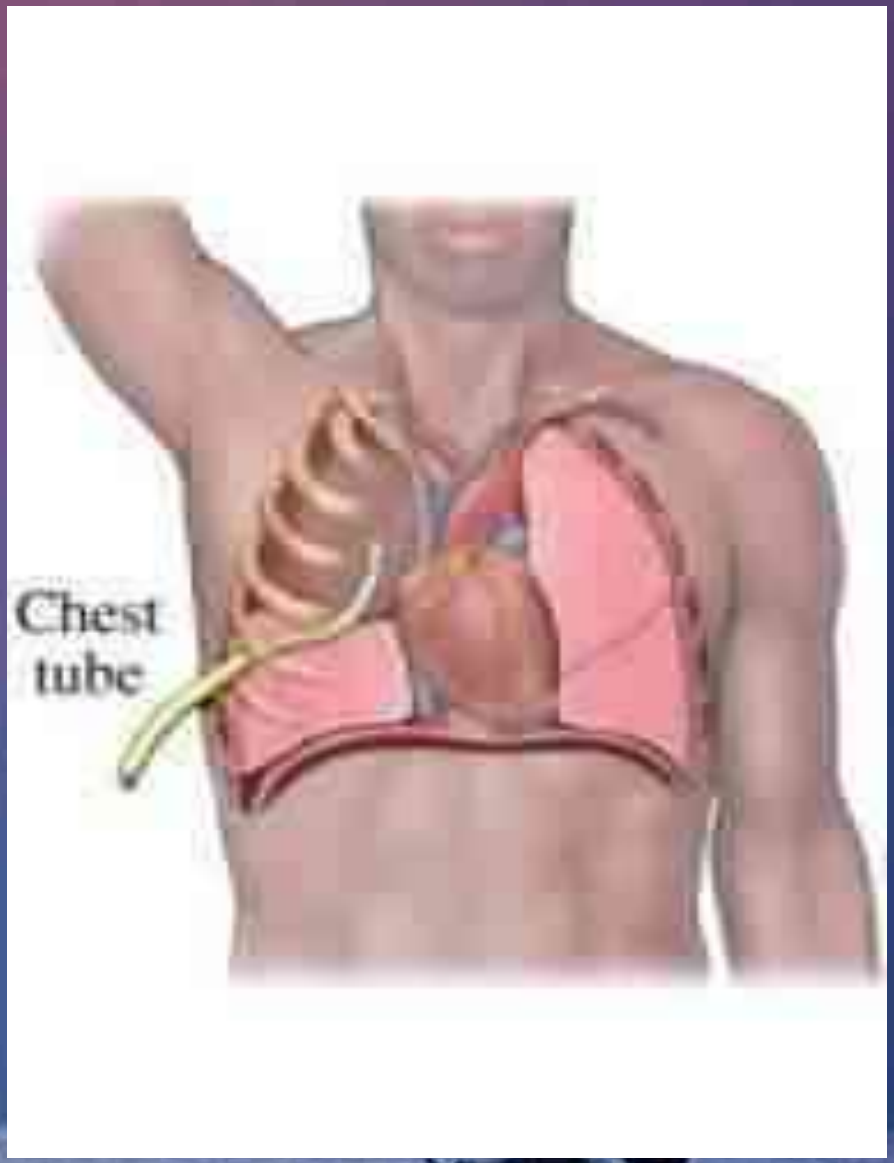


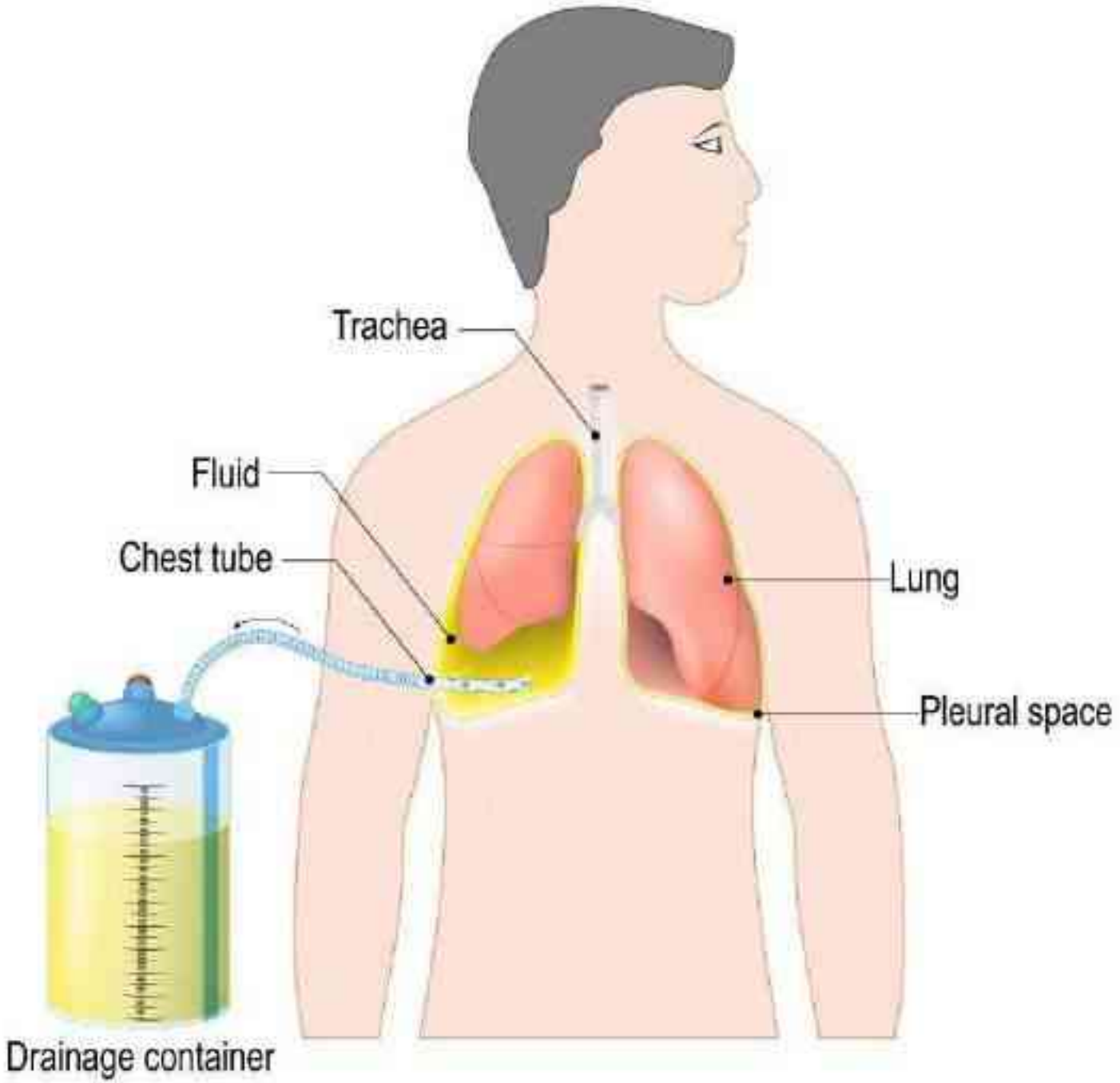

A.
Normal lung
B.
Air
Parietal pleura
Visceral pleura
Pleural cavity
Pneumothorax on inspiration
C.
Air
Parietal pleura
Visceral pleura
Pneumothorax on expiration

Closed or tension pneumothorax:






Chest
tube

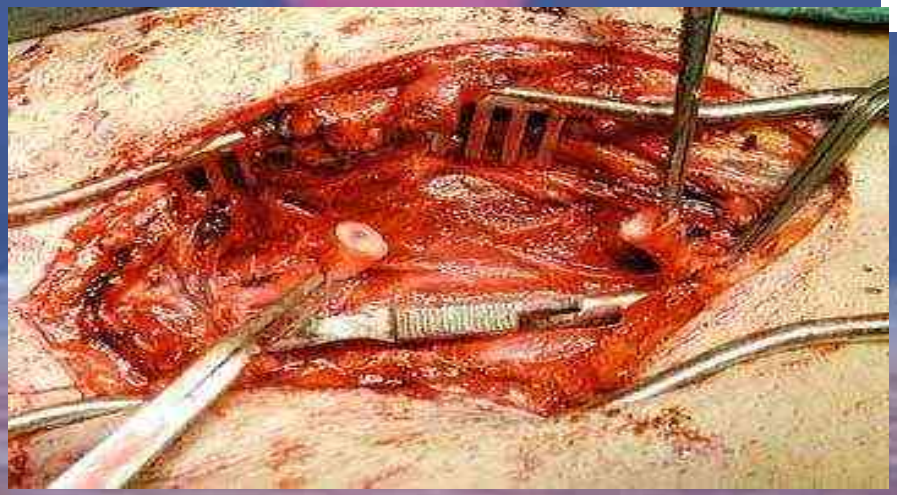

Trachea
Fluid
Chest tube
Lung
Pleural space
Drainage container


EgyBest
FREE
Wi-Fi

C: Circulation:

Hemorrhage

- Control of bleeding by :
- Packing
- Cautrization
- Ligation
- Reduction of fractures



Classification of hemorrhagic shock

American College of Surgeons Classes of Acute Hemorrhage

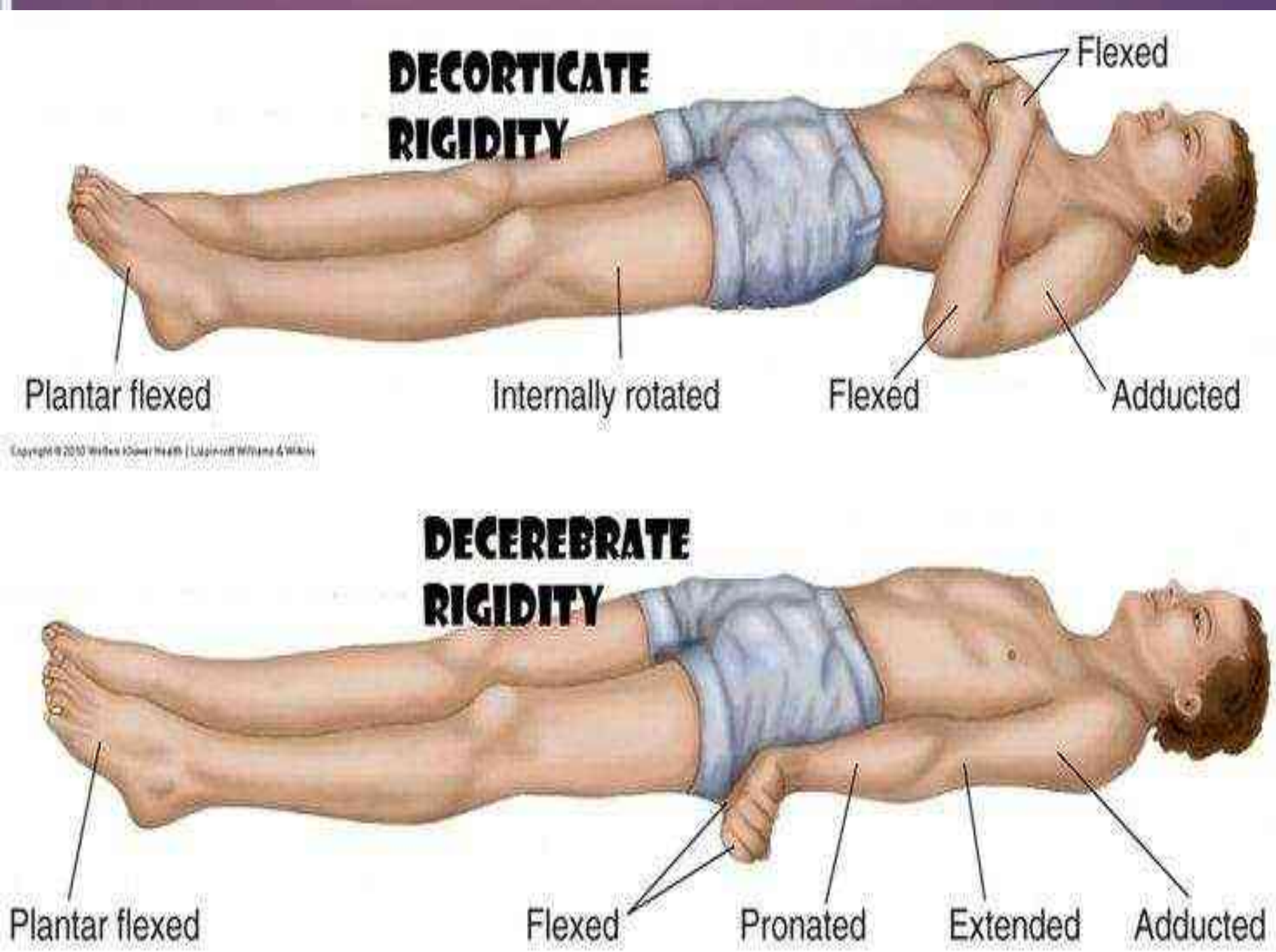
Factors	I	II	III	IV
Blood loss	<15% (<750ml)	15-30% (750-1500ml)	30-40% (1500-2000ml)	>40% (>2000ml)
Pulse	>100	>100	>120	>140
B.P.	Normal	Normal	↓	↓↓
Pulse pressure	N or ↓	↓	↓↓	↓↓
Capillary refill	<2s	2-3s	3-4s	>5s
Resp. rate	14-20	20-30	30-40	>40
Urine output ml/hr	30 or more	20-30	5-10	Negligible
Mental status	Slightly anxious	Mildly anxious	Anxious & confused	Confused Lethargic

D: Disability

Determine the level of consciousness :

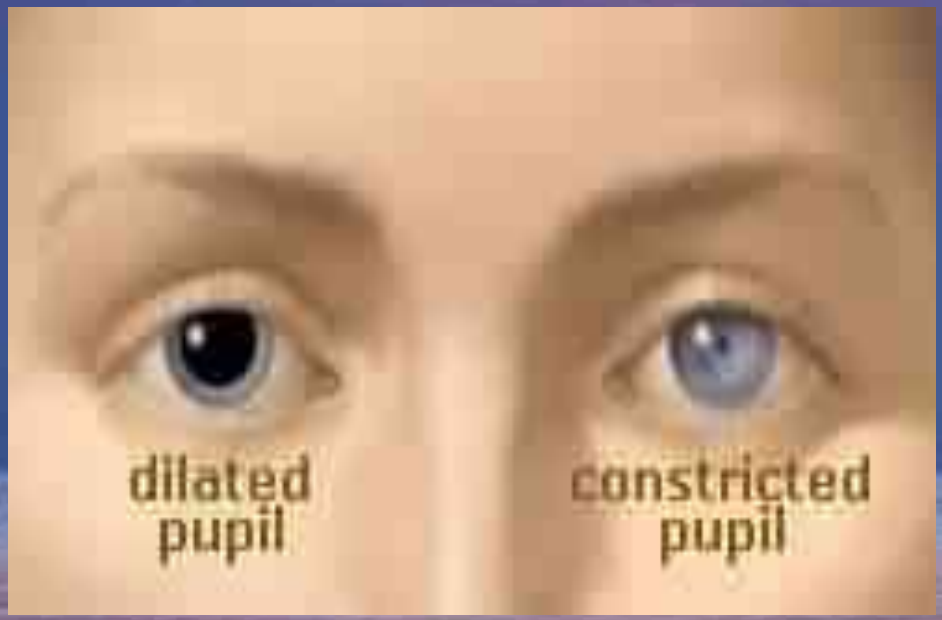
Glass cow coma scale

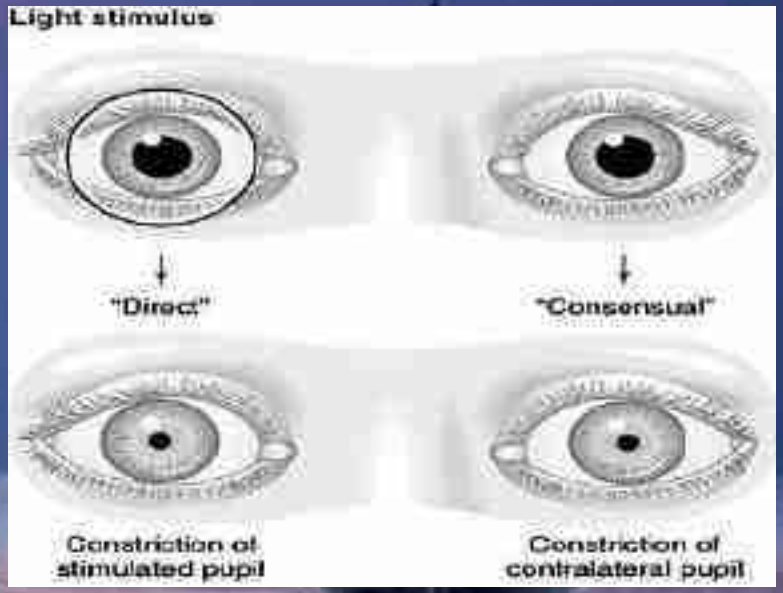
Glasgow Coma Score		
Eye Opening (E)	**Verbal Response (V)**	**Motor Response (M)**
4=Spontaneous 3=To voice 2=To pain 1=None	5=Normal conversation 4=Disoriented conversation 3=Words, but not coherent 2=No words.....only sounds 1=None	6=Normal 5=Localizes to pain 4=Withdraws to pain 3=Decorticate posture 2=Decerebrate 1=None
		Total = E+V+M


DECORTICATE RIGIDITY
Flexed
Plantar flexed
Internally rotated
Flexed
Adducted
DECEREBRATE RIGIDITY
Plantar flexed
Flexed
Pronated
Extended
Adducted

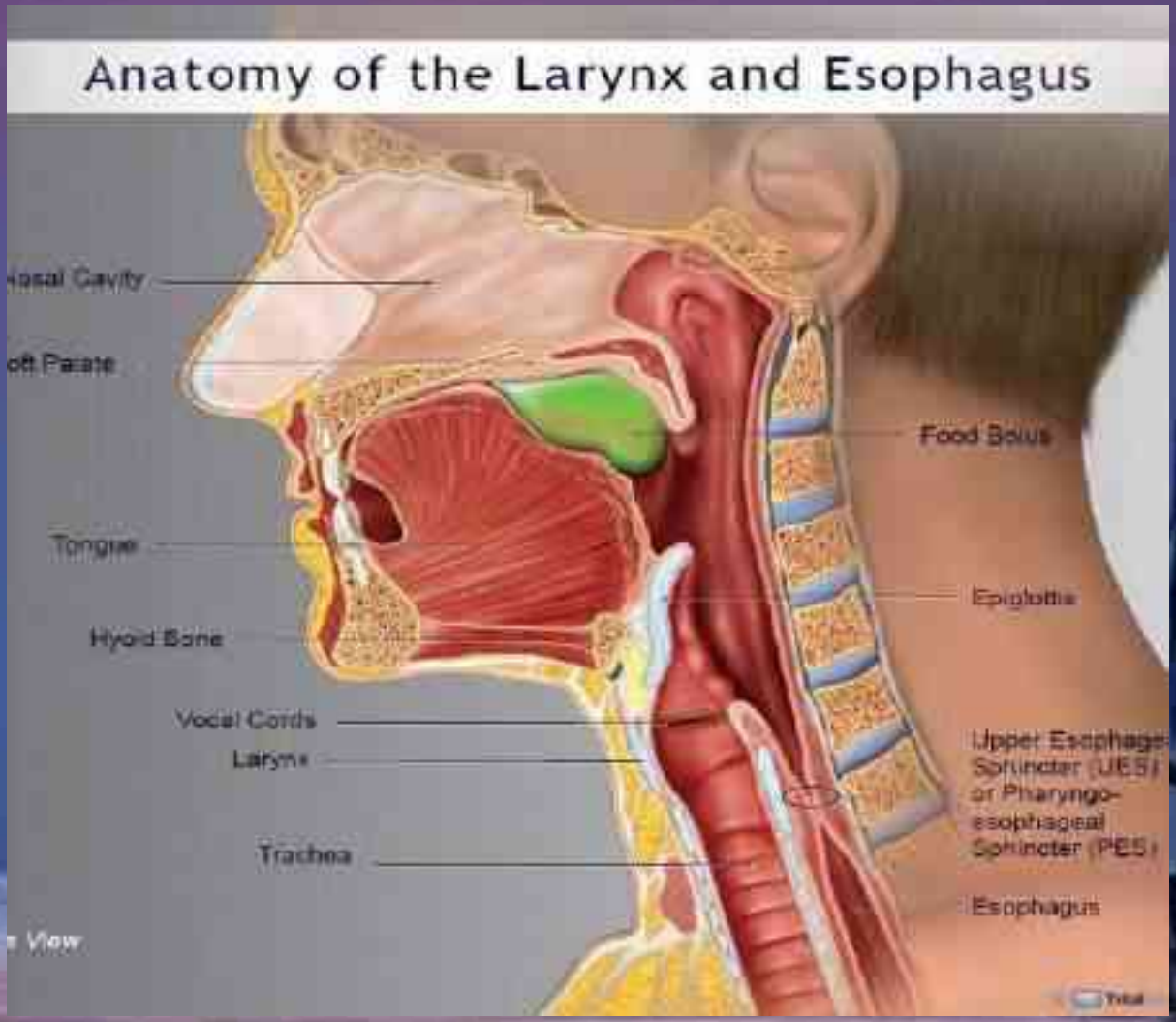
Eye examination

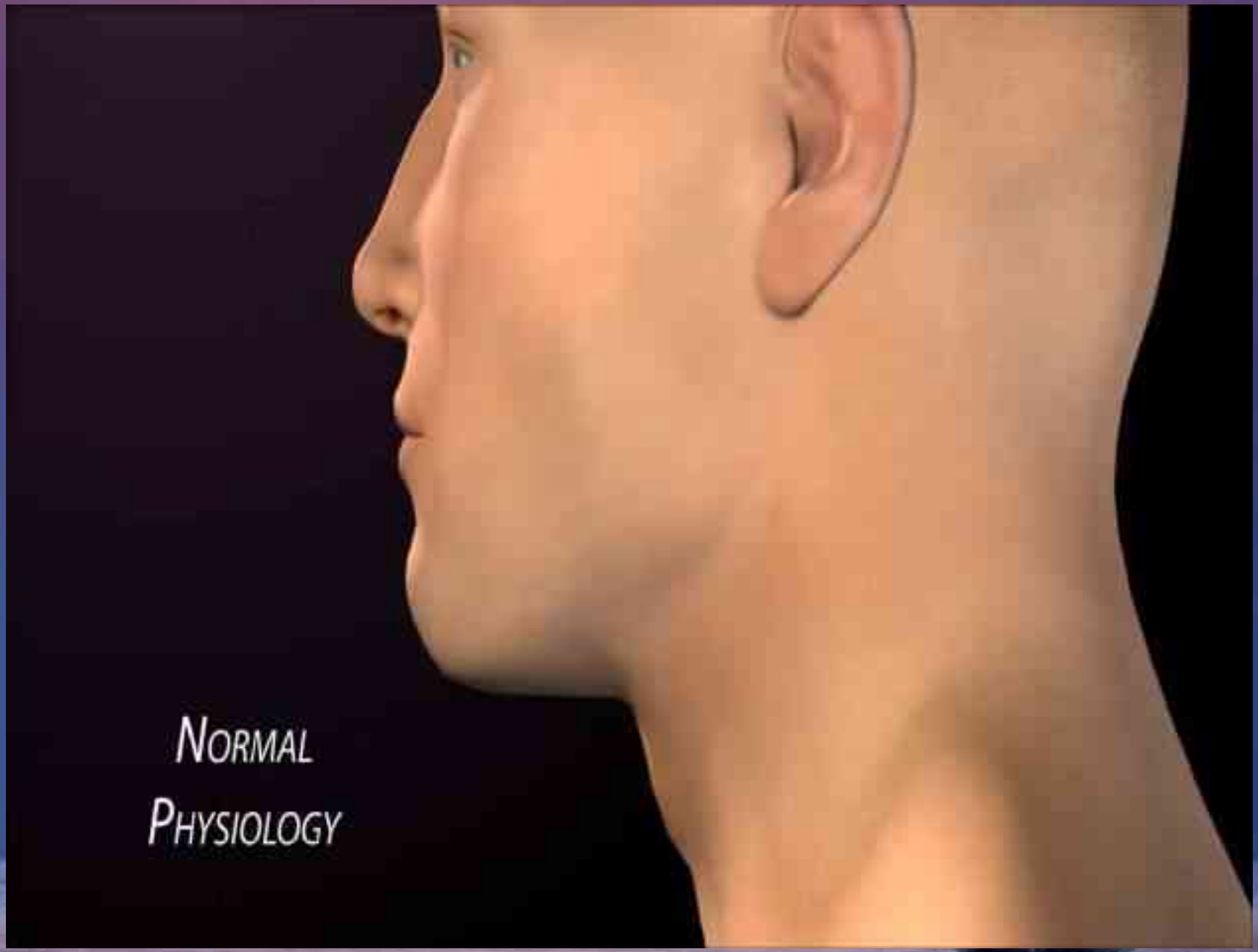
1. visual acuity
2. pupil size
3. pupil reaction





Mangement of patient choked by foreign body




NORMAL
PHYSIOLOGY

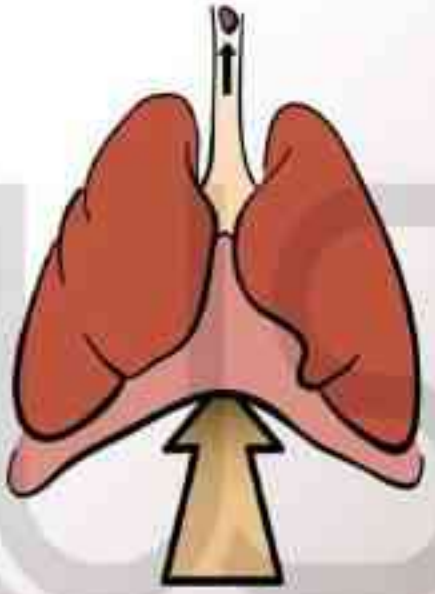
Mangement of patient choked by foreign body

- The universal sign for choking is hands clutched to the throat. If the person doesn't give the signal, look for these indications:

- Inability to talk
- Difficulty breathing or noisy breathing
- Cough, which may either be weak or forceful
- Skin, lips and nails turning blue or dusky
- Loss of consciousness

The Heimlich Maneuver

- Position thumb side of fist 1" above naval and well below tip of sternum
- Thrust fist inward and upward
- Stop occasionally to check victim and your technique



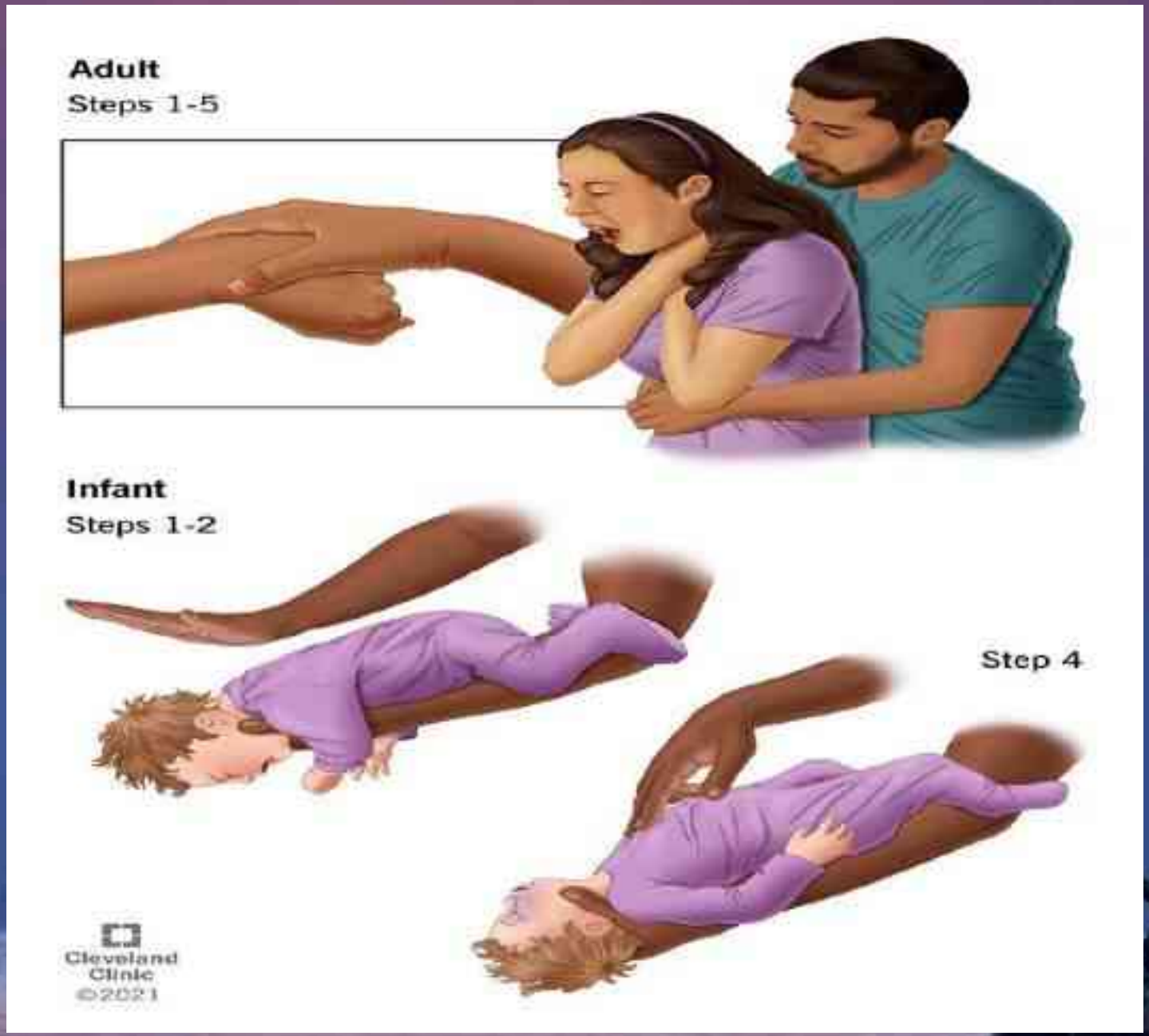
The motion of the Heimlich maneuver raises the diaphram, causing the lungs to compress.

This compression forces air out of the lungs at a high enough pressure to expel the object.

Five-and-Five

Give 5 back blows

Give 5 abdominal thrusts


Adult
Steps 1-5
Infant
Steps 1-2
Step 4
Cleveland Clinic
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وزارة الصحة
Ministry of Health

Cardiopulmonary resuscitation (CPR)

is a series of immediate actions to take to restore the flow of oxygenated blood to a person's brain and organs when they suffer Sudden Cardiac Arrest (SCA). If the flow of oxygenated blood to the brain is not restored within a few minutes the victim could die or suffer irreversible brain damage.

Step-by-Step CPR Guide

1. Shake and shout

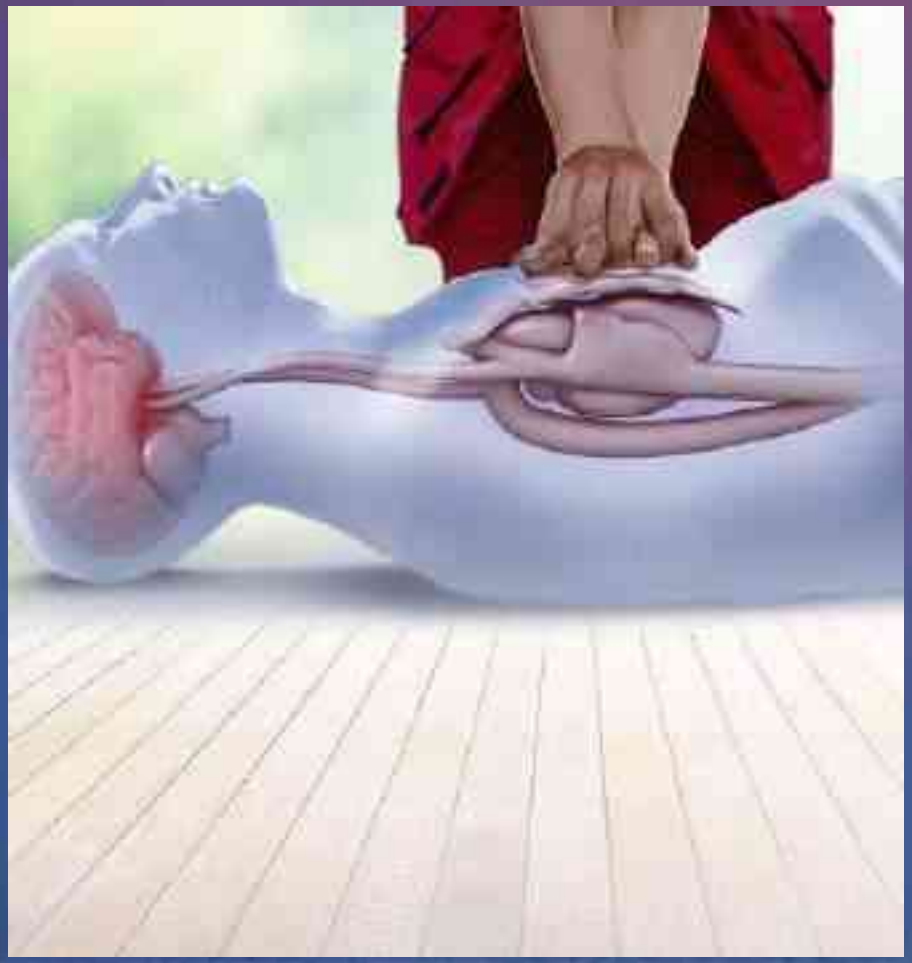
2. Call 911

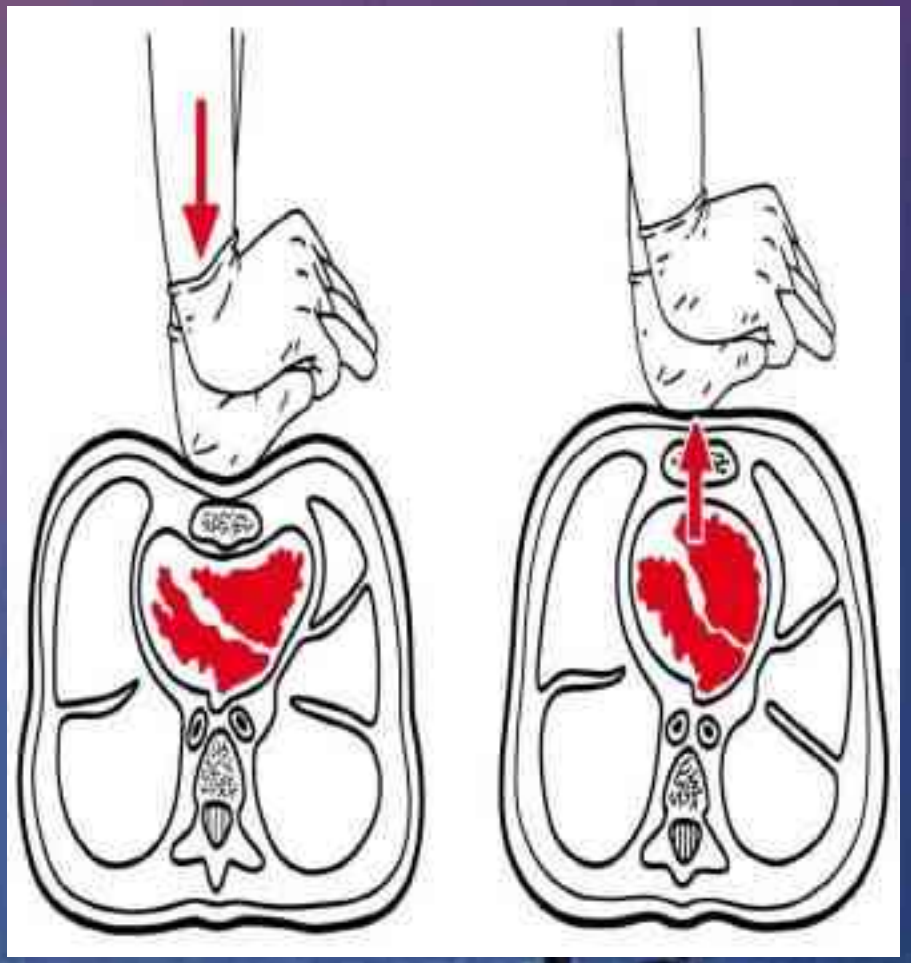
3. Check for breathing

4. Place your hands at the center of their chest

5. Push hard and fast—about twice per second

6. If you've had training, repeat cycles of 30 chest pushes and 2 rescue breaths





Fainting

SYNCOPE (FAINT): A loss of consciousness caused by a temporary insufficient blood supply to the brain.

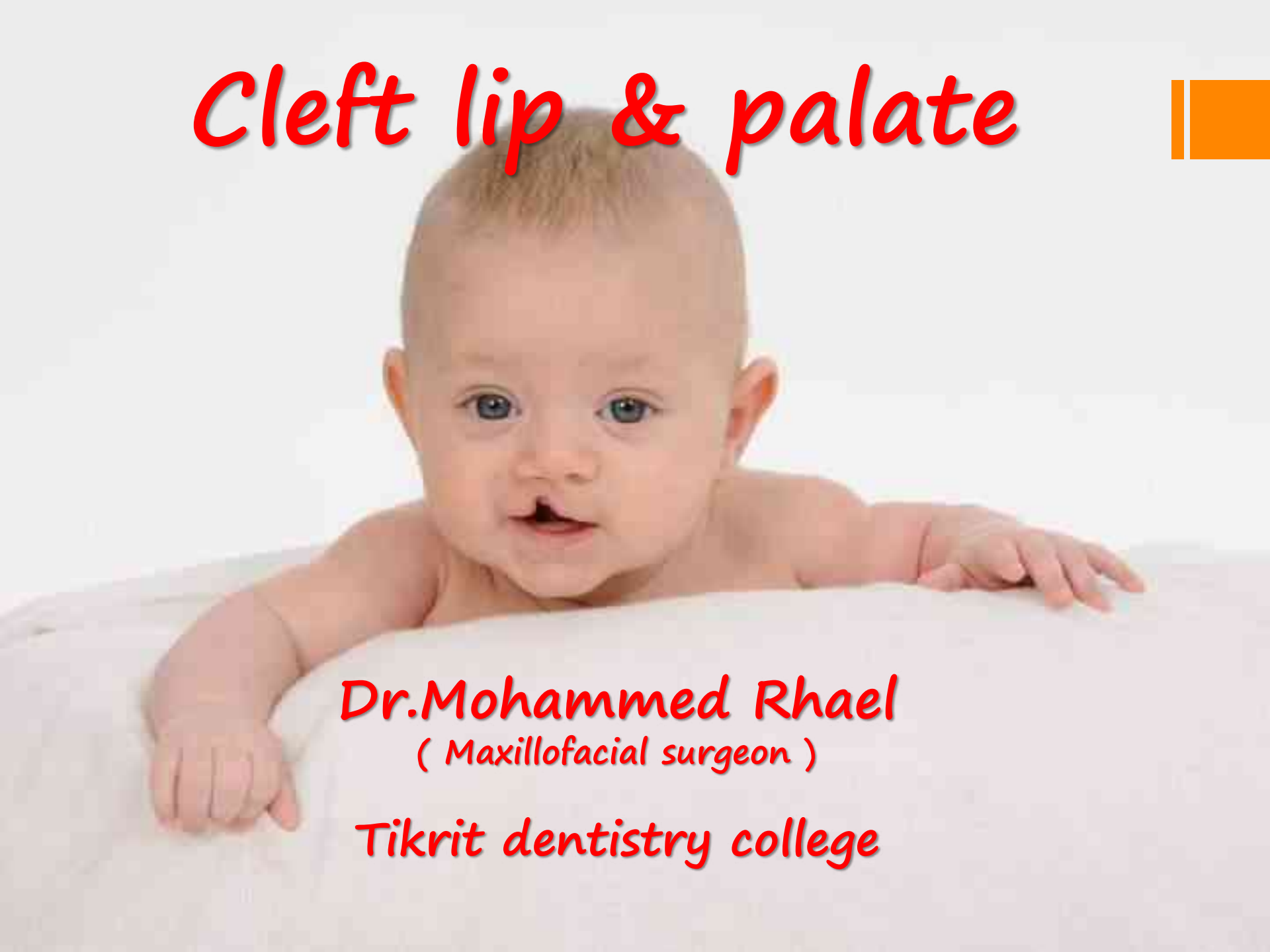
-Syncope occurs as a result of a "fight or flight" response and the absence of patient muscular movement, leading to a transient loss of consciousness. It is most common in young adults, most commonly between the ages of 16 to 35 years, and in men more than women, probably as a result of being told to "Take it like a man" during a stressful situation.

"الأب سند".. ضابط يفقد وعيه في حفل التخرج ووالده ينقذ الموقف !!

How to deal with epileptic attach


Thank you for listening …

Cleft lip & palate



Dr.Mohammed Rhael

(Maxillofacial surgeon)

Tikrit dentistry college

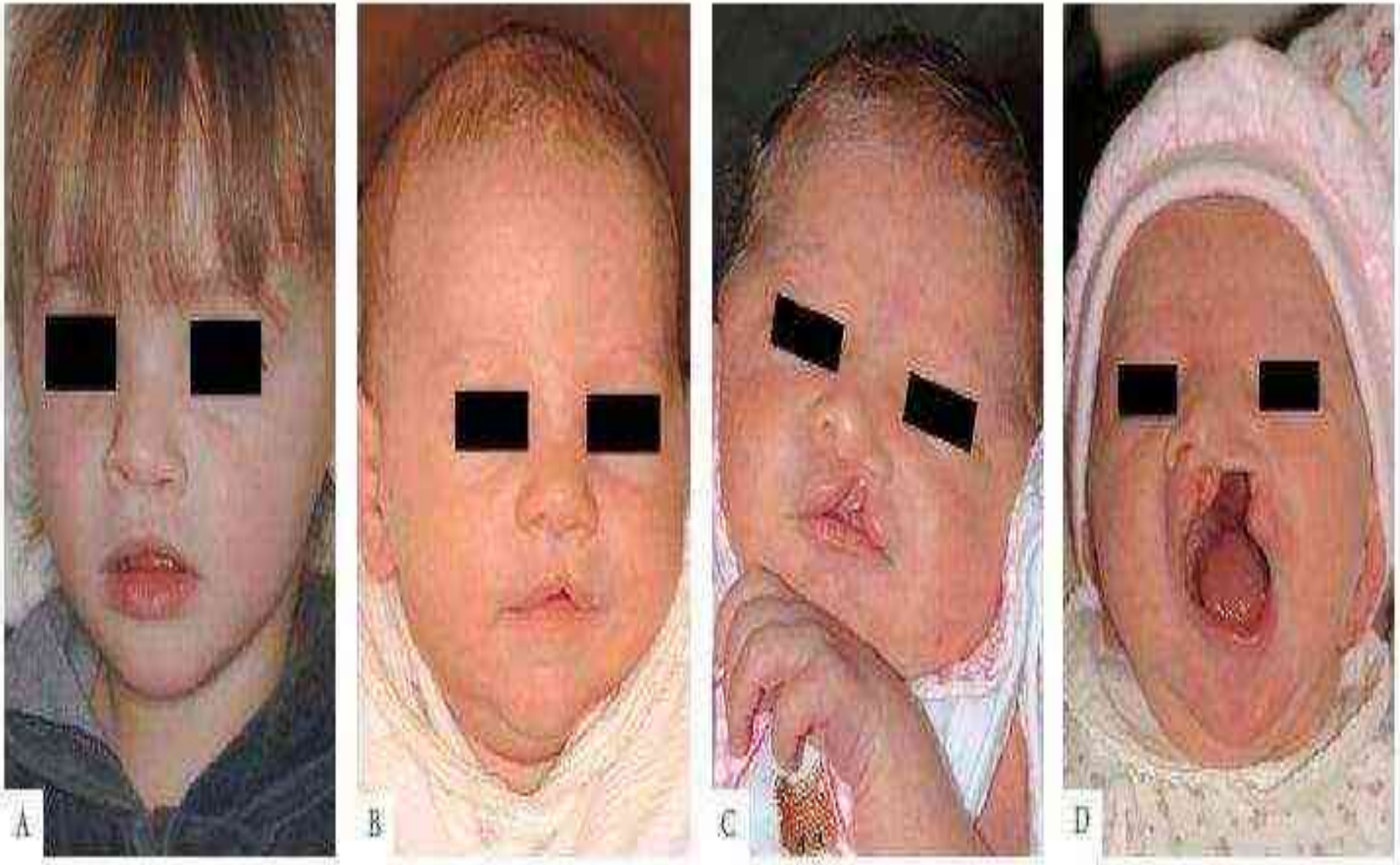


FIGURE 42-1 *Cleft lips come in a variety of configurations, such that each repair must be customized to establish the most normal morphology. A, Microform left unilateral cleft lip only, not requiring primary repair. B, Minor left incomplete unilateral cleft lip only. C, Left incomplete unilateral cleft lip and palate with a Simonart's band. D, Wide left complete unilateral cleft lip and palate.*

Fig. 38.17B: Cleft palate repair: (1) Preoperative intraoral view of 12 years girl, (2) Immediate postoperative result, (3) Preoperative intraoral view of 14 years boy, (4) Immediate postoperative result

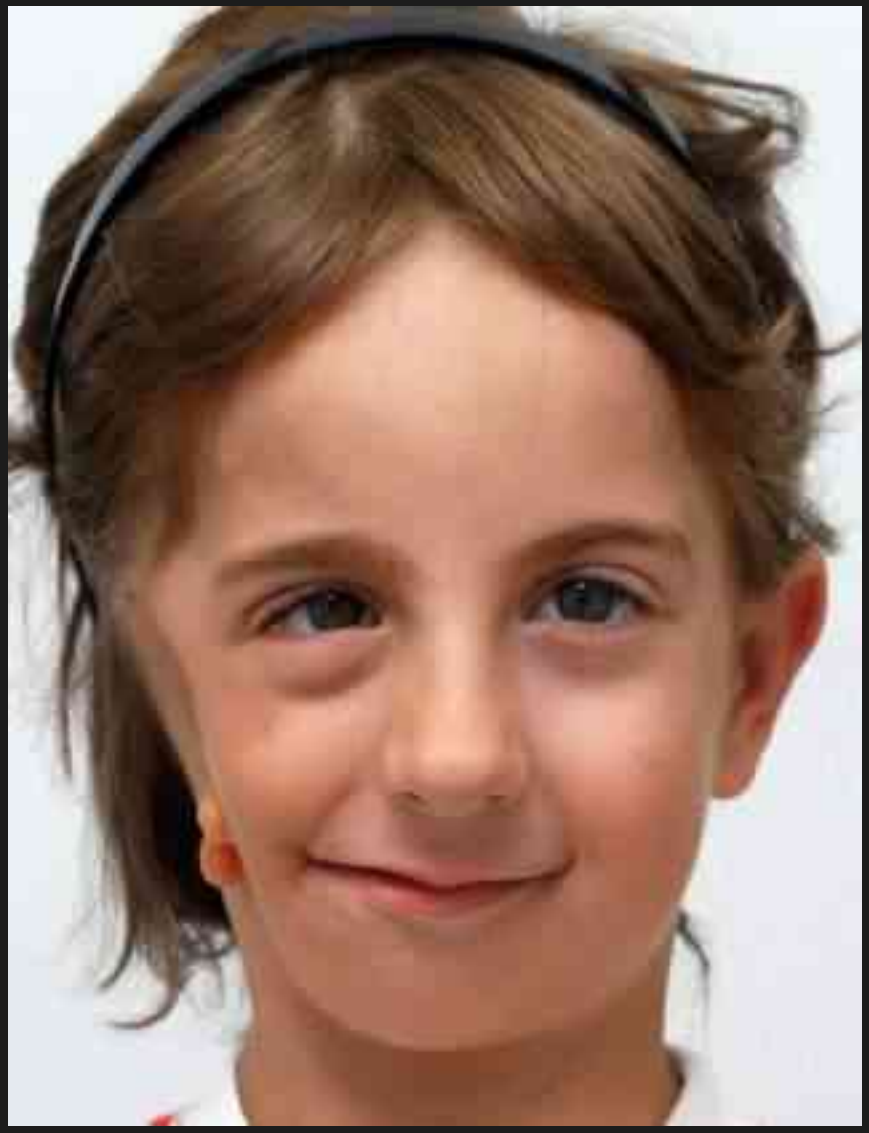
introduction

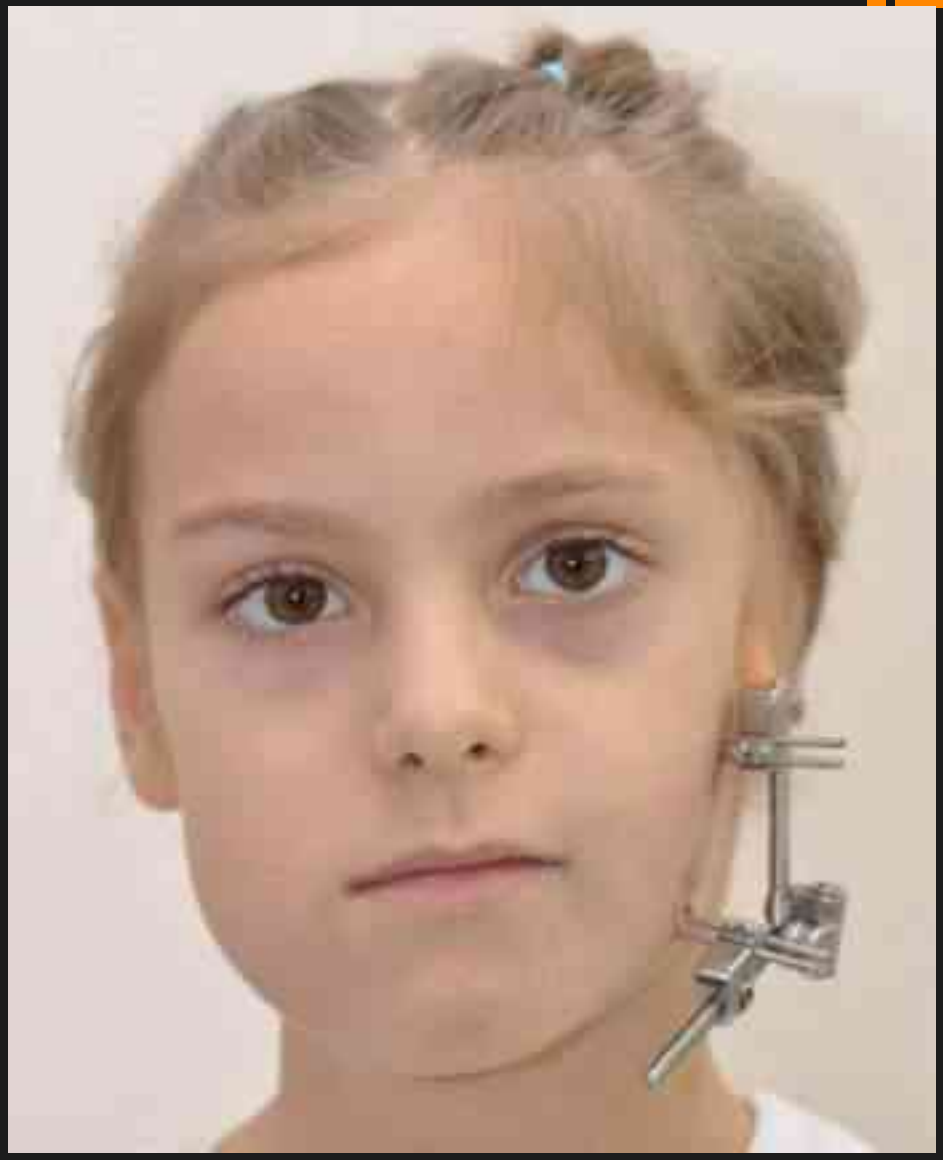
- *Are the most common major congenital Craniofacial abnormality*
- *Cleft lip present in approximately 1 :500 live births to 1:2000*
- *male to female 2:1*
- *More in Asians and whites with less incidence in African – americans*
- *while cleft palate present approximately 1 in 2000 live births and effects male to female 1:2 with no observation of racial variation*

CLP can be associated with syndromes such as:

- Van der Woude syndrome
- hemifacial microsomia
- velocardiofacial syndrome
- ectrodactyly-ectodermal dysplasia-clefting syndrome
- Stickler syndrome
- trisomy 13 and trisomy 18.


a
b





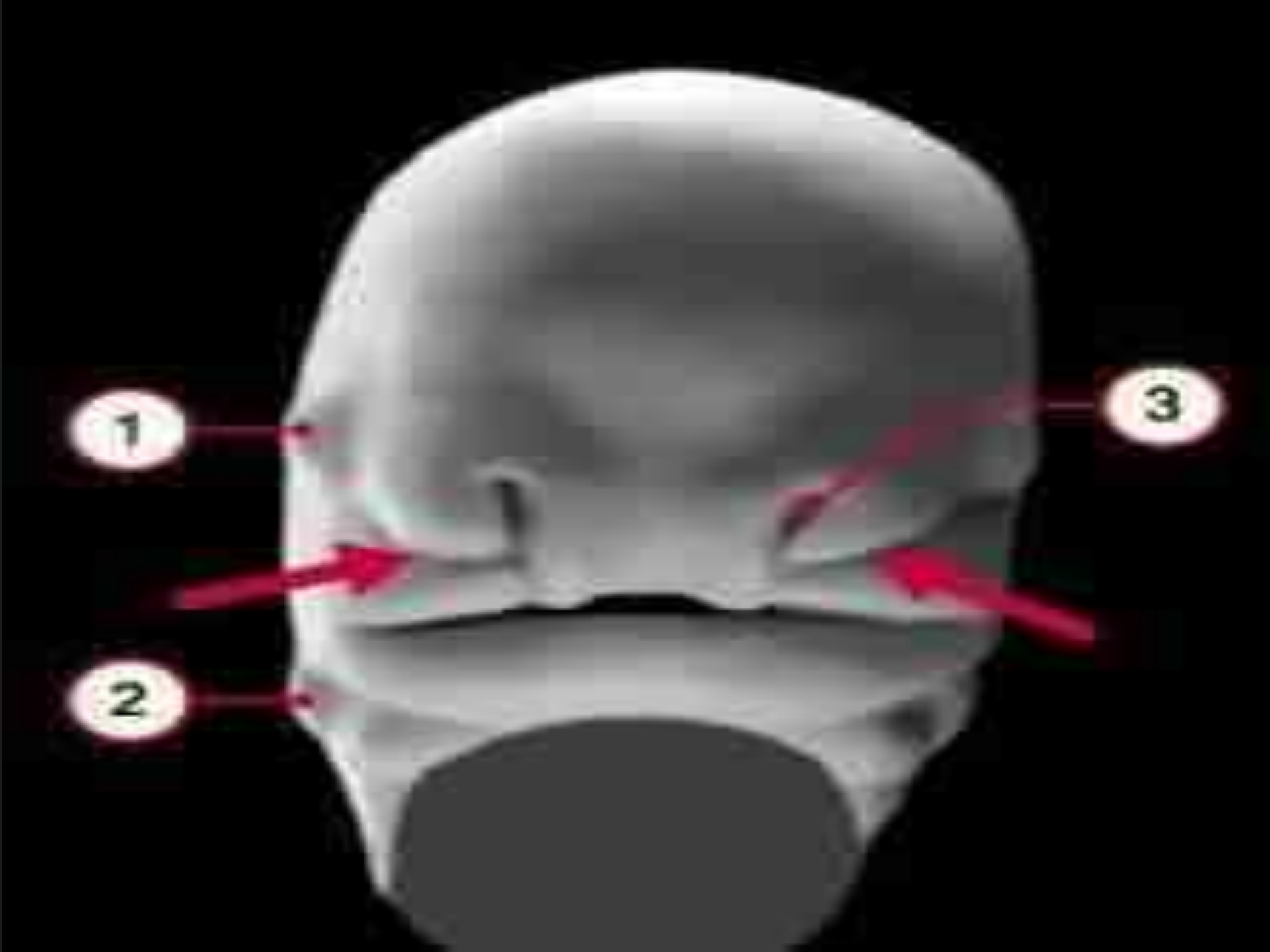
Embryology

Embryology

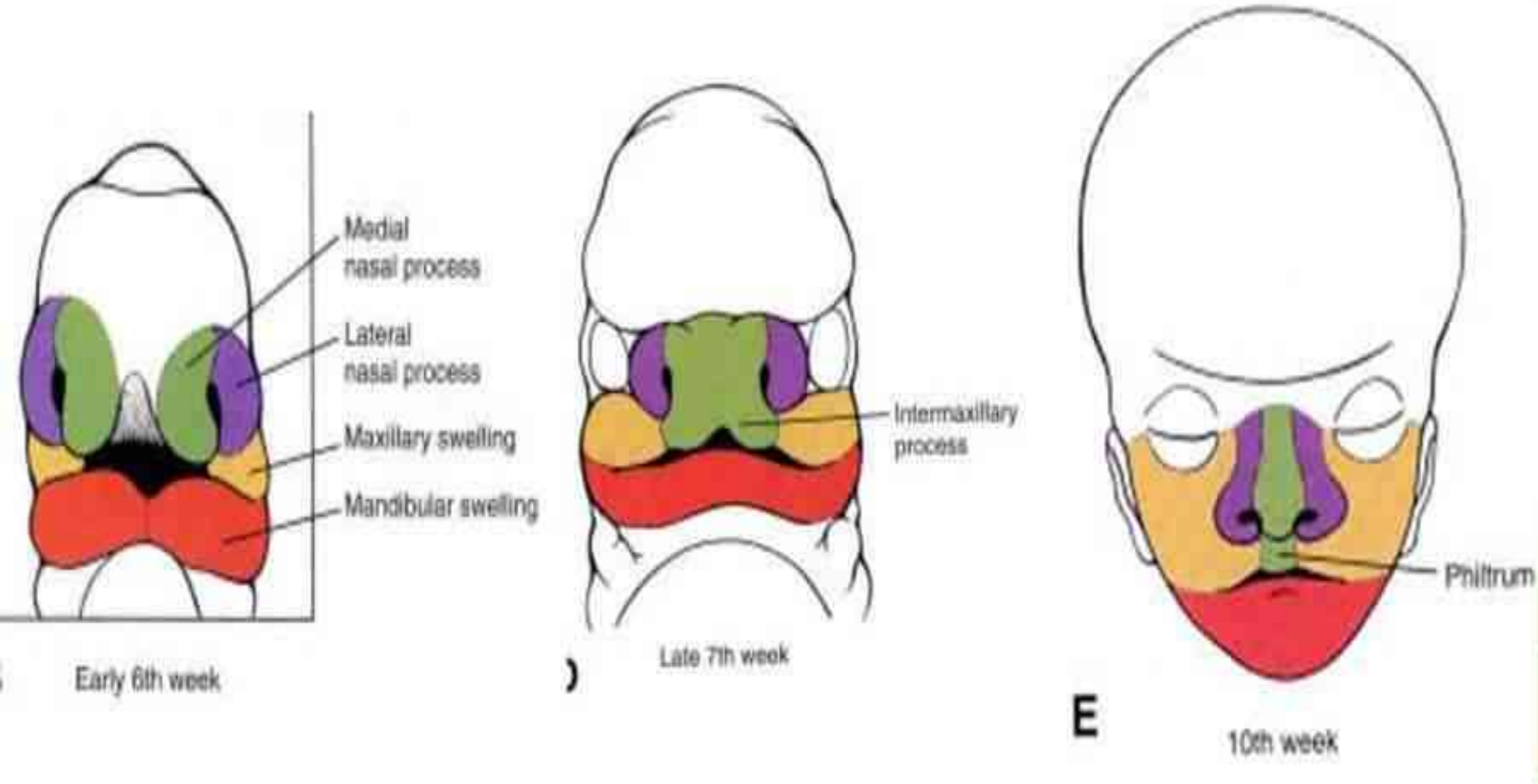
At approximately 6 weeks of human embryologic development the median nasal prominence fuses with the lateral nasal prominences and maxillary prominences to form the base of the nose , nostrils , upper lip, and premaxilla ,the confluence of this interior components becomes the primary palate , when this mechanism fails , clefts of the lip and /or maxilla occur

At approximately 8 weeks of the fetal life the palatal shelves elevate beside the tongue , then the tongue descend inferiorly and interiorly with the developing mandible , the vertical palatal shelves movie horizontally to fuse with the septum to form the intact secondary palate ,when the palatal shelves fails to fuse a cleft of the secondary palate occurs

CLEFT LIP


1
2
3

What do you get if the intermaxillary segment and the maxillary prominence do not fuse?




C
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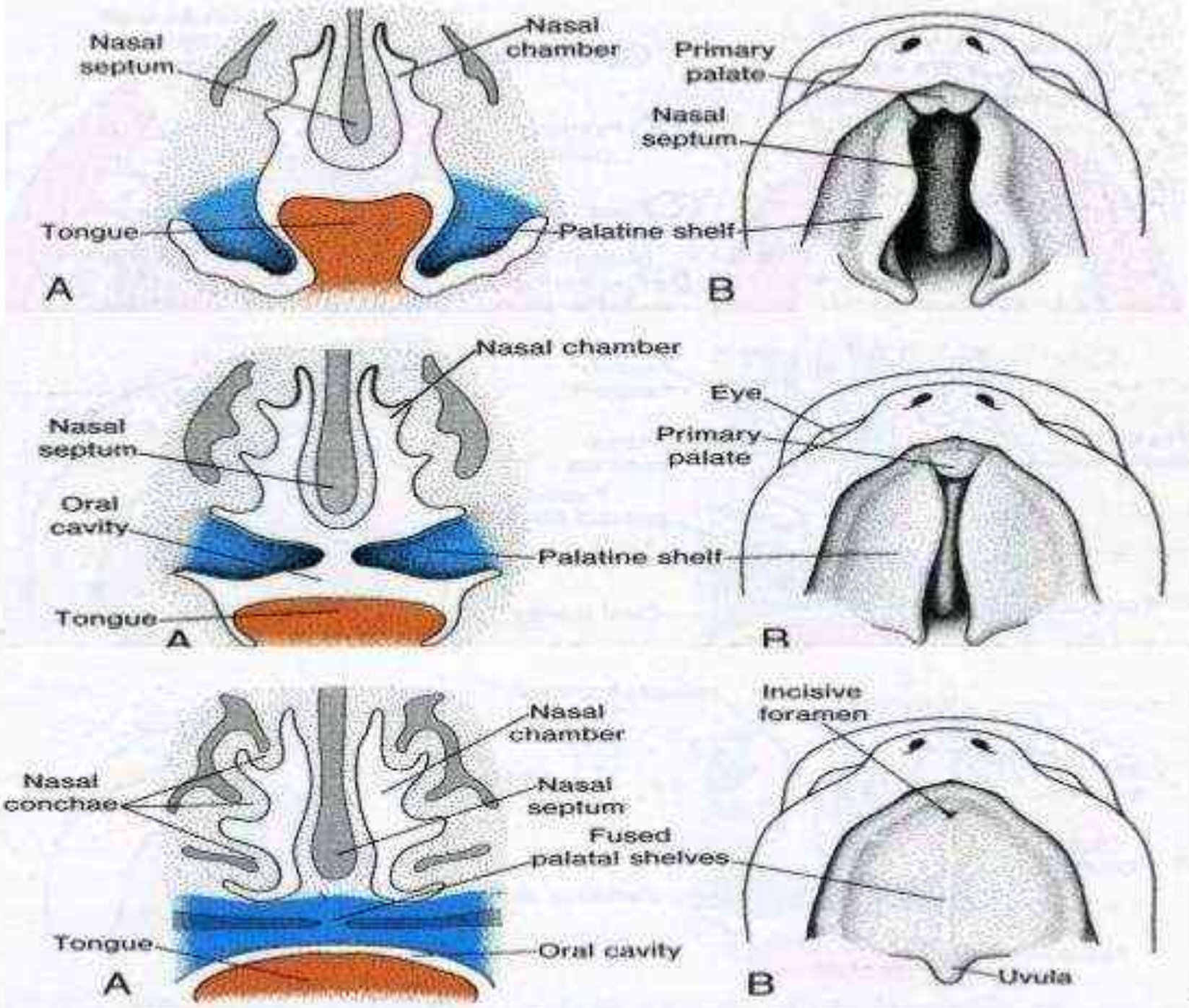
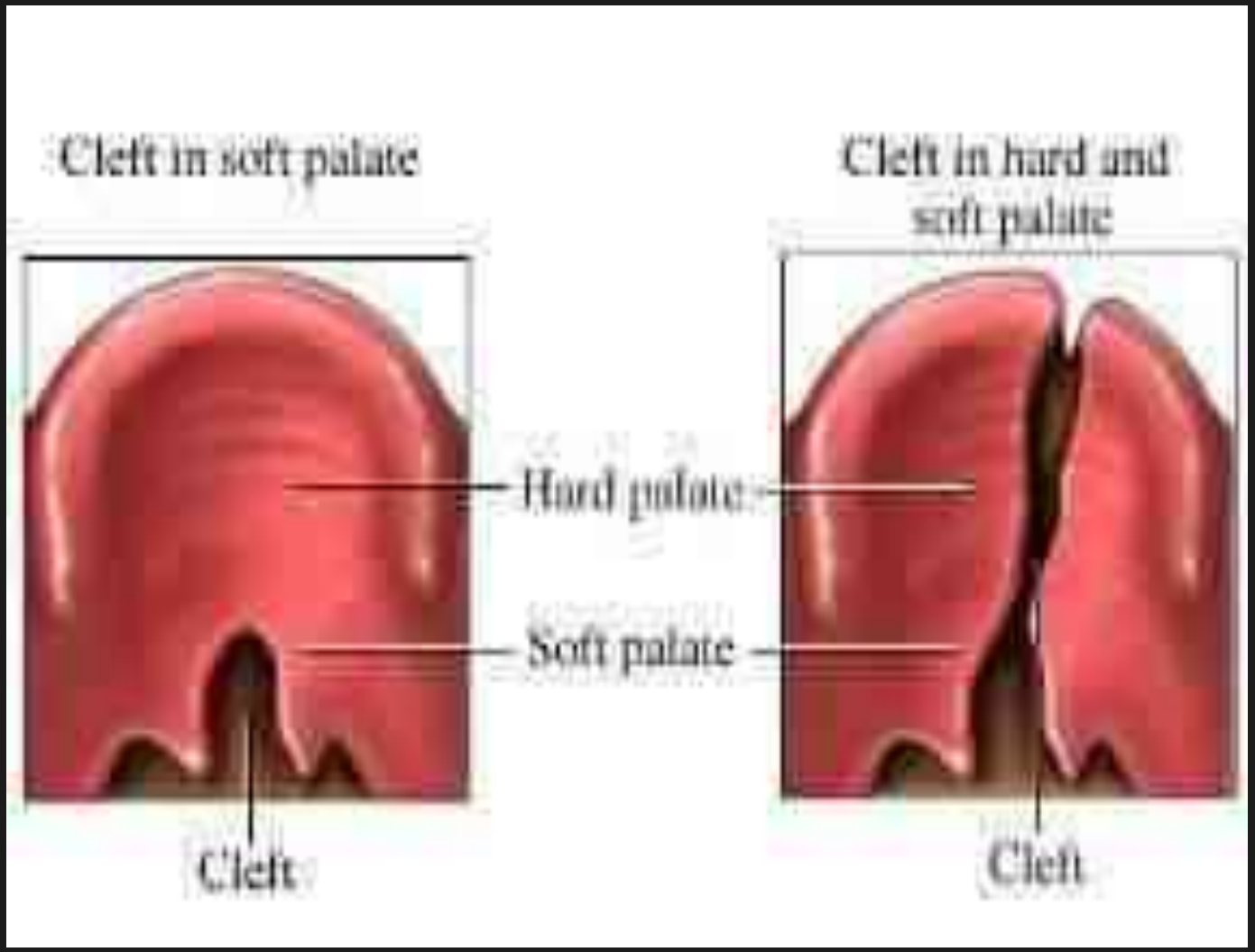
CLEFT PALATE

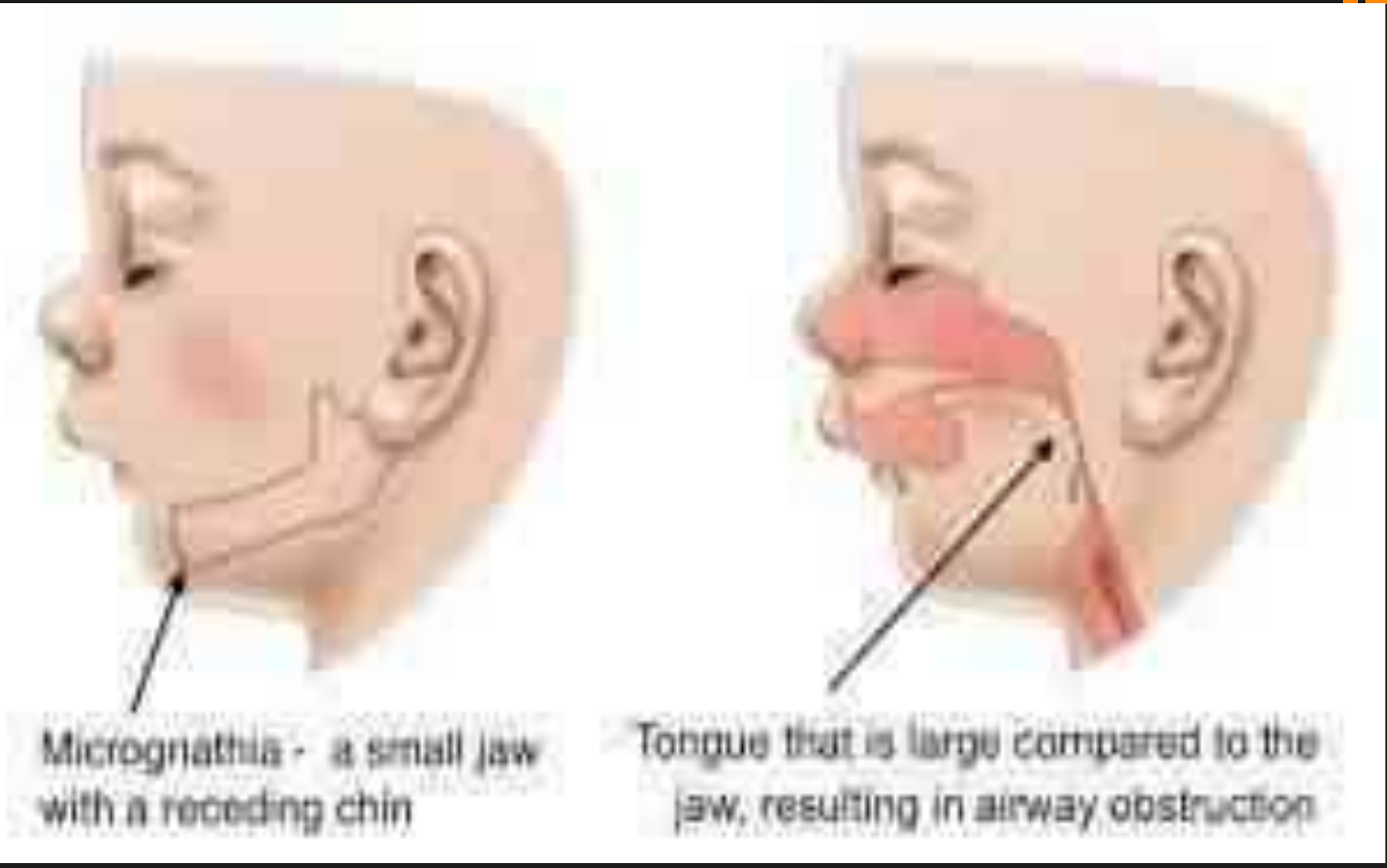

Nasal septum
Nasal chamber
Tongue
Palatine shelf
A
Primary palate
Nasal septum
B
Nasal chamber
Nasal septum
Oral cavity
Palatine shelf
Tongue
A
Eye
Primary palate
B
Nasal chamber
Nasal conchae
Nasal septum
Fused palatal shelves
Tongue
Oral cavity
A
Incisive foramen
Uvula
B


Cleft in soft palate
Cleft in hard and soft palate
Hard palate
Soft palate
Cleft
Cleft

Pierre Robin syndrome(PRS)

- **Symptoms:**

a) Cleft palate
b) High-arched palate
c) Micrognathia
d) Jaw that is far back in the throat
e) Repeated ear infections
f) Small opening in the roof of the mouth, which may cause regurgitation of liquids through the nose or choking.
g) Teeth that appear when the baby is born (natal teeth)
h) Glossoptosis


Micrognathia - a small jaw with a receding chin
Tongue that is large compared to the jaw, resulting in airway obstruction

Facial cleft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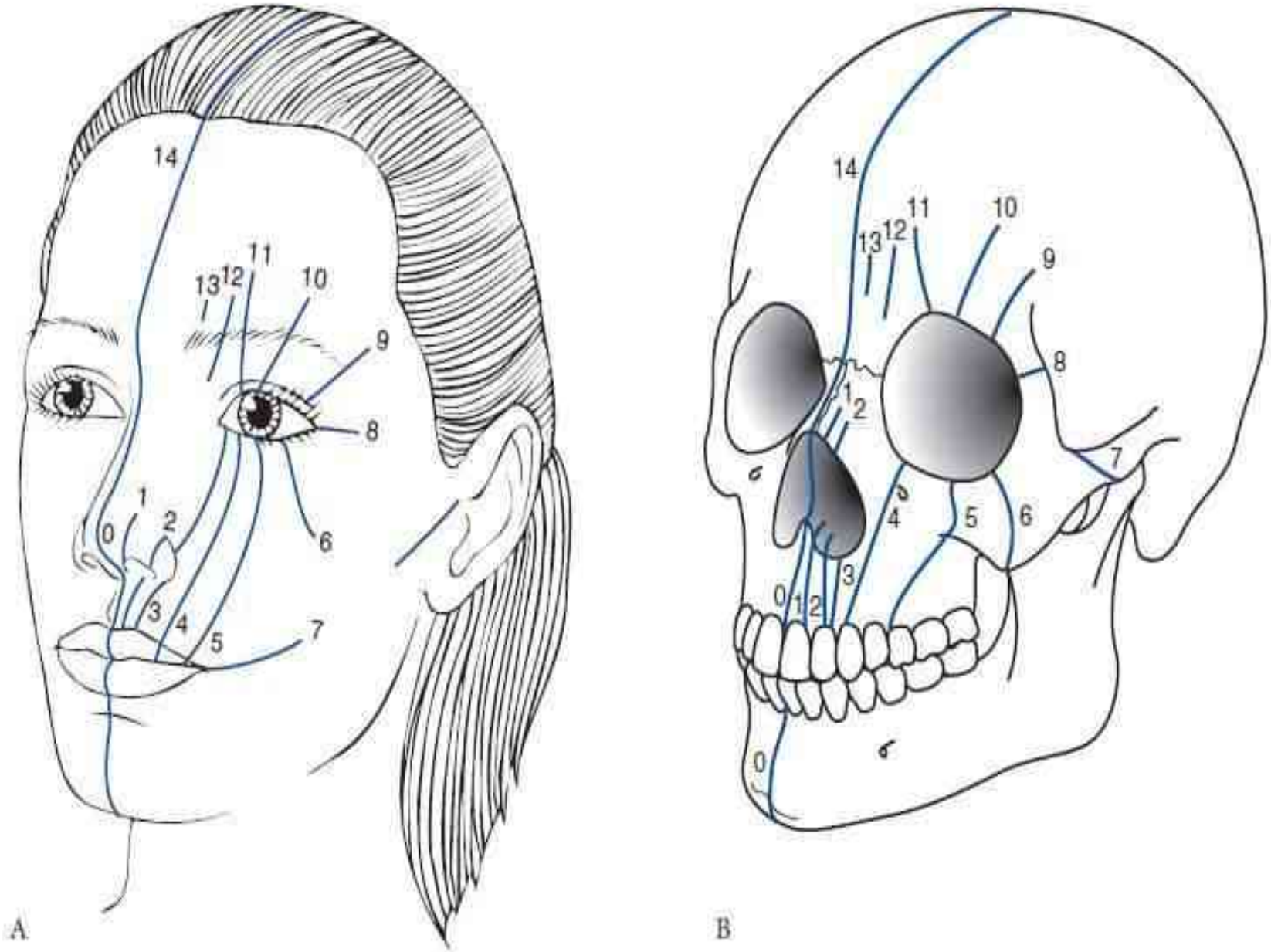


FIGURE 42-2 A and B, *Complex facial clefts can be classified based on Tessier's original orbitocentric system of numbering. Clefts may involve all tissue planes including skin, mucosa, bone, teeth, muscle, brain, peripheral nerve, and other specialized tissues.*

Etiology : multifactorial etiology

Hereditary

Environmental

- Chemical exposures
- Radiations
- Maternal hypoxia and habits (smoking , alcohol)
- Teratogenic drugs (anti convulsing ,diazepam, hydrocortisone)
- Nutritional deficiencies (folic acid ,iron)
- Vitamin abuse (vit . A)
- Physical obstruction

classification

- ***Unilateral***
- ***Bilateral***
- ***Microform***
- ***Incomplete***
- ***Complete***
- ***And my involve the lip , nose , primary palate and /or secondary palate***

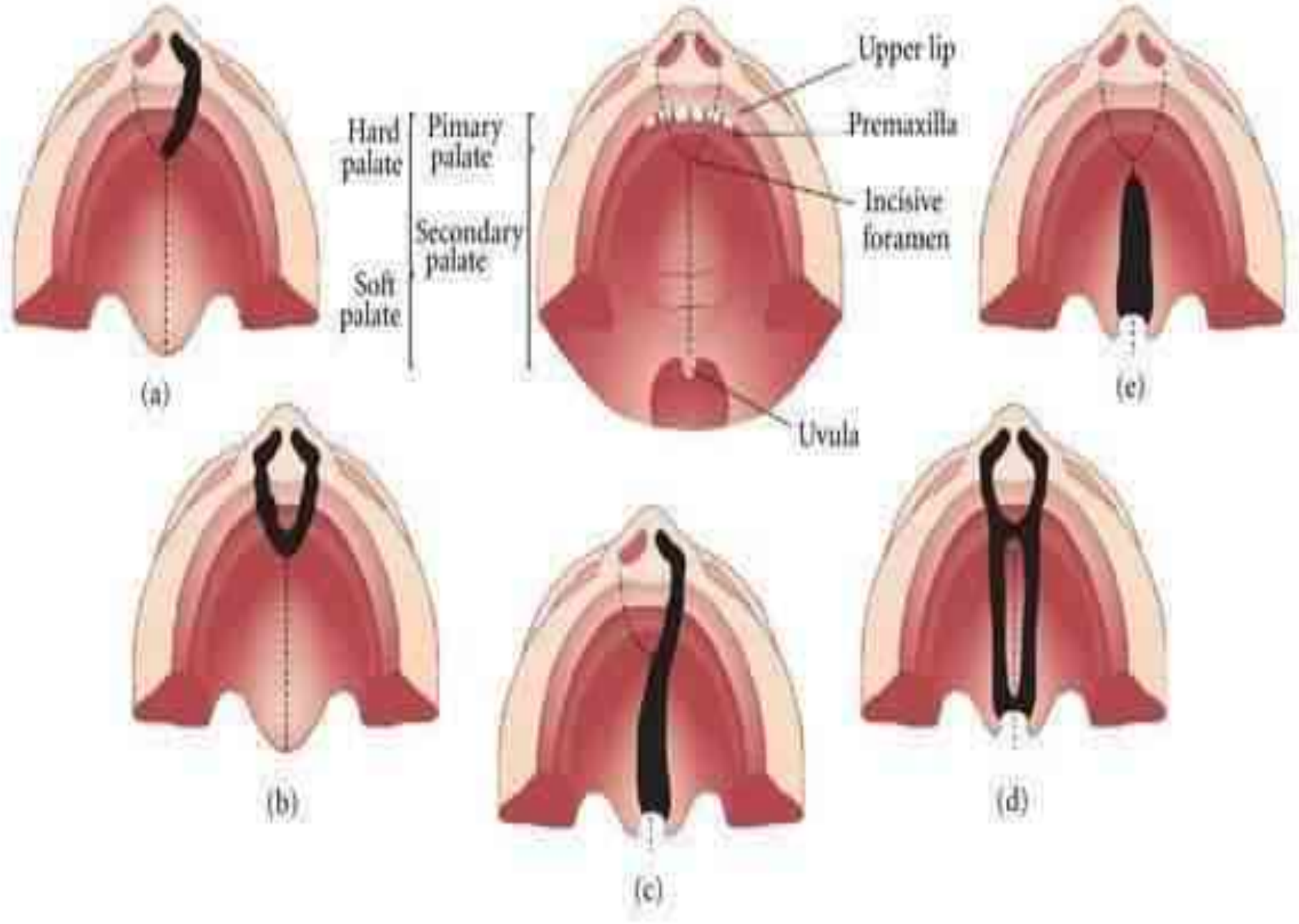

Hard palate
Pimary palate
Secondary palate
Soft palate
Upper lip
Premaxilla
Incisive foramen
Uvula
(a)
(b)
(c)
(d)
(e)

Fig. 38.1: Bilateral complete cleft lip and cleft palate deformity. (*Courtesy*: Dr. Amresh S. Baliar Singh, HOD Plastic Surgery, Dept. K.E.M. Hospital, Mumbai)

Problems of individuals with cleft

- 1.Esthetic
- 2.Dental problems
- 3.Malocclusion
- 4.Nasal deformity
- 5.Feeding
- Ear problems
- Speech difficulties
- Associated anomalies

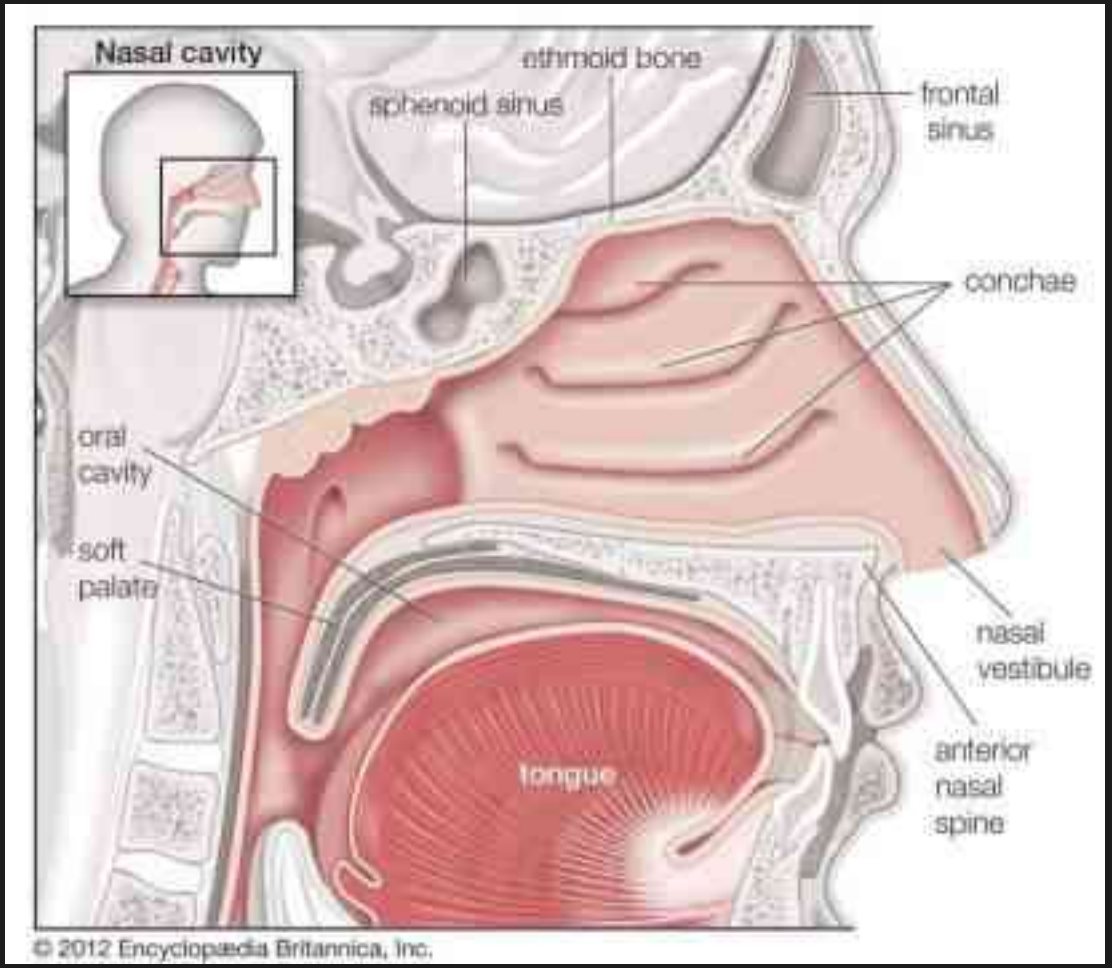
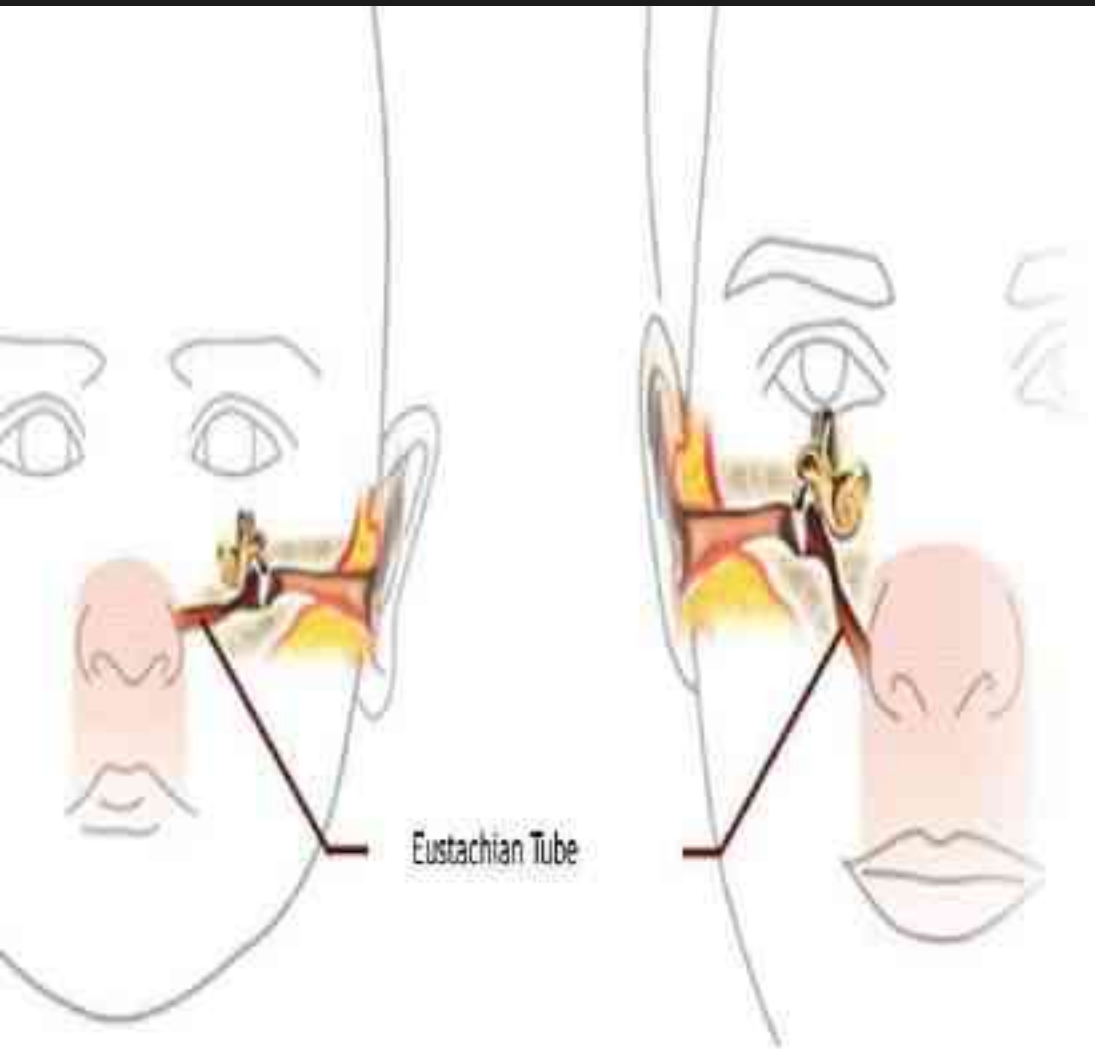


Figure 1. Adult Eustachian tube

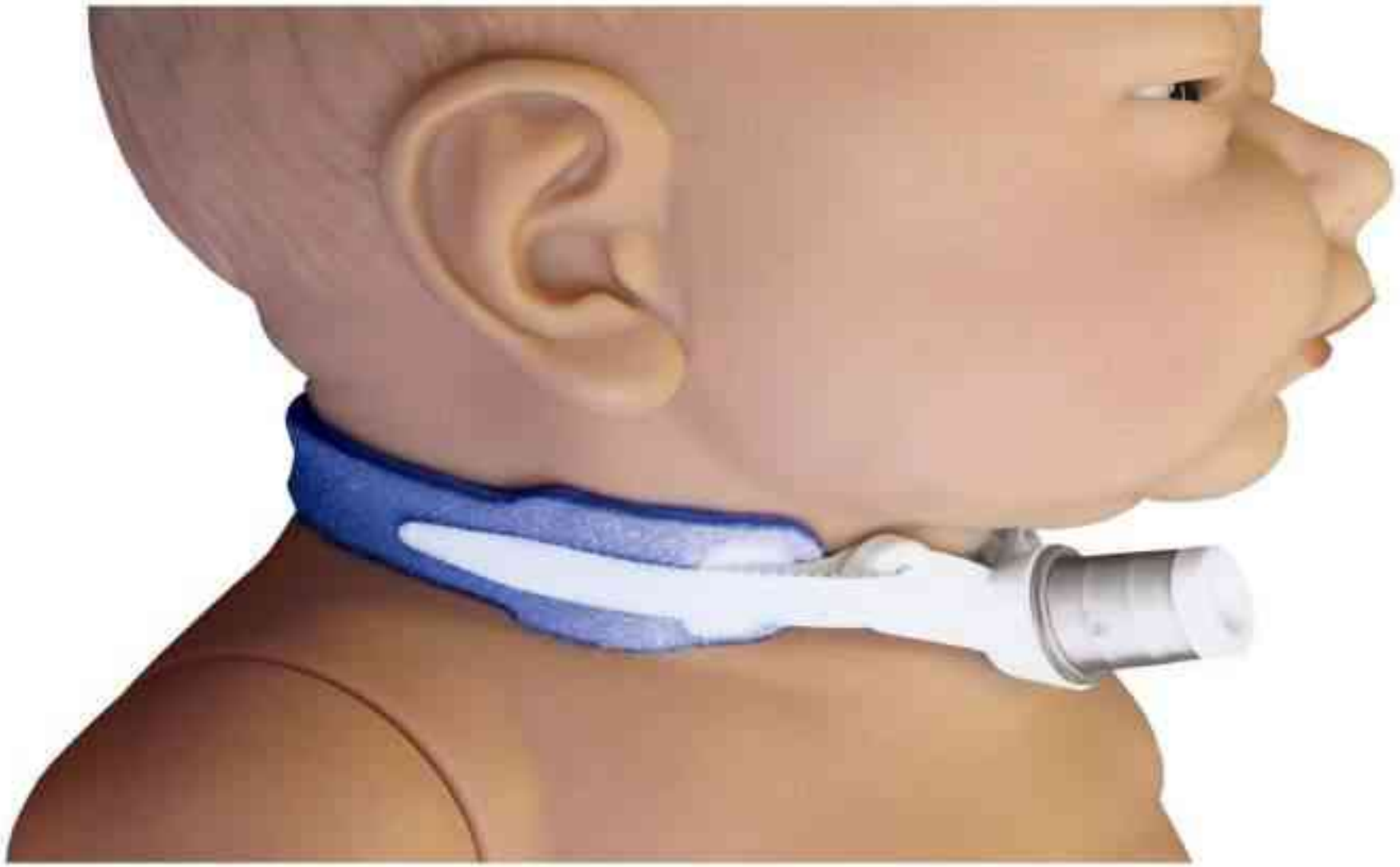


In children with cleft palate the eustachian tube is usually closed, resulting in accumulating fluid in the middle ear

The aim of Treatment

- Normalized aesthetic appearance of the lip and nose
- Intact primary and secondary palate
- Normal speech , language , and hearing
- Nasal airway patency
- Class I occlusion with normal masticatory function
- Good dental and periodontal health
- Normal psychosocial development

Treatment planning and timing

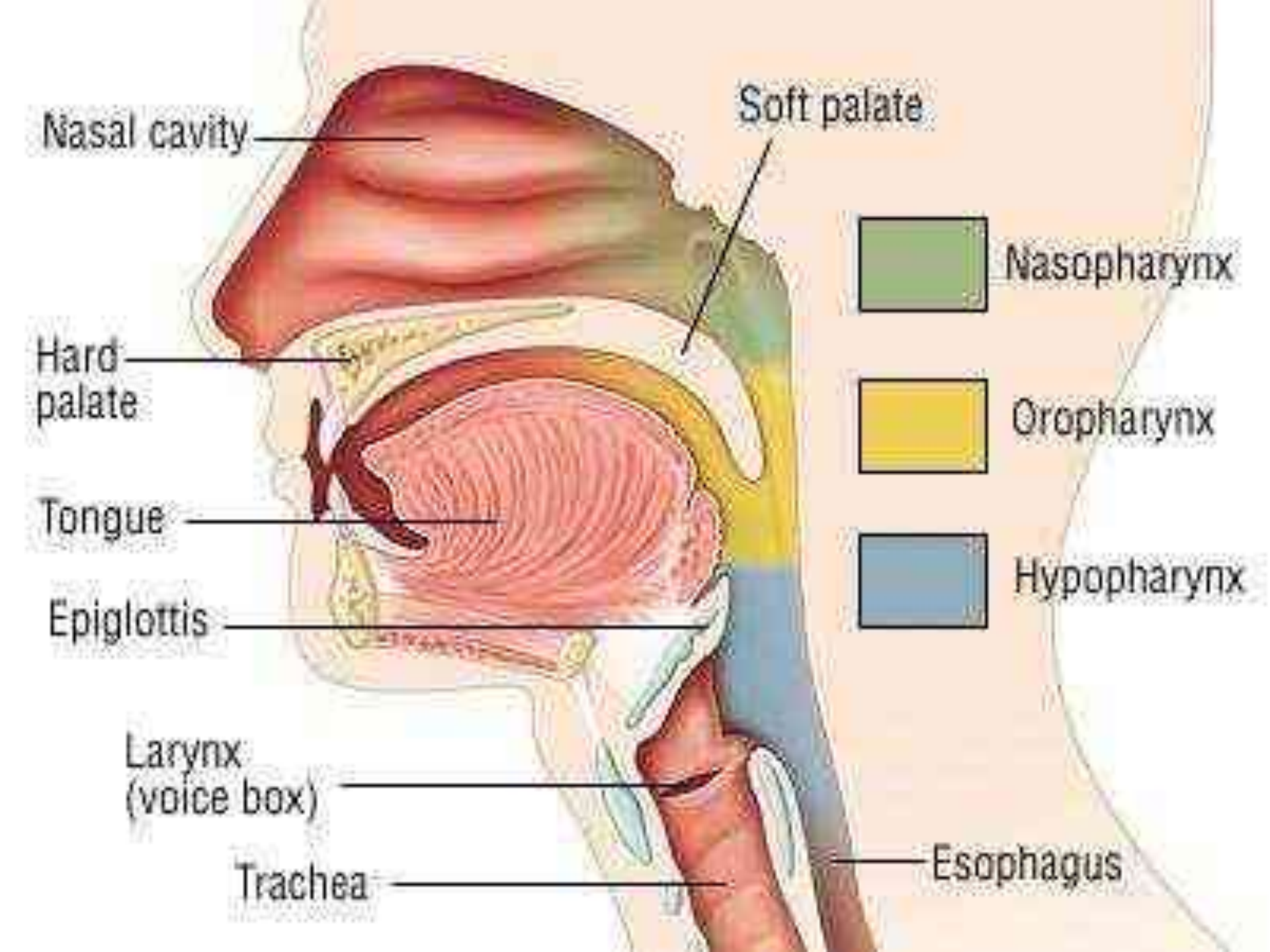


Feeding the child with a cleft palate

- ***Infant with cleft palate enable to form an adequate seal between the tongue and palate to create sufficient negative pressure to such fluid from a bottle , nasal regurgitation***

- ***Specialised nipples and bottles are necessary***

- ***splint***


Nasal cavity
Soft palate
Nasopharynx
Hard palate
Oropharynx
Tongue
Hypopharynx
Epiglottis
Larynx (voice box)
Esophagus
Trachea

Mead Johnson/Enfamil Cleft Feeder

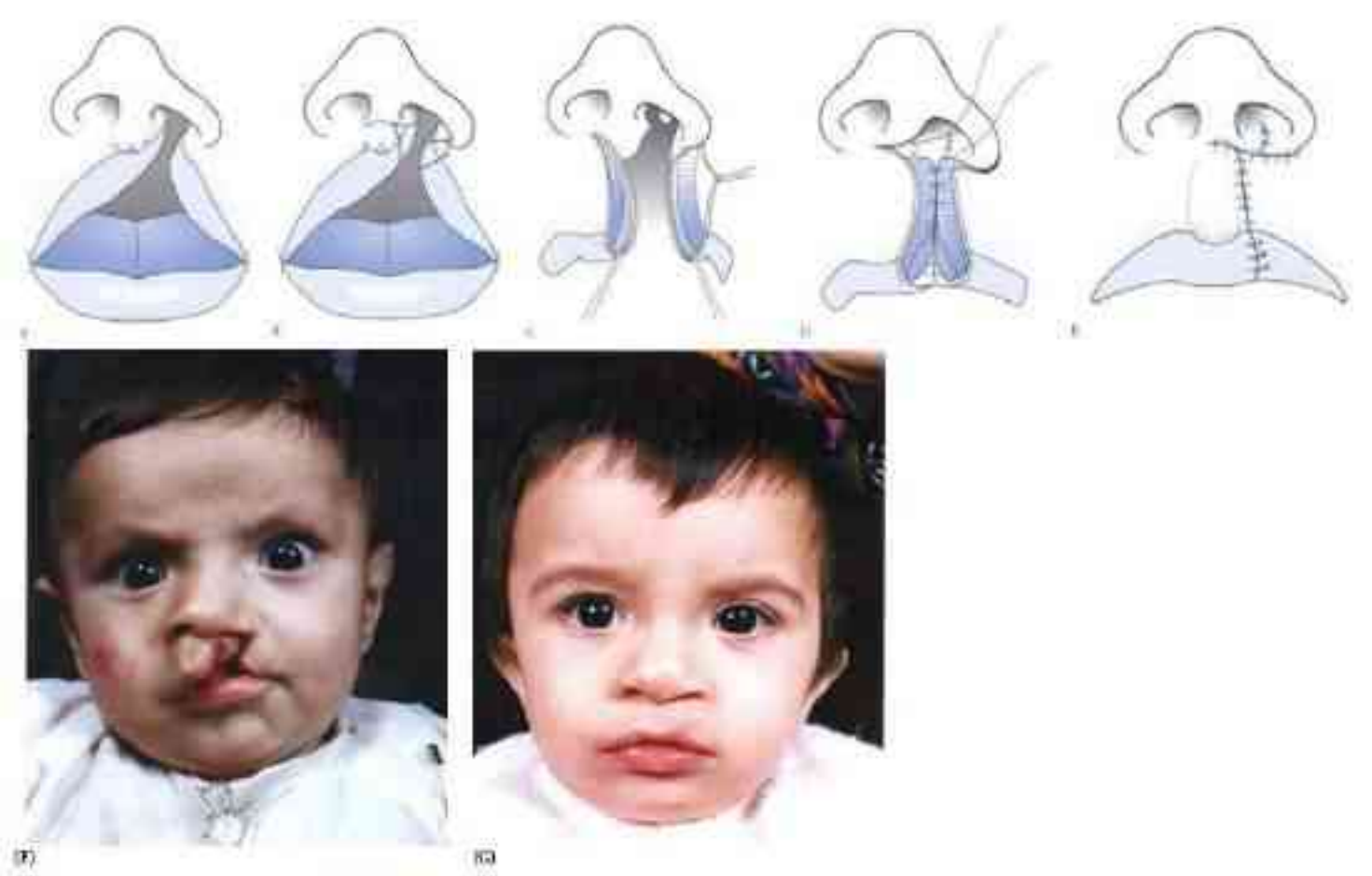
Special Needs Feeder / Haberman Feeder

Pigeon Feeder

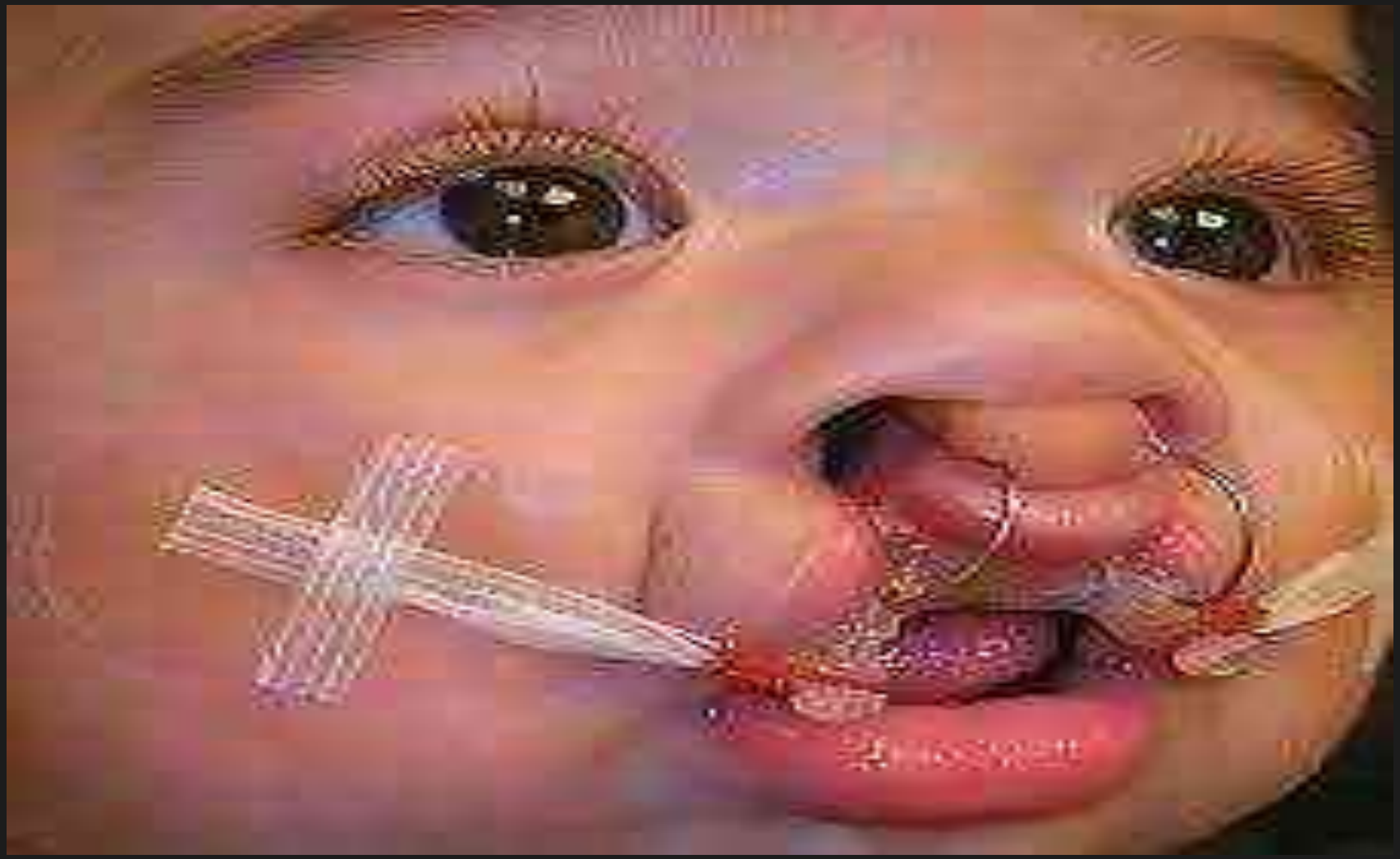
Dr. Brown's Natural Flow *to relieve gas*

procedure	Time frame
Cleft lip repair	After 10 weeks
Cleft palate repair	Age 9 -18 months
Pharyngoplasty	Age 3 – 5 years or later based on speech development
Maxillary / alveolar reconstruction With born grafting	Age 6-9 years based on dental development
Cleft orthognathic surgery	Age 14-16 years in girls 16-18 years in boys
Cleft rhinoplasty	After age 5 years but preferably at skeletal maturity after arthognathic surgery when possible
Cleft lip revision	Any time once initial remodelling and scar maturation s completed , best after age 5 years

Cleft lip repair



Pre surgical orthopedic



Techniques for lip repair

- Straight line repair (rose-Thompson closure)
- Rotation and advancement flap (millard technique)
- Triangular flap (tennison –randall flap)

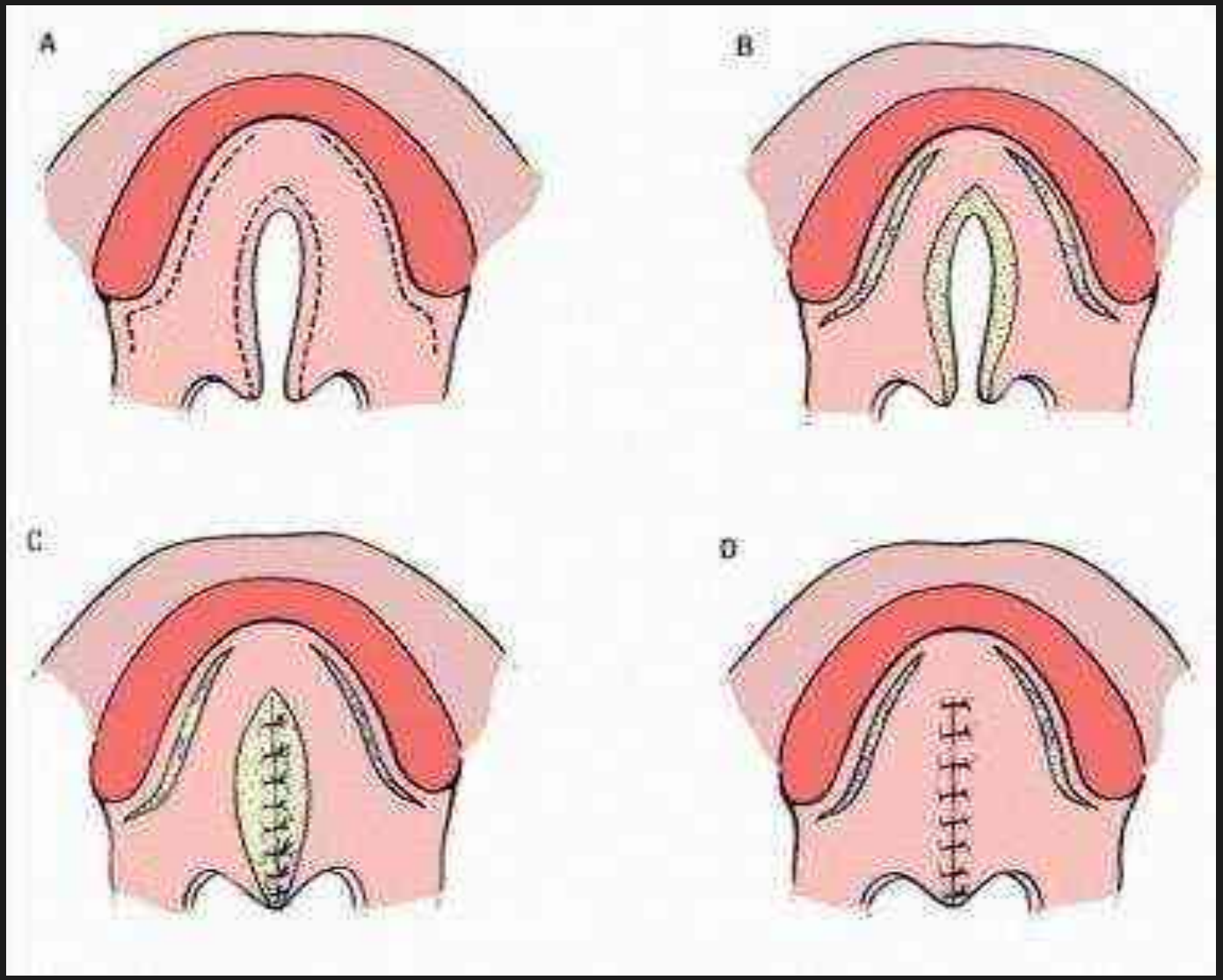

commander of the armies of the north,

Cleft palate repair

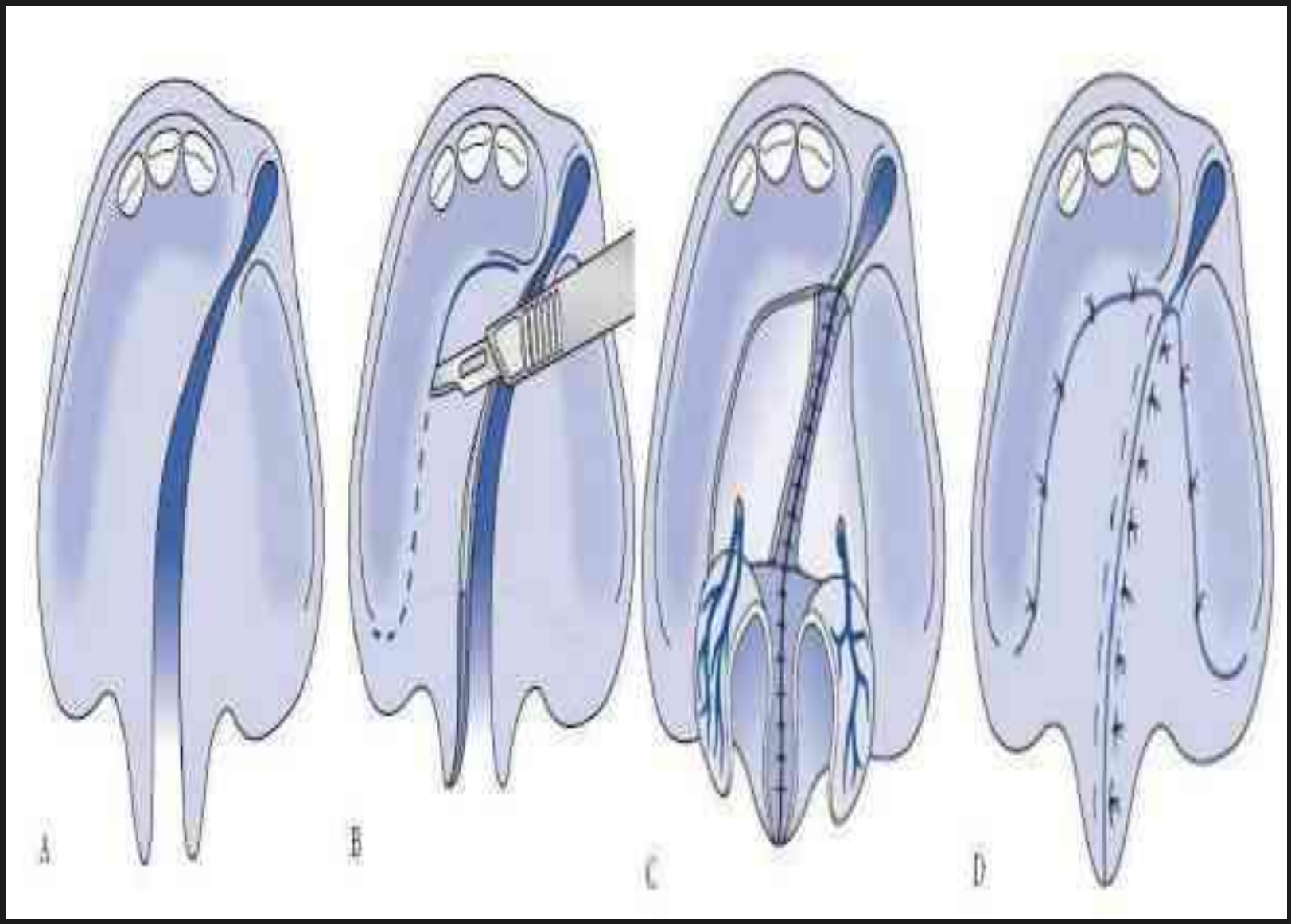
Techniques for cleft palate repair

- Von langenbeck technique
- V-Y pushback technique
- Two – flap technique
- Furlow technique

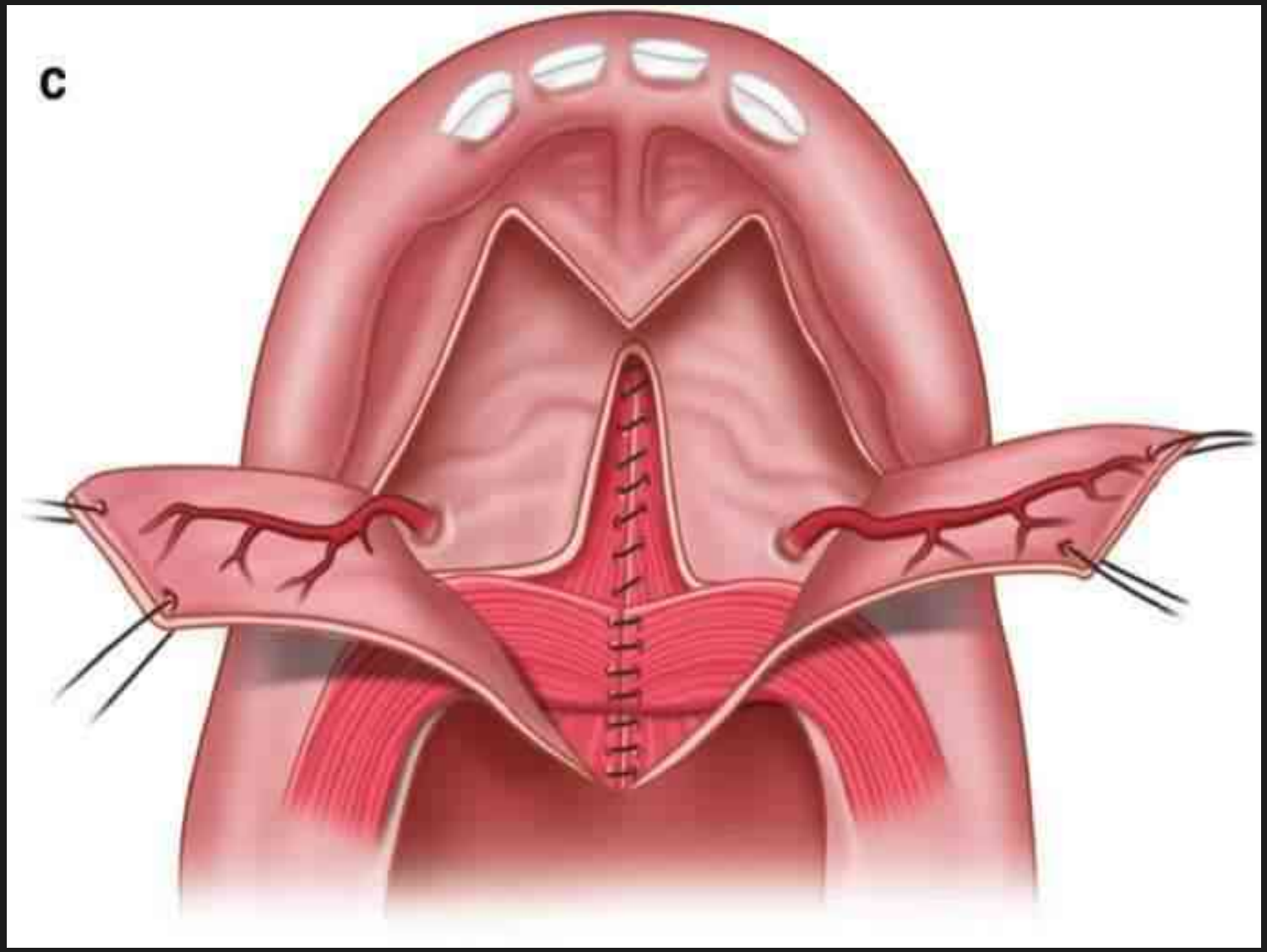
Von langenbeck technique



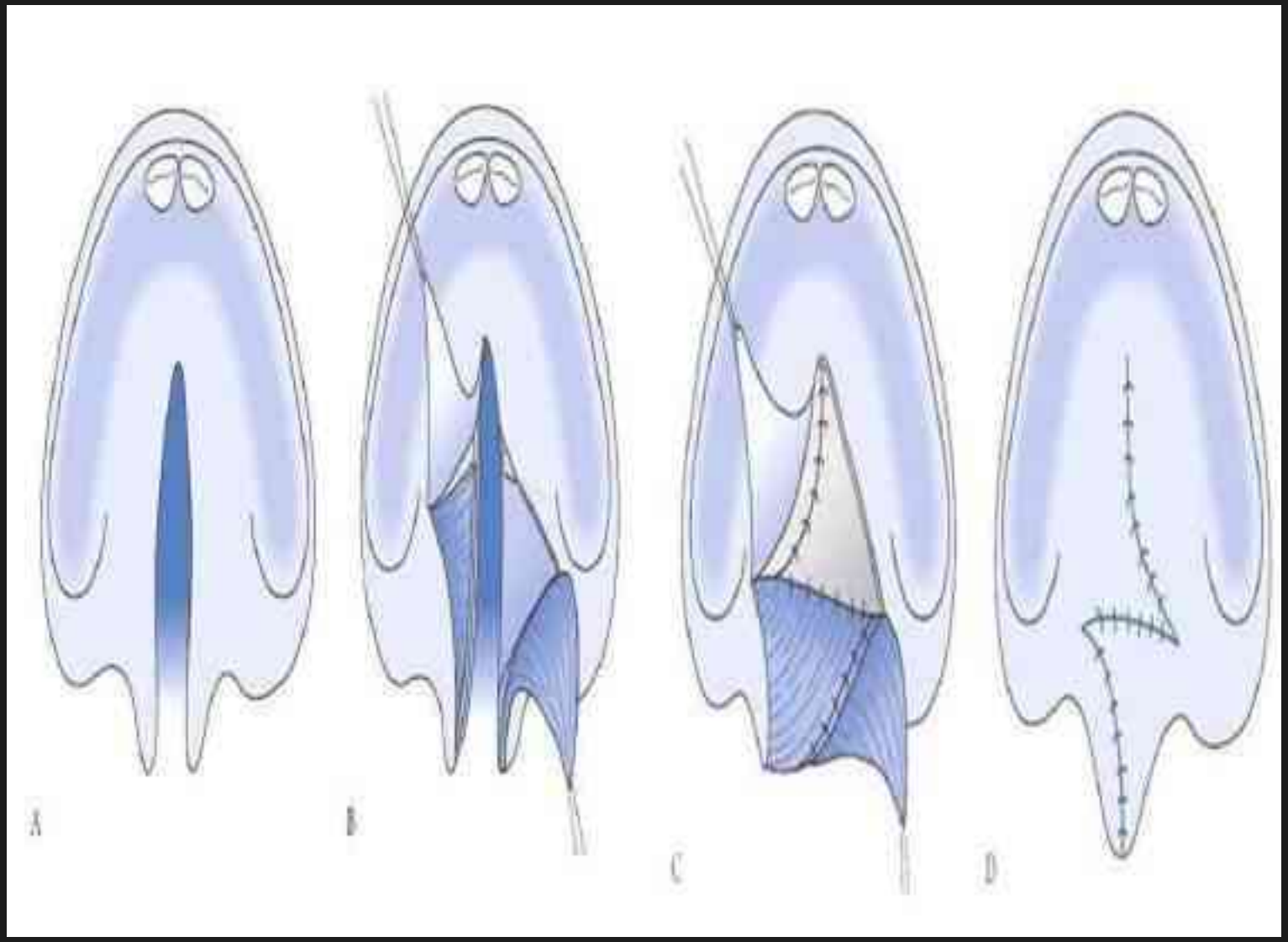
Two – flap technique



V-Y pushback technique



Furlow technique



Complications of surgery :

- Immediate postoperative complications include breakdown of the repair due to tension, palatal ischemia, secondary pressure, secondary trauma,or bleeding.

- formation of an oronasal fistula .

- long-term complications include midface growth deficiency, velopharyngeal incompetence, recurrent fistula, and sleep apnea.

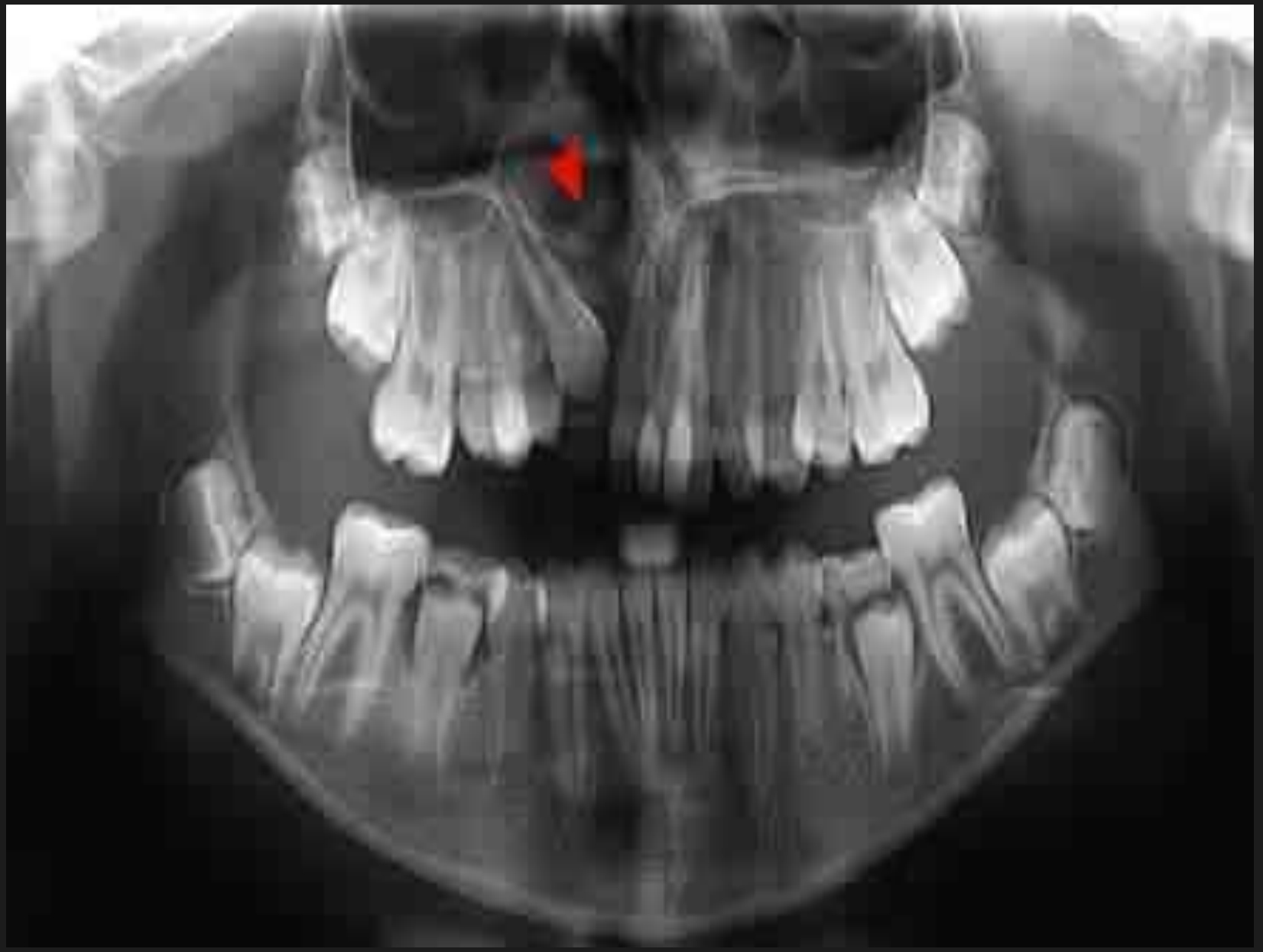
Alveolar cleft graft

Alveolar cleft graft

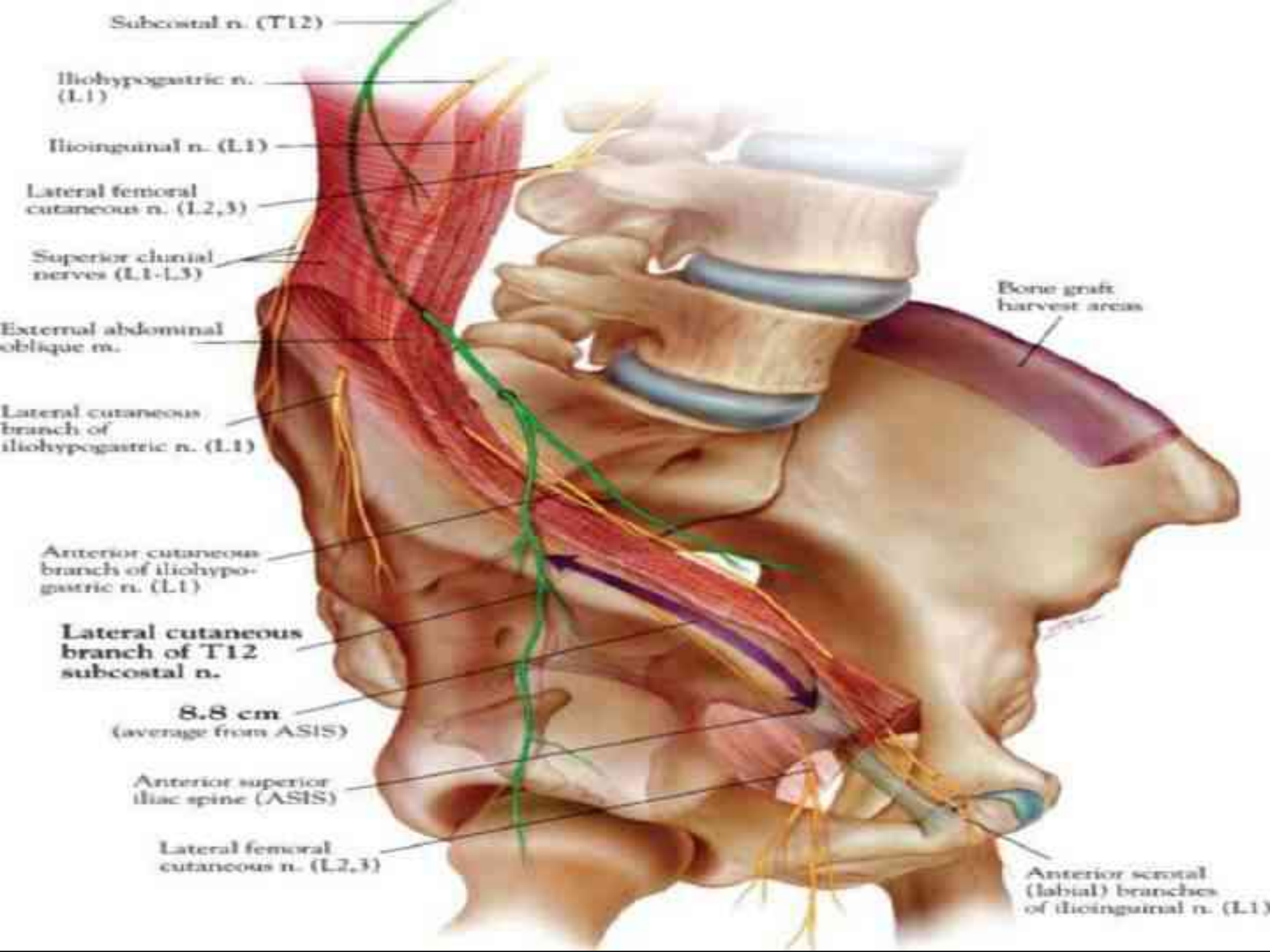
- **TIME**

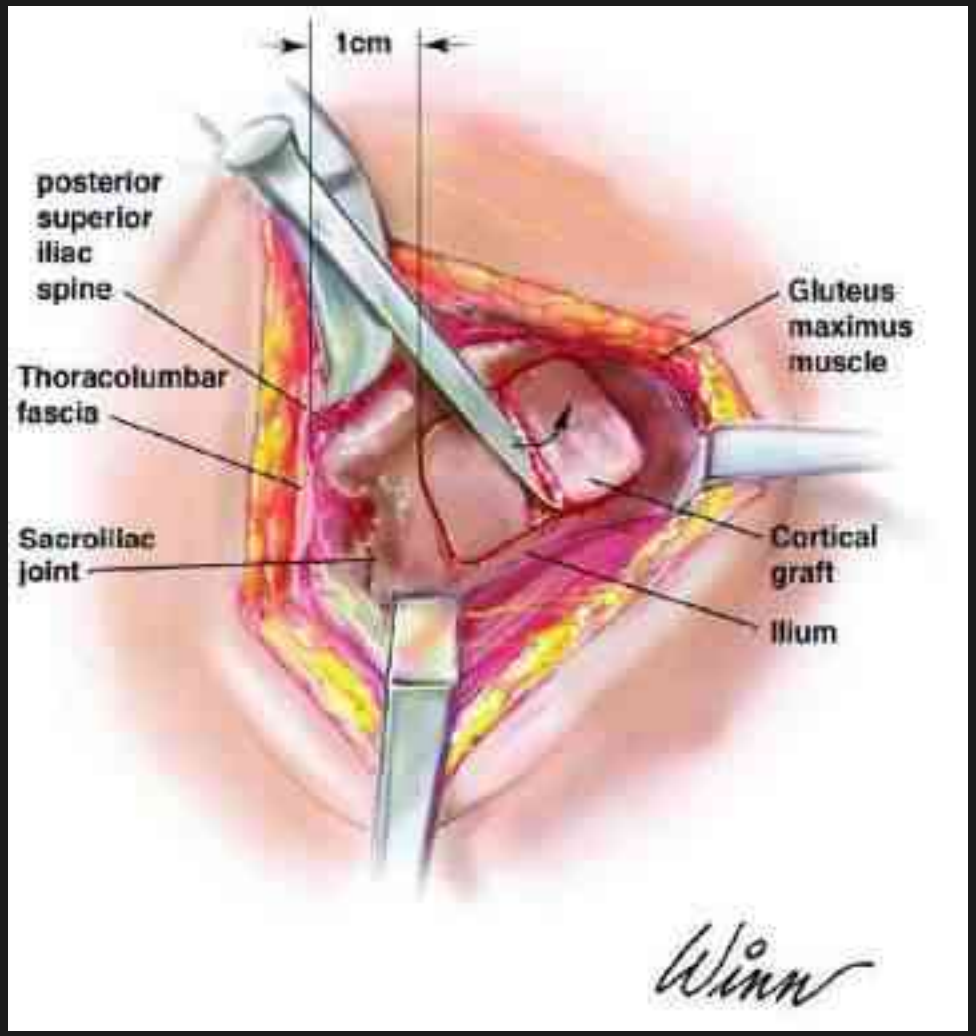
Advantages

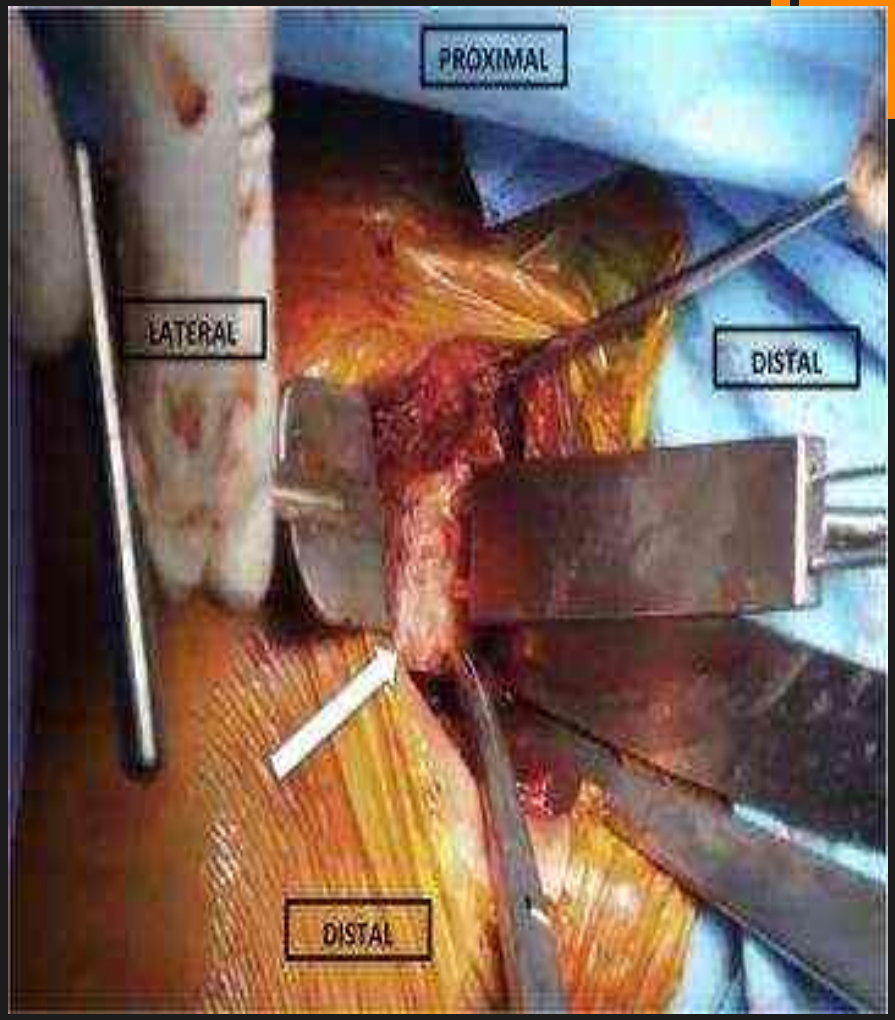
- **Provide bone support for maxilla**
- **Closure of oronasal fistula**
- **Augmentation of alveolar ridge to facilitate implant , prosthesis**
- **Creation of base to support lip and ala of nose**

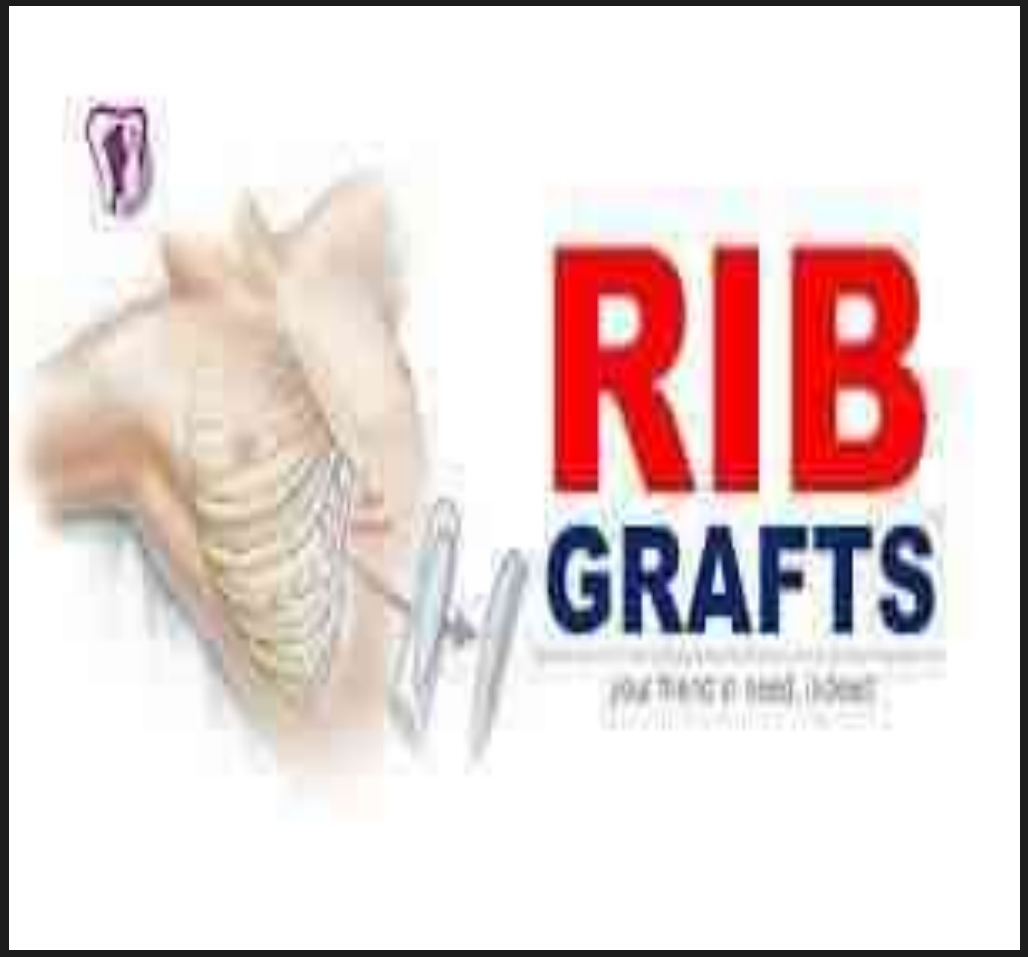


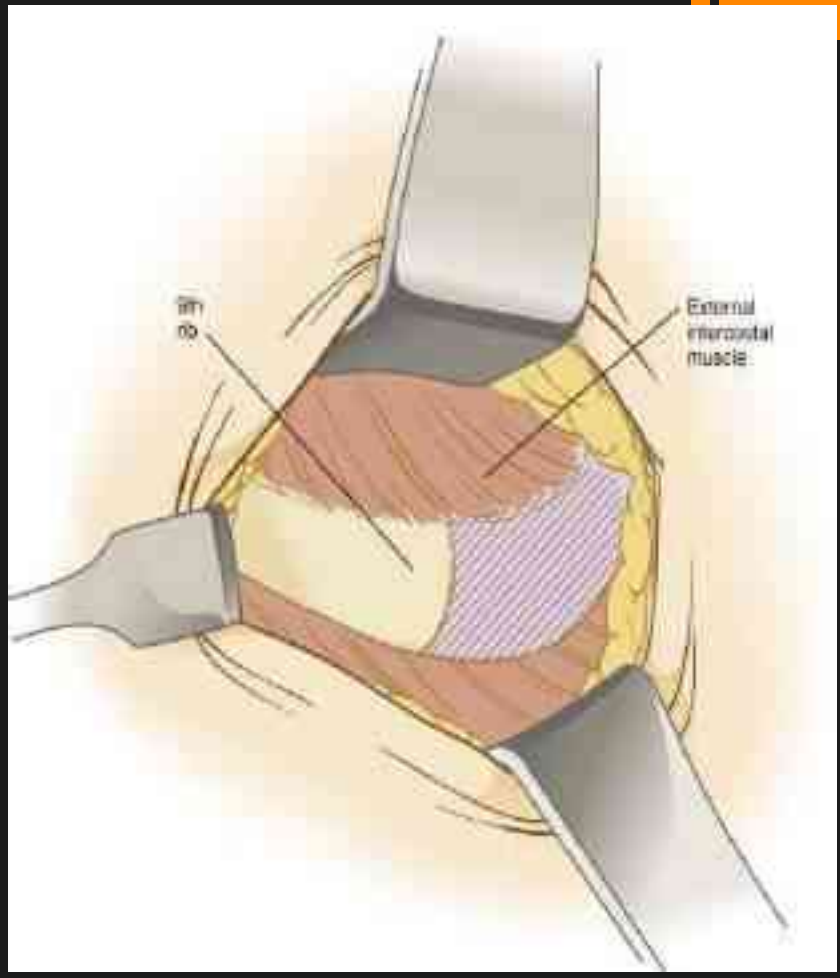

A
B
C

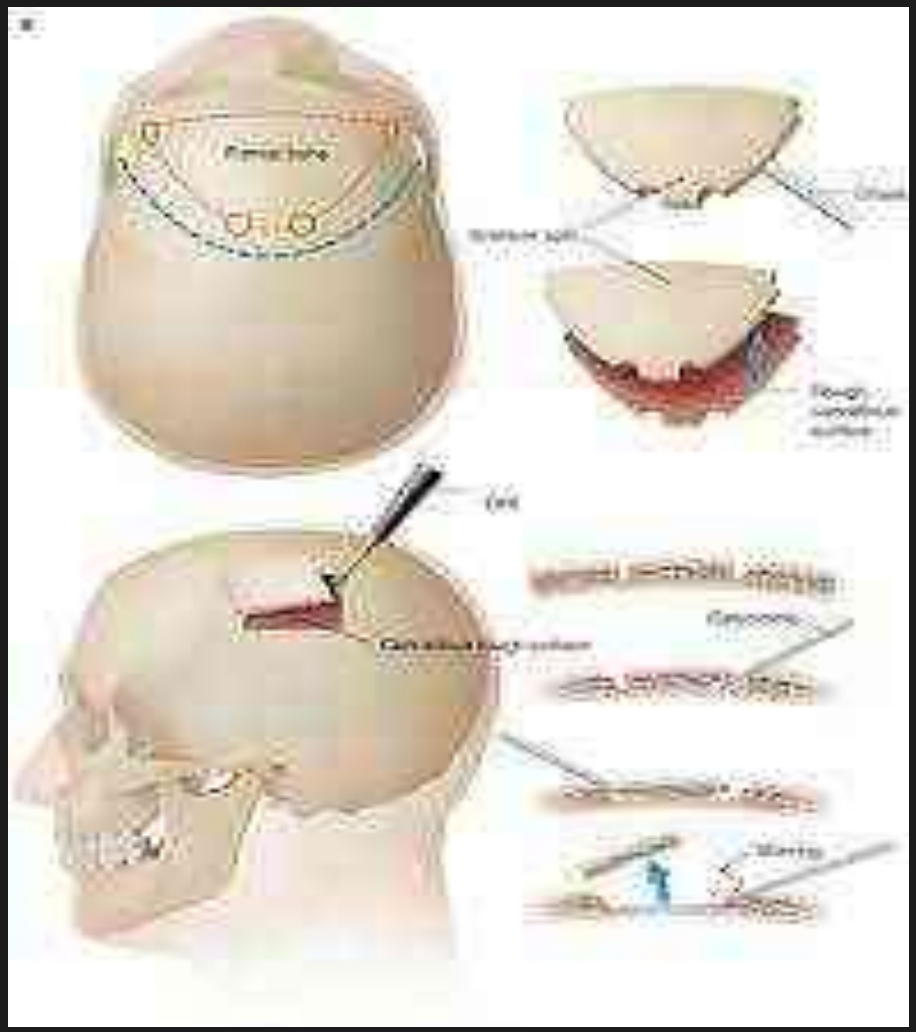

Subcostal n. (T12)
Iliohypogastric n. (L1)
Ilioinguinal n. (L1)
Lateral femoral cutaneous n. (L2,3)
Superior clunial nerves (L1-L3)
External abdominal oblique m.
Lateral cutaneous branch of iliohypogastric n. (L1)
Anterior cutaneous branch of iliohypogastric n. (L1)
Lateral cutaneous branch of T12 subcostal n.
8.8 cm (average from ASIS)
Anterior superior iliac spine (ASIS)
Lateral femoral cutaneous n. (L2,3)
Bone graft harvest areas
Anterior scrotal (labial) branches of ilioinguinal n. (L1)


1cm
posterior superior iliac spine
Thoracolumbar fascia
Sacroiliac joint
Gluteus maximus muscle
Cortical graft
Ilium
Winn


PROXIMAL
LATERAL
DISTAL
DISTAL


RIB
GRAFTS


External intercostal muscle



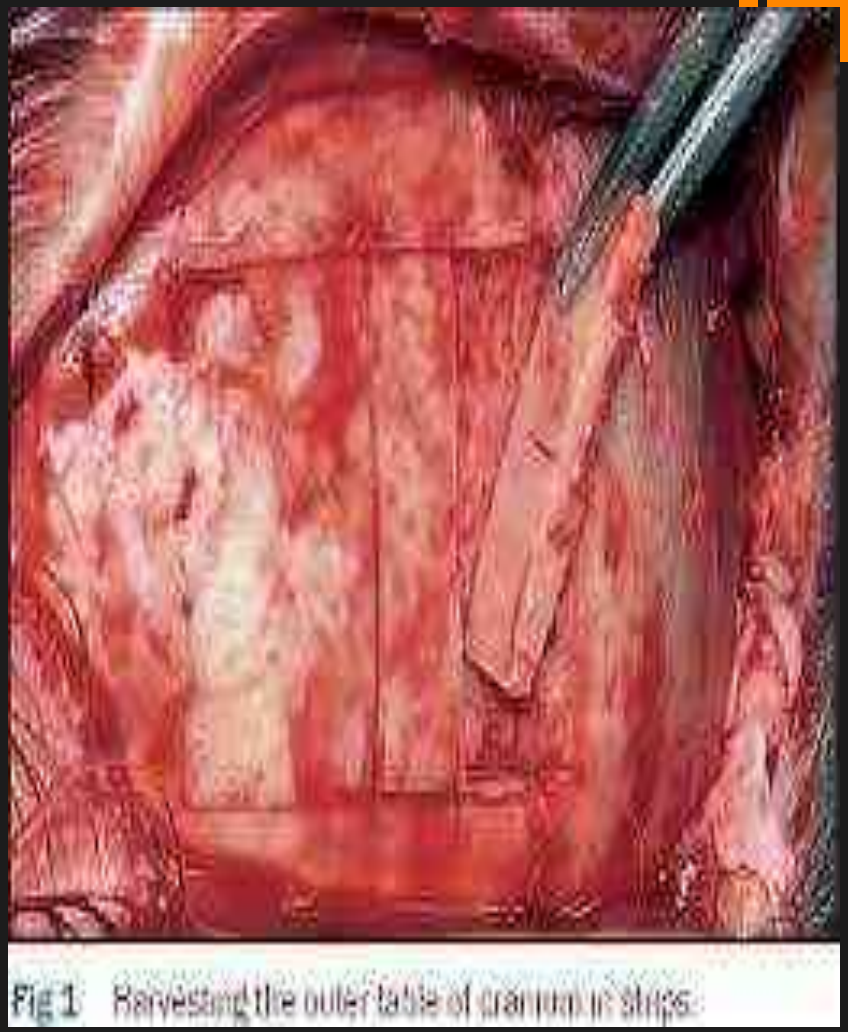


Fig 1 Harvesting the outer table of cranium in strips

Orthognathic surgery


Pre
Post


Thank you for listening

1. **Genioplasty procedures is used for:**

a) To change the attachment of genioglossus muscle in pre-prosthetic procedure

b) To change the position of genial tubercles

c) To modify the position of the chin

d) To modify the attachment of anterior belly of digastric

2.Orthognathic decompensation is done:

a) Is done at the time of surgery

b) Is done before the surgery

c) Is done after surgery

d) Nature itself decompensate or dental compensation

3. The latent period of distraction osteogenesis:

a) 4-6 weeks

b) 5-7 days

c) 6-8 months

d) 4 months

4. Which of the following osteotomy is not carried out for mandibular deformity :

a) Inverted L osteotomy

b) C osteotomy

c) Intraoral sagittal spilt osteotomy

d) wassmund osteotomy

e) Body osteotomy

5.Sagittal split osteotomy was 1st advocated by :

a) Obwegesser

b) Dalpont

c) Wundrer

d) Moose


CYSTS IN OROFACIAL REGIONS
Dr. Mohamed Rahil
((Maxillofacial surgeon))

WHAT IS THE CYST ???

- ***Cyst:*** *is defined as a pathological cavity which may or may not be lined by epithelium and is filled with solid, semi solid or gaseous material .*

- ***Odontogenic cyst:*** *a cyst in which lining of lumen is derived from epithelium produced during tooth development.*

Types of cyst

- ***1.true cysts:*** *that which is lined by epithelium e.g: dentigerous cyst, radicular cyst.*

- ***2.pseudo cysts:*** *not lined by epithelium, e.g: solitary bone cyst , aneurysmal bone cyst*

Mechanism of cyst formation

- *Proliferation of the epithelial lining*
- *Fluid accumulation within the cyst cavity*
- *Bone resorption*

Classification of cysts of the orofacial region Based on the World Health Organization classification

- **Epithelial cysts**

A) Odontogenic cysts

1) Developmental odontogenic cysts

- keratocyst
- Dentigerous cyst (follicular cyst)
- Eruption cyst
- Lateral periodontal cyst
- Gingival cyst of adults

2) Inflammatory odontogenic cyst

- Radicular cyst (apical and lateral)
- Residual cyst

B) Non-odontogenic cysts

- Nasopalatine cyst
- Nasolabial cyst
- Globulomaxillary Cyst

- **Non-epithelial cysts (not true cysts)**
- Solitary bone cyst
- Aneurysmal bone cyst

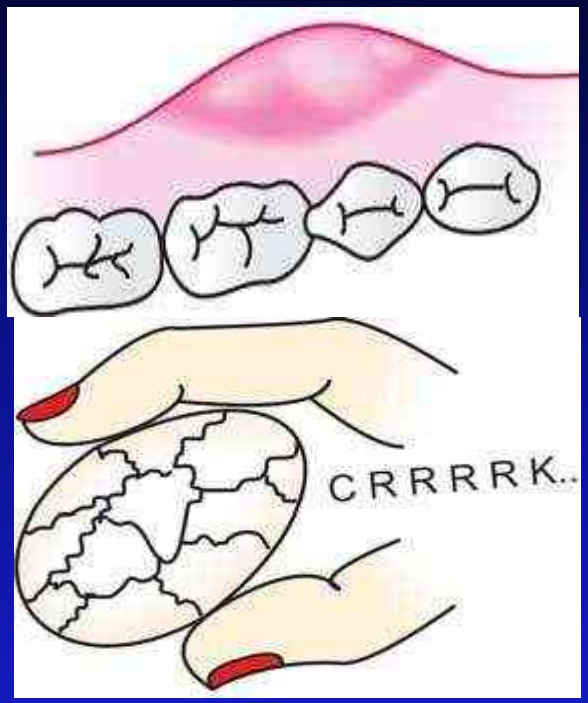
- ***Other cysts that occur in the soft tissues of orofacial regions (out of the coverage of this lecture) like ; Mucocel , Ranula , Dermoid cyst, thyroglossal duct cyst , and branchial cyst .***

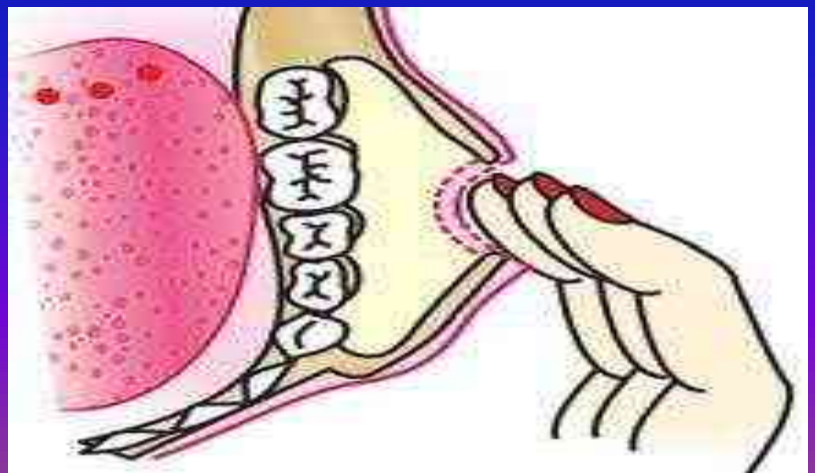
General clinical features of the cysts

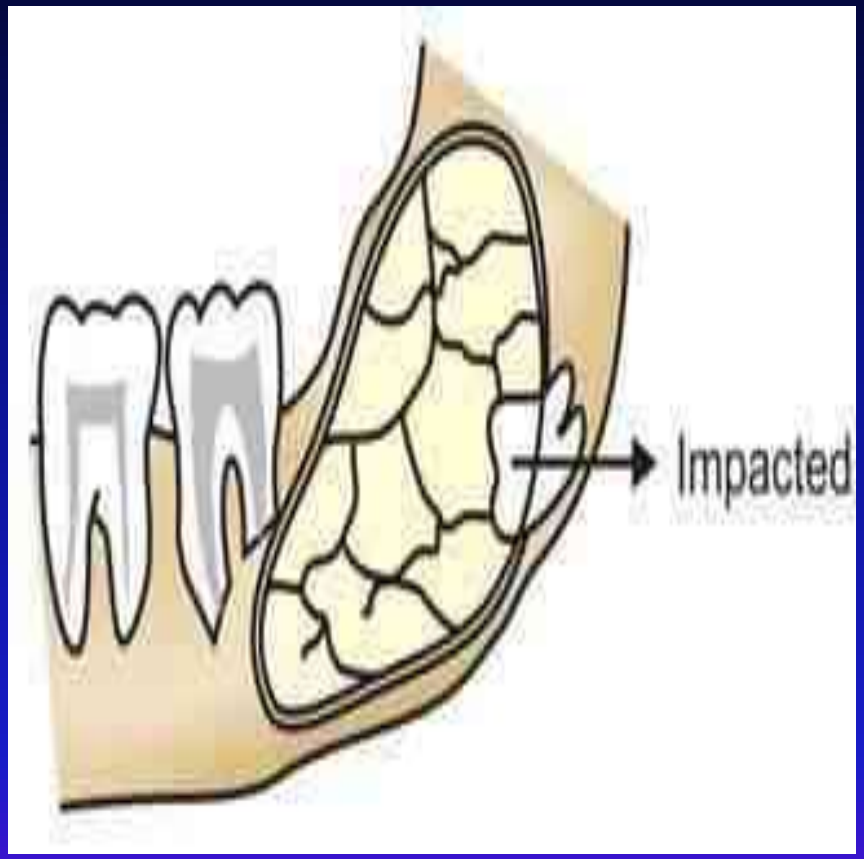
- Cyst usually asymptomatic.

but some symptoms may occure like :

- • swelling
- • displacement or loosening of teeth
- • pain (if infected).
- Eggshell craking
- fluctuance may be elicited



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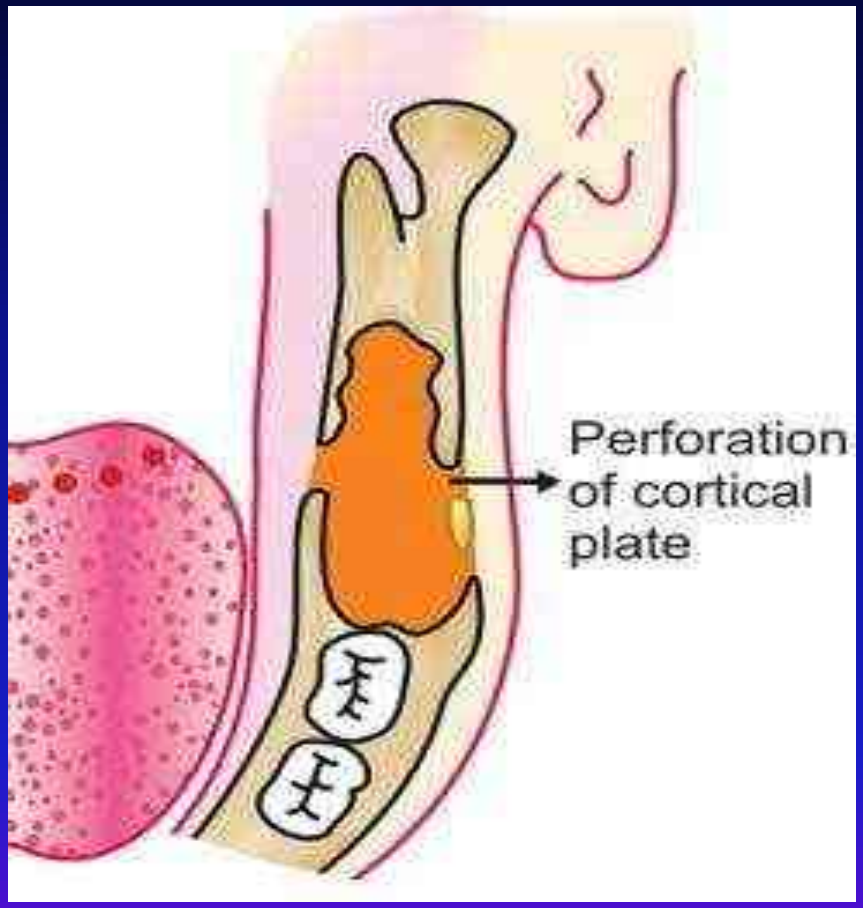

Perforation
of cortical
plate

Radiological examination: general principles

- *As a basic principle, for small cystic lesions, intra-oral films may be all that is needed for diagnosis.*
- *For larger lesions, more extensive radiography is appropriate*

  (extraoral radiograph , CT scan …)


CS 8100

Radiological signs

- *well-defined round or ovoid radiolucencies, surrounded by sclerotic margines (white lines)*
- *'Scalloped' margins are seen in larger lesions, particularly keratocysts.*
- *Infection of a cyst tends to cause loss of the welldefined margin.*
- *Locularity. True locularity (multiple cavities) is seen occasionally in odontogenic keratocysts.*

General principles of cyst treatment

- ***Cysts of the jaws, may be treated by one of the following basic methods:***

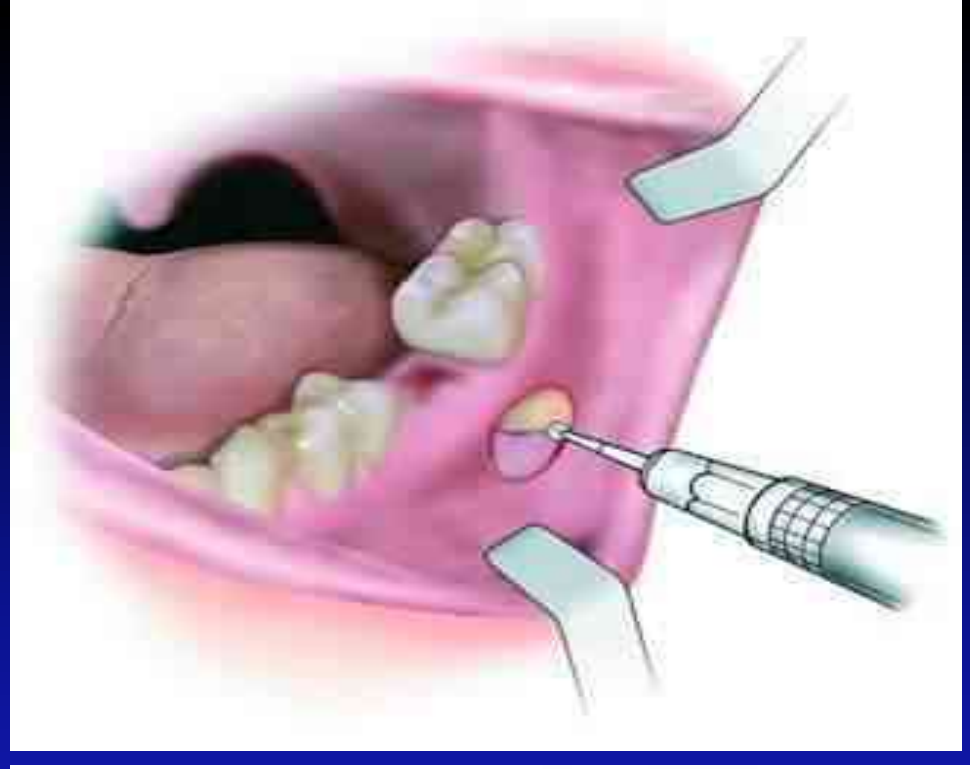
1. ***Marsupialization (decompression)***
2. ***Enucleation***

- ***Enucleation and packing***
- ***Enucleation and primary closure***
- ***Enucleation and primary closure with reconstruction/bone grafting.***

Marsupialization (Decompression)

- *creating a surgical window in the wall of the cyst, and evacuation of the cystic contents.*
- *decreases intracystic pressure*
- *promotes shrinkage of the cyst and bone fill.*

12.19. Radiograph showing extensive mandibular cyst.
marsupialization method is indicated for its treatment



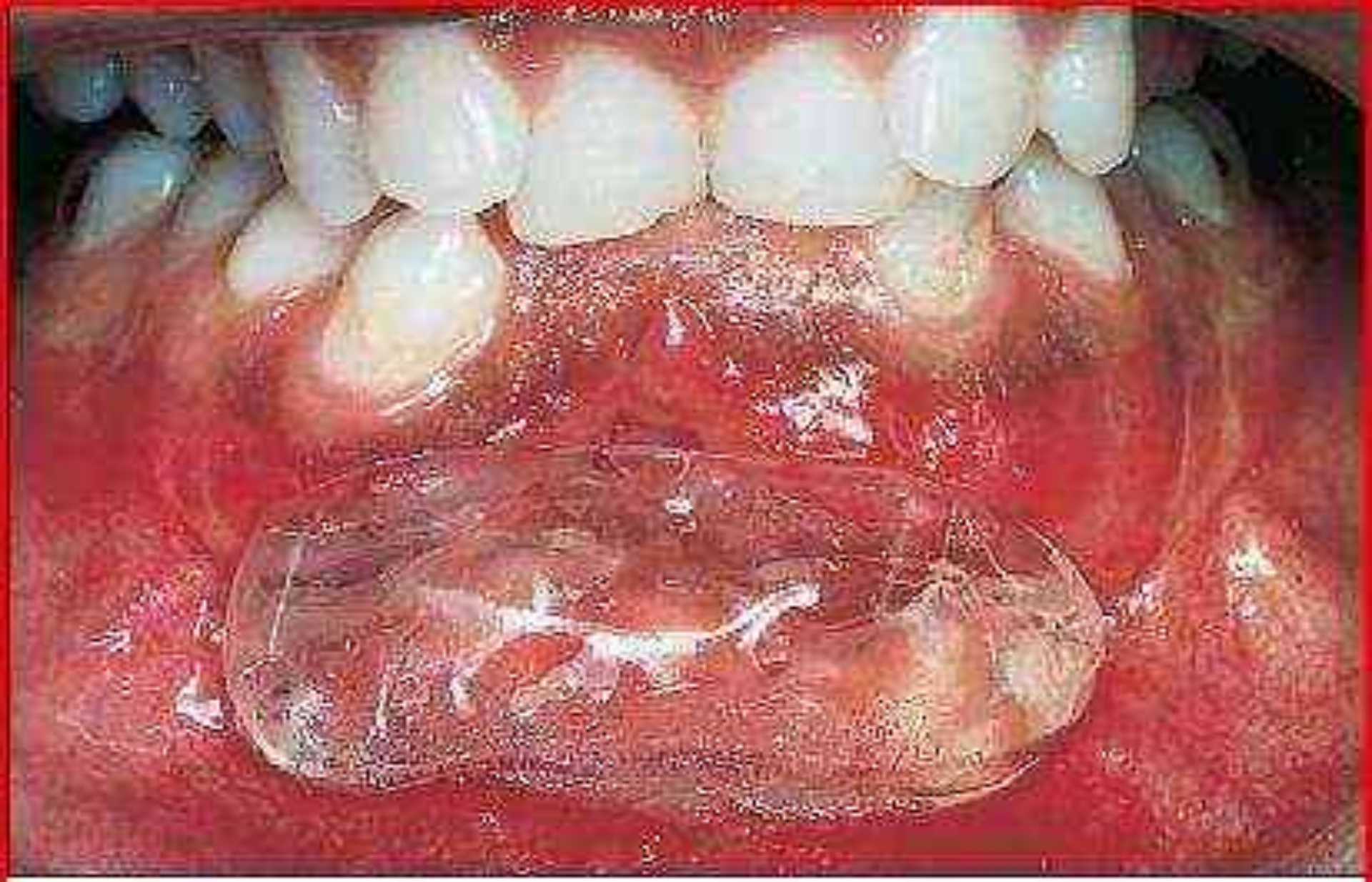


Fig. 9.9 An acrylic bung occluding the entrance to a marsupialized cyst cavity.

Indications of Marsupialization

- *Age: In a young child, with developing tooth germs,where enucleation would damage the tooth buds.In the elderly, debilitated patient, marsupialization, is less stressful and a reasonable alternative.*
- *Proximity to vital structures: When proximity of the cyst to vital structures, could create an oronasal or oroantral fistula, injure neurovascular structures or damage vital teeth, then marsupialization should be considered.*
- *Size of cyst: In very large cysts, where enucleation, could result in a pathological fracture, marsupialization,can be accomplished, through a more limited bony opening.*

Advantages of Marsupialization

- *Spares vital structures*
- *Allows eruption of teeth*
- *Prevents oronasal, oroantral fistulae*
- *Prevents pathological fractures*
- *Reduces operating time*
- *Reduces blood loss*
- *Helps shrinkage of cystic lining*
- *Alveolar ridge is preserved.*

Disadvantages of Marsupialization

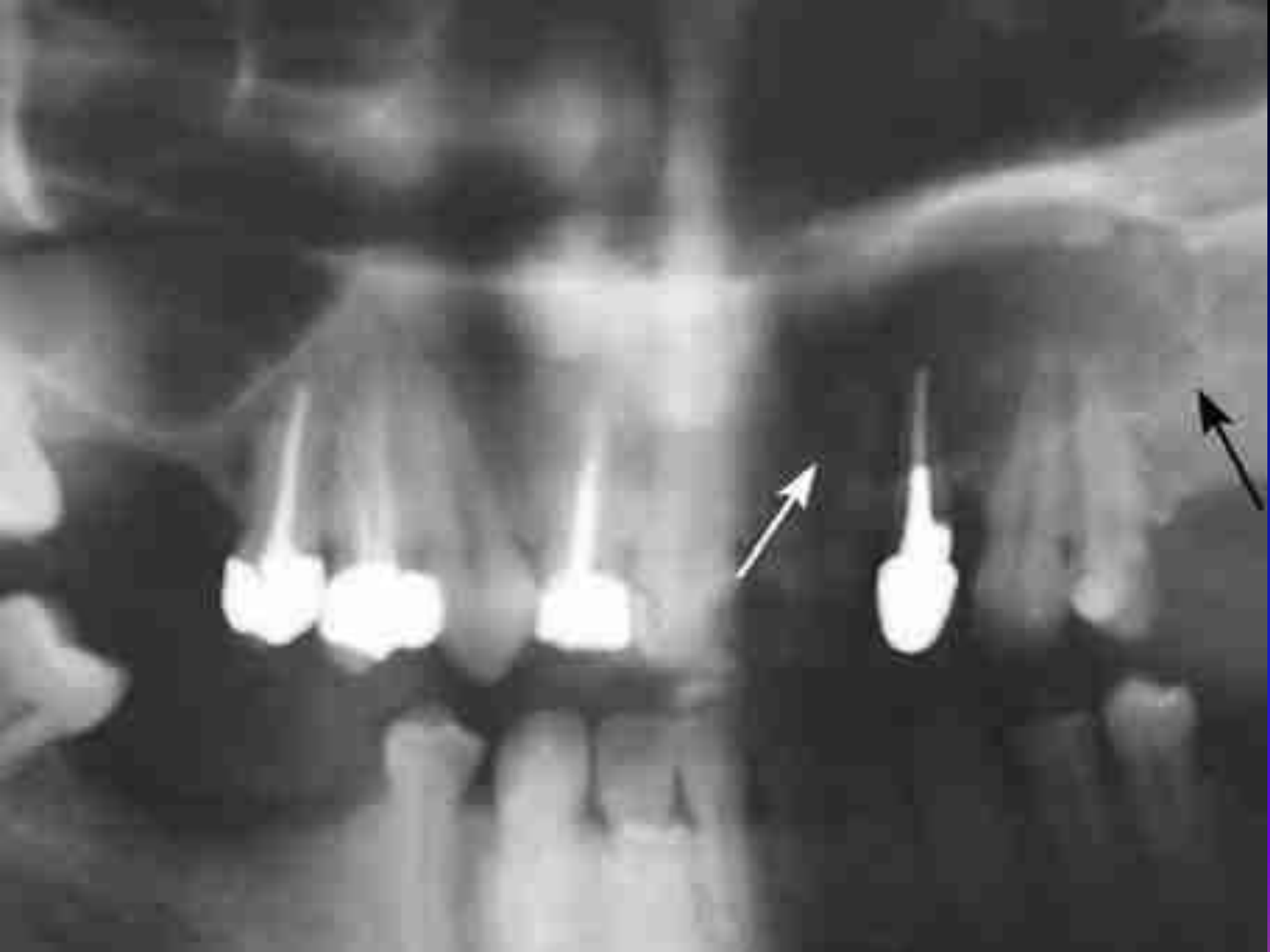
- *Pathologic tissue is left in situ*
- *Histologic examination of the entire cystic lining is not done*
- *Prolonged healing time*
- *Prolonged follow up visits*
- *Periodic irrigation of cavity*
- *Periodic changing of pack*
- *Secondary surgery may be needed*

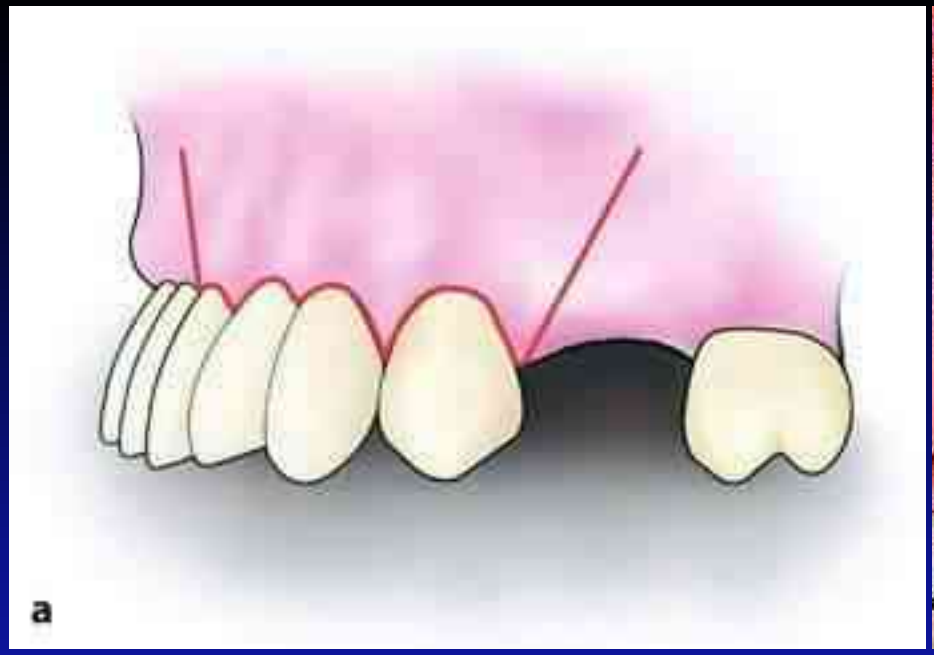
Enucleation

Enucleation allows for the cystic cavity to be covered by a mucoperiosteal flap and the space fills with blood clot, which will eventually organize and form normal bone.

Indications :

- *Small cyst*
- *Treatment of odontogenic keratocyst*
- *Recurrence of cystic lesions of any cyst type*

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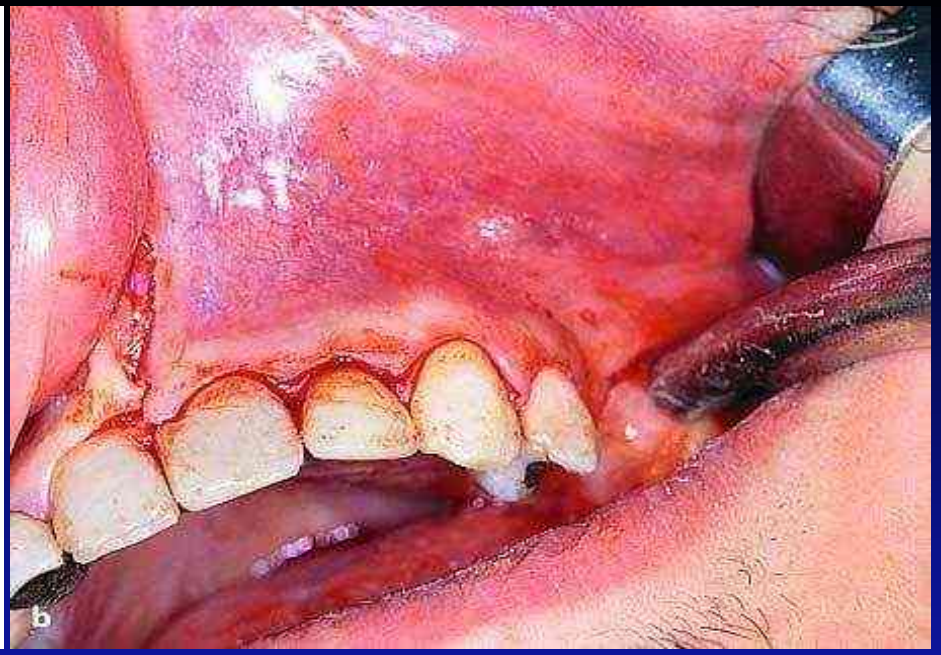
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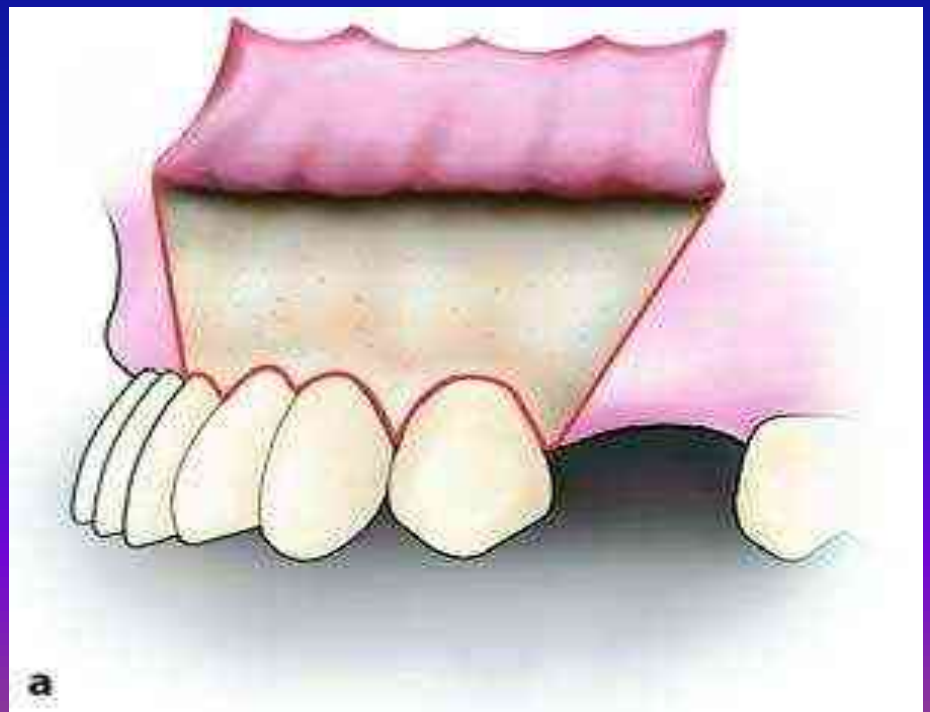
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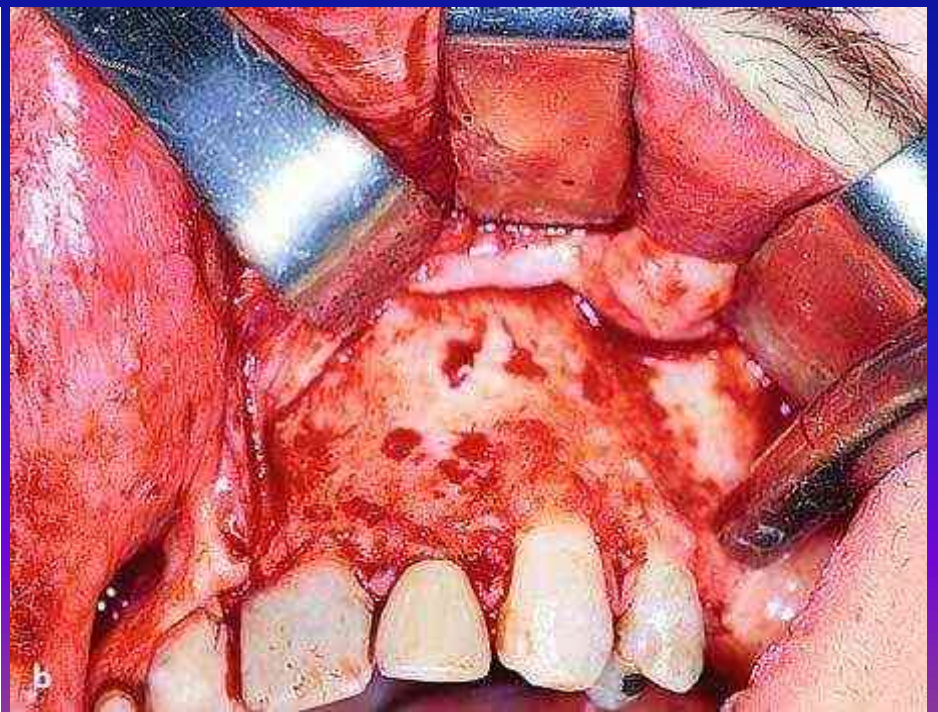
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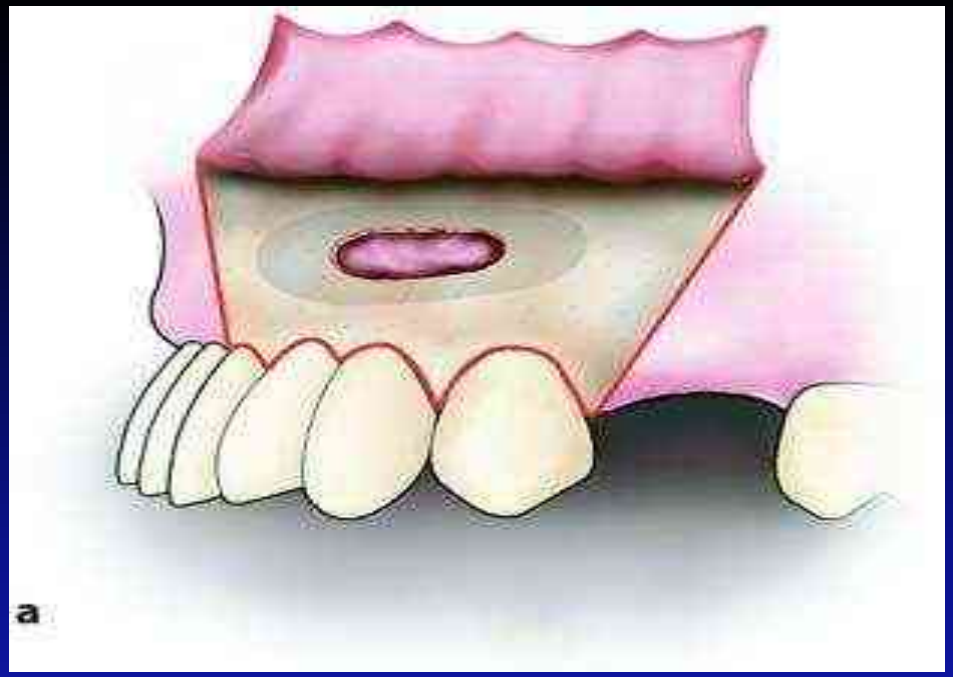
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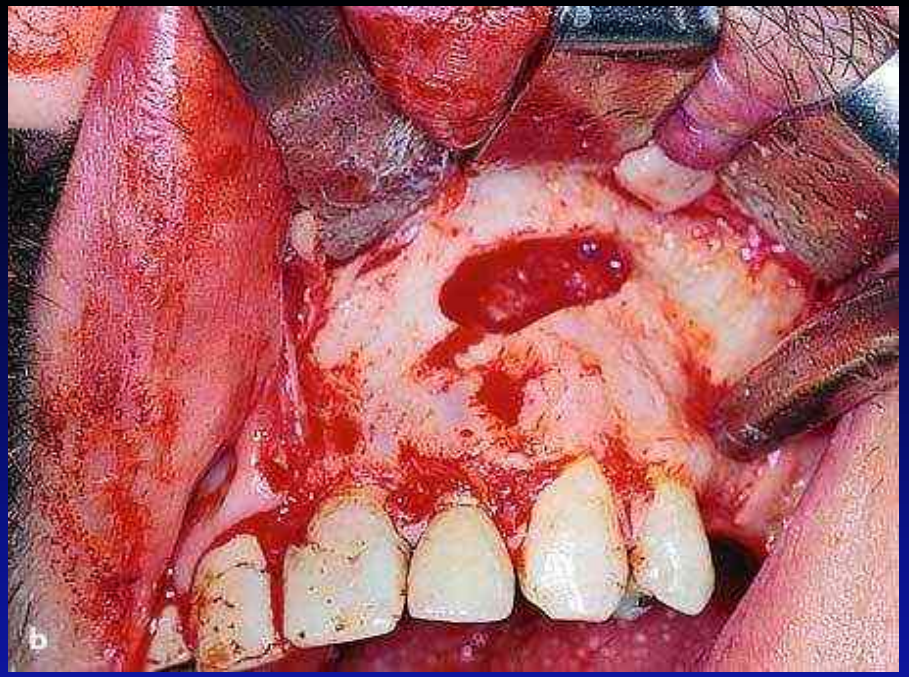
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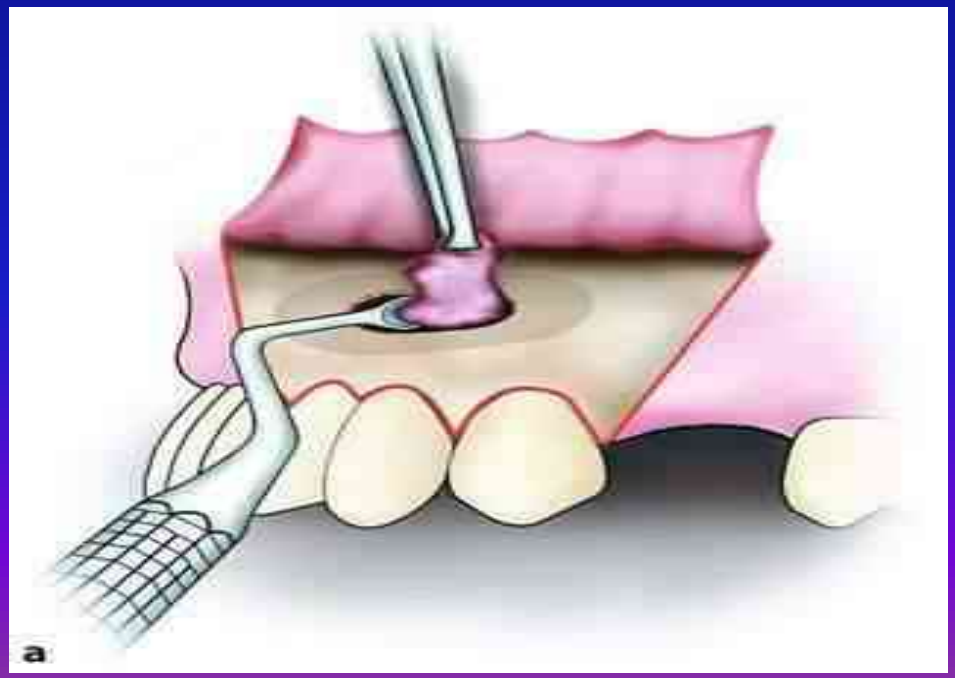
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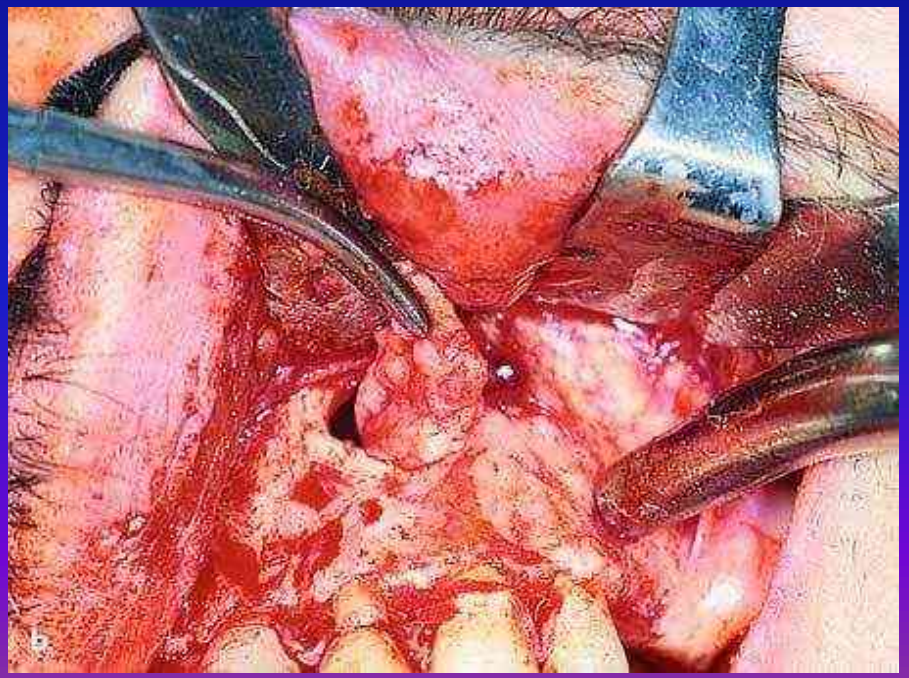
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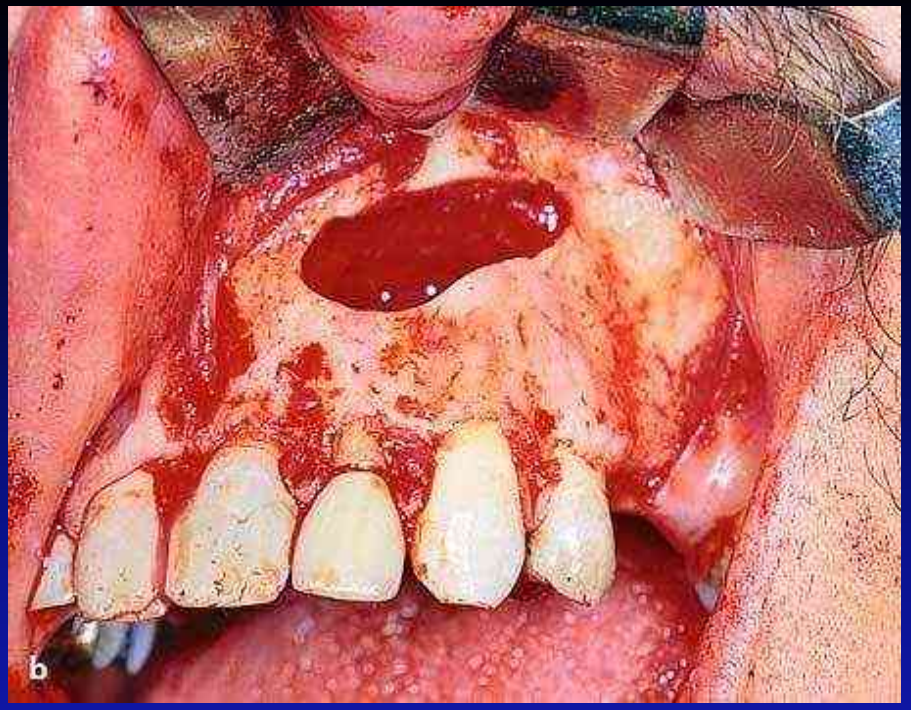
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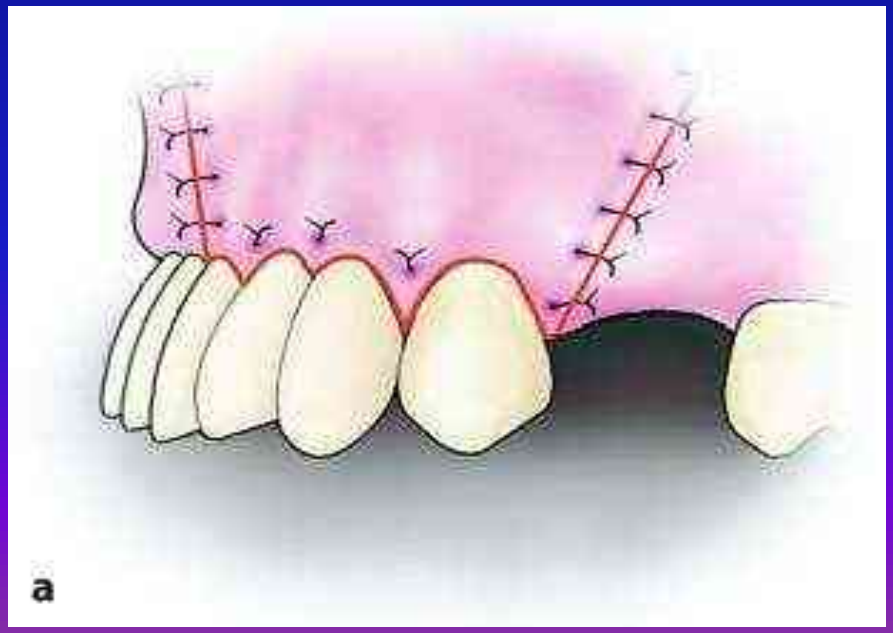
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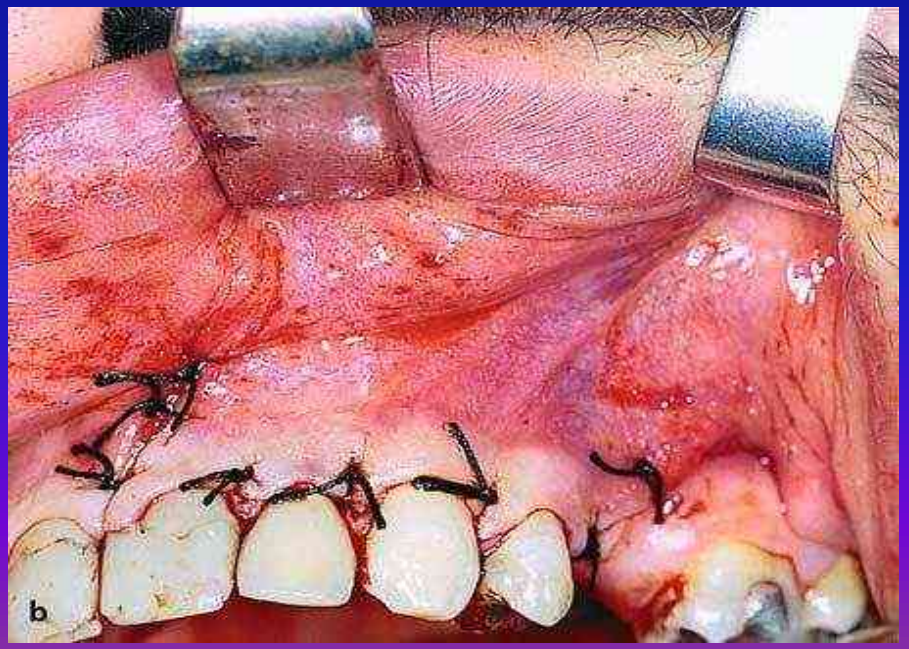
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2 months after the surgical proce-

Advantages of Enucleation

- *Primary closure of the wound*
- *Healing is rapid*
- *Postoperative care is reduced*
- *Thorough examination of the entire cystic lining can be done.*

Disadvantages of Enucleation

- *After primary closure, it is not possible to directly observe the healing of the cavity as with marsupialization*
- *In young persons, the unerupted teeth in a dentigerous cyst will be removed with the lesion*
- *Removal of large cysts will weaken the mandible,making it prone to jaw fracture*
- *Damage to adjacent vital structures*
- *Pulpal necrosis*

Adjunct therapy

1.Chemical cauterization. (carnoys solution)

2.Cryotherapy.(liquid nitrogen)

3.Peripheral ostectomy

Complications of cystic lesions

- *Pathological fracture*
- *Postoperative wound dehiscence*
- *Loss of vitality of teeth*
- *Neuropraxia in infected cysts*
- *Postoperative infection*
- *Recurrence in some cysts*
- *Dysplastic, neoplastic or even malignant changes.*


ODONTOGENIC CYSTS

Odontogenic Tissues

Dental Lamina

Enamel Organ

Epithelial Root Sheath of Hertw

Serres Pearl

Reduced Dental Epithelium

Epithelial Rests of Malassez

Tooth Sac

Periodontal Ligament

Dental Papilla

Dental Pulp

Primordial Cyst (Keratocyst)

- arising from dental lamina or its remnants .

- **Incidence :** about 5 to 10 per cent of odontogenic cysts of the jaws and are seen predominantly in the second, third and fourth decades of life.

- **Site :** most common site are posterior mandible .

Clinical features

- *A small cyst generally detected accidentally on a radiographical examination.*
- *usually extend in anteroposterior direction.*
- *Large mandibular cysts deflect the neurovascular bundle into an abnormal position.*
- *Neuropraxia may associated with infected cyst (When tension is relieved, with spontaneous discharge of pus via a sinus tract or surgical drainage, sensation returns to normal).*

Radiological features

- *unilocular or multilocular radiolucency with well defined border and some times associated with sclerotic margin .*

- ***Cyst contents (aspirate)***
- ***white, kreamy suspention (consist mainly from keratin), which has an appearance of pus, but without an offensive smell.***
- ***These suspension charectarized by that the amount of protein content will be less than that present in the other cysts (total protein will be found to be below 4 gm/100 ml).***

- ***Recurrence :*** ***high tendency to recur. The recurrence rate about 5 to 62 % with most occurring in the first 5 years.***

- ***possible reasons reported for high recurrence rate :***
  - ***Scolloped margins***
  - ***Presence of daughter cysts***
  - ***Cystic lining is very thin and fragile, portions of which may be left behind***
  - ***Epithelial lining of keratocysts have an intrinsic growth potential***
  - ***new cysts can arise from basal cells of the oral mucosa***
  - ***Patients with nevoid basal cell carcinoma syndrome (Gorlin-Goltz syndrome) have a particular tendency to form multiple keratocysts with other manifestations in different parts of the body (Multiple basal-cell carcinomas of the skin, rib and vertebrae anomalies,intracranial calcifications, frontal bossing, hypertelorism, and mandibular prognathism .palmar and plantar pitting)***

Treatment of keratocyst

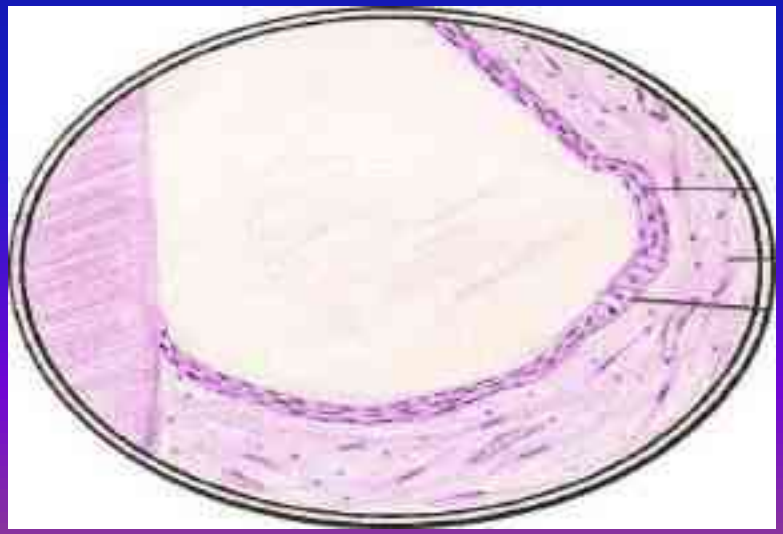
- ***Treatment should always be based on proper clinical assessment, accurate diagnosis and appropriate tests of the cystic aspirate.***

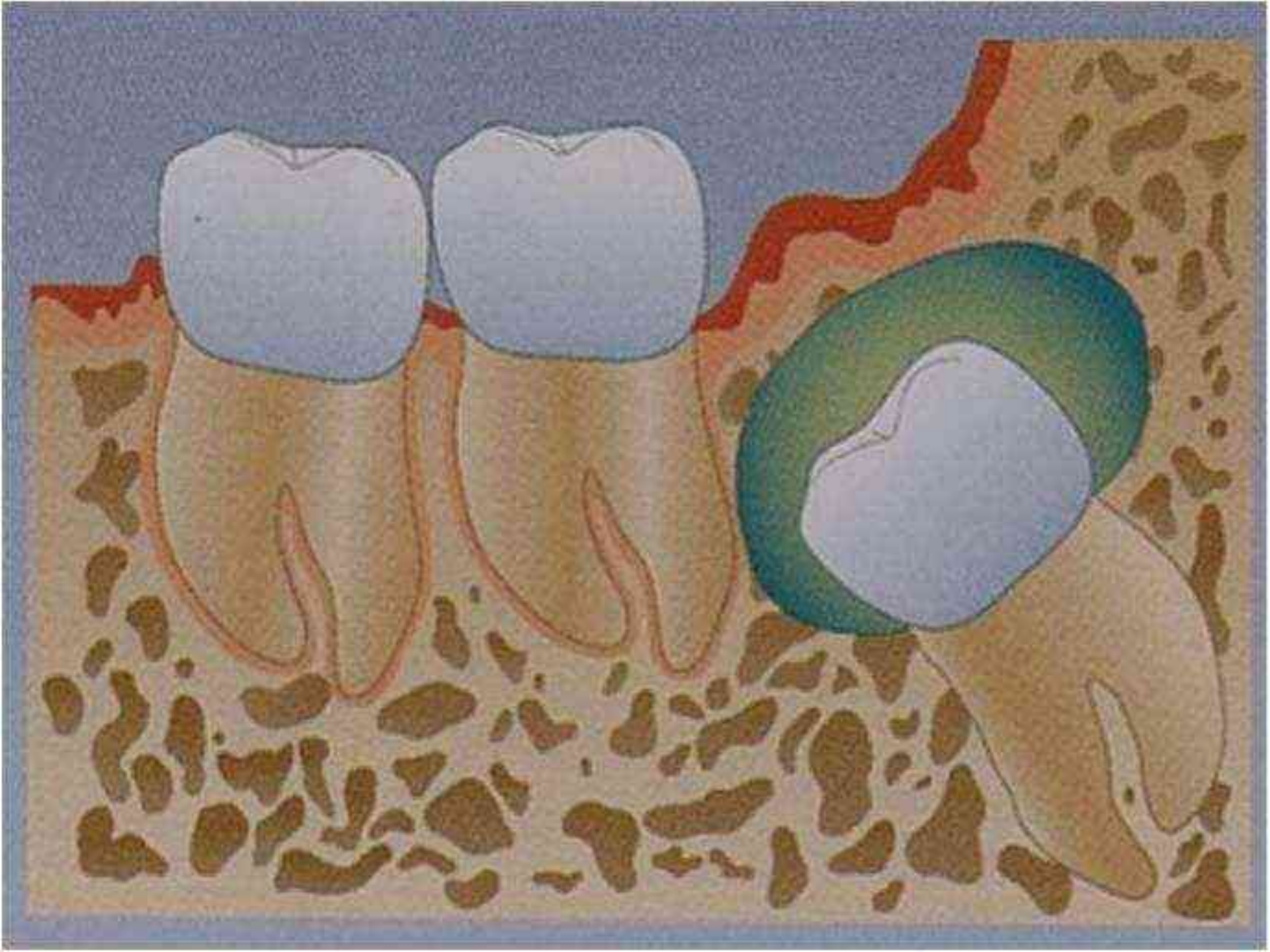
Treatment options for keratocyst :

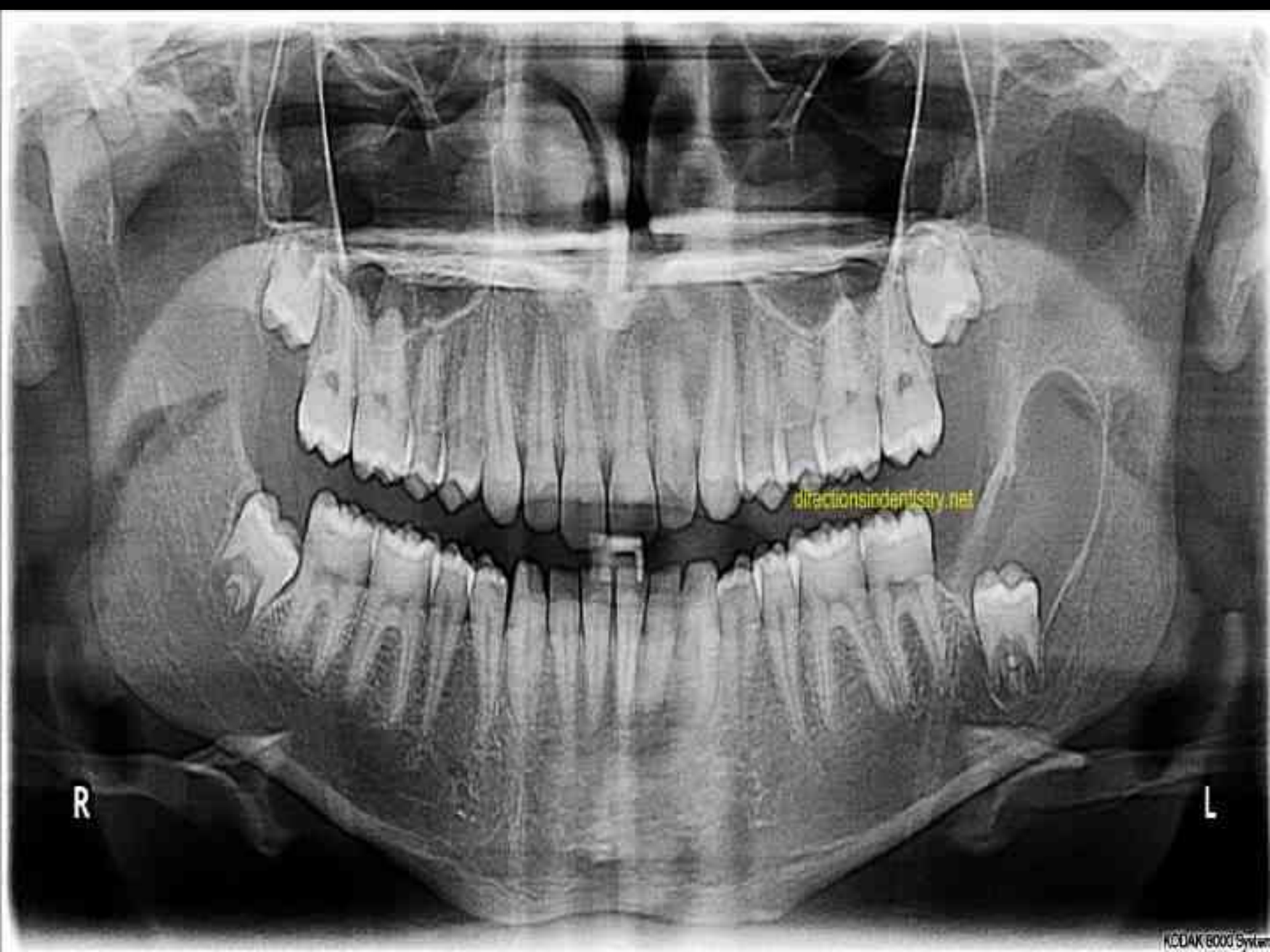
- ***1. Total enucleation and primary closer.***
- ***2. Enucleation with chemical fixation. recommended use of Cornoy's solution after enucleation to destroy the daughter cysts and remnant lining. The Cornoy's solution acts as chemo-cauterization to prevent recurrence.***
- ***3. Marsupialization (usually not enough in keratocyst due to high recurrence rate)***
- ***4. Resection.(in case of multiple recurrence)***

Dentigerous Cyst (Follicular Cyst)

- *It originates by accumulation of fluid between the reduced enamel epithelium and the tooth crown, so its always associated with the crown of a unerupted tooth.*



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- ***Incidence:*** *The dentigerous cyst is the most common type of developmental odontogenic cyst, making up about 20 percent of all epithelium lined cysts of the jaws.*

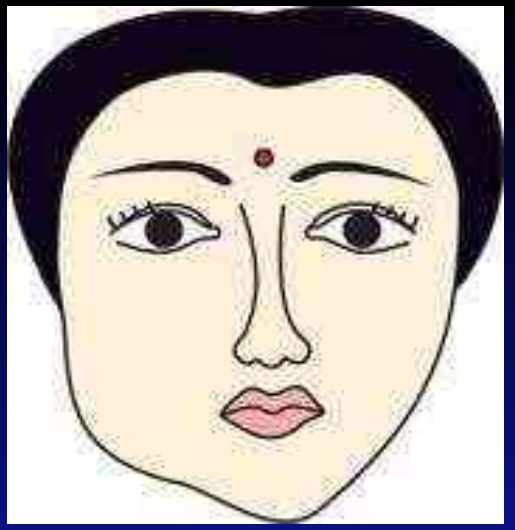
- *The most common age periods for diagnosis are the first, second, third decades*

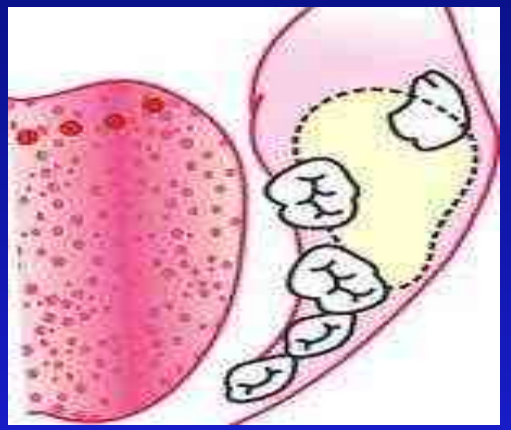
- *Slight predilection for the males and the prevalence is higher for whites than for blacks.*

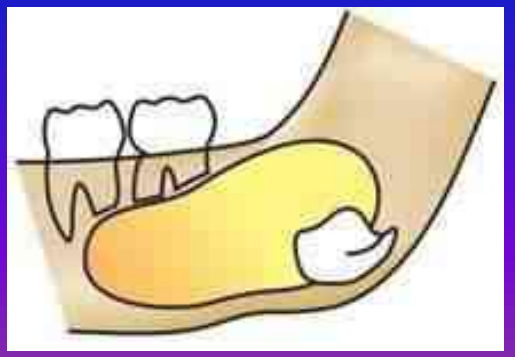
- *Most common sites; mandibular third molars , maxillary canine, maxillary third molar and mandibular second premolar.*

Clinical features:

- *Dentigerous cysts have the potential, to attain a large size, often it is the pronounced facial asymmetry .*
- *Teeth displacement*
- *Root resorptions*



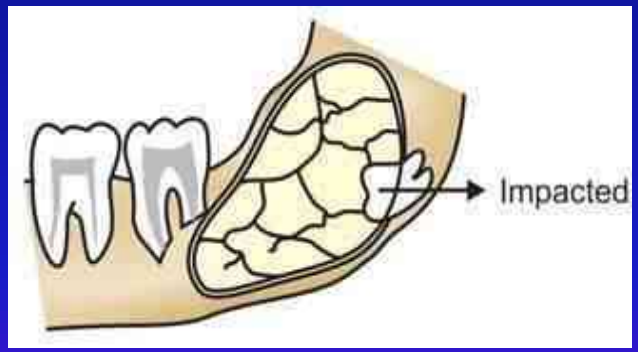




Clinical features:

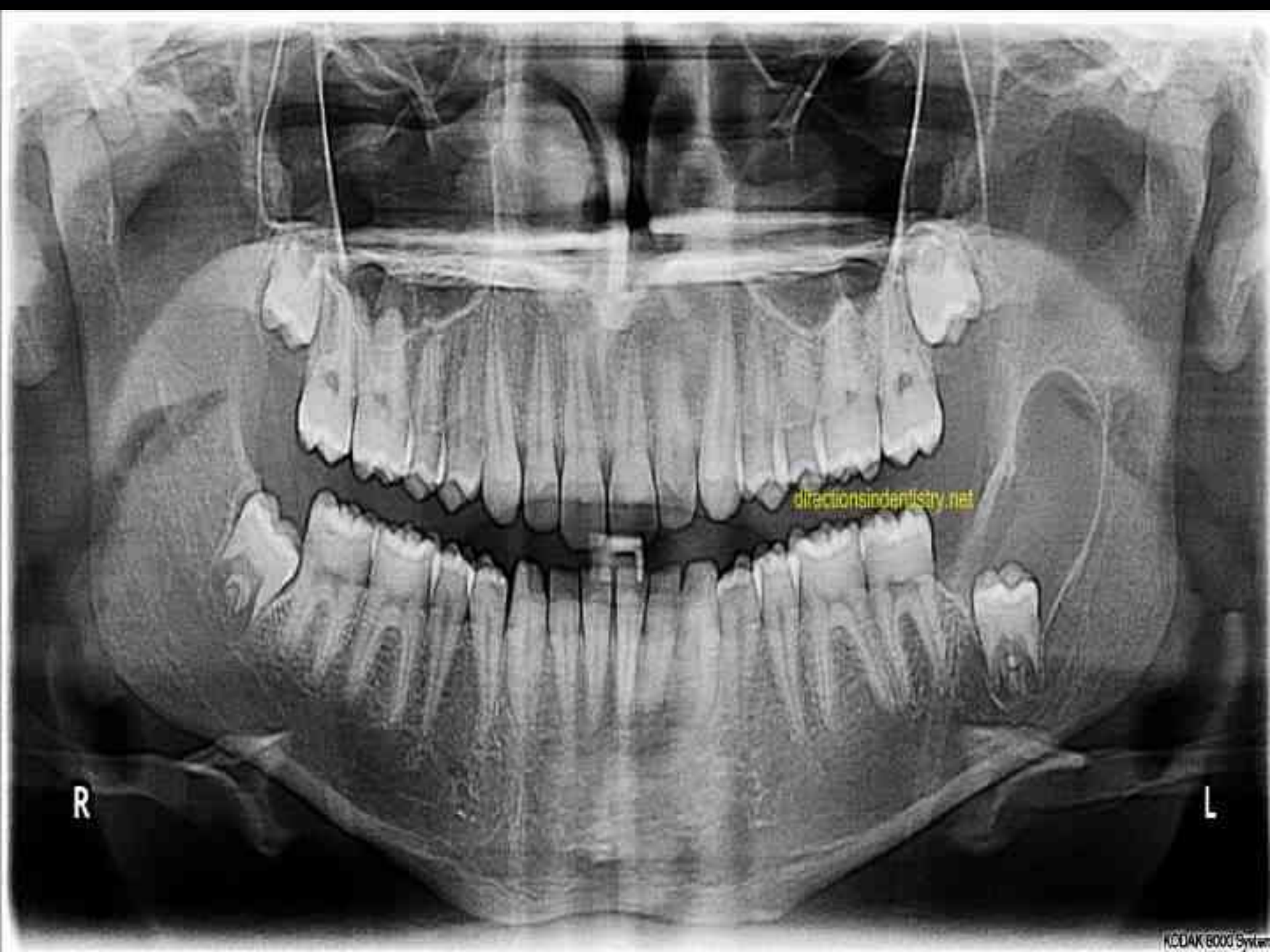
- *Pain may be a presenting symptom, if secondary infection occures.*

- *eggshell crackling, in large cysts.*



- ***Radiological features :*** ***generally reveals a unilocular radiolucency associated with crowns of unerupted teeth (multilocular effect can be seen, in large cysts due to bony trabeculations).***

- ***Cysts have a well defined sclerotic margin, unless when they are infected then the margins are poorly defined.As compared to the other jaw cysts,***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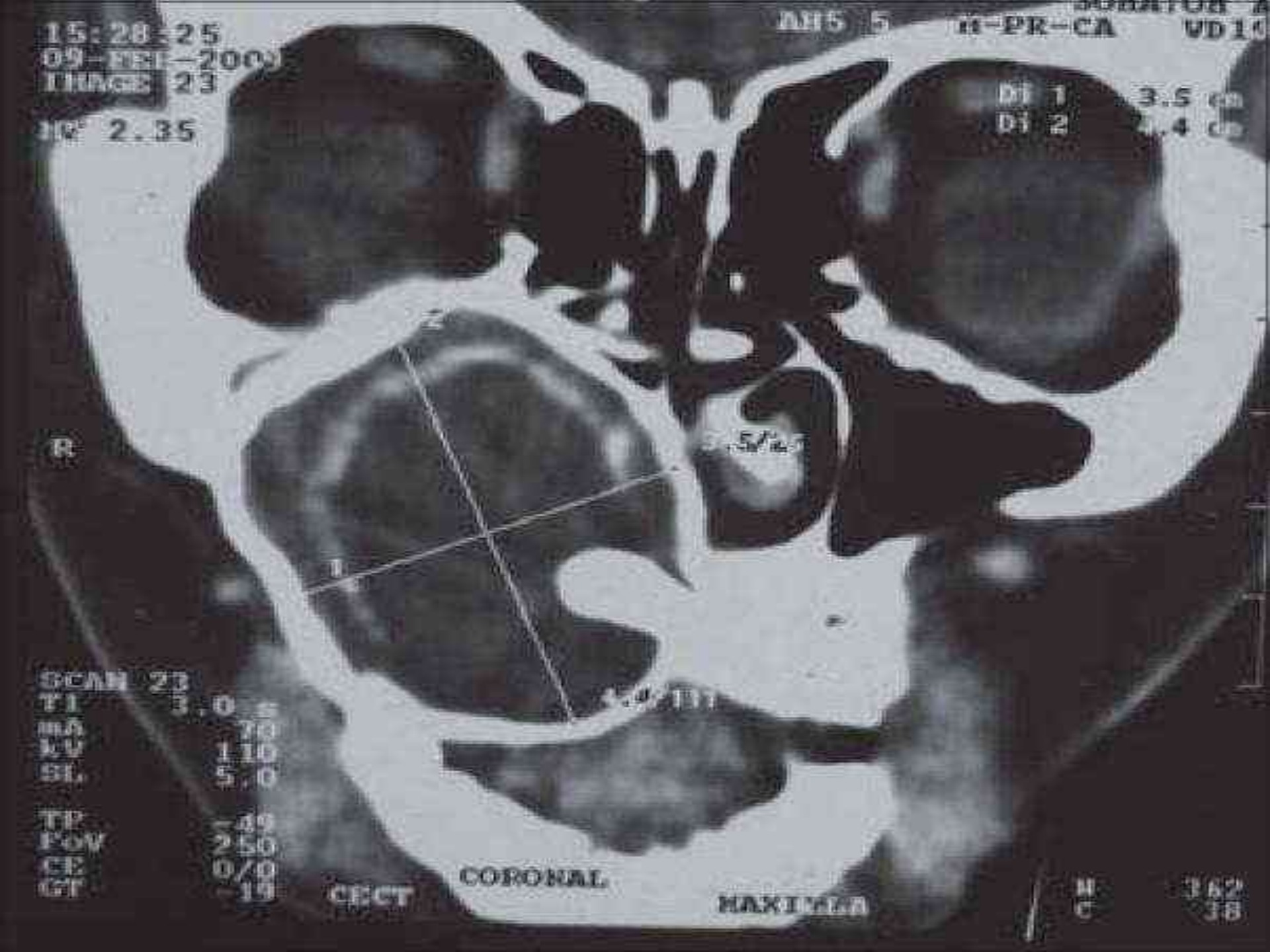
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KV 110
SL 5.0
TR 40
FOV 250
SE 0/0
GT -13
CECT
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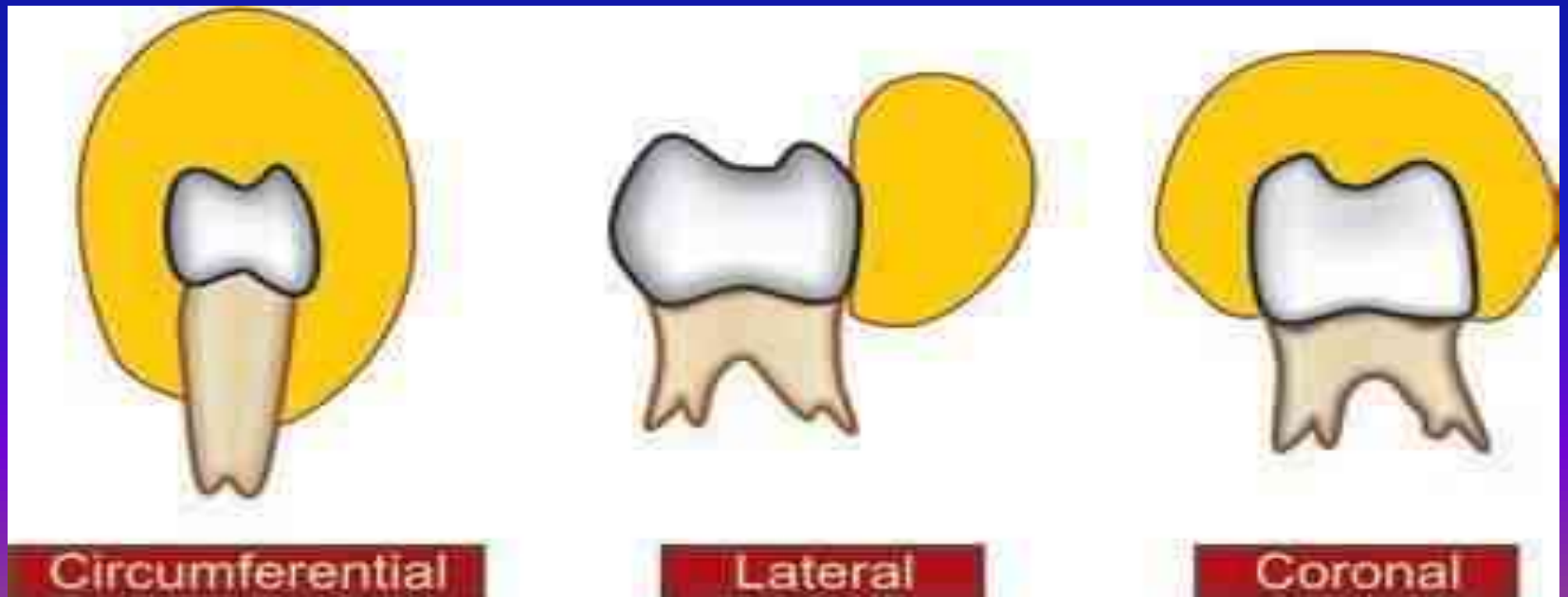
- ***Radiologically** : the dental follicle may expand around the unerupted or impacted tooth in three variations :*
- *(a) circumferential (b) lateral (c) central or coronal*



- ***Cystic contents (aspirate):*** ***The cystic contents consist of clear yellowish fluid, in which cholesterol crystals may be present, and if the cyst infected it may show a purulent material.***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Treatment :

- ***Marsupialization ; It is indicated in children if the cyst is very large in size and the involved tooth/teeth are to be maintained.***
- ***Enucleation with or without packing of defect when the possibility of the tooth erupting is low.***

Behavior and prognosis : Recurrence rate is low

It is widely believed that ameloblastomas frequently arise in dentigerous cysts so lining of the cyst should be examined histopaphologically .

Developmental Lateral Periodontal Cysts

- ***Radiological features**: well defined round or ovoid radiolucency with a sclerotic margin, the lamina dura of the involved tooth is destroyed.*

- ***Most of the cysts are smaller than 1 cm in size and are seen to be present between the cervical margin and apex of the root.***

- ***Treatment: Enucleation (attempts should be made to avoid sacrificing the associated tooth).***

Figure 15-34 • **Lateral periodontal cyst.** A larger lesion causing root divergence.

Figure 15-33 • **Lateral periodontal cyst.** Radiolucent lesion between the roots of a vital mandibular canine and first premolar.

Calcifying Epithelial Odontogenic Cyst (Gorlin Cyst)

- *uncommon , no sex predilection. more common in children and young adults.*

- ***Site:*** *most common site of occurrence is in the anterior part of the mandible.*

Clinical features : *usually discovered accidently on radiographic examination. Swelling is the most frequent complaint, rarely there is pain.*

- ***Two variant present :*** ***peripheral and intraosseous variant,*** *the latter produce a hard bony expansion and may be fairly extensive . in a few cases displacement of the teeth may be seen.*

ure 15-40 • **Peripheral calcifying odontogenic cyst.** Nodular mass of the mandibular facial gingiva.

- ***Radiological features :*** ***mixed radiolucency with well defined and some times irregular margine ,may be unilocular or multilocular. The cyst may be associated with a complex odontome or an unerupted tooth.***
- ***Resorption of the roots of the adjacent teeth may be***

- ***Pathology:*** *The lining consist from stratified squamous epithelium. In some areas the lining is thin, in patches, the epithelium proliferates and the cells become swollen and eosinophilic due to a form of keratinization. These are called, (ghost cells). At first the outline of the cells and their nuclei can still be distinguished, later the outline is lost, the cells fuse and tend to calcify. It is this calcification, which forms the opacities that is seen in the radiographs.*

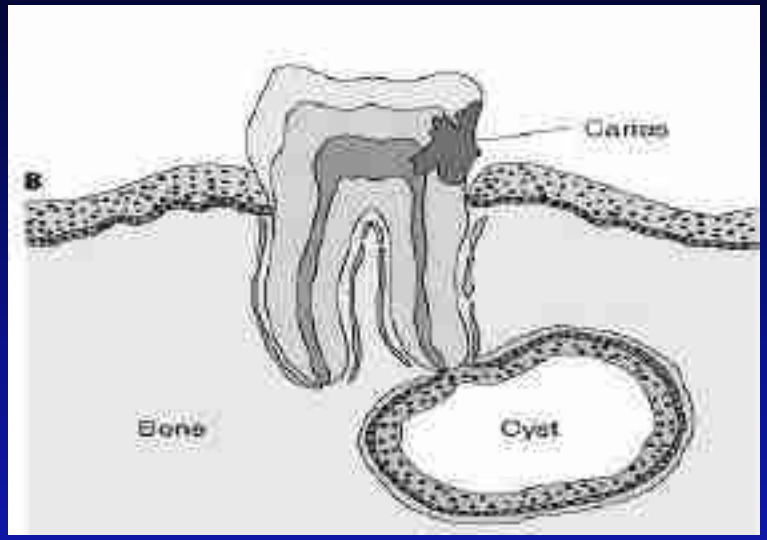
- ***Treatment:*** *Simple enucleation . recurrence usually not occure.*

Eruption cyst

- *An eruption cyst is a counterpart of dentigerous cyst that occure in the soft tissue.*
- *The cysts are found in children as abluish swelling , and occasionally in adults if there is delayed eruption.*
- **Radiology :** *No distinct radiographical picture (soft tissue mass may be seen in high resolution radiograph)*
- **Pathology :** *The histological features are similar to those of the dentigerous cyst .*
- **Treatment :** *marsupialization*

Inflammatory (Radicular) Cysts

- *The radicular cyst is an inflammatory cyst which results due to infection extending from the pulp into surrounding periapical tissues*



- *It may develop apically, or it may develop on the side of the root of a nonvital tooth, when it is termed as a lateral (periodontal) radicular cyst, this cyst should be differentiated from a developmental lateral periodontal cyst which is associated with a vital tooth.*

Incidence: *As compared to all other jaw cysts, this is the most common of all cysts of odontogenic origin. Males are affected more commonly than females.*

Site: *most common site in the anterior maxilla*

- ***Clinical features:***
- ***The cyst itself is frequently symptomless and may be discovered, when periapical radiographs are taken of teeth with nonvital pulps.***
- ***Slowly enlarging swellings and pain may be a significant chief complaint.***
- ***An intraoral sinus tract may be identified with discharging pus when the cyst is infected. The involved tooth/teeth will be found to be nonvital,discolored, fractured or with heavy restorations or a failed root canal.***
- ***Temporary paresthesia or anesthesia of the regional nerve distribution may be evident as with other cysts when infection is present.***

Radiological features: *a round, pear or ovoid shaped radiolucency with (usually) sclerotic margin associated with the root of nonvital tooth.*

Treatment:

- *Nonvital teeth that are associated with the cyst, can either be extracted or they can be treated by apicoectomy.*
- *External sinus tracts should be excised.*
- *The cyst itself is enucleated, with primary closure.*
- *Large periodontal cysts that encroach upon the maxillary antrum or inferior alveolar neurovascular bundle or the nose, may be treated by marsupialization*

Residual Cyst

- *present at the site of tooth extracted*

possible Causes

- *An incompletely removed periapical granuloma or cyst*
- *An impacted tooth associated with a lateral dentigerous cyst is removed, but the cystic lesion is unrecognized and is left in situ, this residual cyst persists and will enlarge*
- *A cystic lesion develops on either a deciduous tooth or a retained tooth, which either exfoliates or is extracted without knowledge of the underlying pathologic process.*

Figure 3-30 • **Residual periapical cyst.** Persistent radiolucency of the mandibular body at site of previous tooth extraction.

Fig. 1. Well-circumscribed radiolucency distally of 35. A tentative clinico-radiographic diagnosis of residual cyst was made.

Residual Cyst

- ***Incidence:*** *It is less commonly seen than in the radicular cysts. It is identified mainly in middle aged and elderly patients. There is no sex predilection.*

- ***Treatment:*** *enucleation .*

Nonodontogenic cysts

Developmental Fissural Cysts

- *Fissural cysts are nonodontogenic cysts, that arise from epithelial inclusions or entrapments in the lines of closure of the developing facial processes during the embryonic period of life. Each cyst is correlated,with its actual anatomic location*

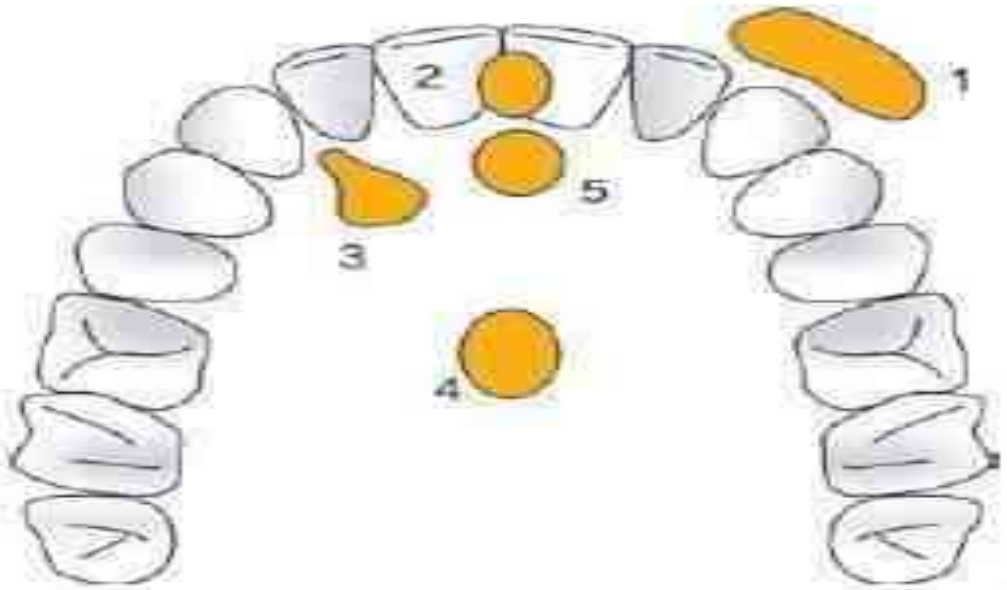


Fig. 35.11: Developmental and soft tissue cysts: (1) Nasolabial, (2) Median alveolar (median mandibular), (3) Globulomaxillary, (4) Median palatal, (5) Nasopalatine

Median Palatal Cyst

- **Site:** in the hard palate,posterior to the incisive canal
- **Clinical features:** No signs and symptoms exist, unless the cyst becomes large, with expansion of bone

- **Radiological features:** A maxillary occlusal view will help to identify the ovoid radiolucency in the midpalatal region, often it becomes difficult to distinguish the cyst from an extensive incisive canal cyst.

- **Treatment:** enucleation with primary closure.

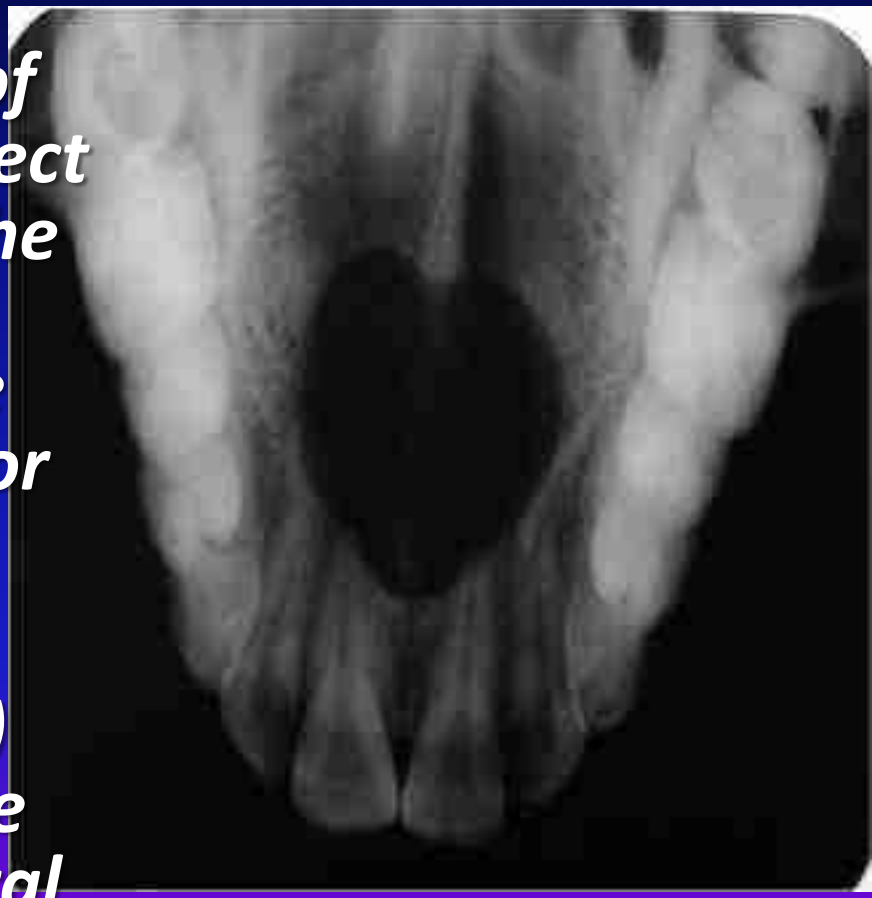
Nasopalatine Duct Cyst

- *also referred to as the incisive canal cyst, it arise from the epithelial remnant of nasopalatine canal, that connects the oral and nasal cavities in the embryonic stage.*
- ***Site:*** *more commonly seen between the apices of the central incisor.*

Incidence: *This is the most common type of developmental, nonodontogenic cyst.*

Fig. 44.3. Nasopalatine duct cyst: anterior palate swelling.

Clinical features: *Majority of the cysts remain asymptomatic, The notable common symptom is a recurrent swelling, in the anterior region of the midline of the palate, or on the labial aspect between the central incisors .The central incisors are vital and normal in color, unless they are affected adversely, by trauma or caries.*



Radiological features: *well defined round or (heart shape) radiolucency, between or above the roots of the maxillary central incisor teeth.*

Pathology: *The type of epithelium found may vary at different levels. It may be stratified squamous at a lower level, more superiorly it may be pseudostratified columnar epithelium.*

Cystic contents (aspirate): *Aspiration is an important diagnostic aid to rule out a normal incisive canal fossa radiolucency. The viscous fluid content may be mucoid material or even pus if the cyst has been infected.*

Treatment: *enucleation*

Nasolabial cyst

- *This is rare ((soft tissue)) cyst occurs outside the bone in the nasolabial folds.*
- ***Clinical presentation :****The most frequent symptom is swelling. Sometimes the patients complained of pain and difficulty in nasal breathing, but pain is generally present when the cysts are infected.*

Radiological features: *its soft tissue cyst there is no distinct radiographical pictures*

Treatment: *Although the nasolabial cysts are extra-osseous they lie subperiosteally, and careful surgical enucleation should be done .*

Figure 1. CT image (axial section) showing a heterogeneous mass suggesting soft tissue in the left nasal fossa (arrow).

Nonodontogenic Nonepithelial Bone Cysts (Cyst like Conditions)

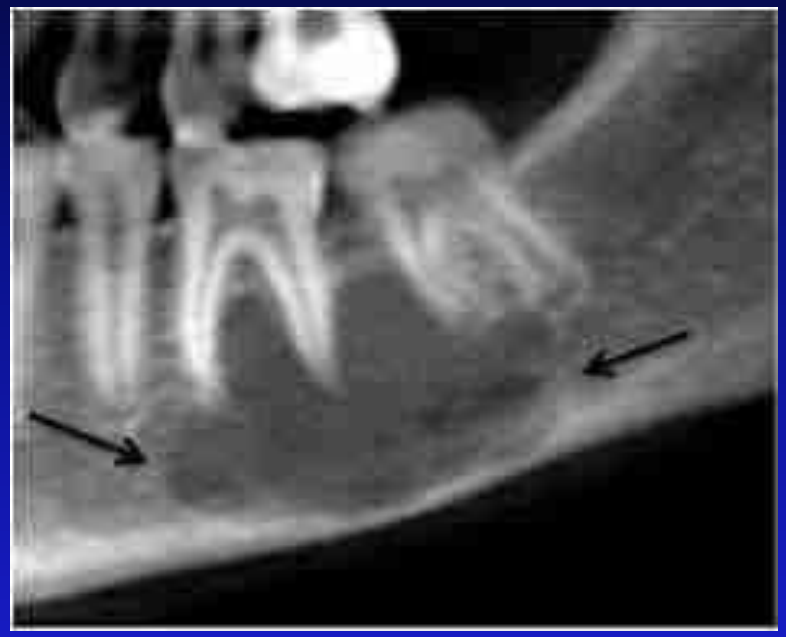
Solitary Bone Cyst

- ***also termed as traumatic or hemorrhagic bone cyst. it is not confined to the jaws as similar lesions are seen elsewhere in the skeleton.***

- ***Etiology:*** ***A number of theories include:***
- ***• Trauma and hemorrhage with failure of organization***
- ***• Abnormal calcium metabolism***
- ***• Chronic low-grade infection***
- ***• Necrosis of fatty marrow secondary to ischemia***

Solitary Bone Cyst

- ***Incidence:*** *its rare cyst occur particularly in children and adolescents.*
- ***Site:*** *mostly seen in the subapical region, above the inferior dental canal, in the cuspid and molar region.*
- ***Pathology:*** *frequently found to be empty cavity. No visible lining , some cases, granulation tissue or blood clots, with small multinucleate cells may be seen.*



- ***Radiological features:*** ***The cyst appears as a unilocular radiolucency with scalloped margin***

Solitary Bone Cyst

- ***Treatment:*** *Surgical exploration is required for ((diagnosis)) and usually constitutes the treatment. Gentle curettage stimulates hemorrhage which results in rapid obliteration of the defect and eventual healing by new bone formation.*

Aneurysmal Bone Cyst

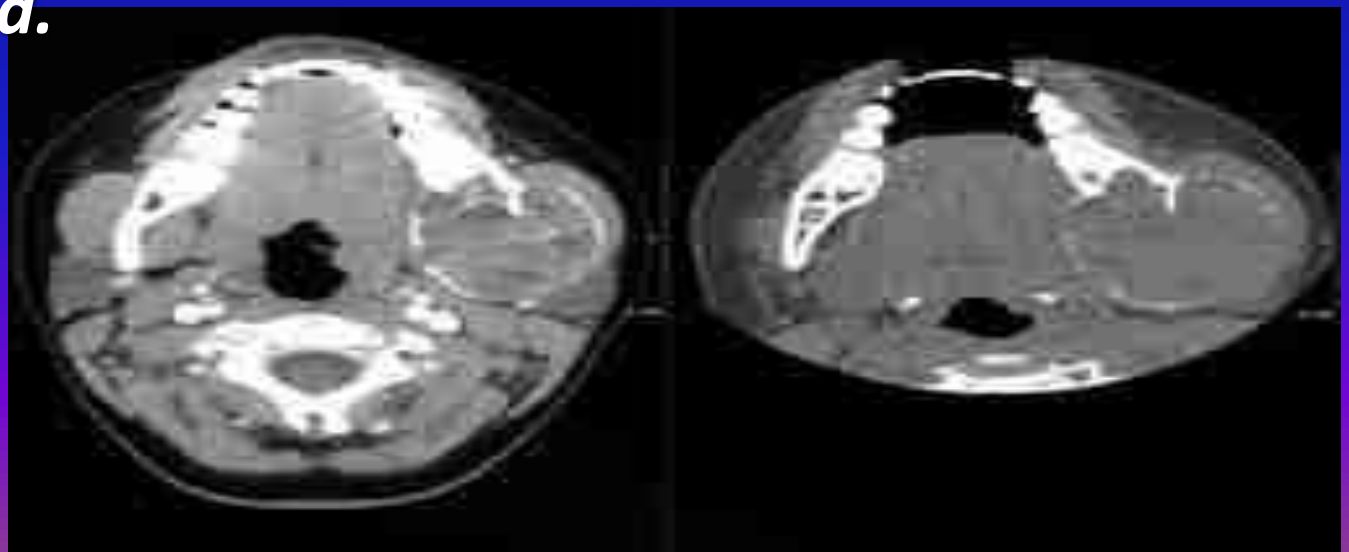
- *uncommon hemorrhagic lesion of the bone. Its rarely seen in the jaws It is seen mainly in children, adolescents or young adults.*
- ***Site:*** *It is more commonly seen in the mandibular posterior region .*
- ***Clinical features:*** *The lesions produce firm swellings, the patients may give a history of rapid enlargement, the teeth may show displacement, although they remain vital..*

Radiological features:

- *The lesions are usually unilocular and may give a multilocular appearance also described as(honeycomb or soapbubble appearance) .*

- *They generally show a subperiosteal layer of new bone.*

- *Teeth may be displaced and root resorption has been described.*



Aneurysmal Bone Cyst

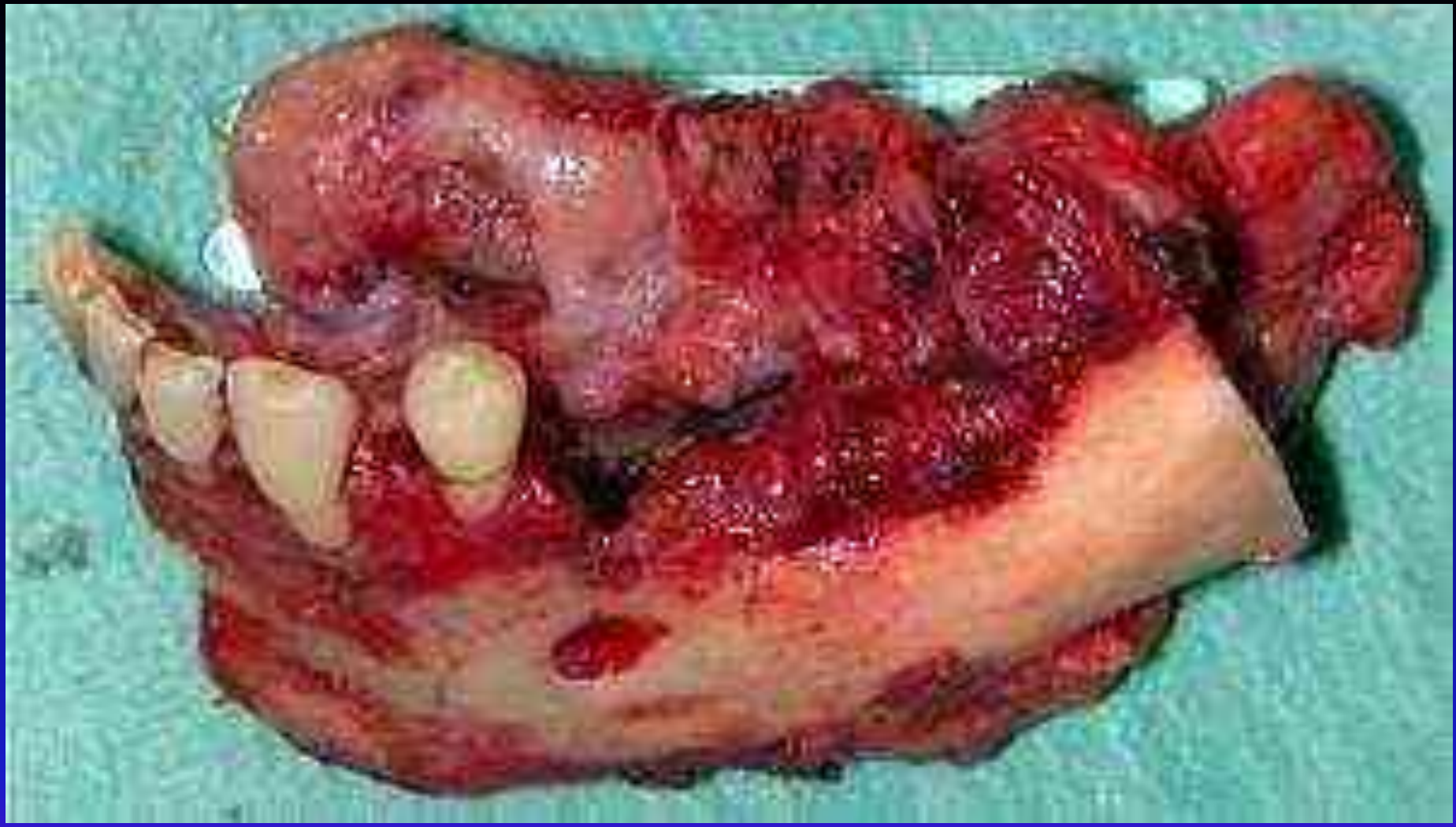
- ***Cystic contents (aspirate):*** ***venous blood .***
- ***Treatment options:***

a. observation and long term follow up,which may lead to spontaneous regression.

b. calcitonin injections

c. Curettage

d. resection.



Case of recurrent aneurysmal bone cyst treated by resection


THANK YOU

Management of facial injuries

Dr. Mohamed Rahil

((Maxillofacial surgeon))

Tikrit dentistry college

PRIORITY

- *Safe patient life*
- *Delay fracture treatment*
- *Focus on patient general condition*

ATLAS protocol for management of trauma

A: airway

B: breathing

C: circulation with control of bleeding

D: disability

E: exposure

The Basics	What to evaluate	Action to take
A: Airway	Assess the airway Look, listen, and feel	Open the mouth and airway Remove any foreign bodies or loose teeth Use head tilt-chin lift or jaw thrust maneuver if cervical spine injury is suspected.
B: Breathing	Assess breathing Is the chest rising & falling?	Provide assisted respirations if the patient is not breathing
C: Circulation	Check pulses	Start CPR if you don't feel a pulse
D: Disability	Is the victim able to talk? Is victim moving extremities?	Prevent neurological injury by making sure not to unnecessarily move the patient, especially don't turn the head.
E: Exposure	Look for all stab wounds and gunshot wounds in armpits, groins, etc.	Direct pressure if bleeding wound Do not remove impaled objects.

Management of Compromised Airway

Time is critical **(Loss of the airway is the most likely cause of death in injury to the face)**

1-Clear the lumen of the airway :

By finger sweep procedure remove any foreign body that obstruct the airway like clotted blood, fractured tooth or denture, shell…then inspect carefully.

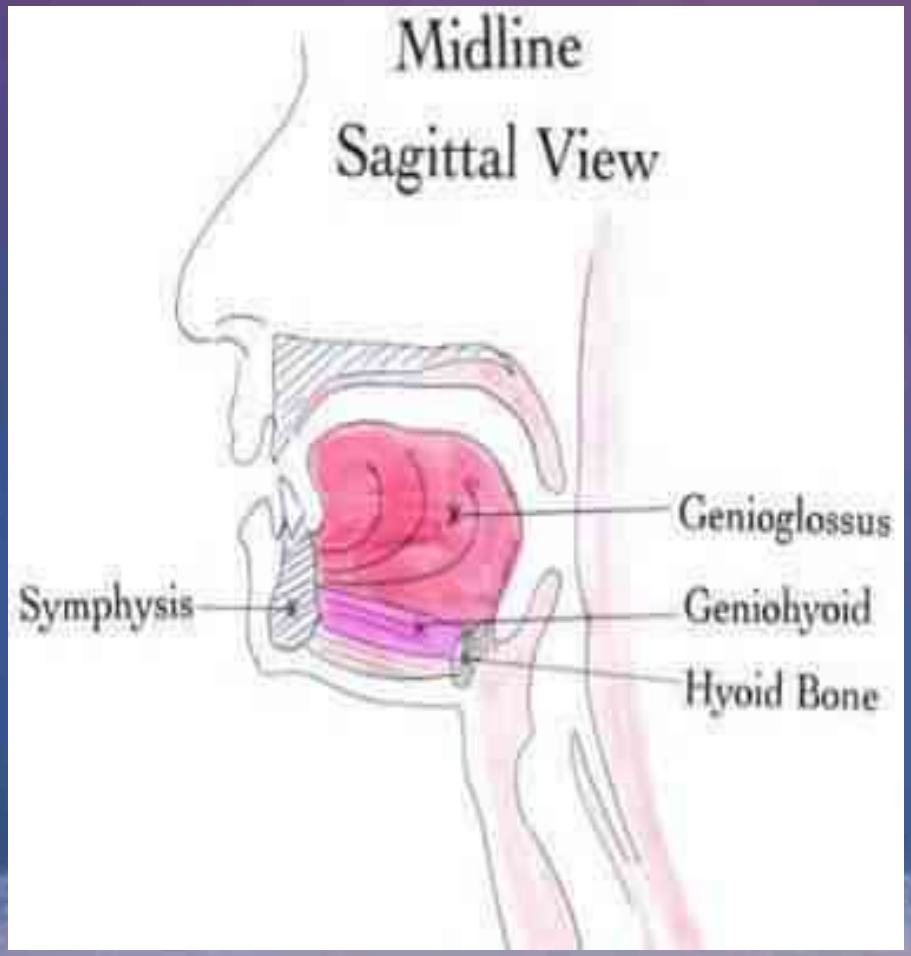
2-Maintain its patency :

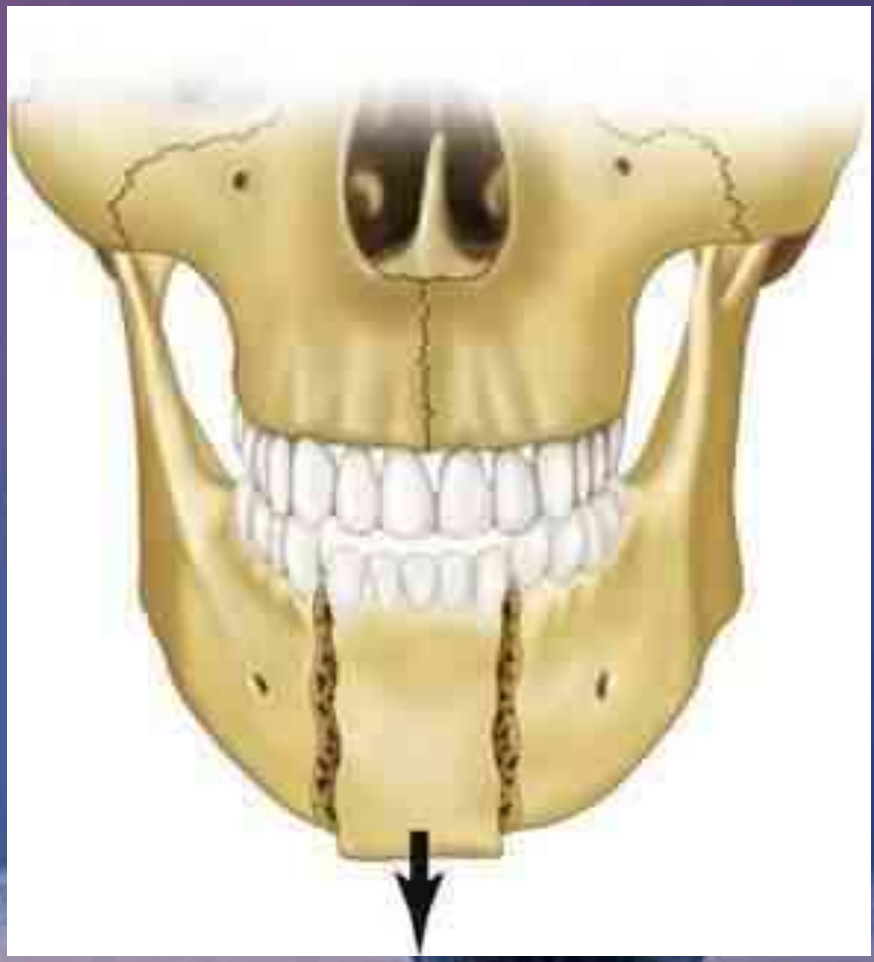
1-gravity:semiprone position

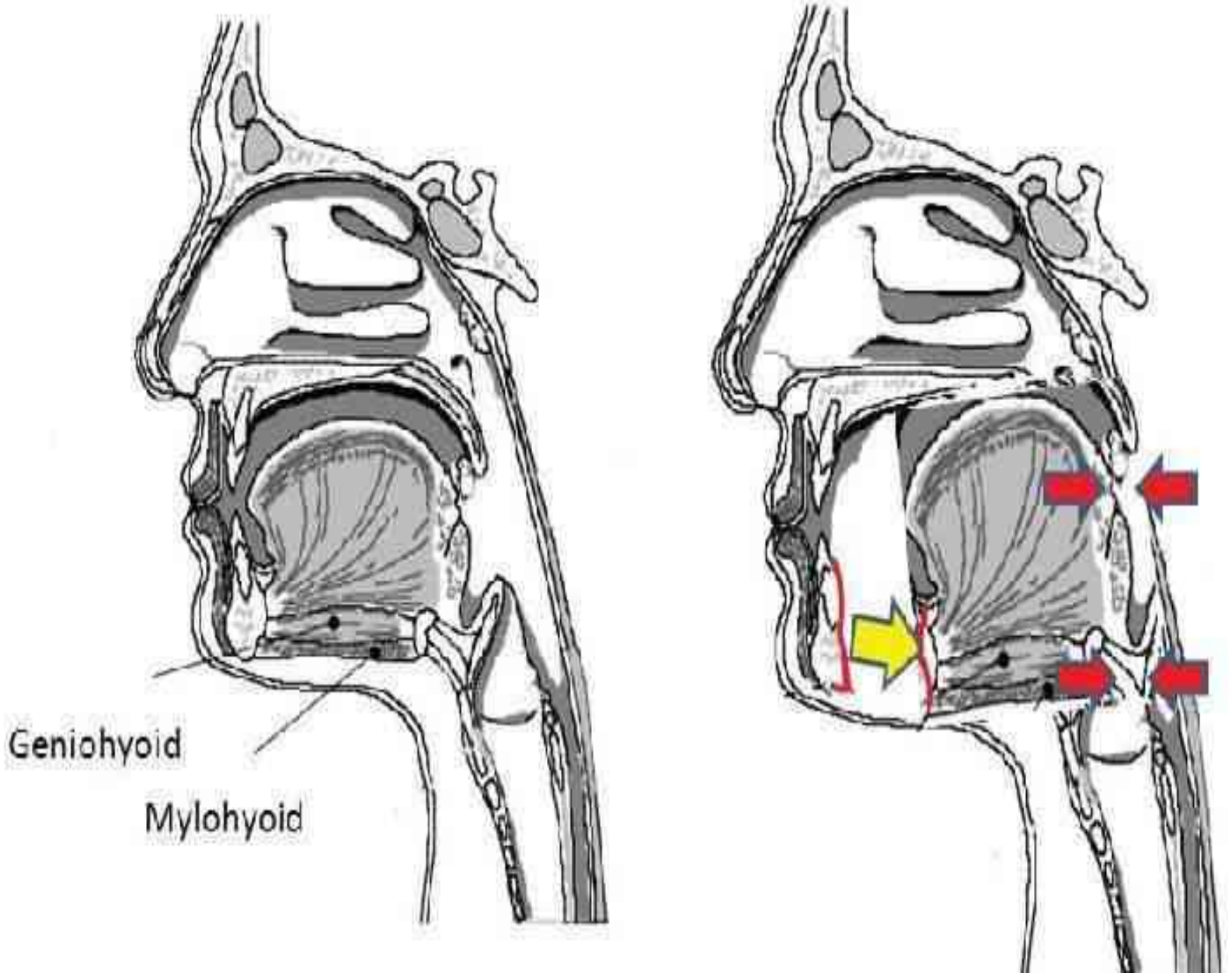
2-oro- & nasopharyngeal airways

3-endotracheal intubations

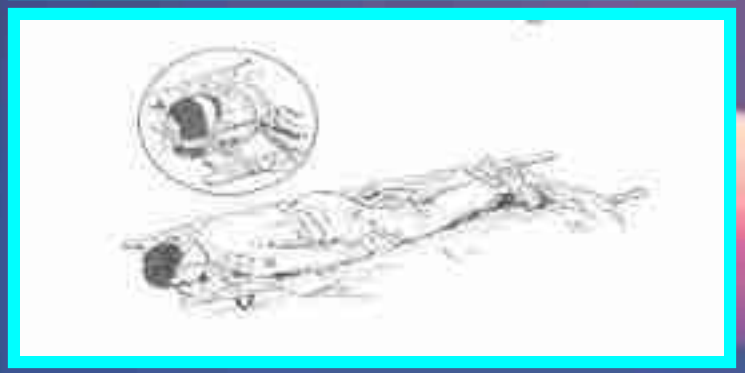
4-upper airway bypass: cricothyrotomy, tracheostomy


Midline
Sagittal View
Genioglossus
Symphysis
Geniohyoid
Hyoid Bone



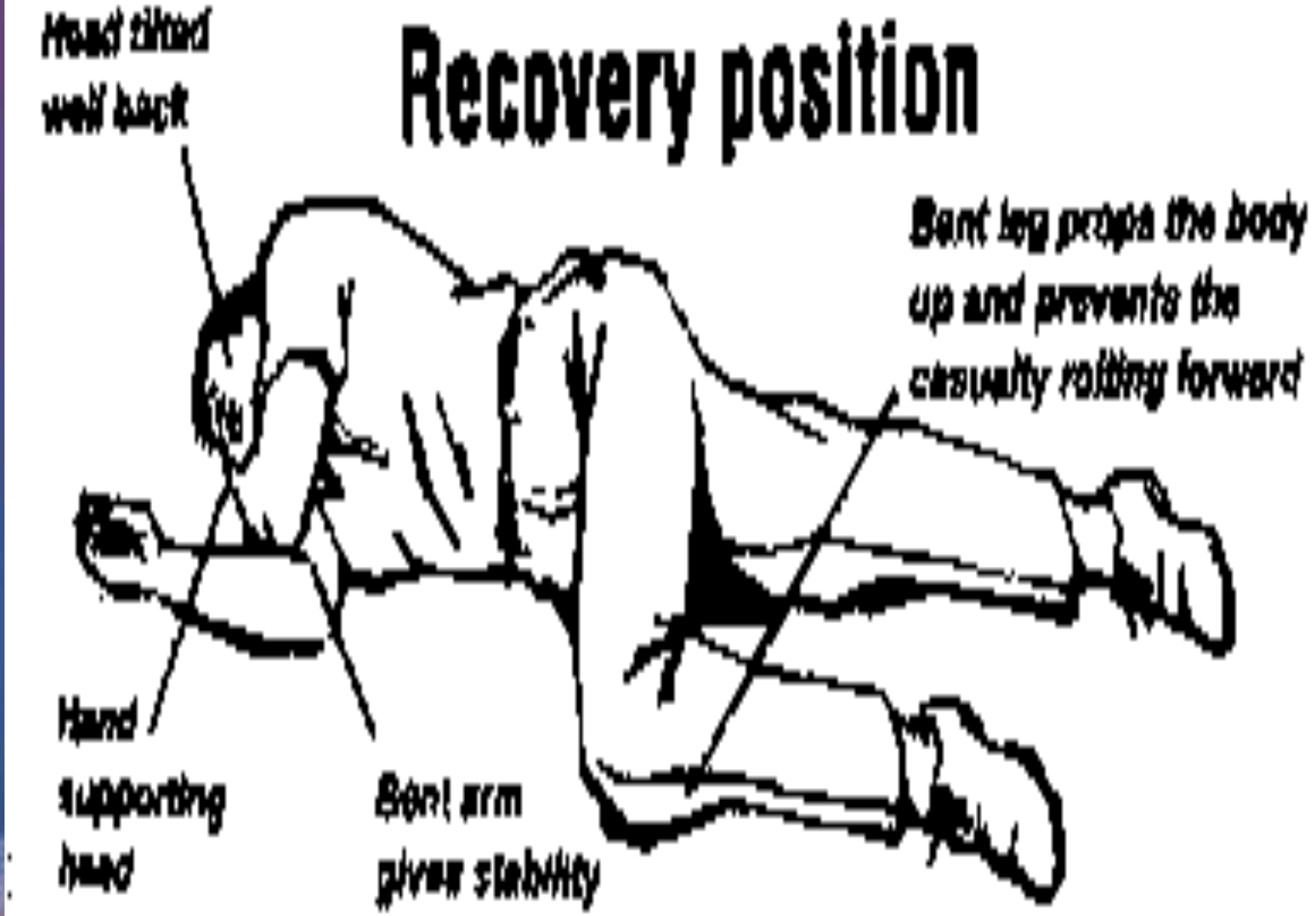

Geniohyoid
Mylohyoid

EMERGENCY MANAGEMENT OF MAXILLOFACIALLY INJURED PATIENTS

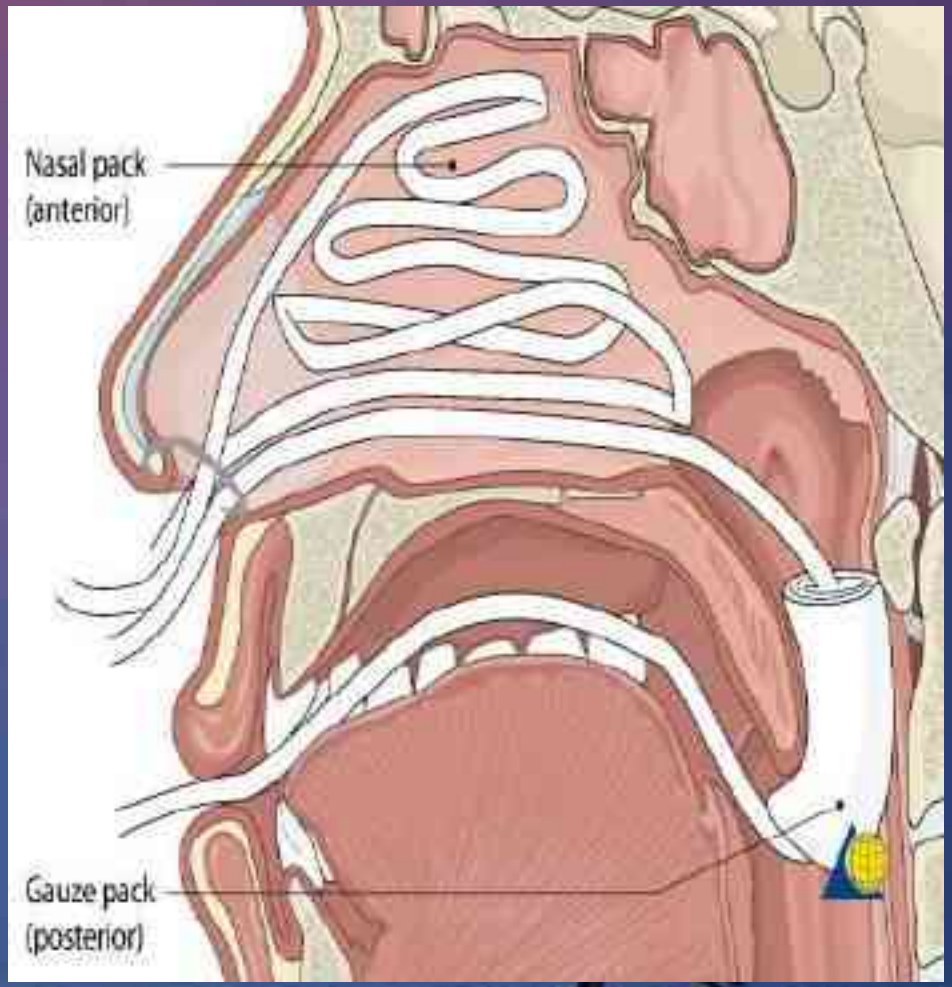


gravity

Recovery position

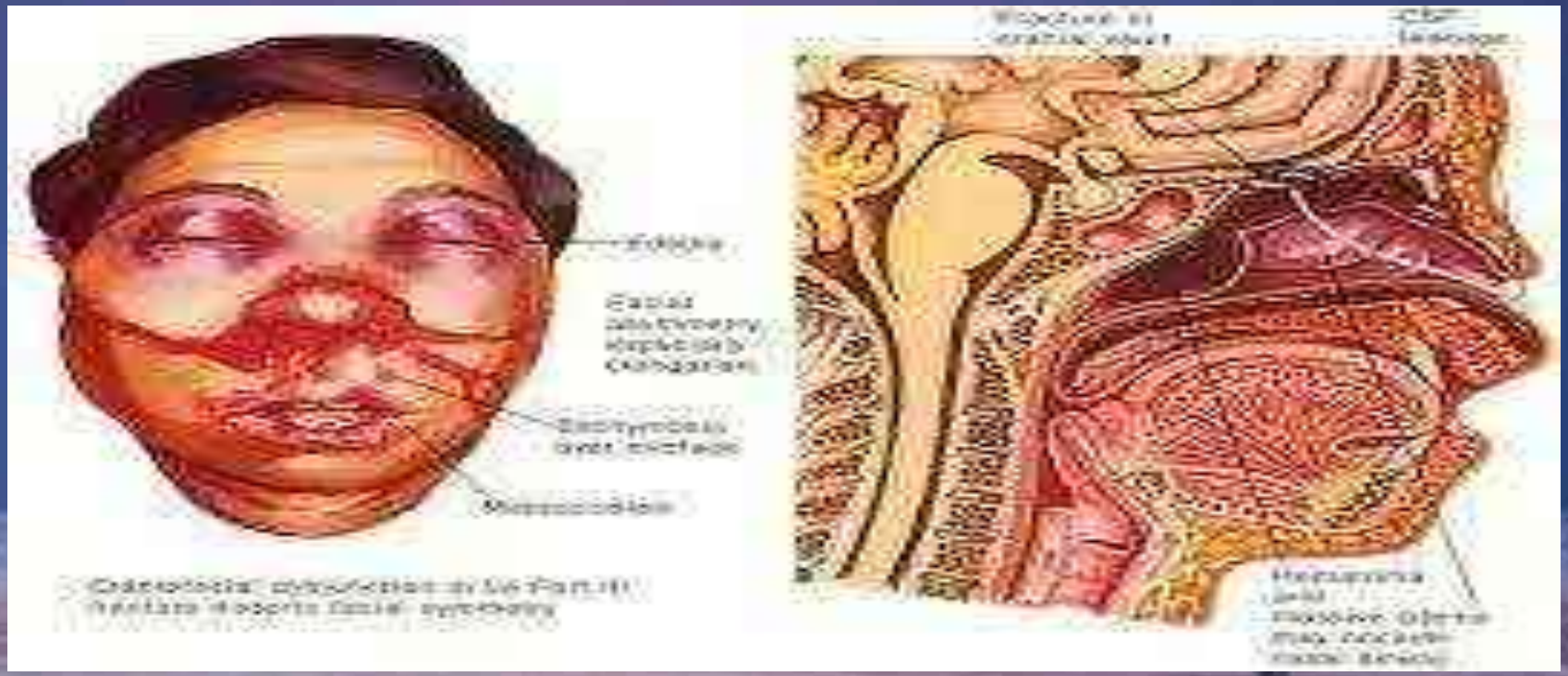



MORE COMMON
MORE SERIOUS

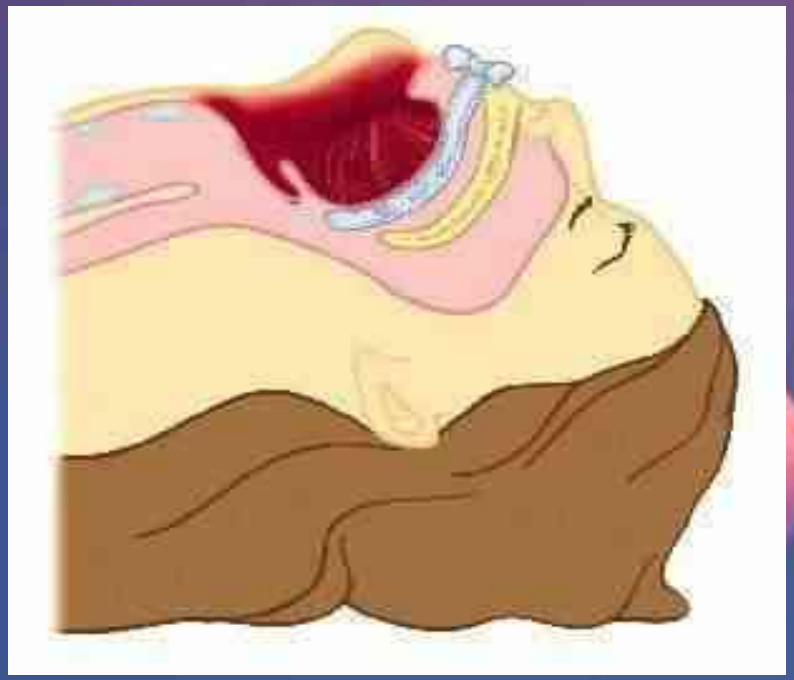

Nasal pack
(anterior)
Gauze pack
(posterior)

EMERGENCY MANAGEMENT OF MAXILLOFACIALLY INJURED PATIENTS

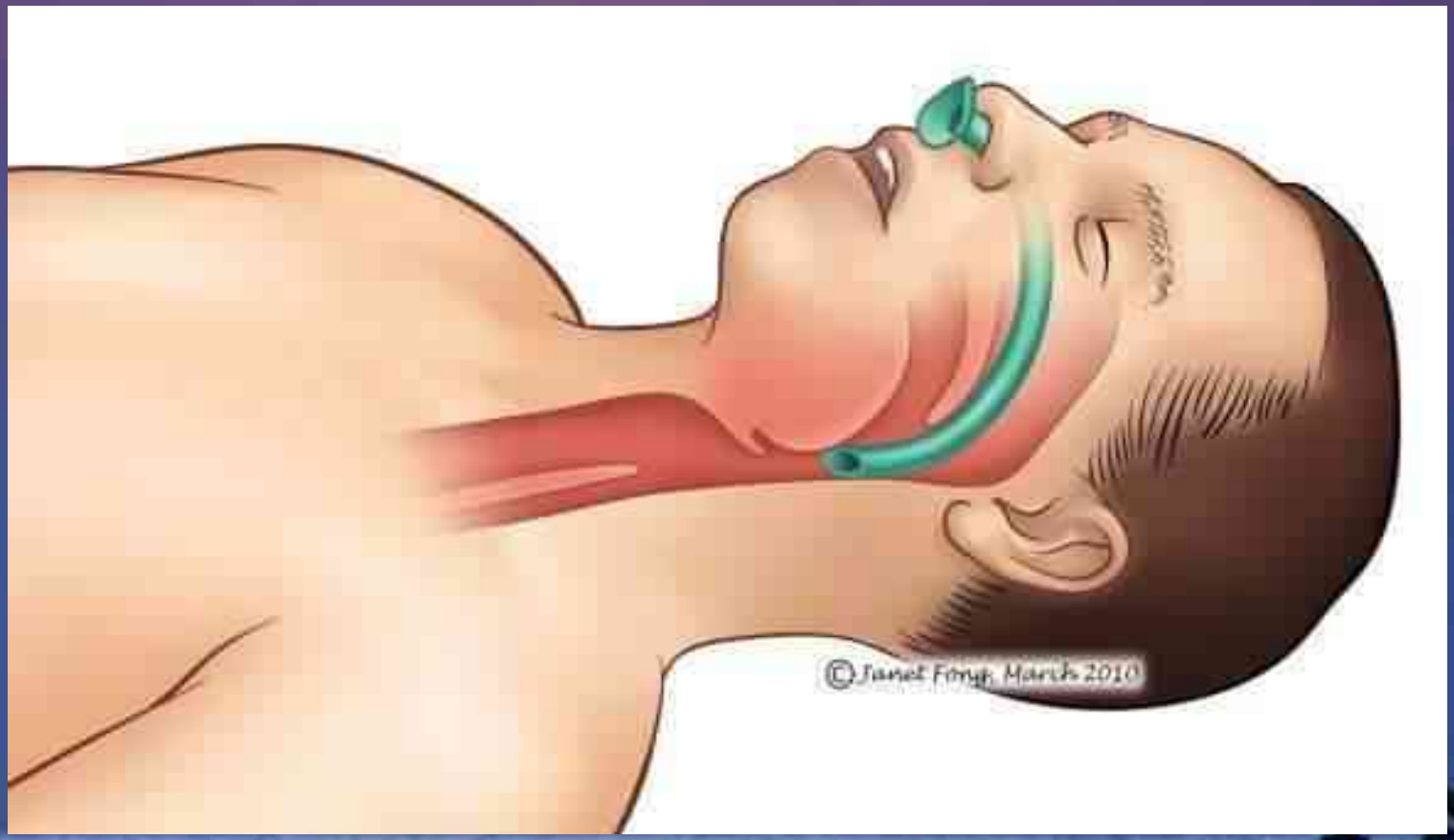
We may have late airway obstruction when edema -that develop within 60-90 minutes -of the soft palate or base of the tongue may obstruct the airway & necessate elective intubations or tracheostomy



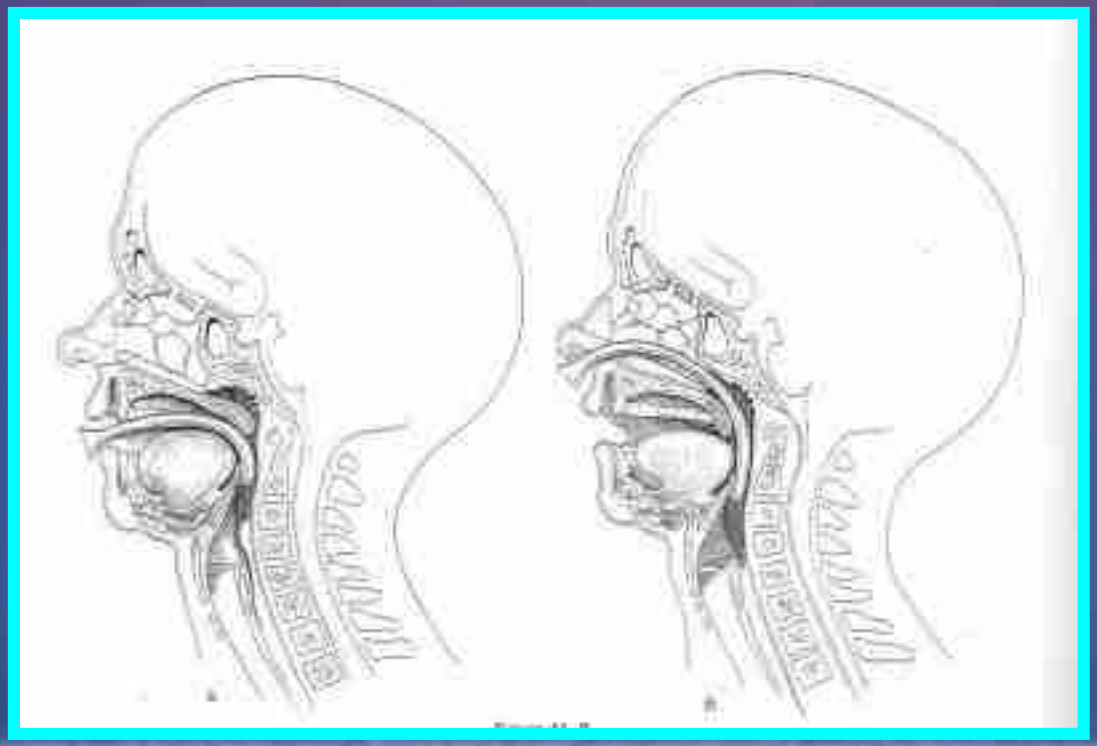
Oropharyngeal airway:



Nasopharyngeal airway

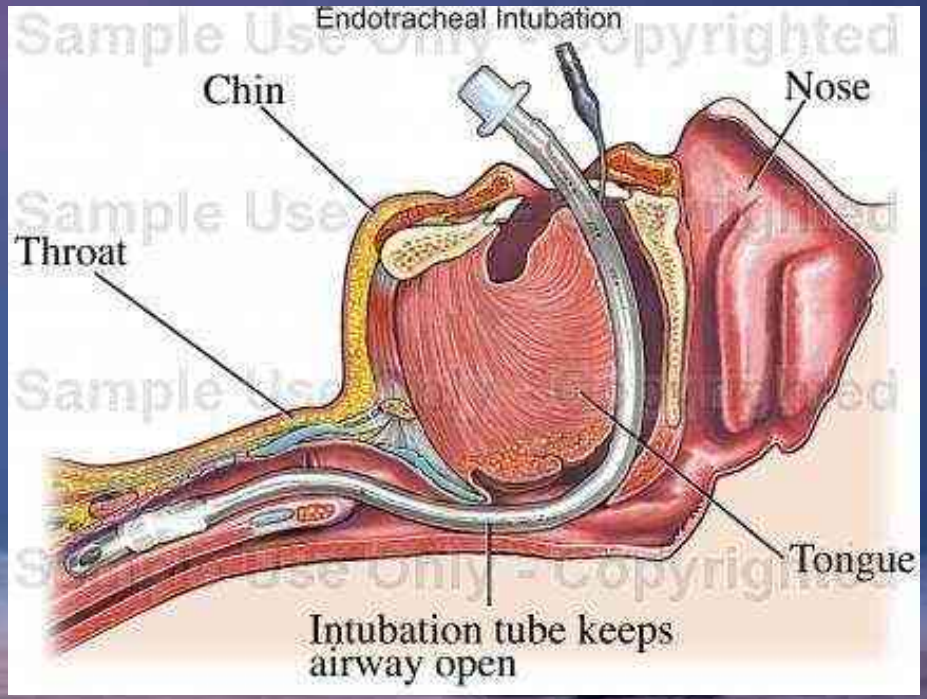


Oro- & Nasopharyngeal Airways

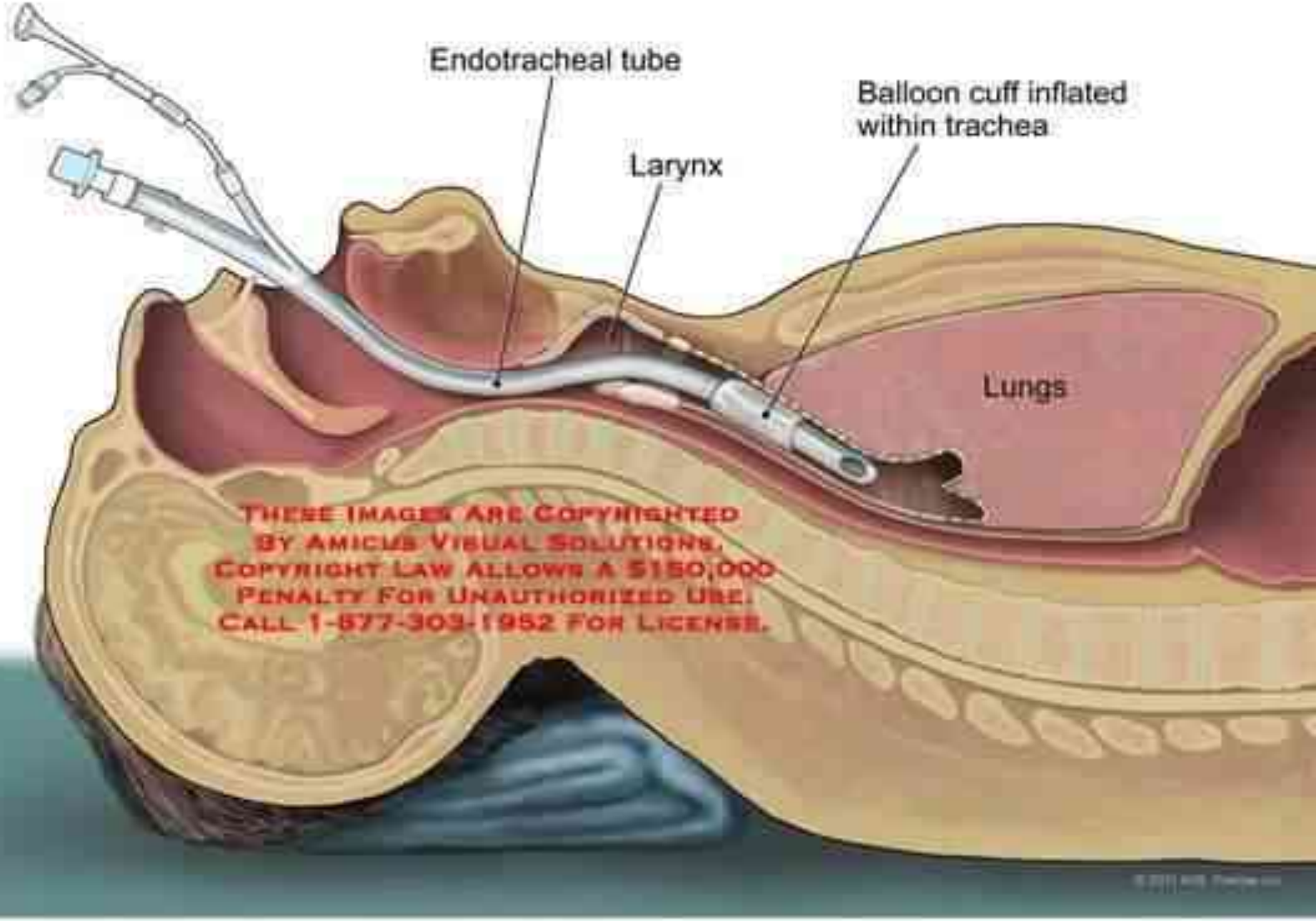


Endotracheal intubation

- *cuff tube inserted either by oral or nasal route*
- *It is difficult to be placed in conscious patient ,highly distressed and hypoxic , not tolerate it*

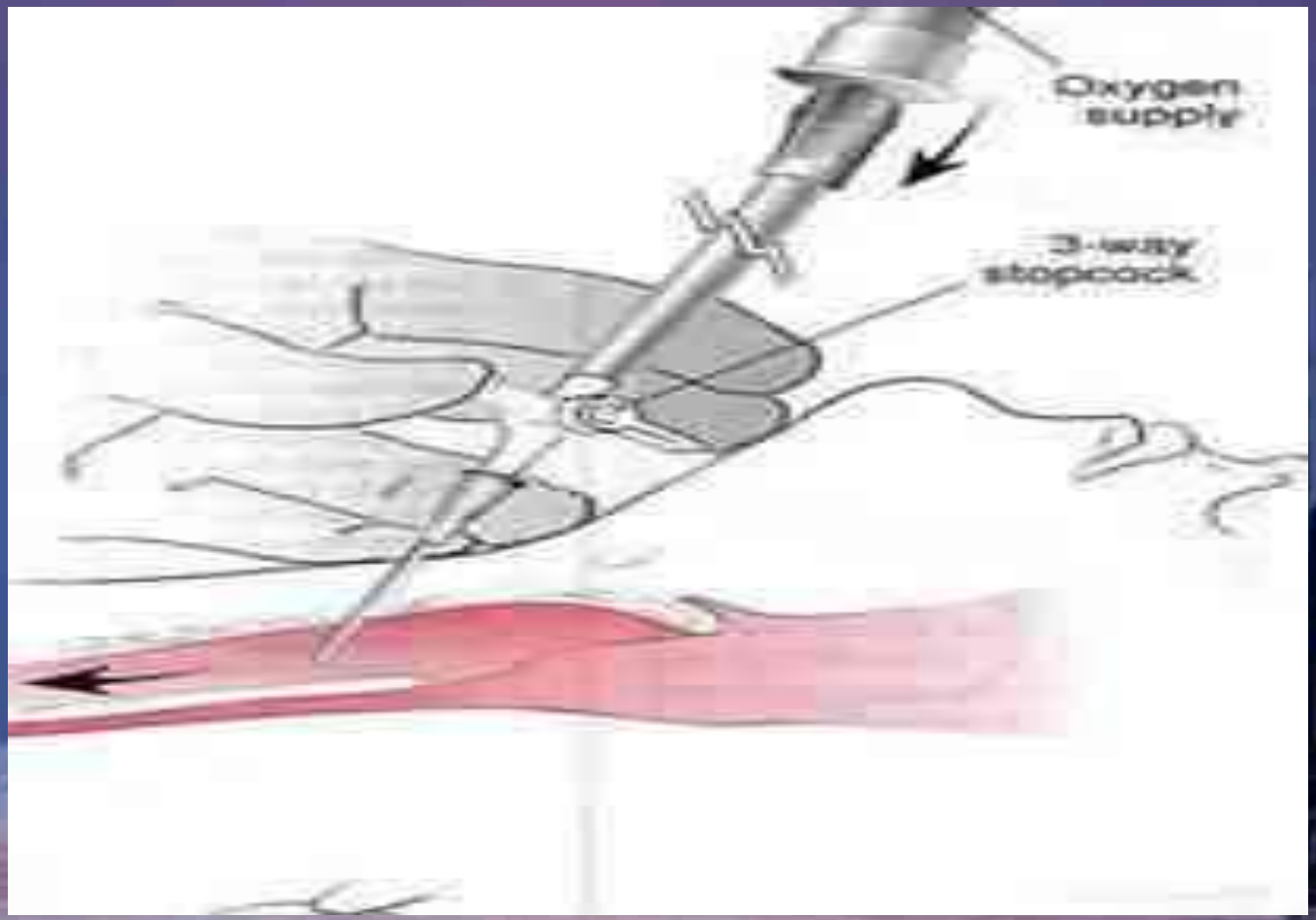


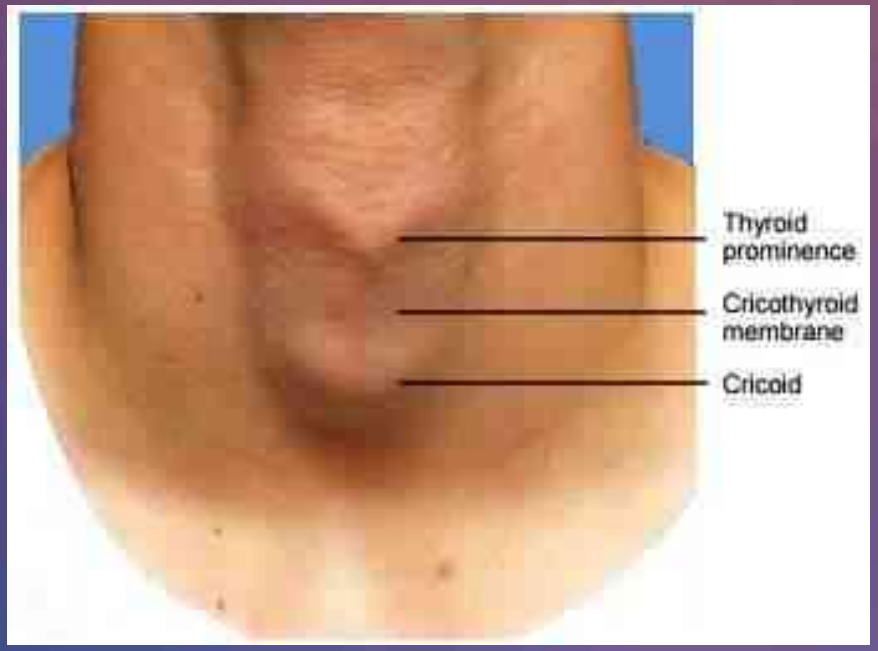
Endotracheal Intubation

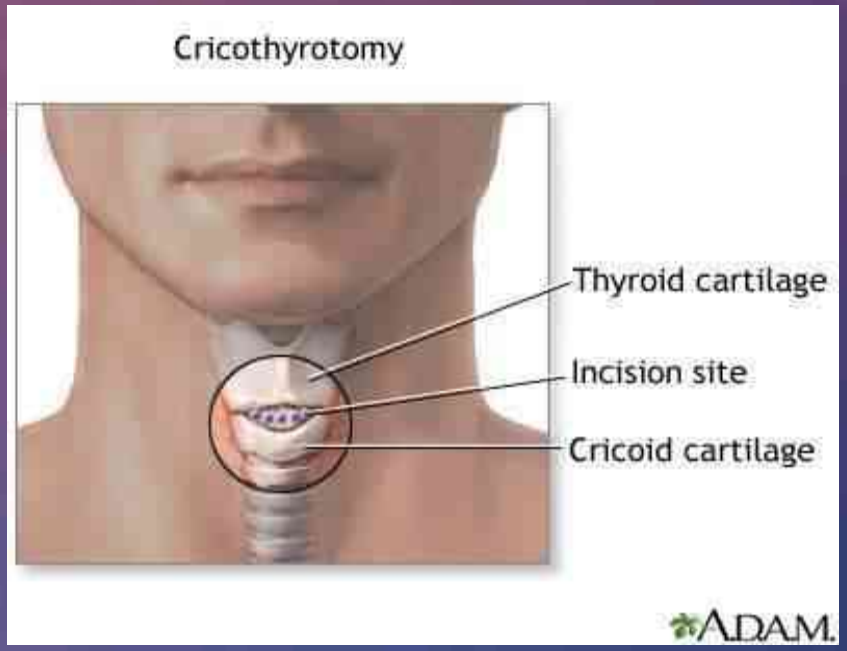


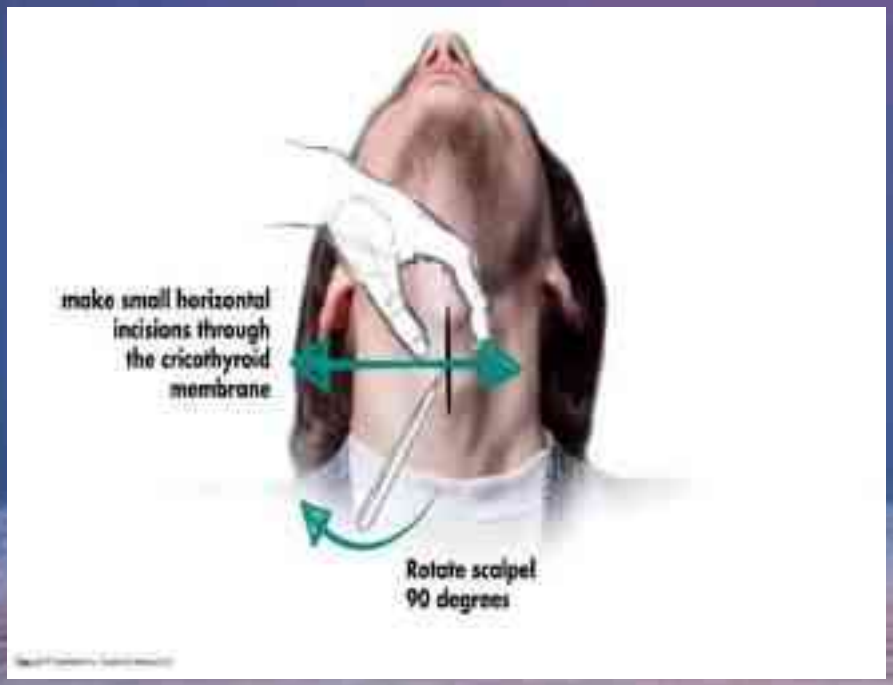
Surgical airway:

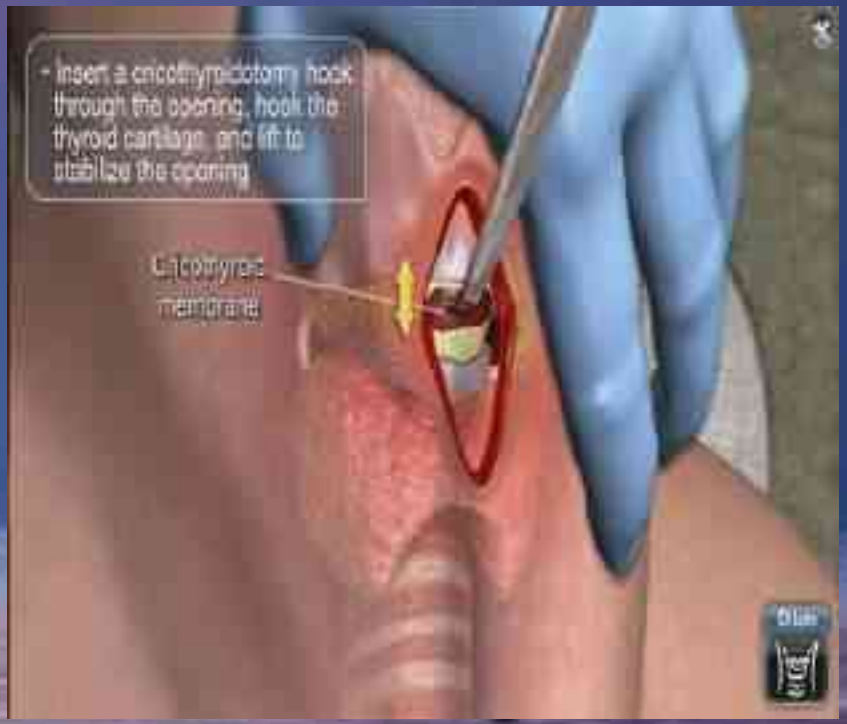
1-Cricothroidotomy:



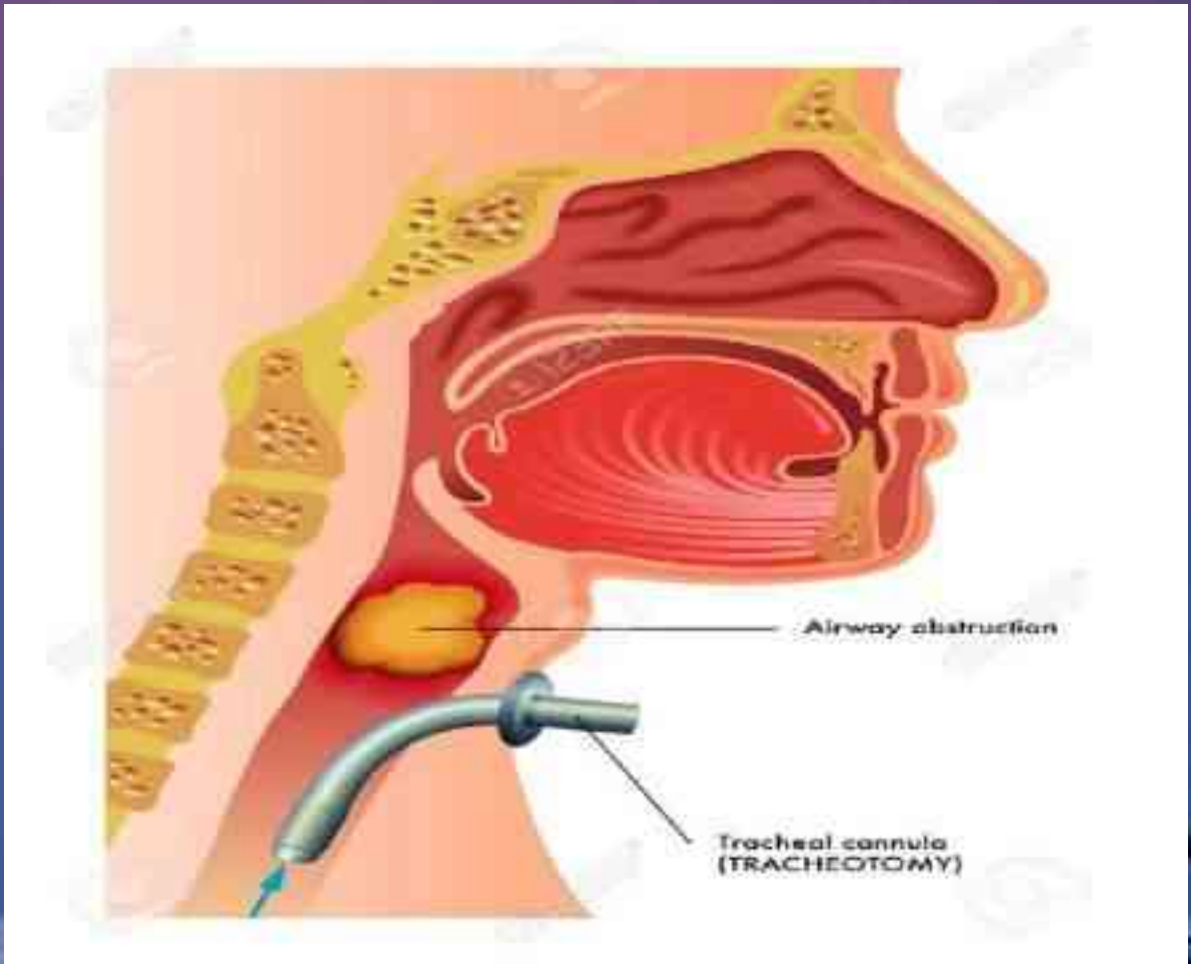

Thyroid prominence
Cricothyroid membrane
Cricoid


Cricothyrotomy
Thyroid cartilage
Incision site
Cricoid cartilage
A.D.A.M.

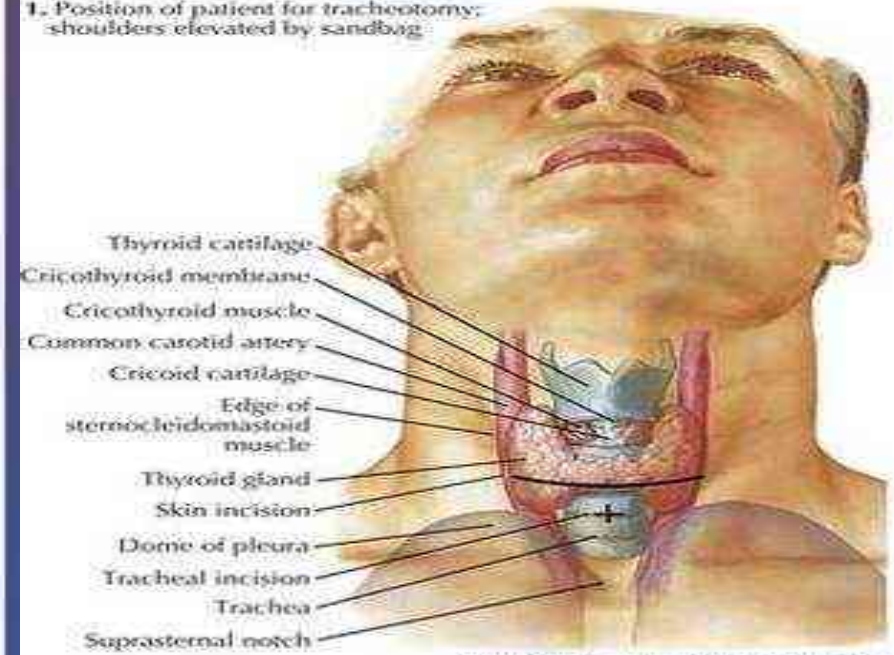

make small horizontal incisions through the cricothyroid membrane
Rotate scalpel 90 degrees


- insert a cricothyroidotomy hook through the opening, hook the thyroid cartilage, and lift to stabilize the opening

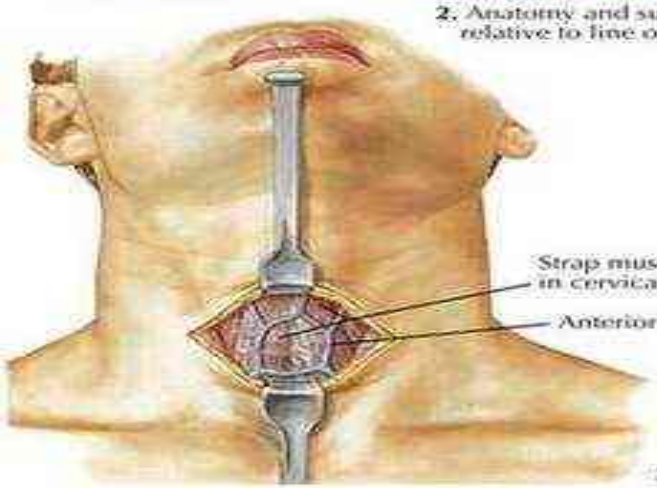
2-Tracheostomy:



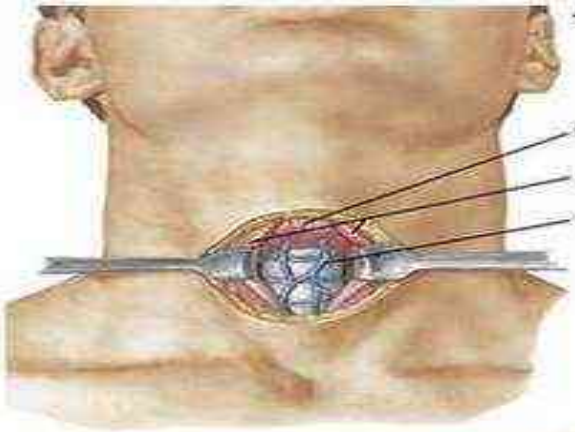
1. Position of patient for tracheotomy; shoulders elevated by sandbag



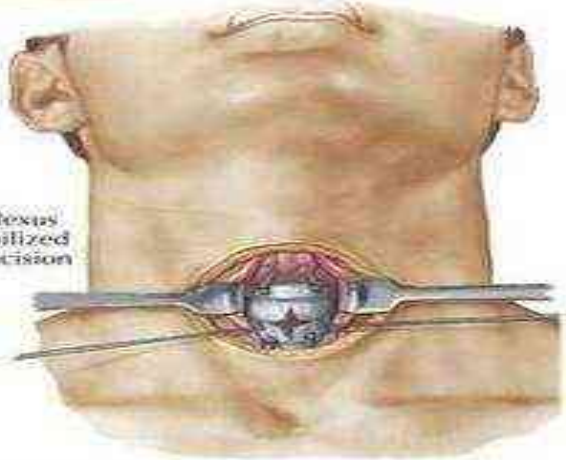
2. Anatomy and surface topography relative to line of incision



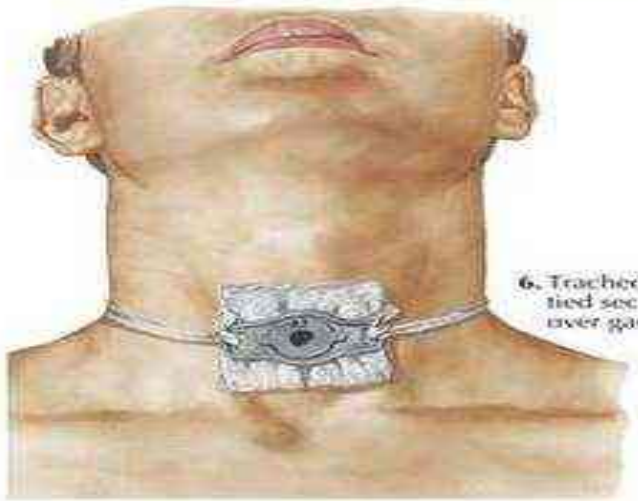
3. Skin and fat retracted



4. Strap muscles retracted to expose trachea



5. Pretracheal venous plexus divided. Trachea stabilized by hooks. Cruciate incision in trachea.



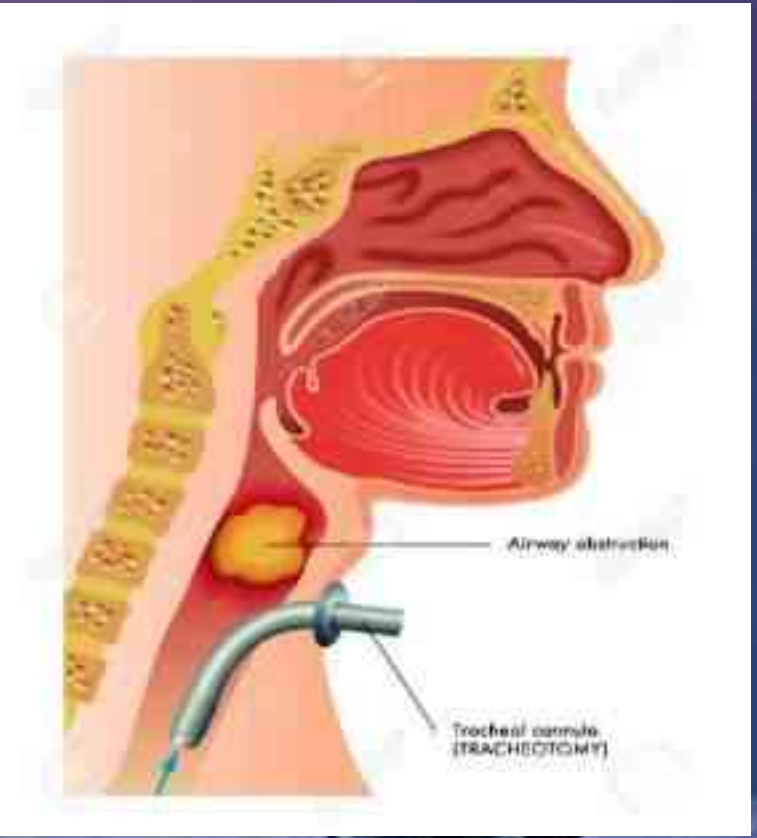
6. Tracheotomy tube tied securely in place over gauze square

F. Netter M.D.

2-Tracheostomy:

Indications :

- *When prolonged artifacial ventilation is necessary*
- *Facilitate anasthesia in major injuries*
- *Facilitate postoperative recovery*
- *Laryngeal odema*
- *Hemorrhage to the airway*

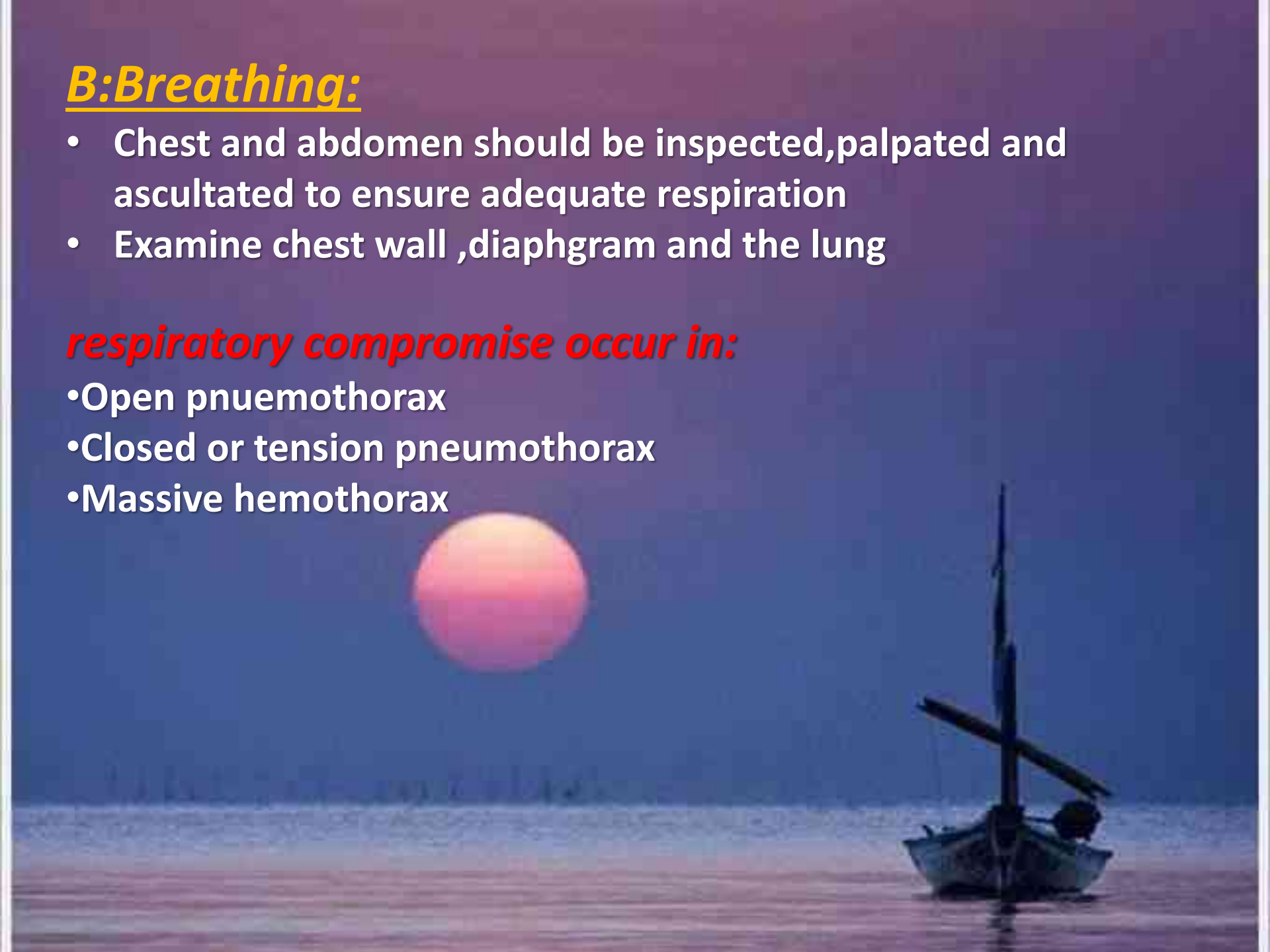


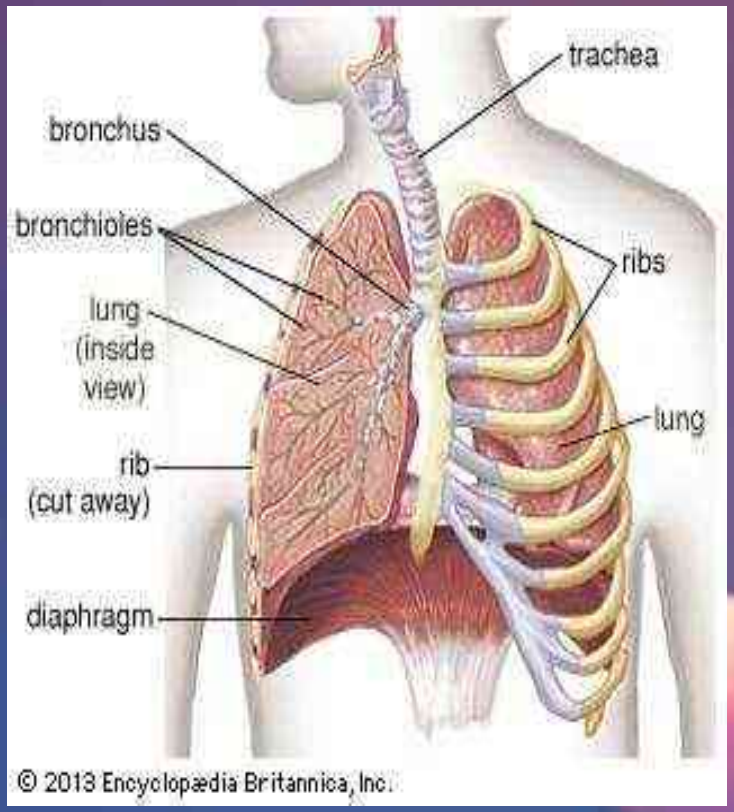
B:Breathing:

- Chest and abdomen should be inspected,palpated and ascultated to ensure adequate respiration
- Examine chest wall ,diaphgram and the lung

respiratory compromise occur in:

- Open pnuemothorax
- Closed or tension pneumothorax
- Massive hemothorax




trachea
bronchus
bronchioles
ribs
lung
(inside
view)
lung
rib
(cut away)
diaphragm
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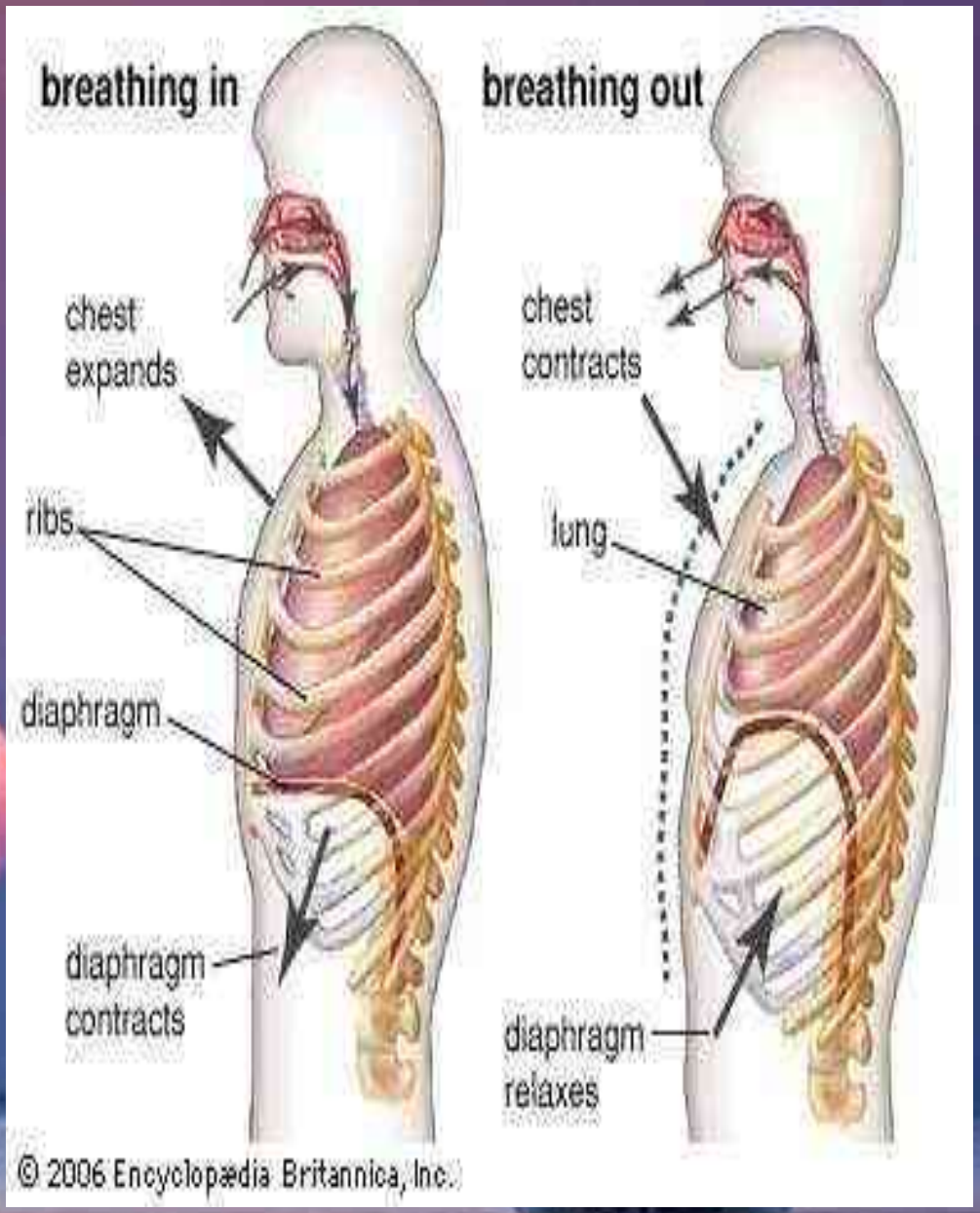
breathing in
breathing out
chest
expands
chest
contracts
ribs
lung
diaphragm
diaphragm
contracts
diaphragm
relaxes
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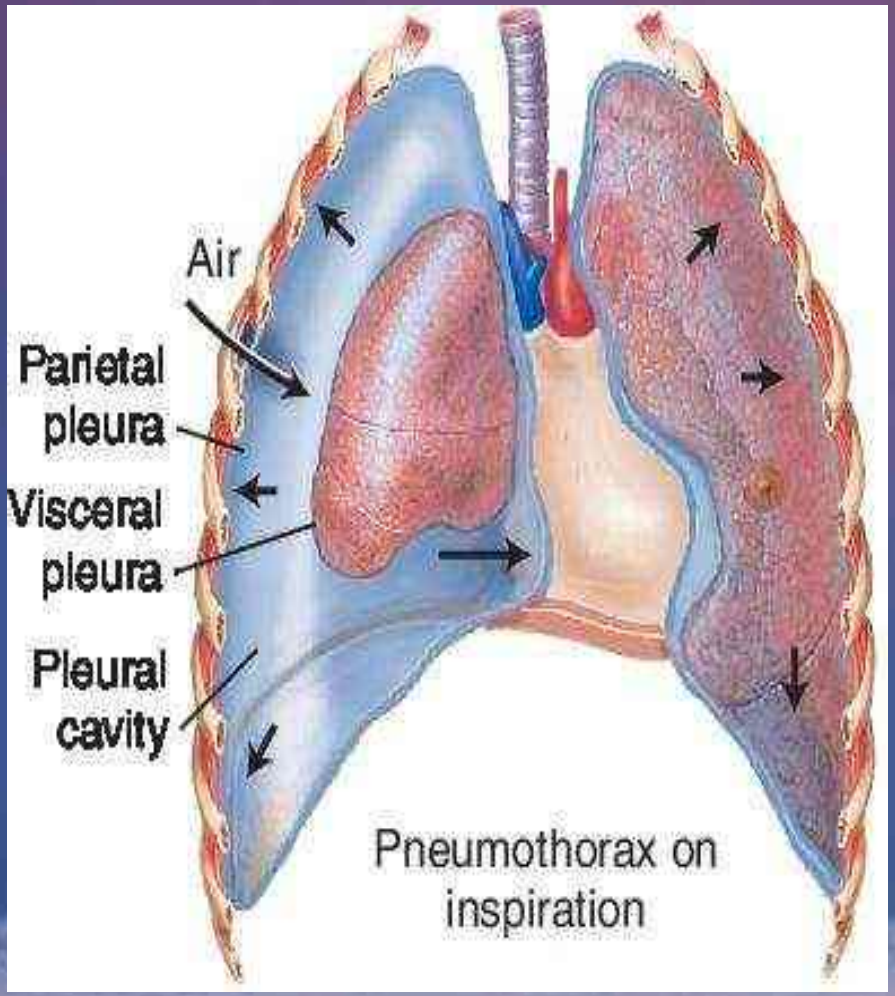
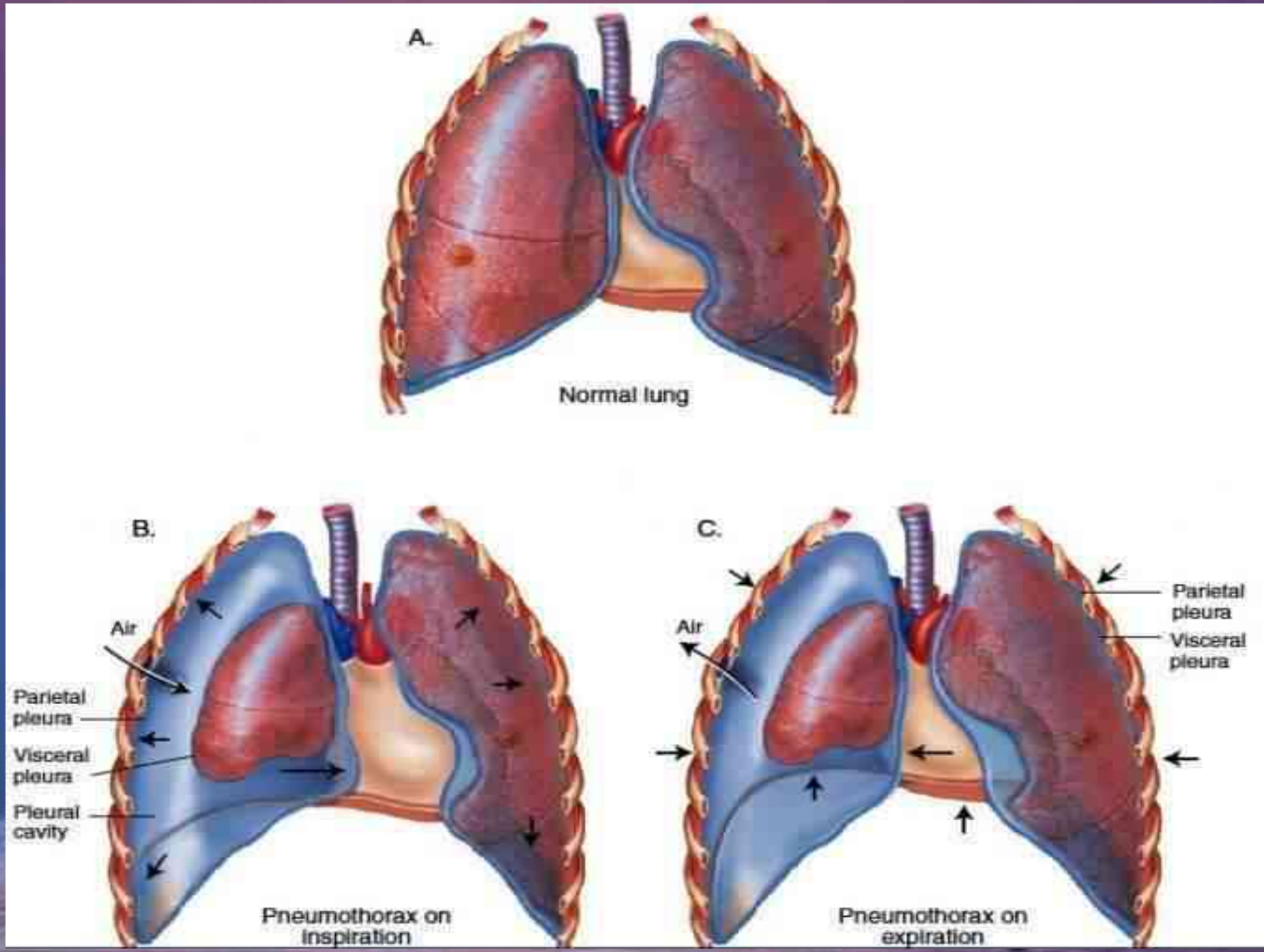
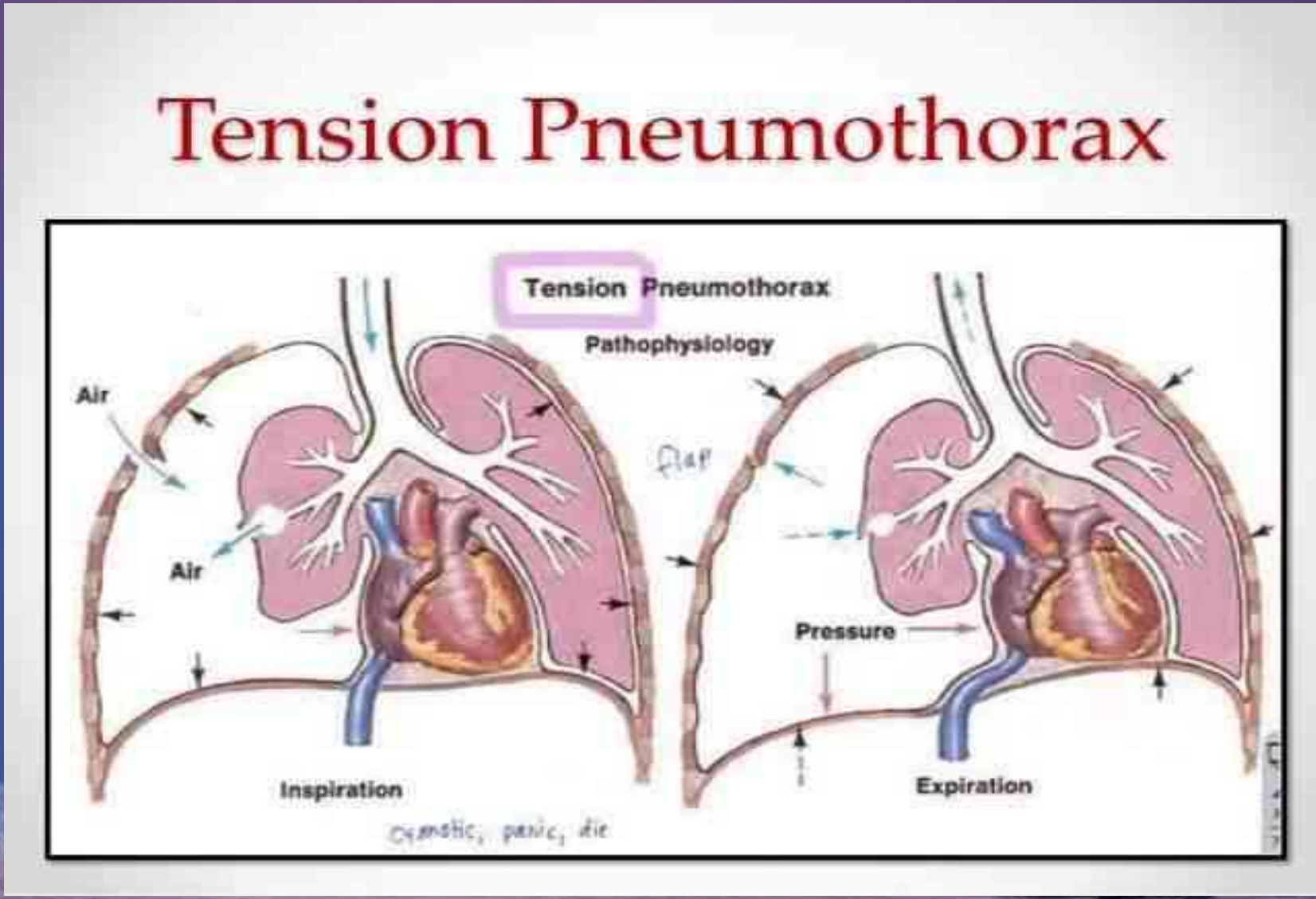
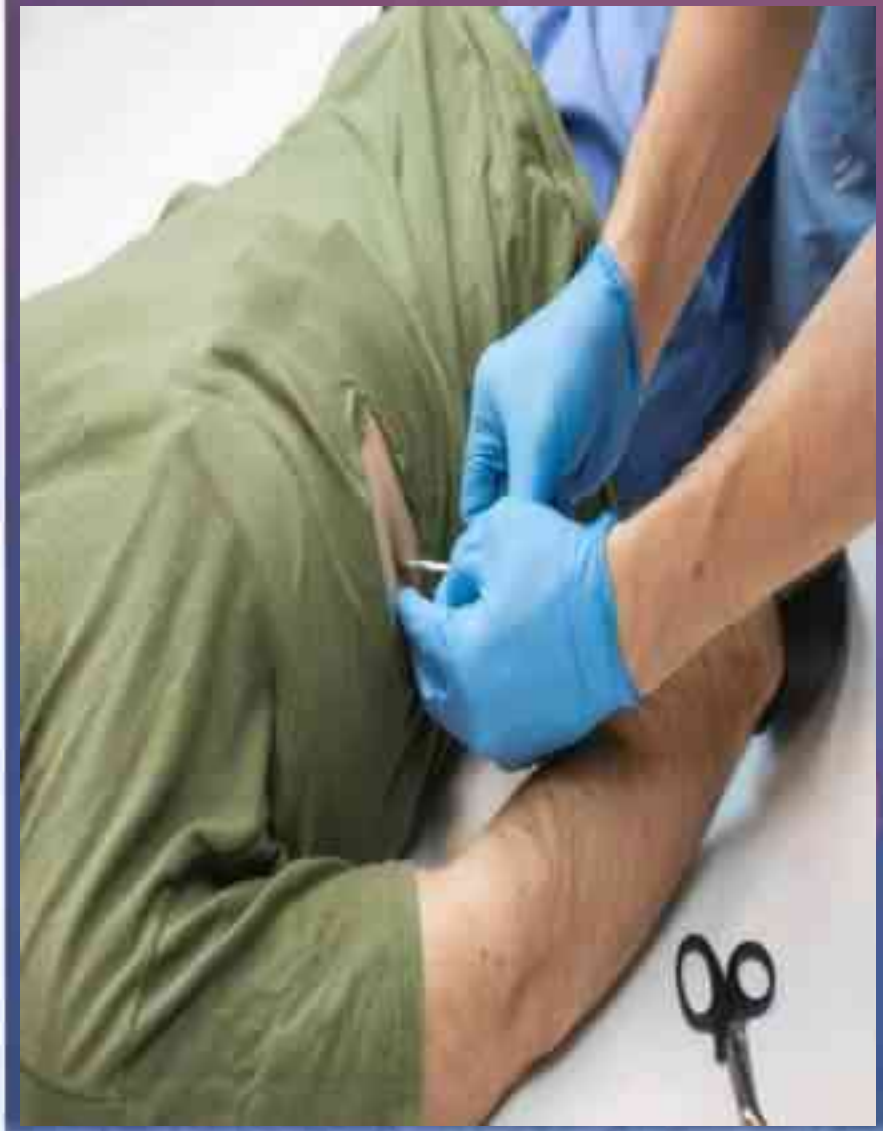
open pneumothorax:

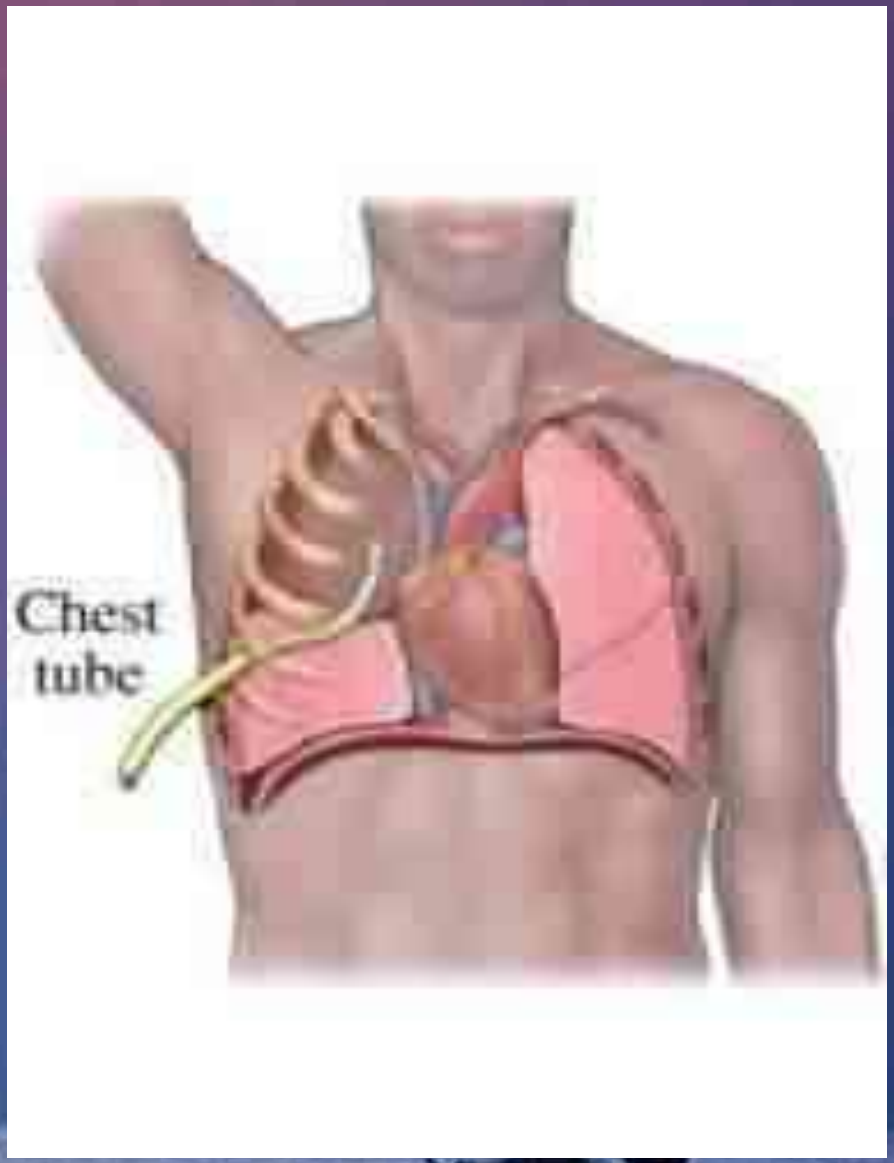


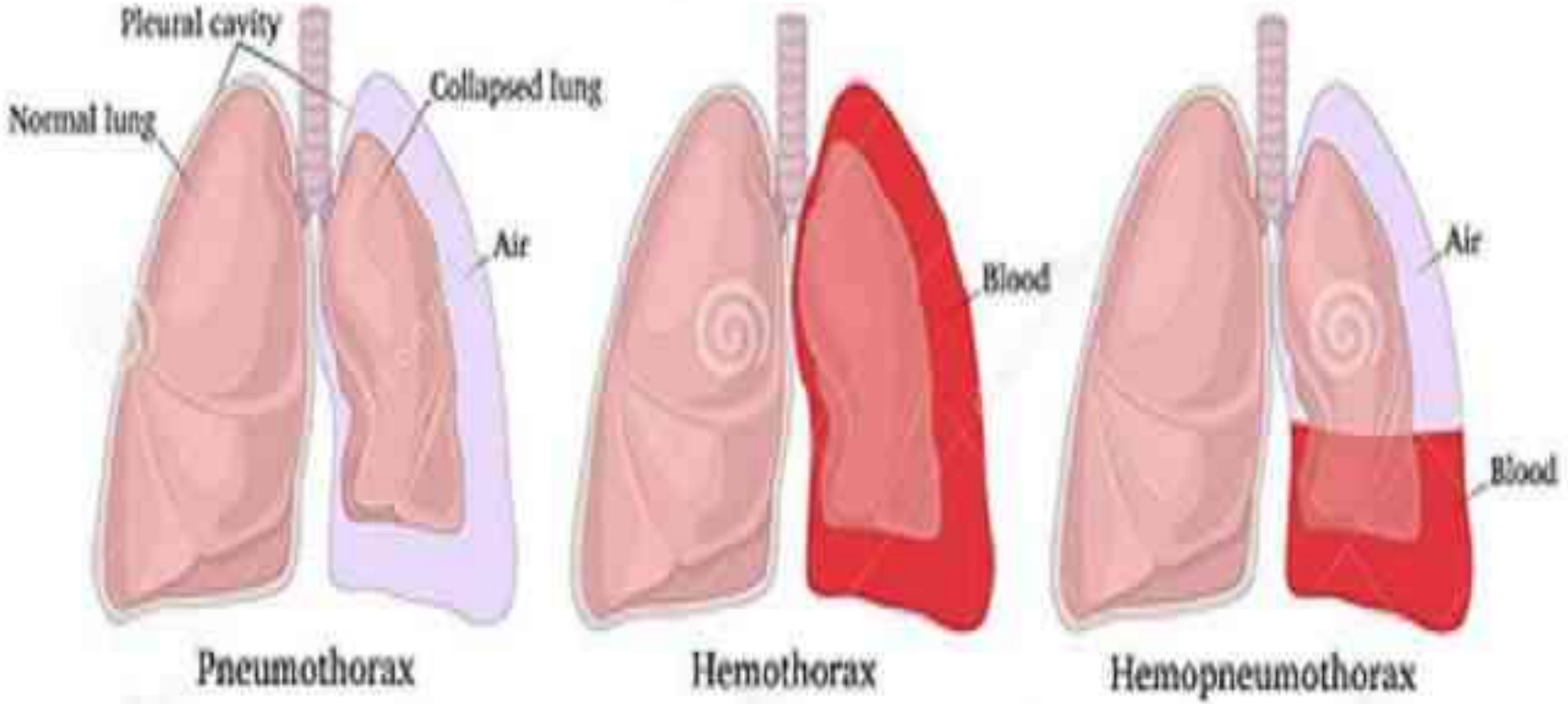

A.
Normal lung
B.
Air
Parietal pleura
Visceral pleura
Pleural cavity
Pneumothorax on inspiration
C.
Air
Parietal pleura
Visceral pleura
Pneumothorax on expiration

Closed or tension pneumothorax:

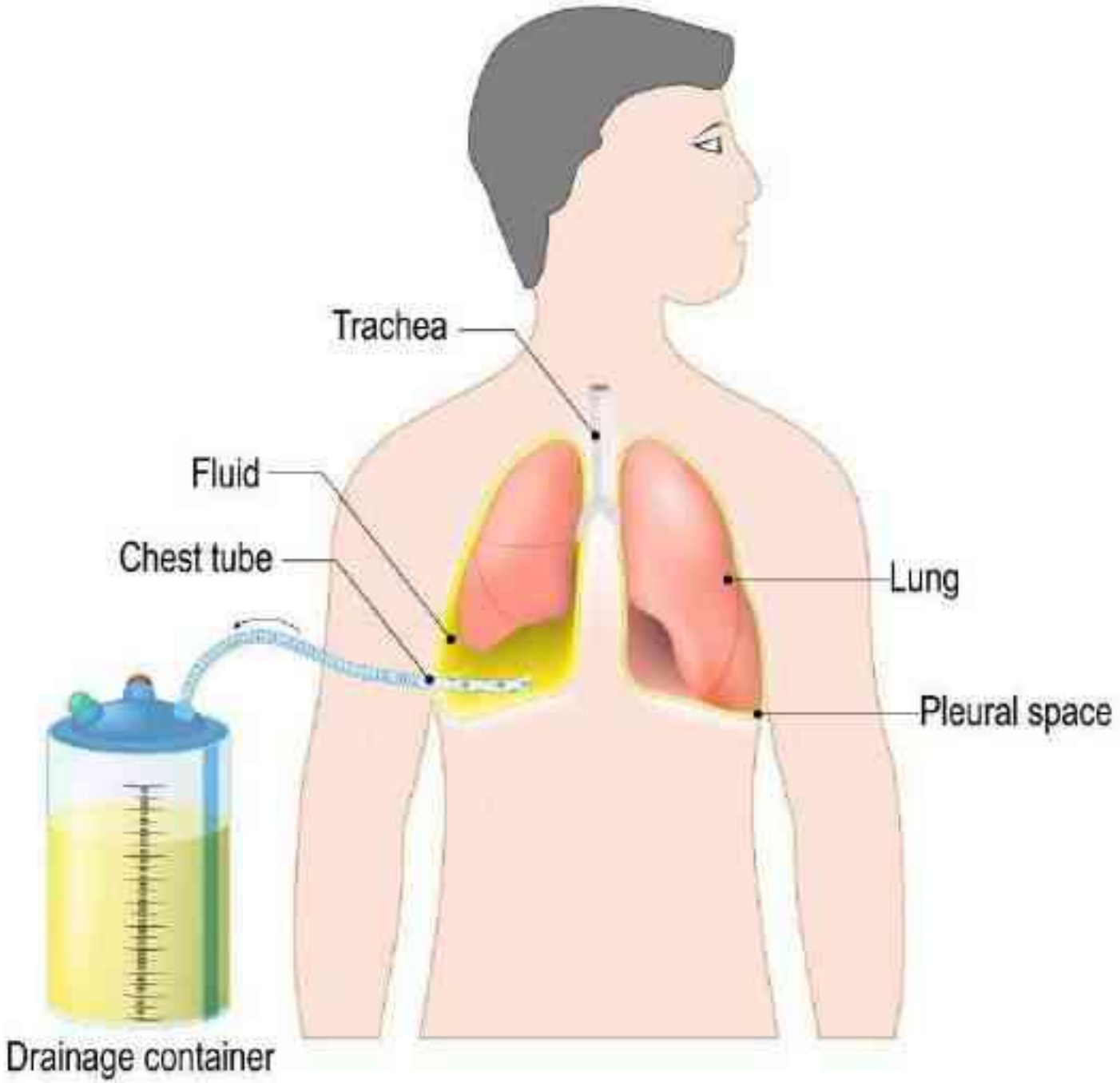





Chest
tube



HAEMOTHORAX


Trachea
Fluid
Chest tube
Lung
Pleural space
Drainage container

C:Circulation:

- Identify bleeding and control it by direct pressure or direct clamping (e.g. scalp and limbs)

- Significant blood loss occur in: abdomen,thorax,thigh,pelvis,retroperitonium.

- Control anterior and posterior nasal bleeding
- Place two wide bore iv line in the limbs(cv line or venous cut down

Classification of hemorrhagic shock

American College of Surgeons Classes of Acute Hemorrhage

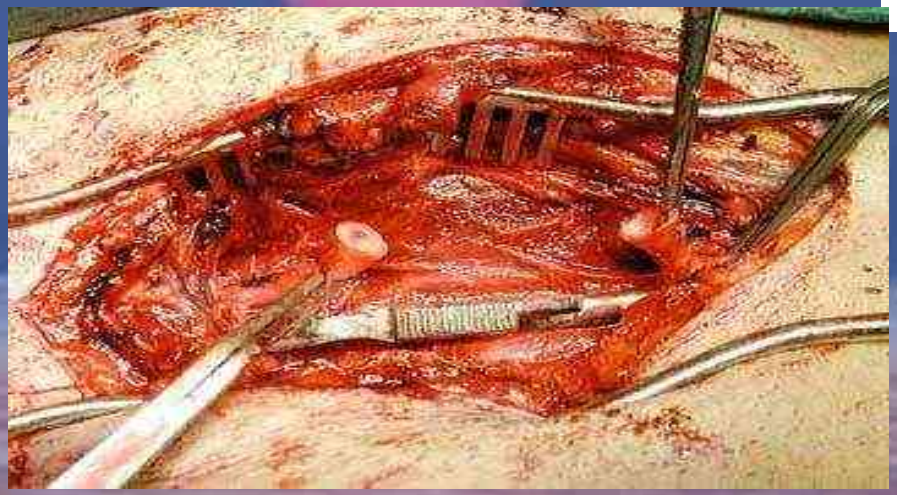
Factors	I	II	III	IV
Blood loss	<15% (<750ml)	15-30% (750-1500ml)	30-40% (1500-2000ml)	>40% (>2000ml)
Pulse	>100	>100	>120	>140
B.P.	Normal	Normal	↓	↓↓
Pulse pressure	N or ↓	↓	↓↓	↓↓
Capillary refill	<2s	2-3s	3-4s	>5s
Resp. rate	14-20	20-30	30-40	>40
Urine output ml/hr	30 or more	20-30	5-10	Negligible
Mental status	Slightly anxious	Mildly anxious	Anxious & confused	Confused Lethargic

Hemorrhage

- Sever bleeding uncommon In facial injury

Control of bleeding by :

- Packing
- Cautrization
- Ligation
- Reduction of fractures



D: Disability

Determine the level of consciousness :

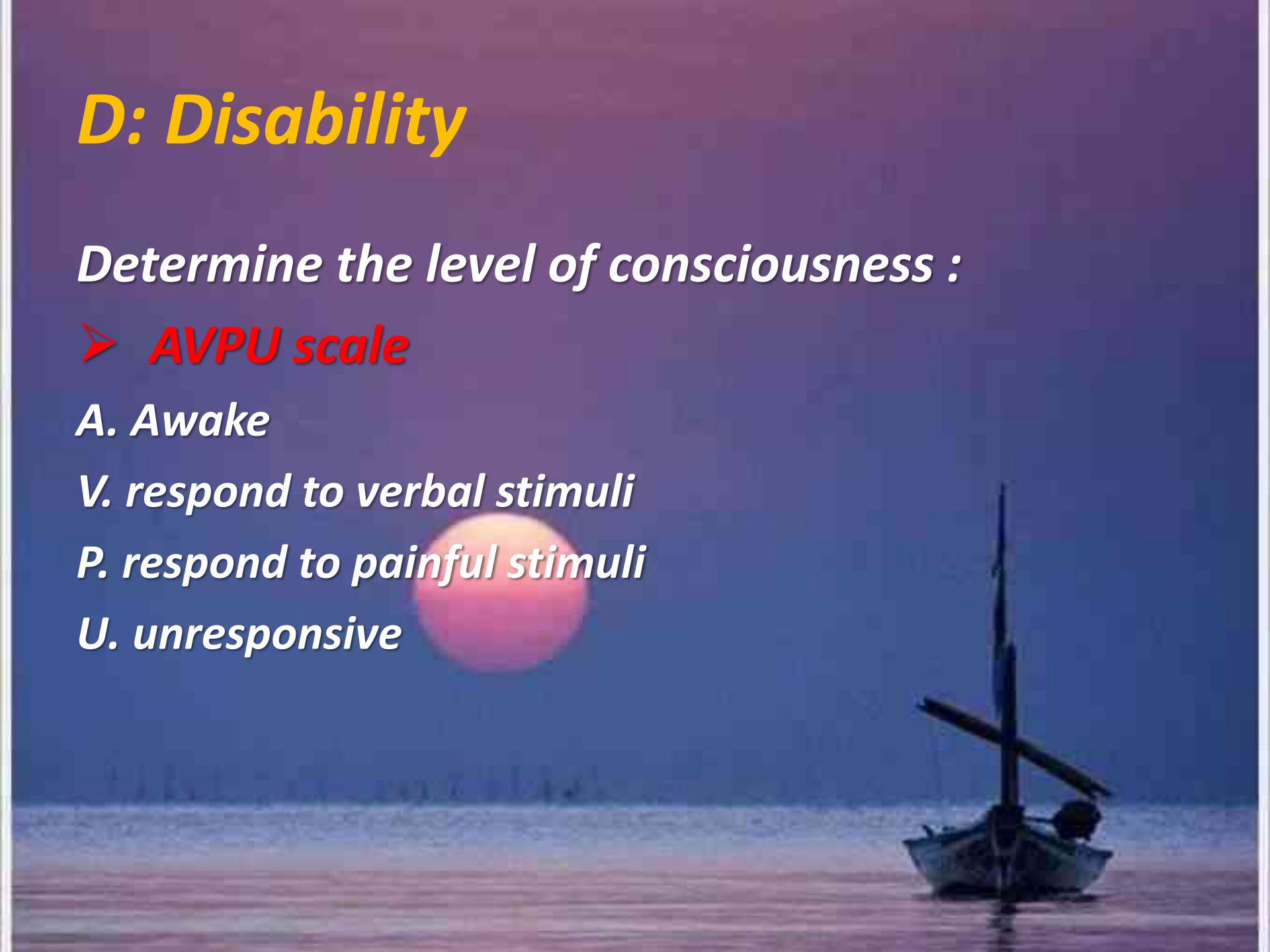
- ***AVPU scale***

A. Awake

V. respond to verbal stimuli

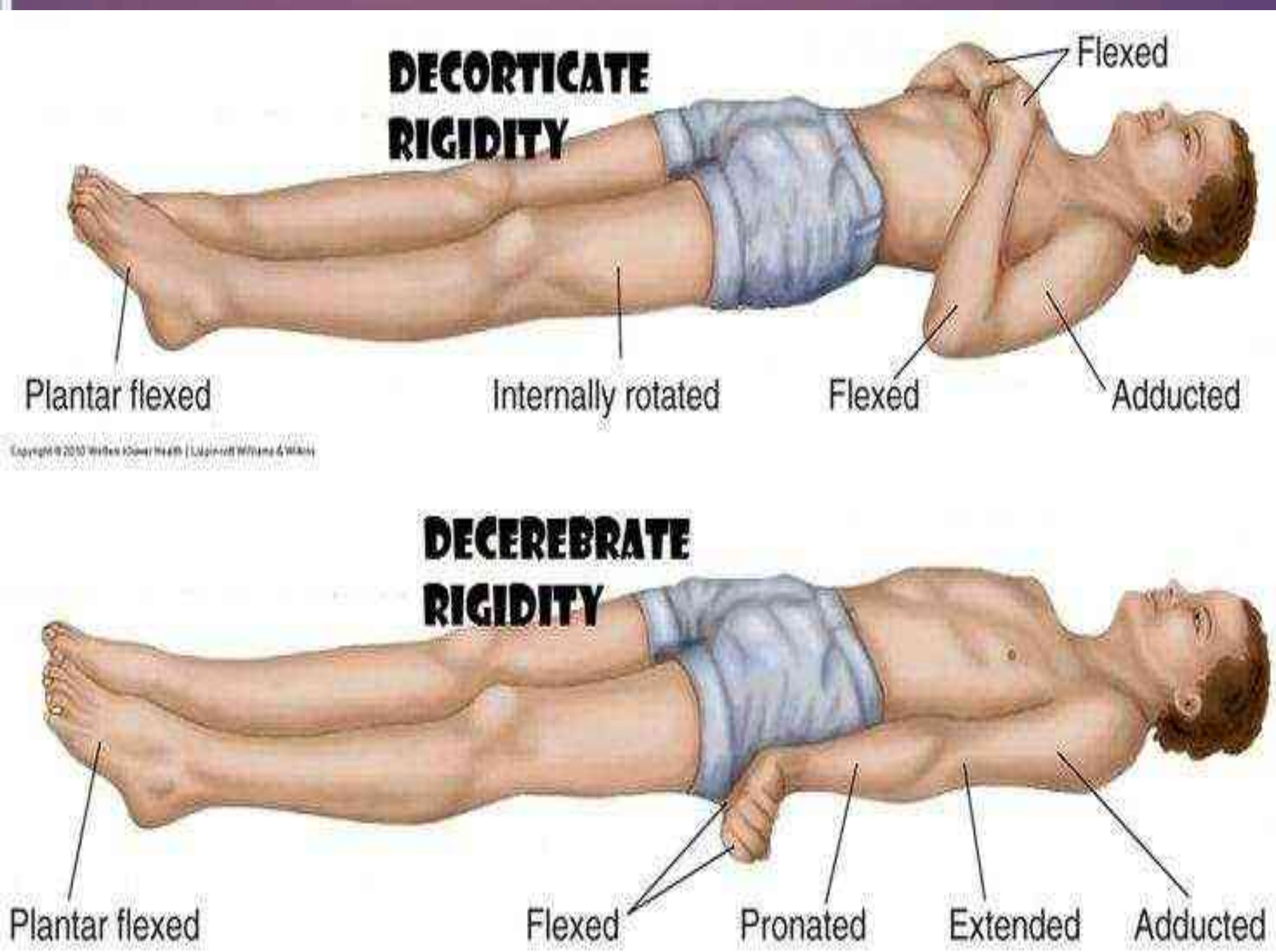
P. respond to painful stimuli

U. unresponsive



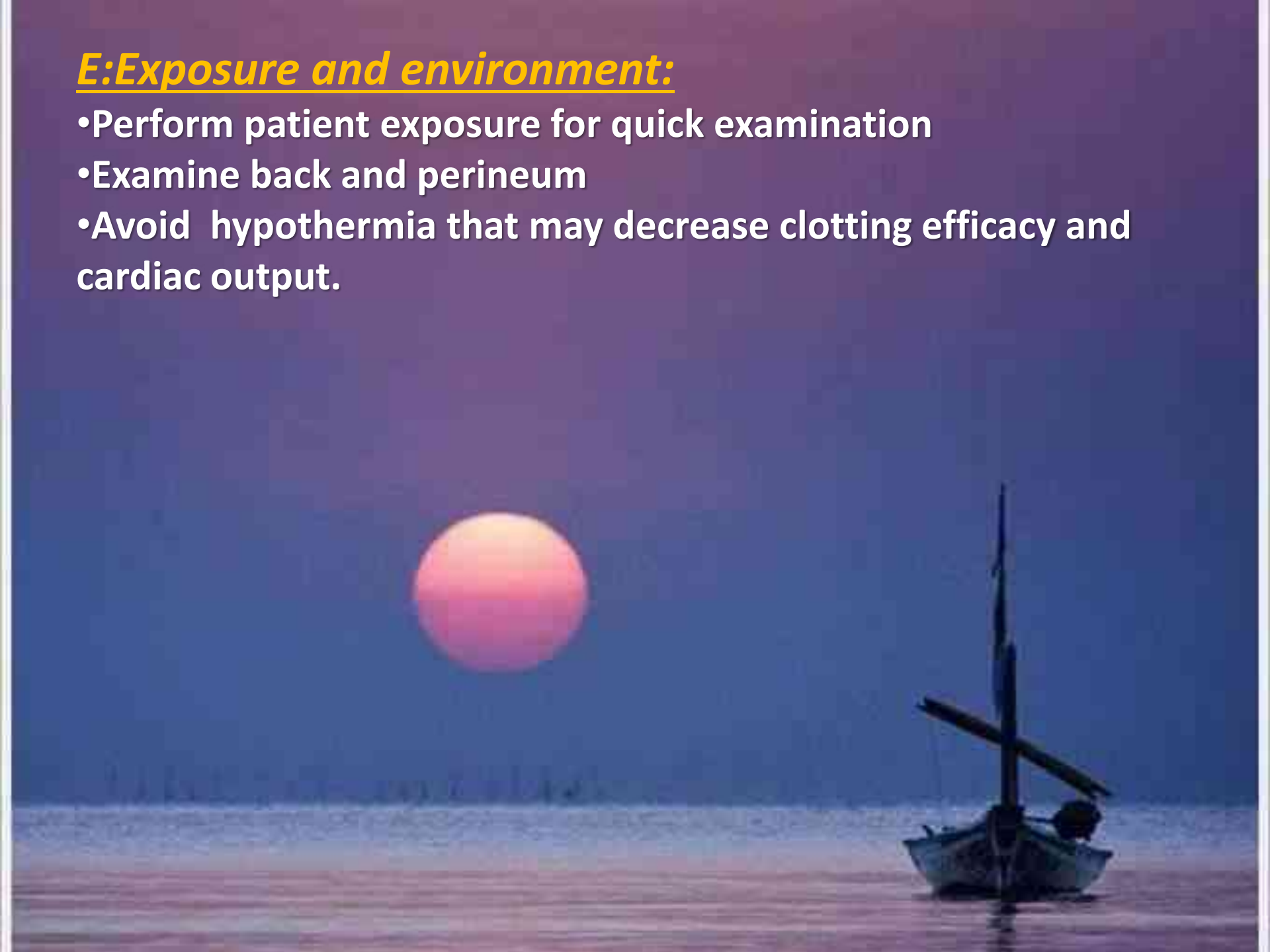
Glass cow coma scale

Glasgow Coma Score		
Eye Opening (E)	**Verbal Response (V)**	**Motor Response (M)**
4=Spontaneous 3=To voice 2=To pain 1=None	5=Normal conversation 4=Disoriented conversation 3=Words, but not coherent 2=No words.....only sounds 1=None	6=Normal 5=Localizes to pain 4=Withdraws to pain 3=Decorticate posture 2=Decerebrate 1=None
		Total = E+V+M


DECORTICATE RIGIDITY
Flexed
Plantar flexed
Internally rotated
Flexed
Adducted
DECEREBRATE RIGIDITY
Plantar flexed
Flexed
Pronated
Extended
Adducted

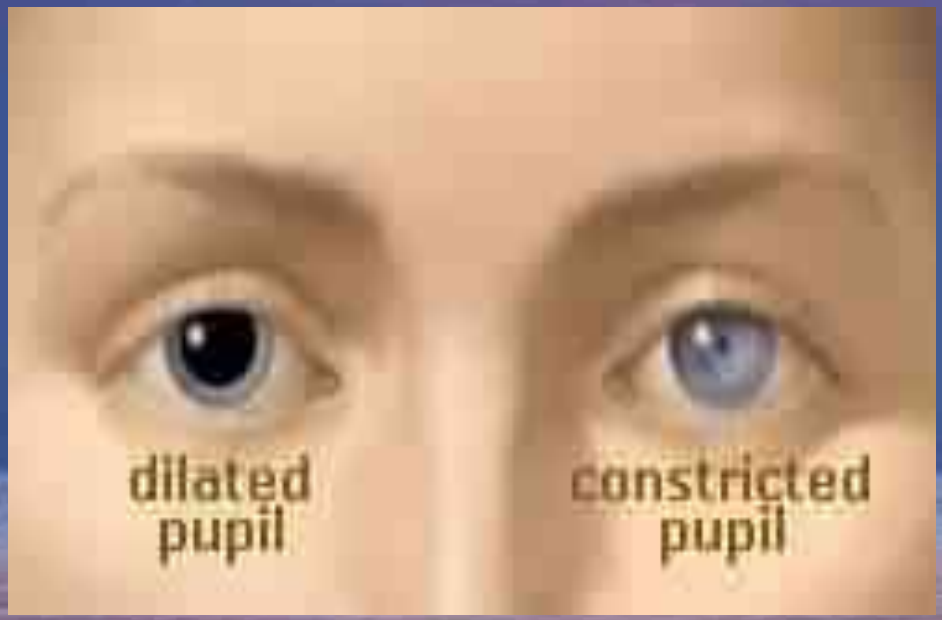
E:Exposure and environment:

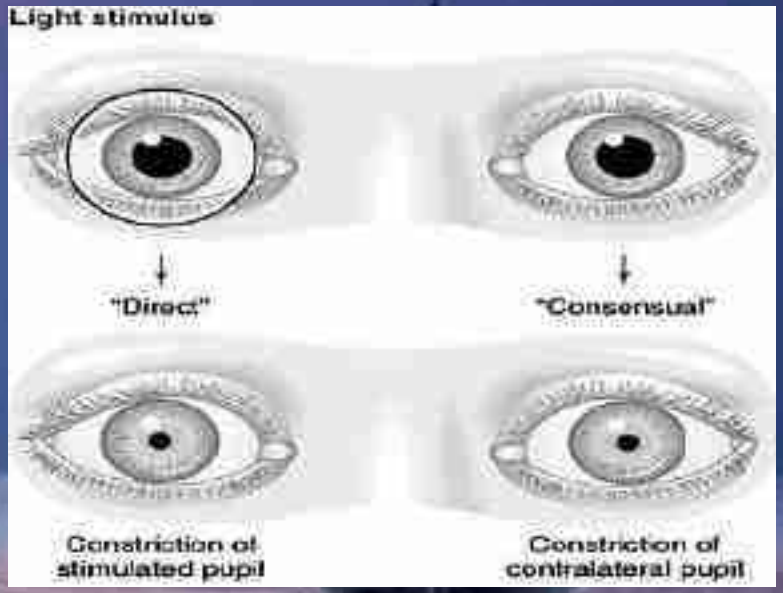
- Perform patient exposure for quick examination
- Examine back and perineum
- Avoid hypothermia that may decrease clotting efficacy and cardiac output.



Eye examination

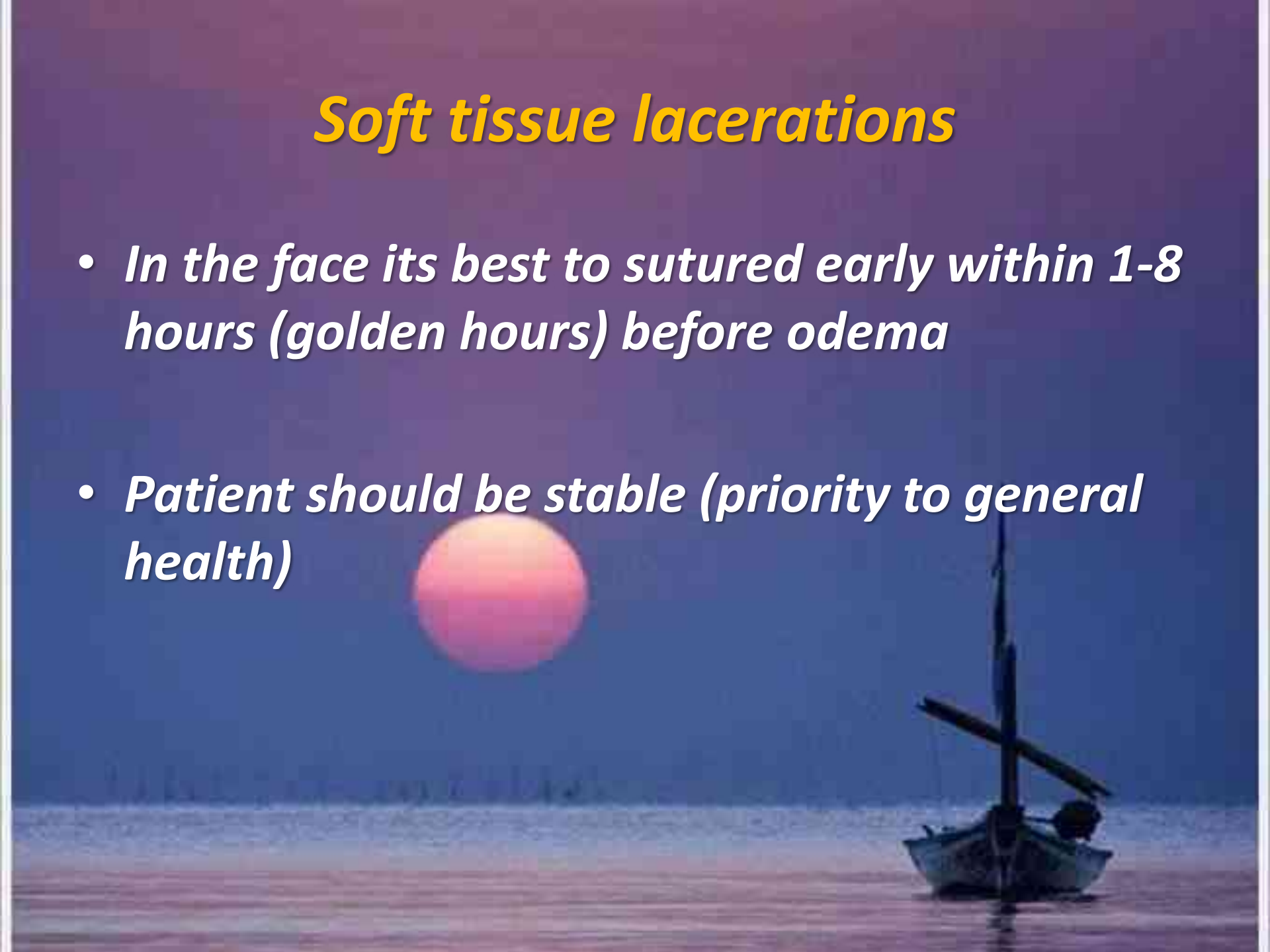
1. visual acuity
2. pupil size
3. pupil reaction





Soft tissue lacerations

- *In the face its best to sutured early within 1-8 hours (golden hours) before odema*
- *Patient should be stable (priority to general health)*



Soft Tissue Injuries

Wash & See

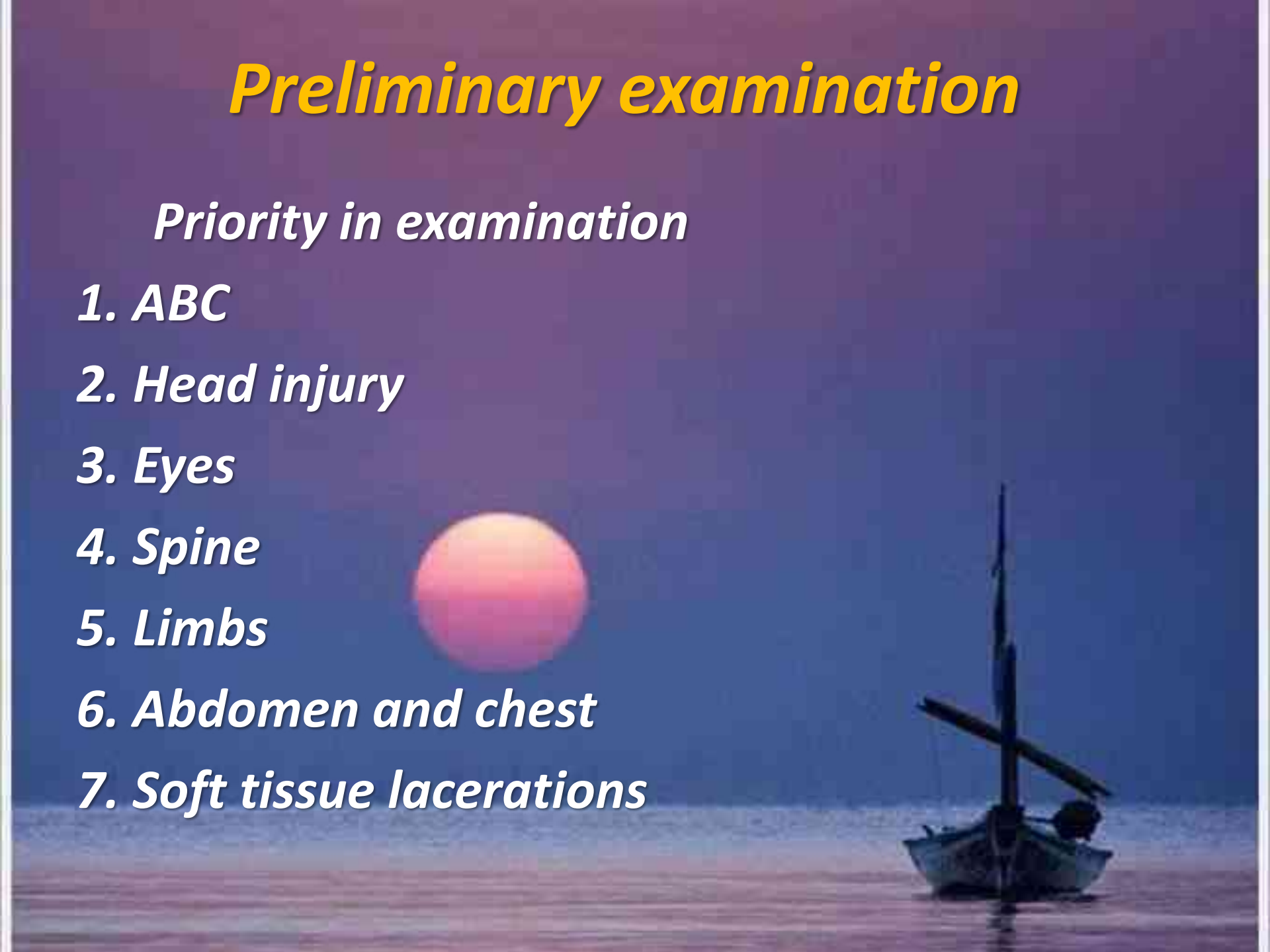
Soft Tissue Injuries

Suture carefully

Preliminary examination

Priority in examination

1. *ABC*
2. *Head injury*
3. *Eyes*
4. *Spine*
5. *Limbs*
6. *Abdomen and chest*
7. *Soft tissue lacerations*



History and local examination

- History can taken from patient if consciouse or from eye witnesses ambulance men if patient unconsciouse

- Amnesia indictive of cerebral injury

1. Retrograde amnesia; failure to remember up to the time of accident
2. Anterograde amnesia ; loss of memory following the accident

- Asking the patient if there is difficulty in breathining ,swallowing or pain else where in the body.

- Medications history : insuline ,steroid , anticoagulants

- Detailed history taken when the patient can talk comfortably

Local examination of facial injury

1. washing the wound with normal saline or gauze, to removed the crasted blood (H2O2) can be used but should be avoided in compound fractures to avoiod emphysema

2. inspection externally : odema,ecchymosis,lacerations,bony deformity, hemorrhage, CSF leak

3.palpation : to determine fractures,foreign bodies (tenderness,step deformity ,mobility are signs of fracture)

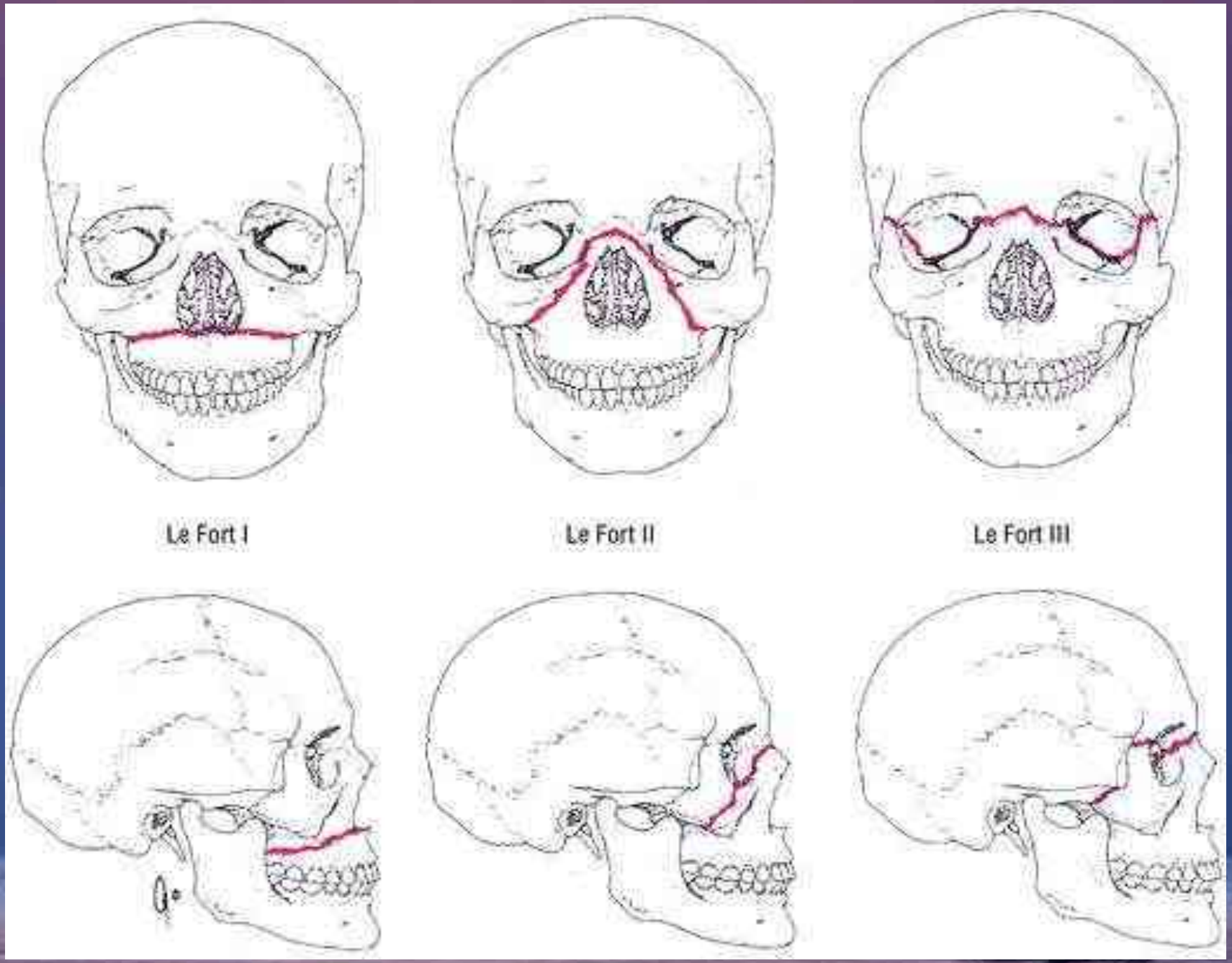
- *Examination include skull ,facial bone ,nose ,mandible ,paresthesia , eye should examine for ecchymosis,lacerations,visual acuity,diplopia…*

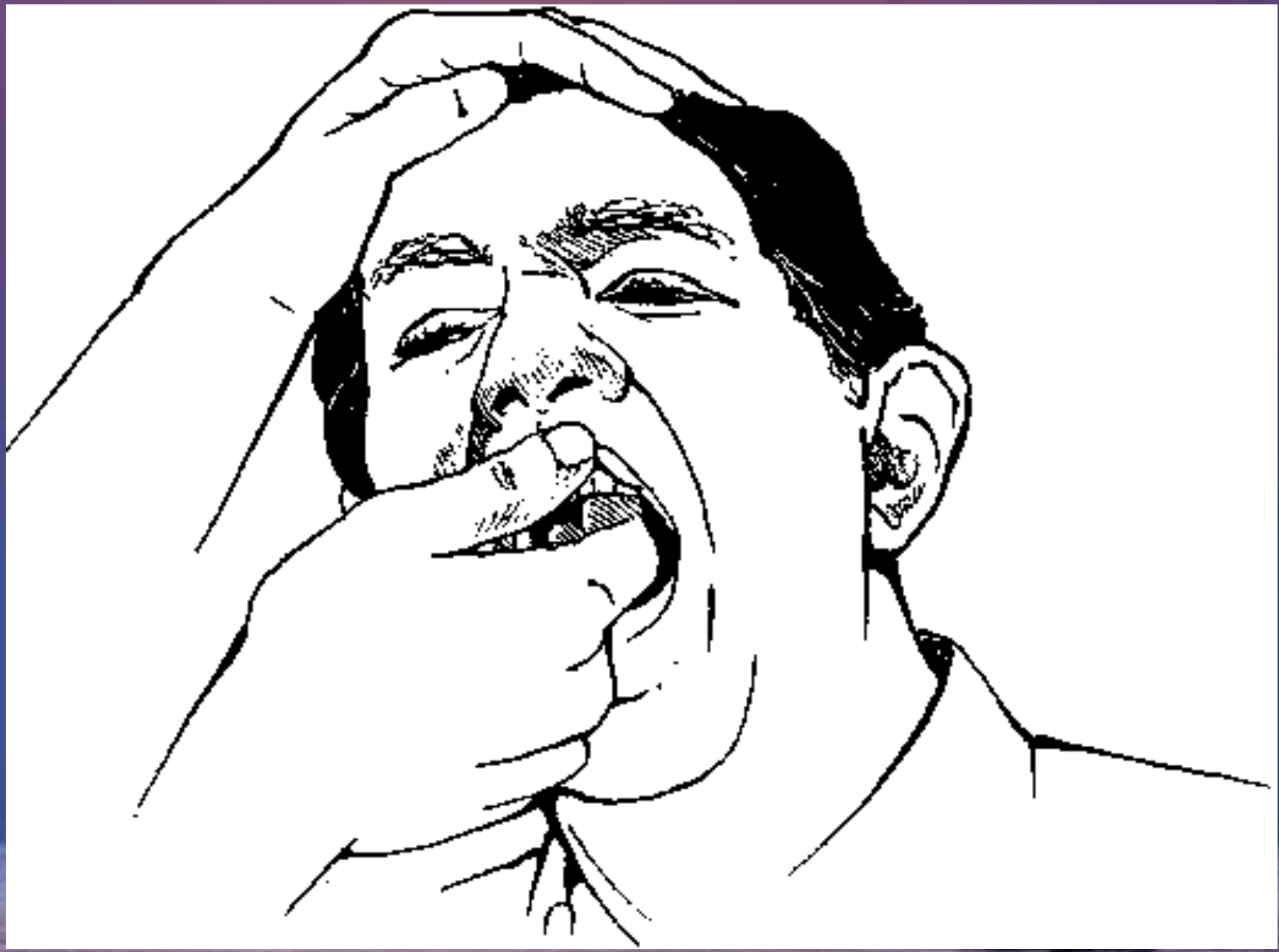
Inspection

4. **Inspection intraorally** :Occlusal derrangment ,lacerations, damage to teeth or alveolus

5. **Palpation intraorally :** area of tenderness, bony irregularity ,cripitation, mobility of teeth or avleolus

- Examination of midface for lefort fractures (palpation,cracked cup sound)


Le Fort I
Le Fort II
Le Fort III



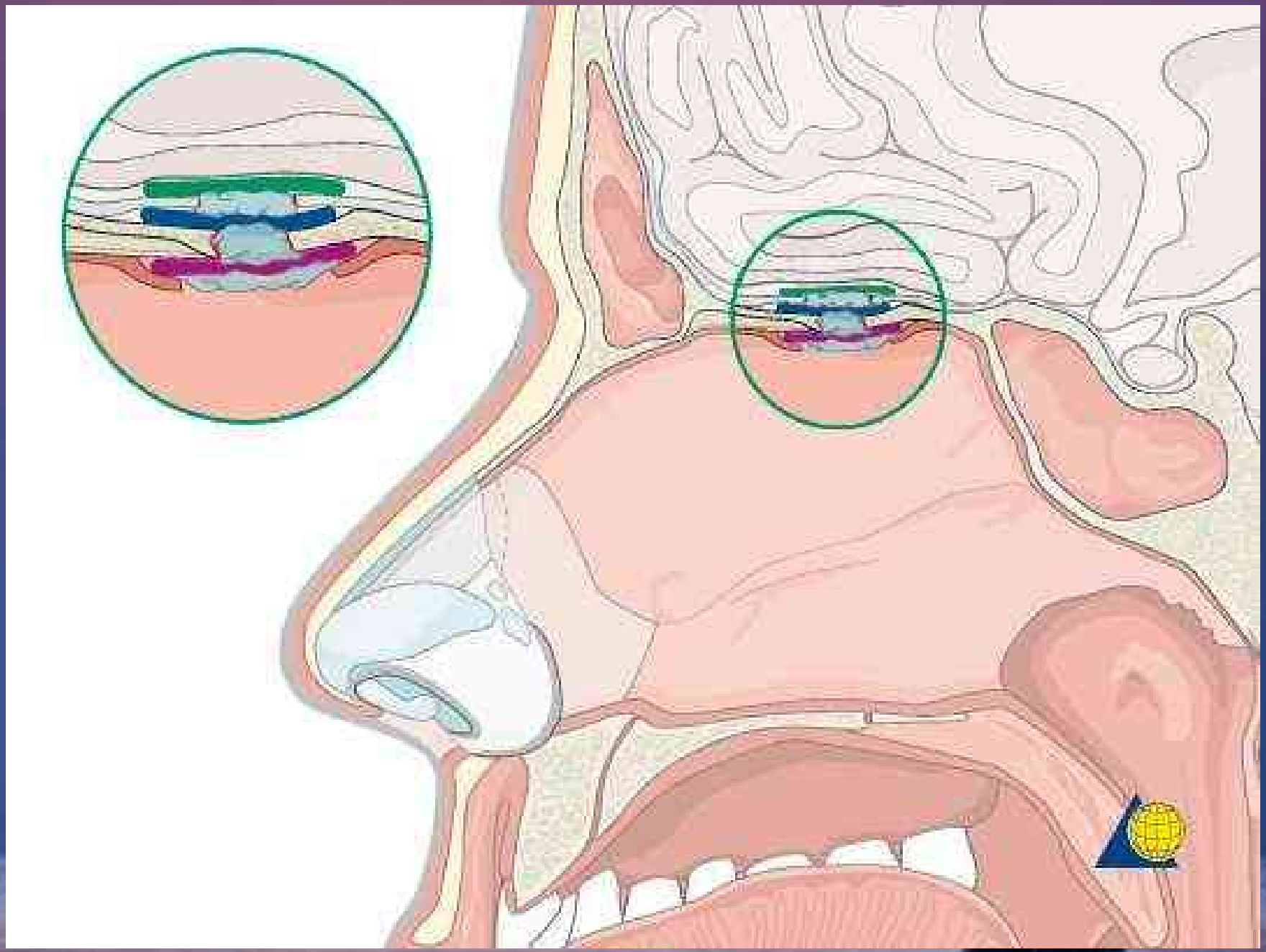
Control of pain

- *Usually little pain in maxillofacial injury*
- *Strong analgesia (especially morphine) should avoided due to :*

1. *depress level of conciousness and respiration*
2. *Depress cough reflex (blood aspiration)*
3. *Mask pupil response*
4. *Mask pain due to intraabdominal,intrathorasic injury*

Control of infection

- *Antibiotic should used*
- *Pencillin or if patient have allery to pencillin Azithromycin*
- *If CSF leak present sulphonamide should be used and better to use triple therapy*




Thank you for listening …

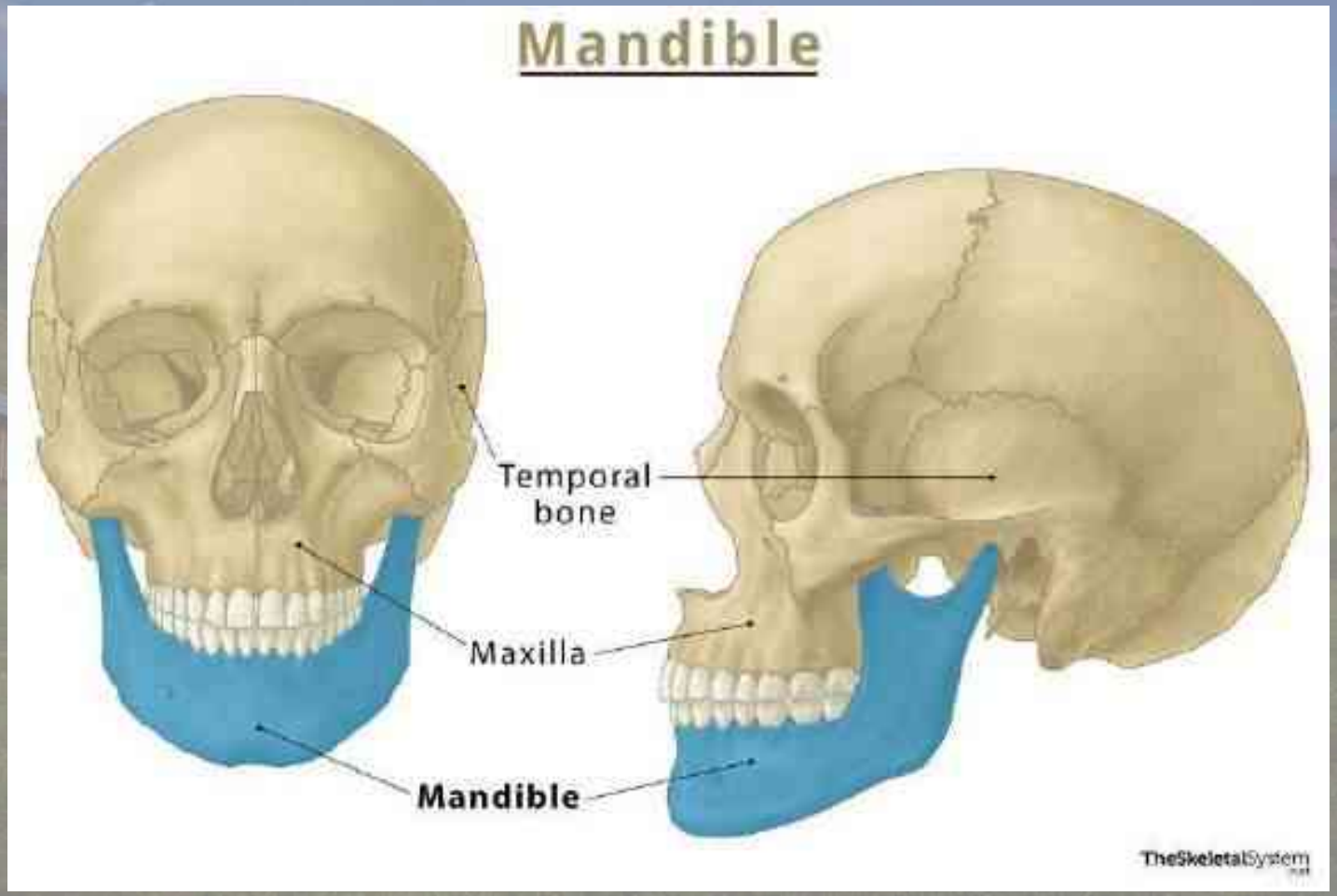
Management of Mandibular fracture

Dr.Mohammed Rhael Ali

(Maxillofacial surgeon)

Tikrit dentistry college

Mandibular anatomy


Mandible
Temporal bone
Maxilla
Mandible
TheSkeletalSystem


classification

According to type of fracture

a.Simple fracture

b.Compound fracture

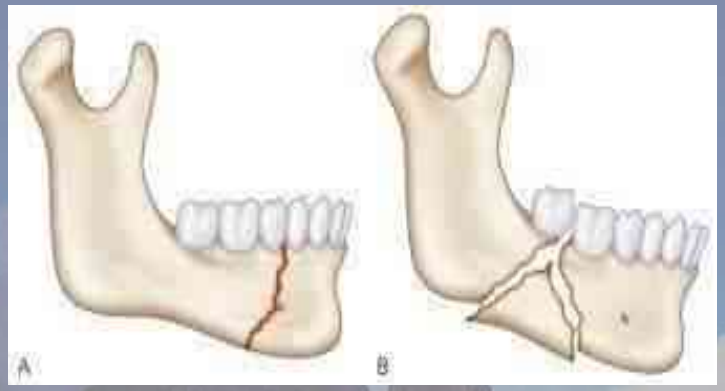
c.Comminuted fracture

d.Pathological fracture

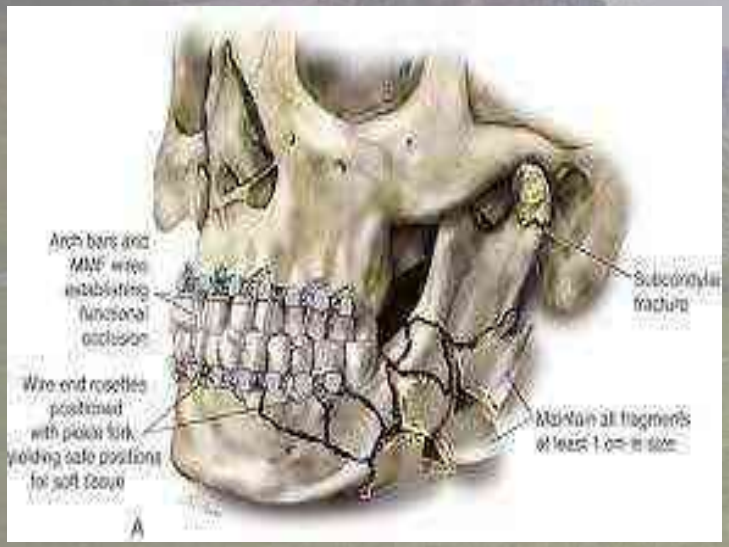
e.Complicated fracture

f.Impacted fracture

g.Green stick fracture

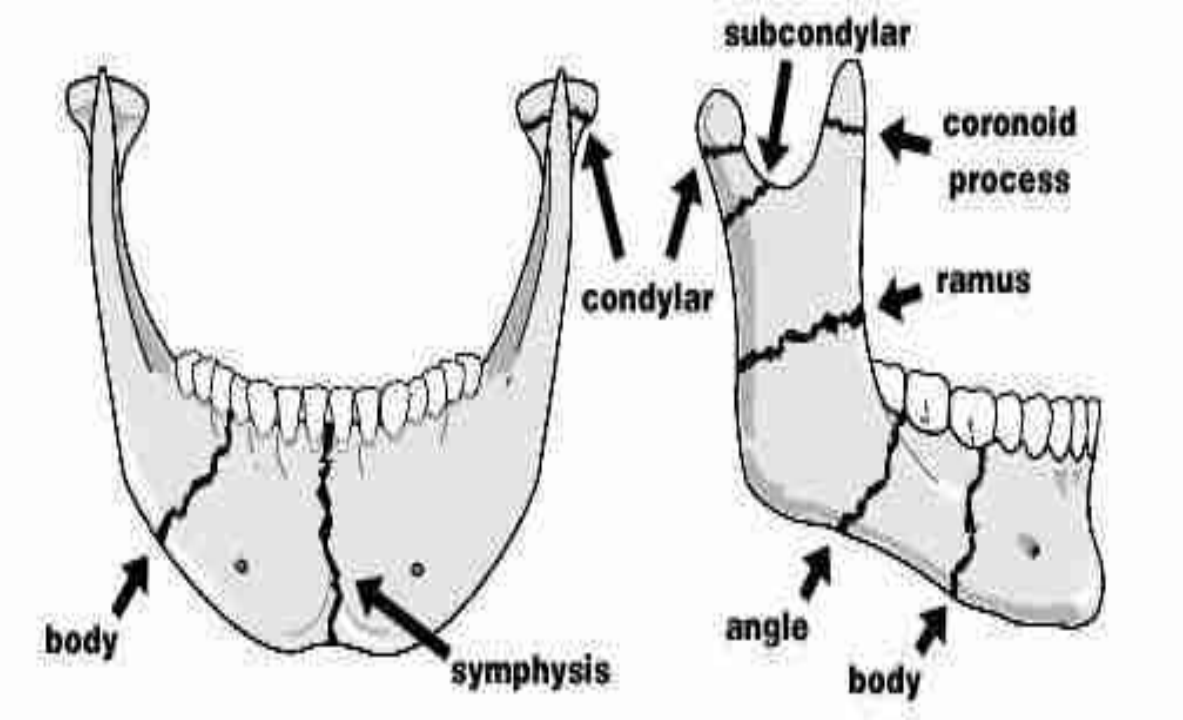

A
B


R


Arch bars and
MMF wires
establishing
functional
occlusion
Wire end rosettes
positioned
with pliers 90°,
yielding safe positions
for soft tissue
Subcondylar
fracture
Maintain all fragments
at least 1 cm in size
A

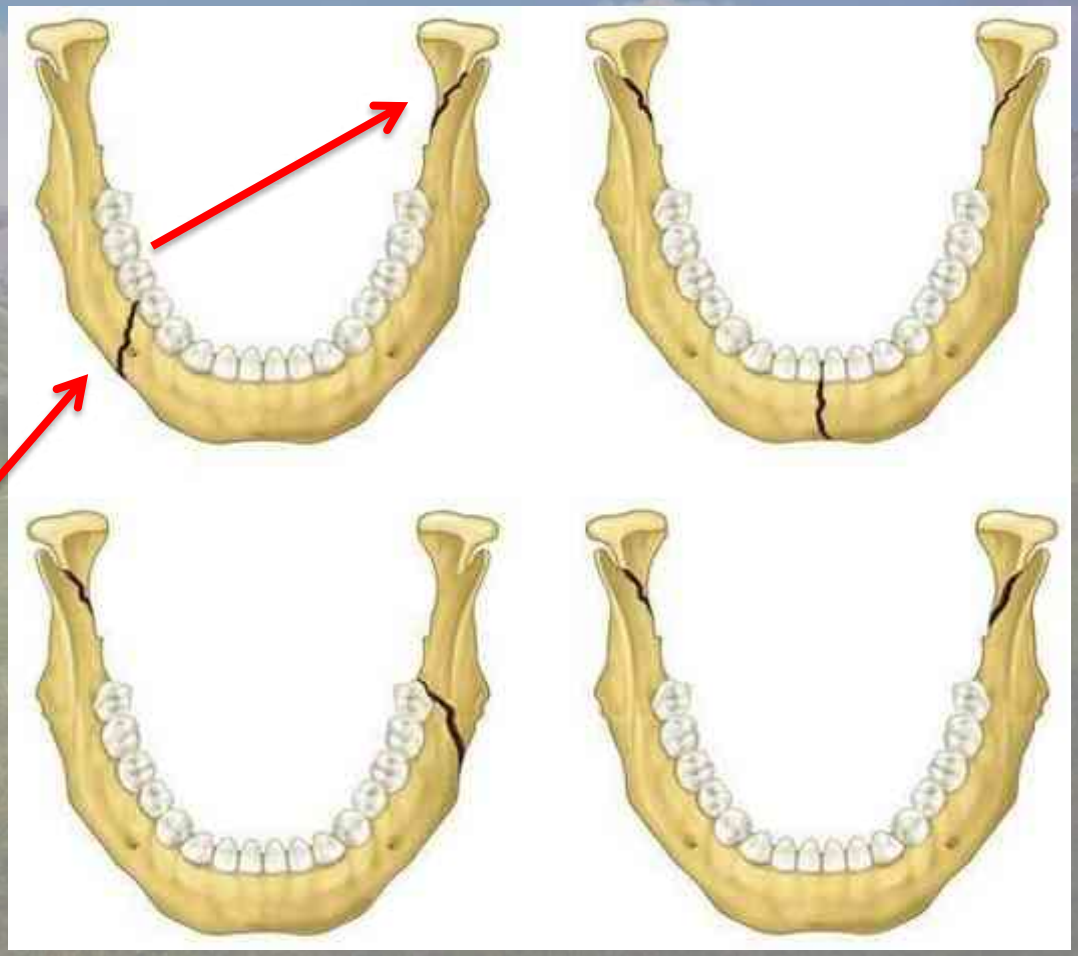
According to the site of fracture

A. dento-alveolar fracture
B. Condyle
C. Coronoid
D. Ramus
E. Angle
F. Body
G. Symphysis
H. parasymphysis



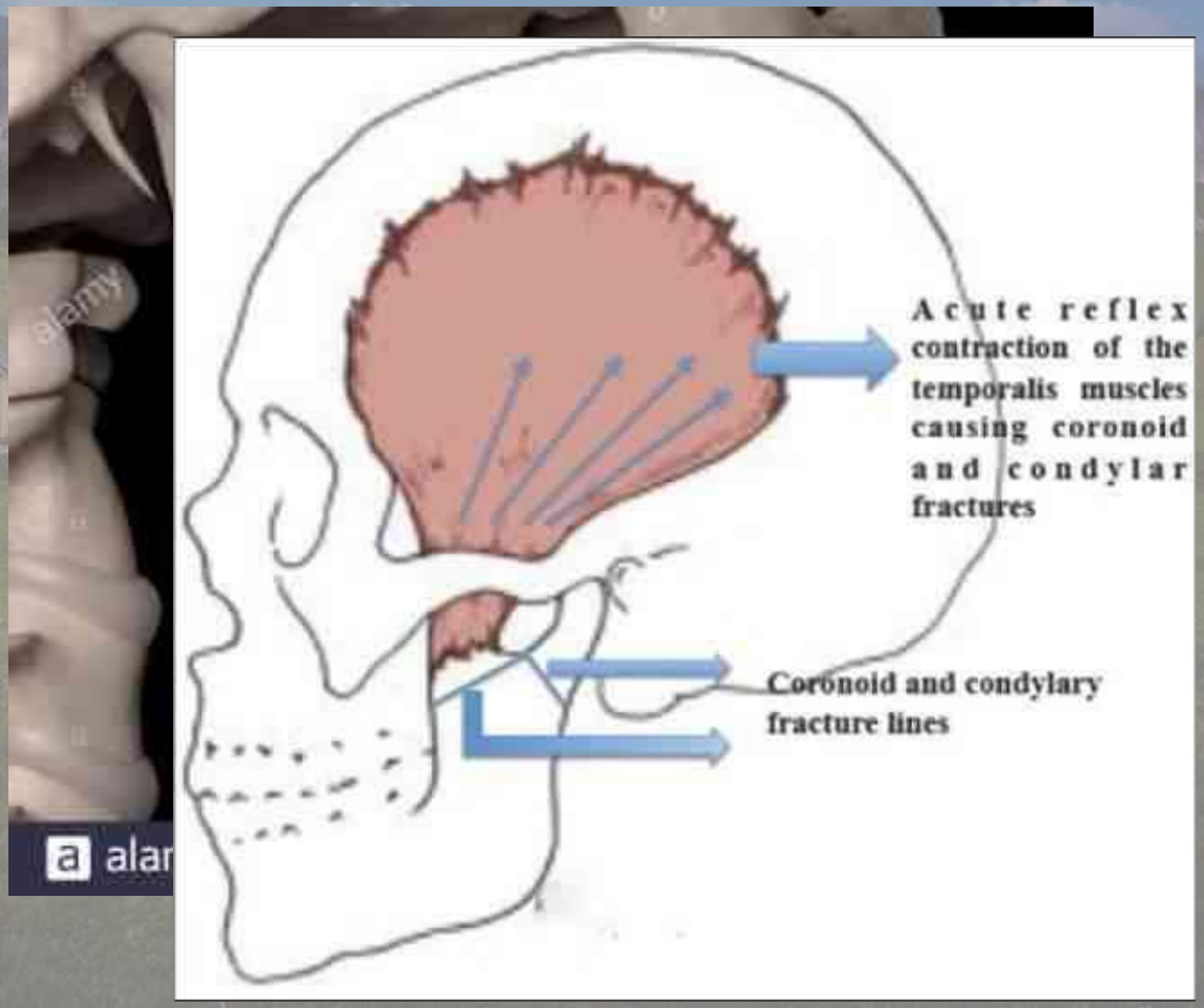
According to the cause of fracture

- Direct violence
- Indirect violence
- Excessive muscle contraction



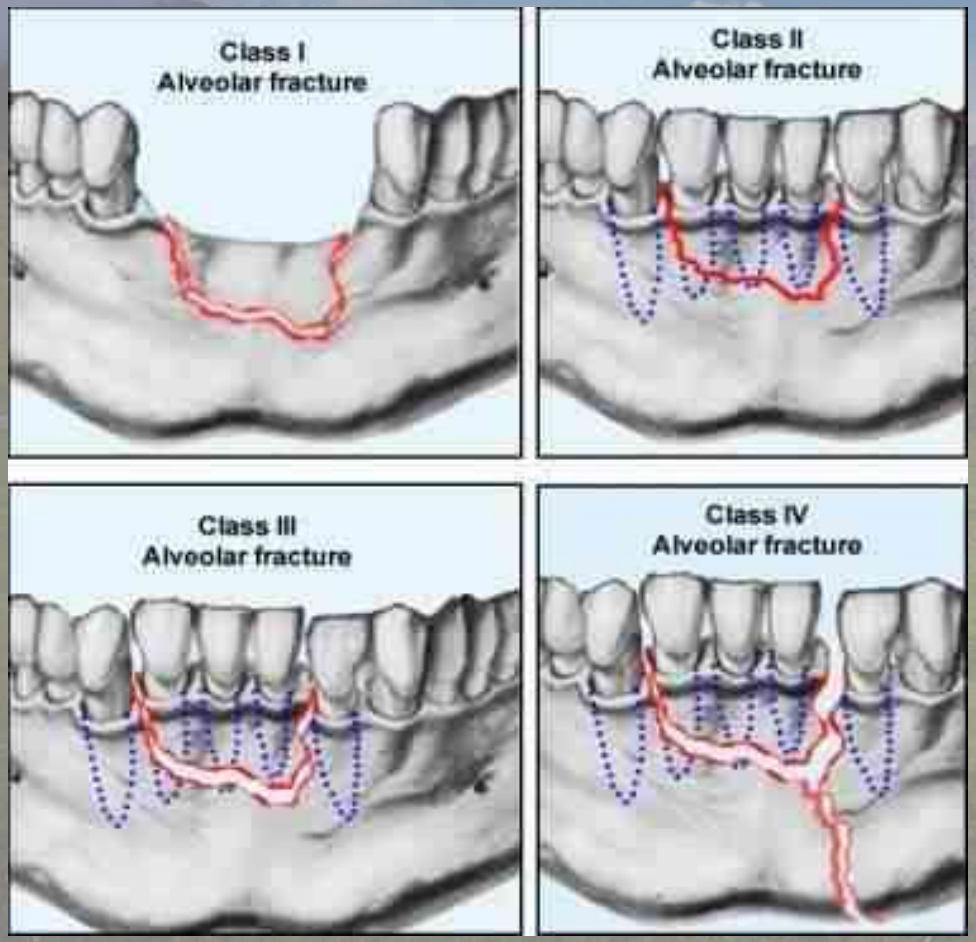
Coronoid process fracure

Coronoid process fracure

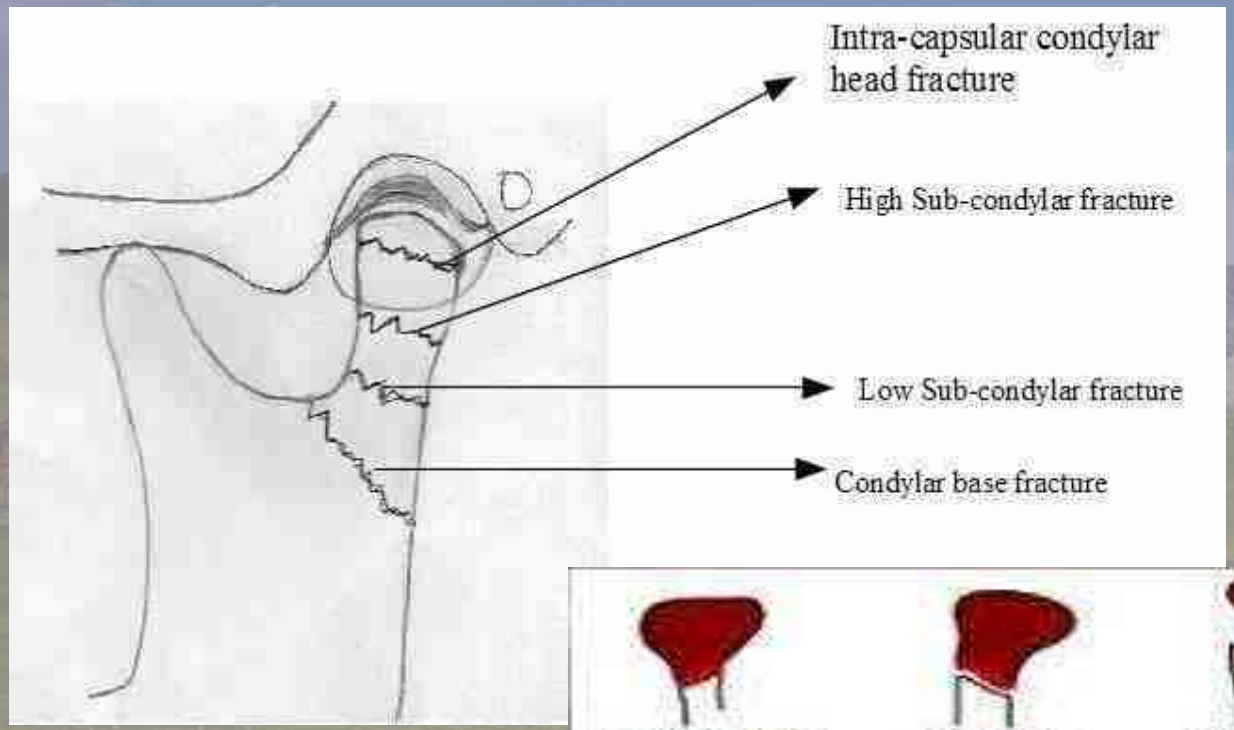


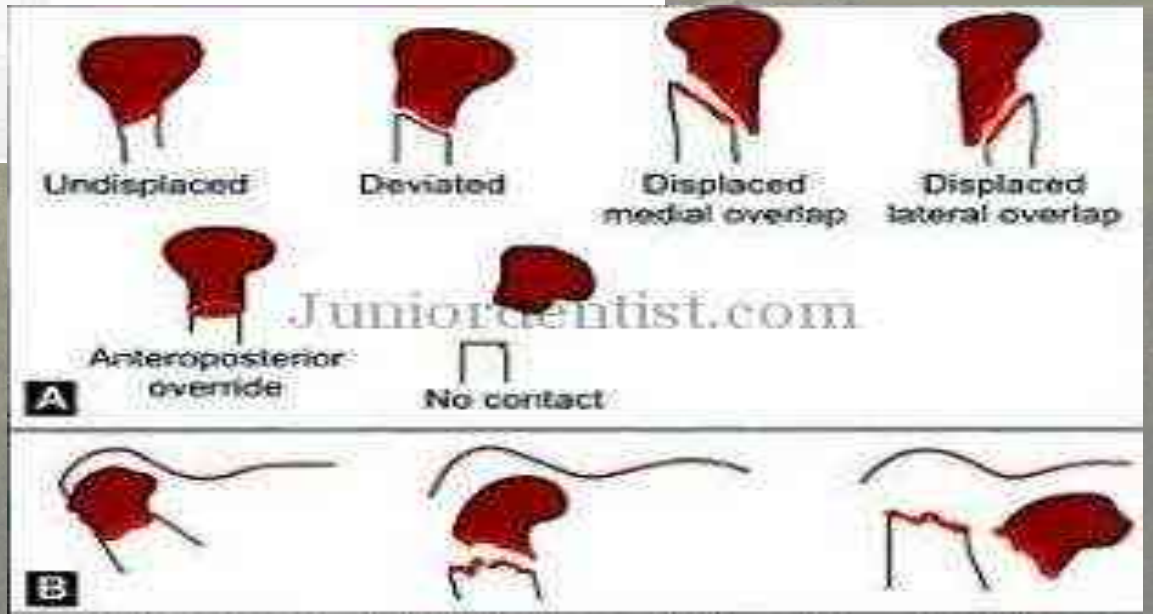
Signs and symptoms of mandibular fractures

Dentoalveolar fracture

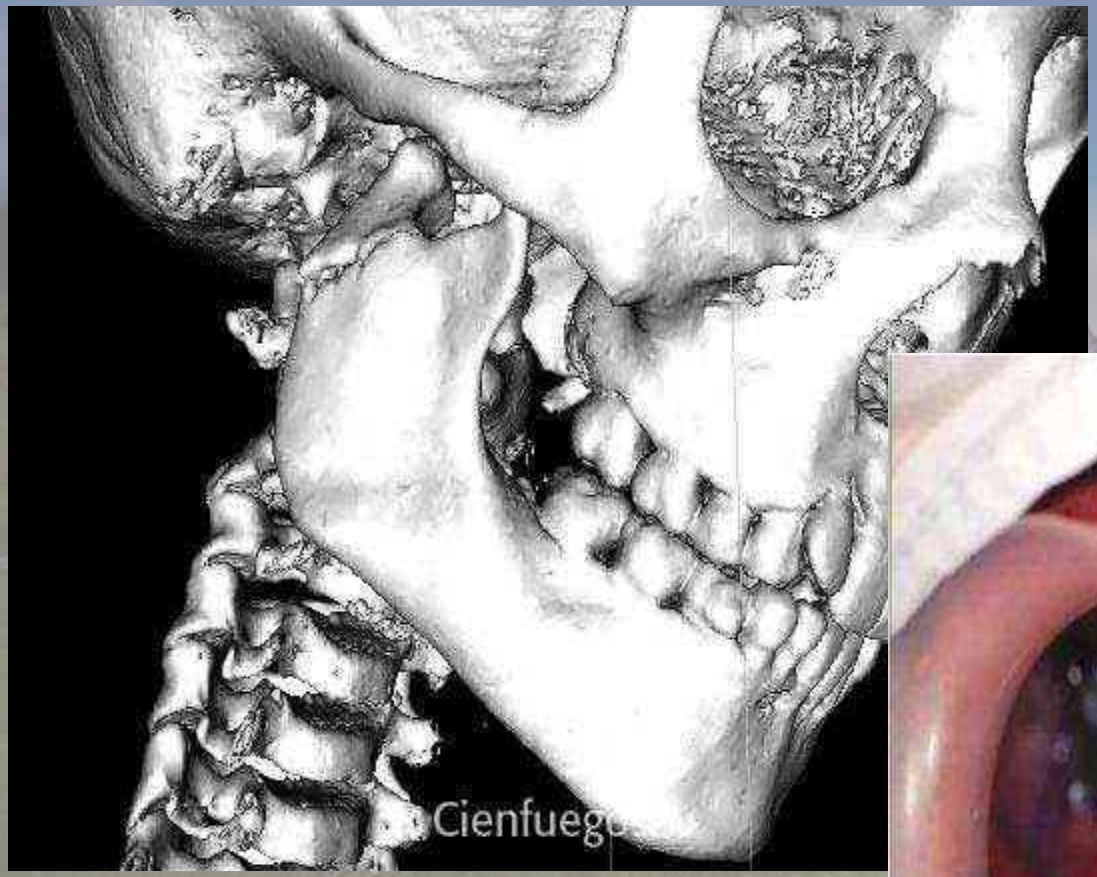


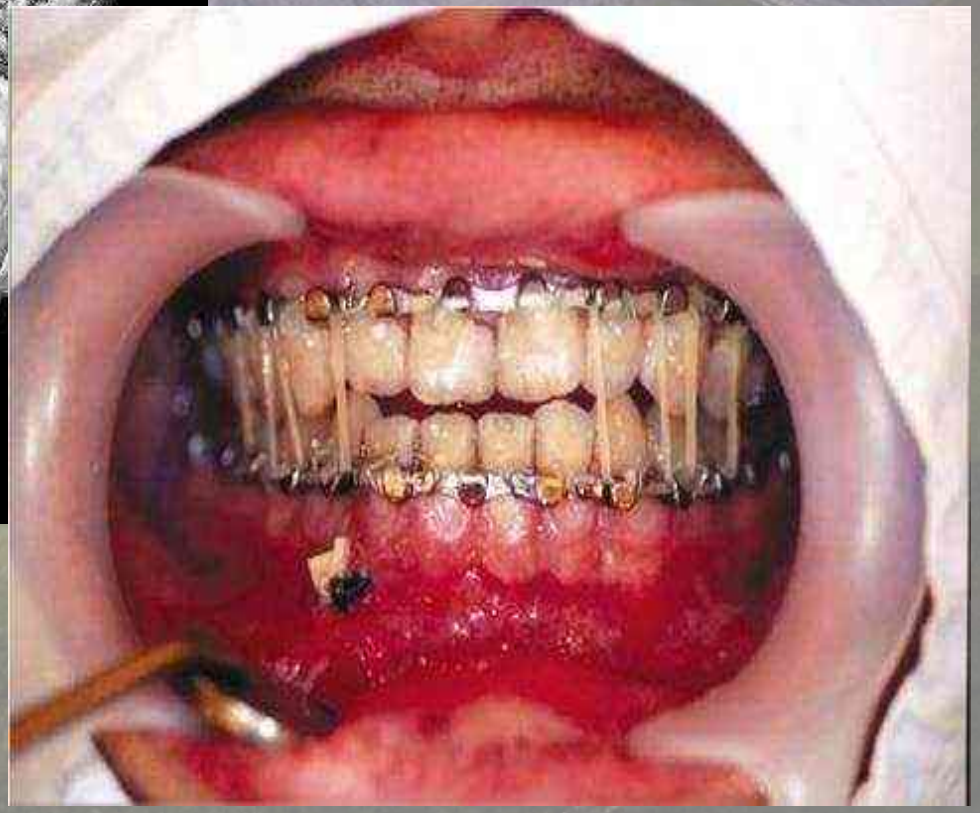
Condylar fracture





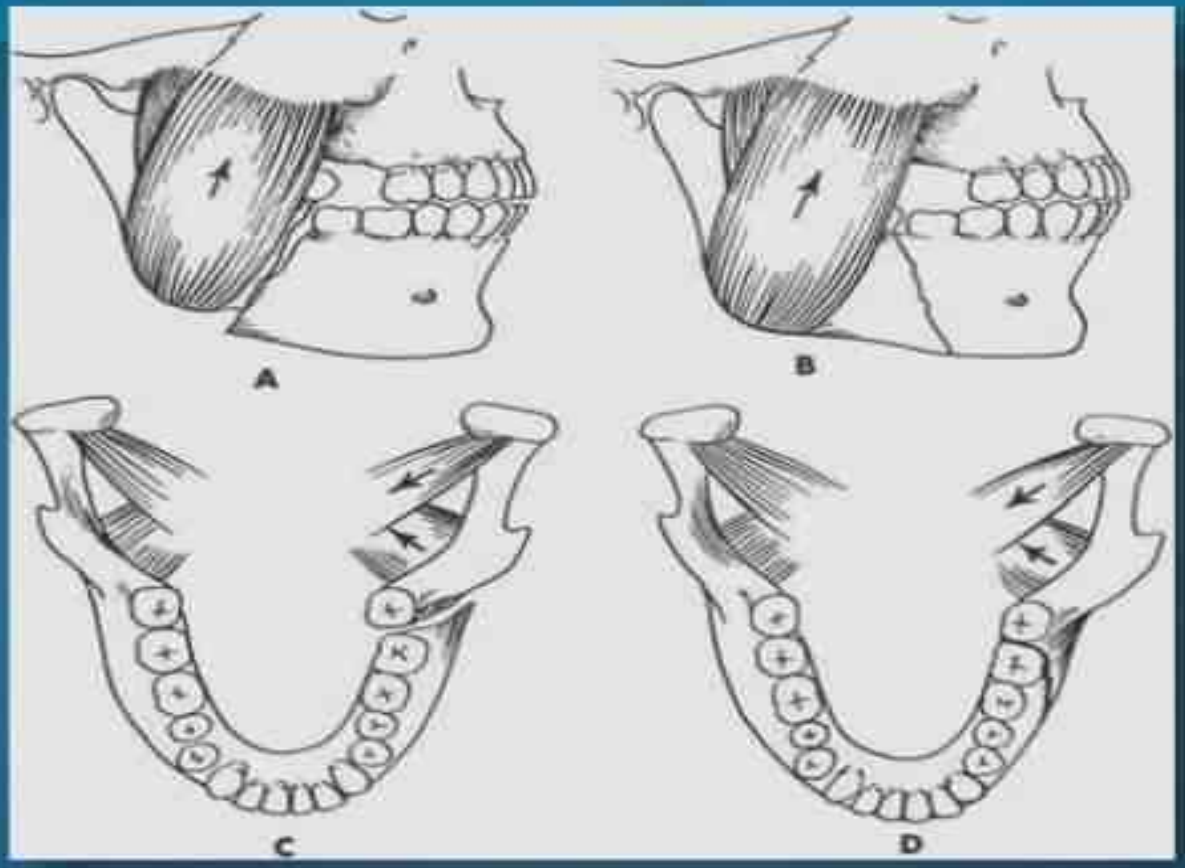
Condylar fracture





Elastic traction

Angle fracture



Favorable / Unfavorable Fracture Lines

Radiographical examination

1. Intra oral radiograph

a. Periapical
b. Occlusal and oblique occlusal

2. extra-oral radiograph

Oblique lateral
Postero-anterior
Opg
Reverse town view
TMJ view
CT scan
MRI

OPG

Occlusal view

Because of distortion in Symphysis Region in an OPG , an Occlusal View is indicated in Symphysial fractures

Also shows Vertical Favorability of Body Fractures

True lateral

Oblique lateral

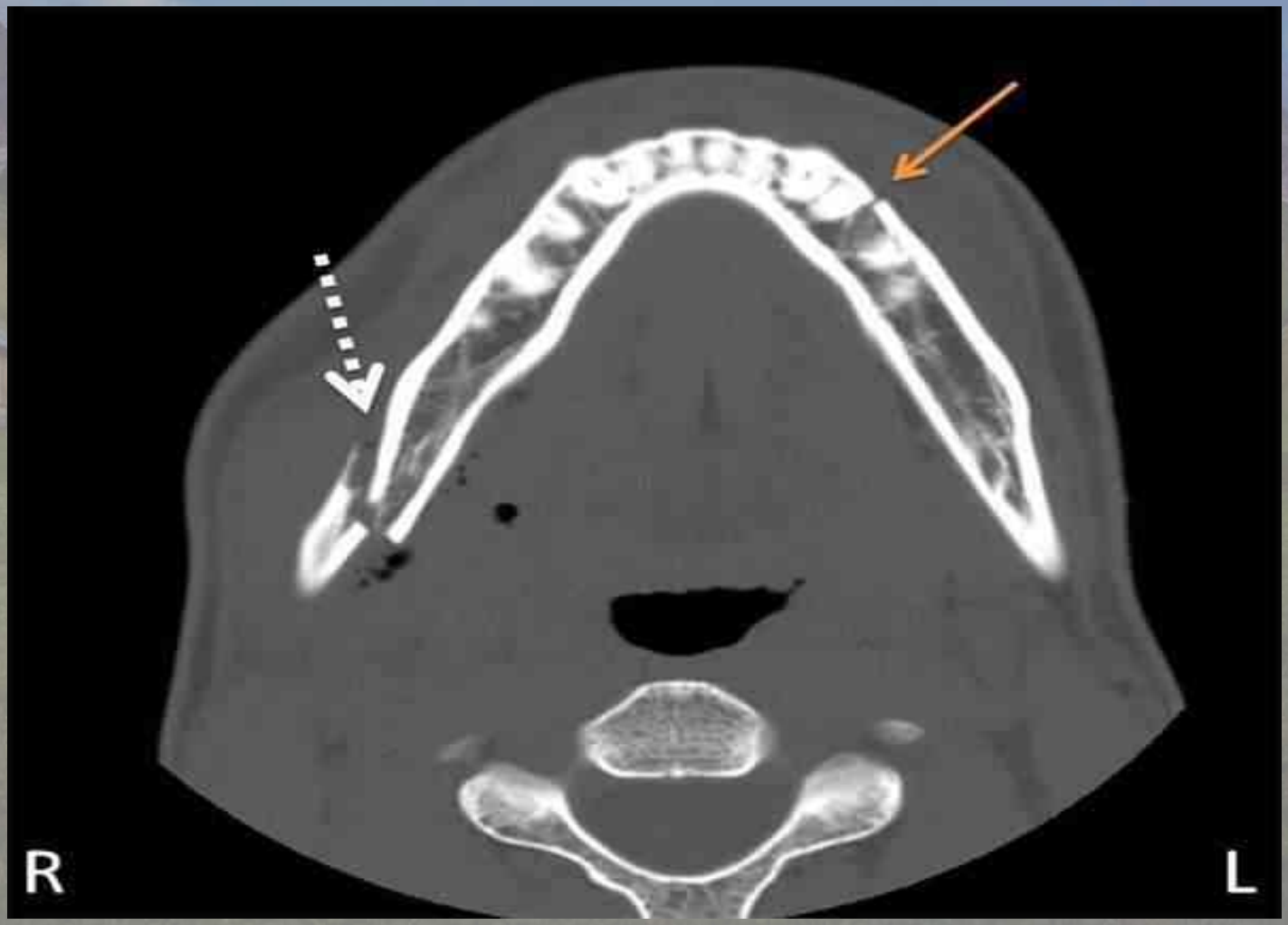
Postereo-anterior

Reverse Towne's

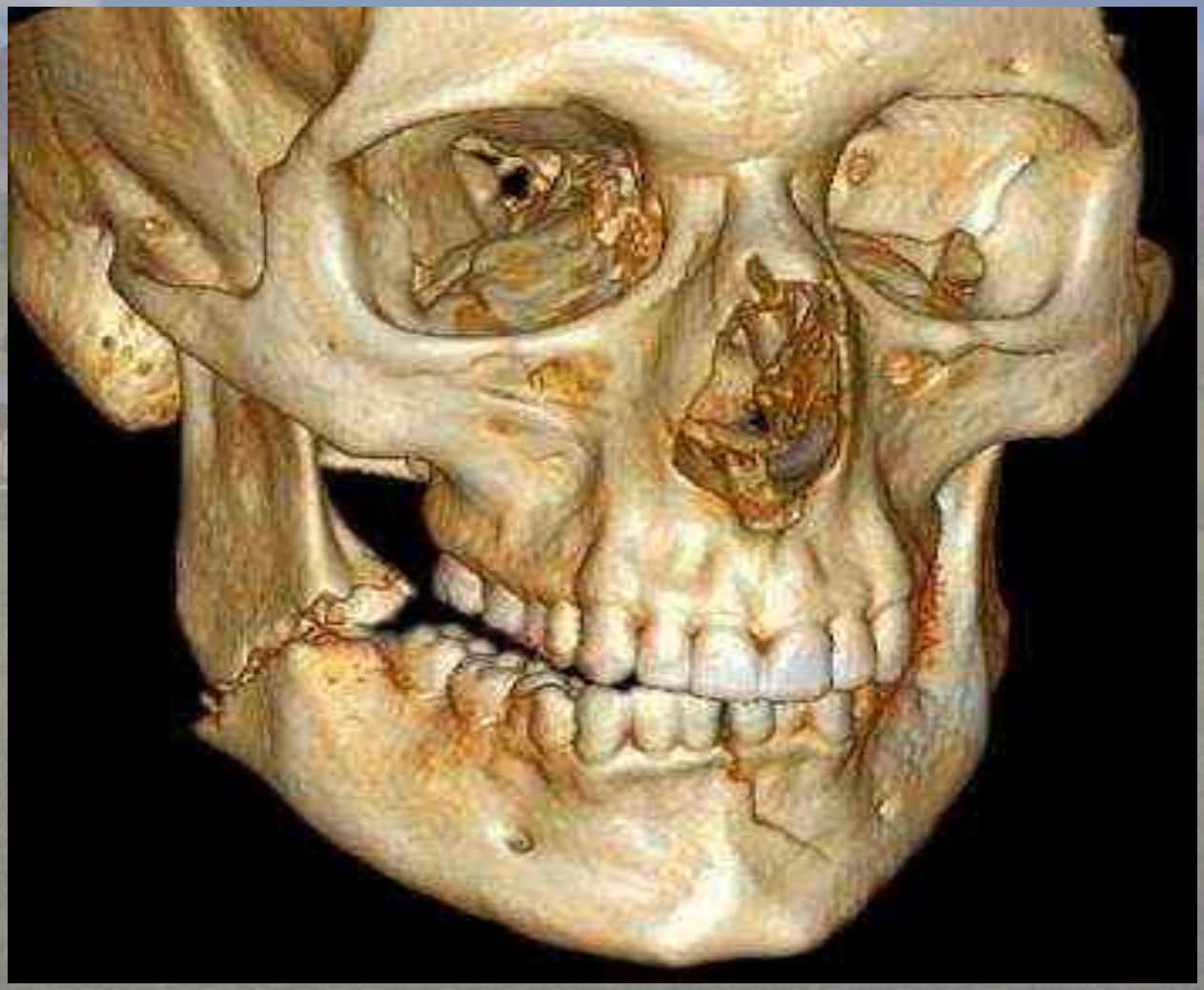
This projection shows the condylar heads and necks. The original Towne's view (an AP projection) was designed to show the occipital region, but also showed the condyles. However, since all skull views used in dentistry are taken conventionally in the PA direction, the *reverse Towne's* (a PA projection) is used.

Coronal view CT scan

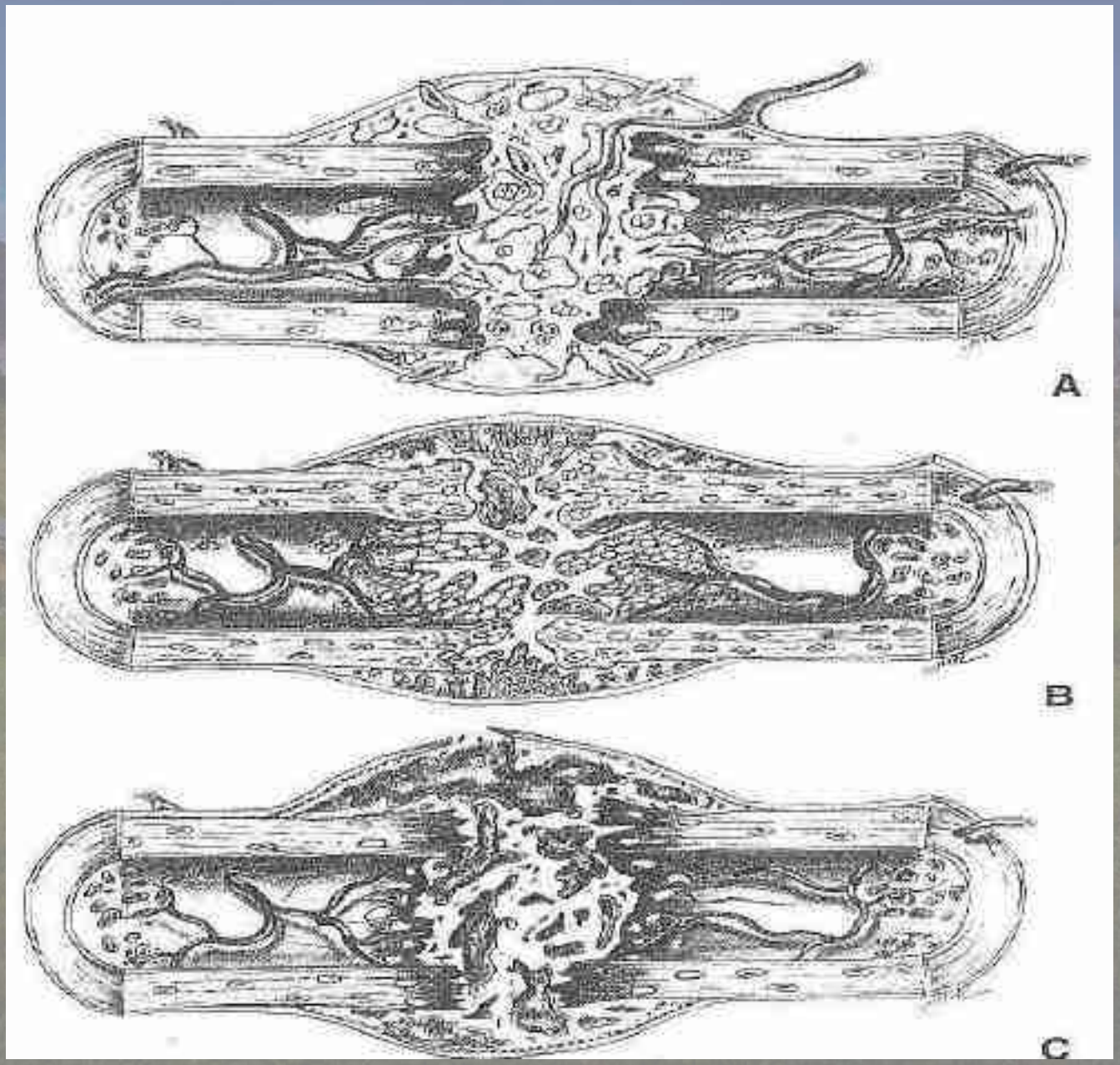
Axial view CT scan



3D Reconstruction CT scan




Definitive treatment

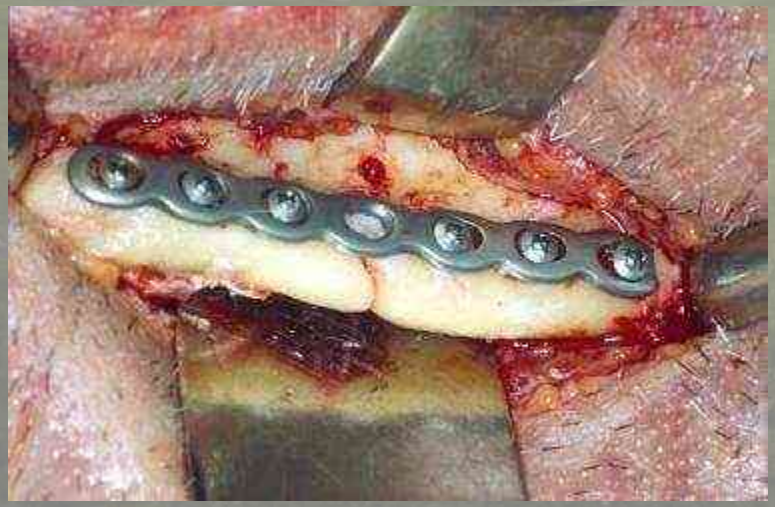

A
B
C

Definitive treatment

- Reduction
- Fixation
- Immobilization
- Follow up and rehabilitation

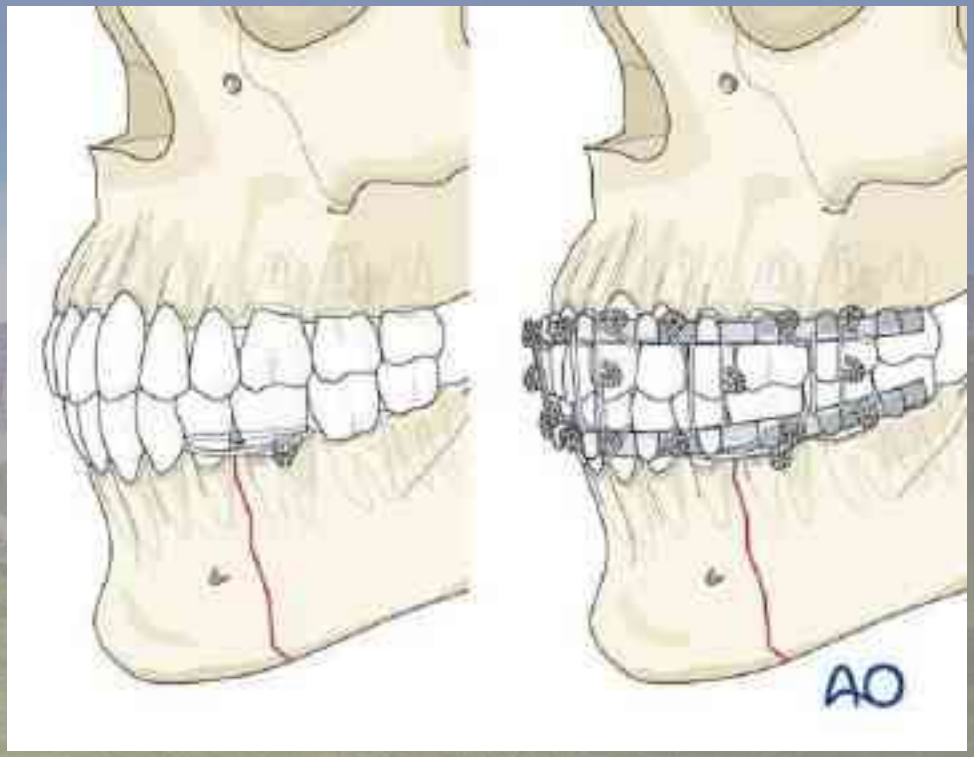
Reduction

- *Closed reduction*
- *Open reduction*



Closed reduction techniques:

Indications:



- Non-displaced favorable fractures.
- Limited facilities for open treatment.
- Medically compromised patients
- Grossly infected fractures.
- Pediatric fractures with mixed dentition phase.


R
L

Closed reduction techniques:

Advantages of closed treatment

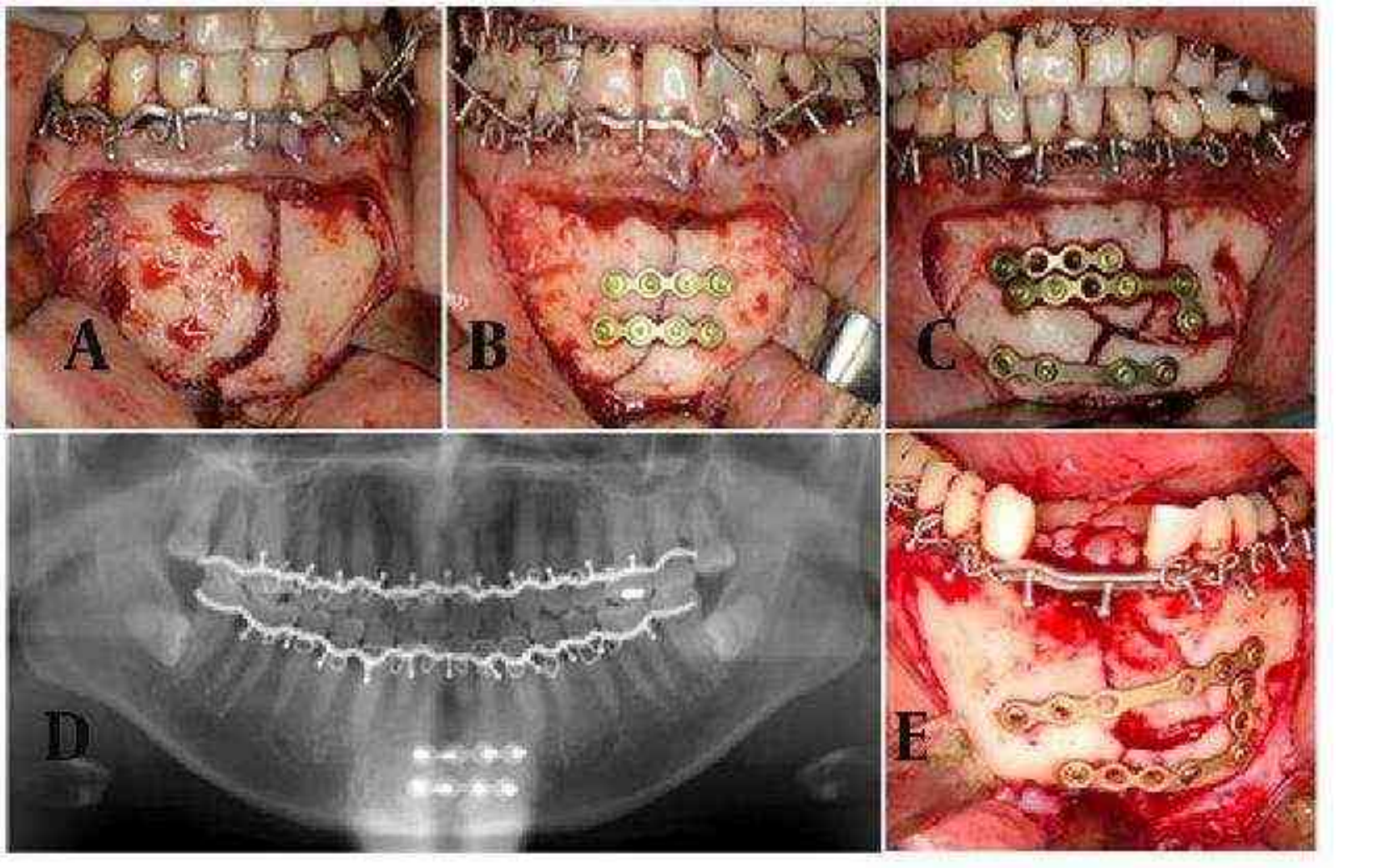
- Non-invasive, simple, easy to master.
- can be performed under local anesthesia.
- less expensive.

Disadvantage:

- **Malunion,non union.**
- **difficult in cases of malocclusion, missing, diseased, or damaged teeth.**
- **induces morbidity to the patient due to the IMF affecting feeding and speech**

contraindicated in some conditions e.g., epilepsy, chronic respiratory diseases, incompliant patient, or chronic alcohol or drug abuse.

Open reduction techniques



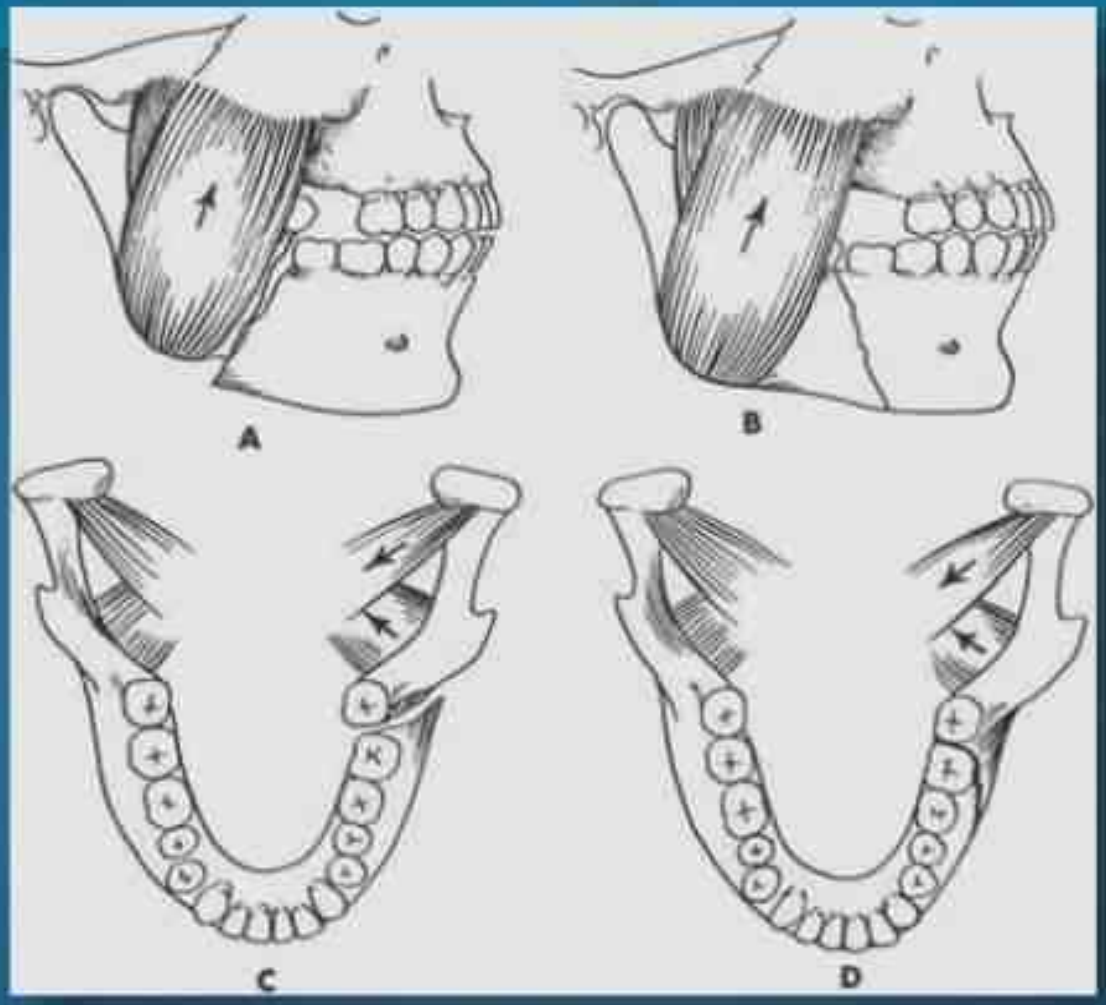
Open reduction techniques

The main indications for open treatment:

- Displaced unfavorable fractures.
- Multiple fractures of the facial bones
- Fractures of an edentulous mandible with severe displacement.
- Delay of treatment and interposition of soft tissue between non-contacting displaced fracture fragments.
- Special systemic conditions contraindicating IMF .

Advantage:

- Eliminate the need for prolong IMF.
- Return early function.
- Primary bone healing after use rigid fixation.



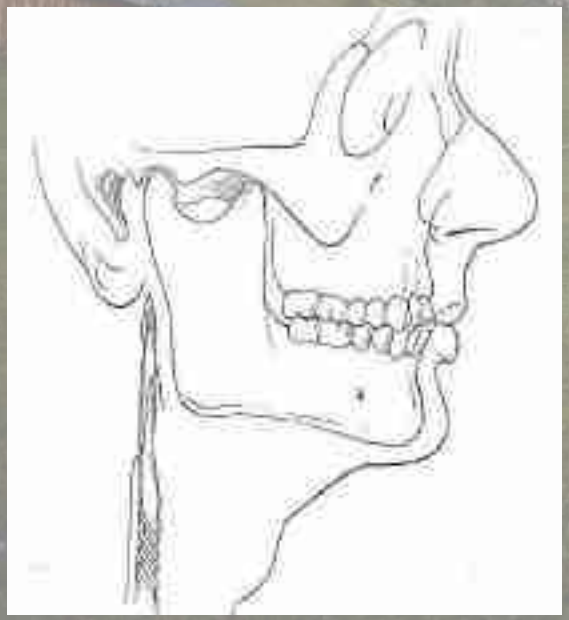
Favorable / Unfavorable Fracture Lines

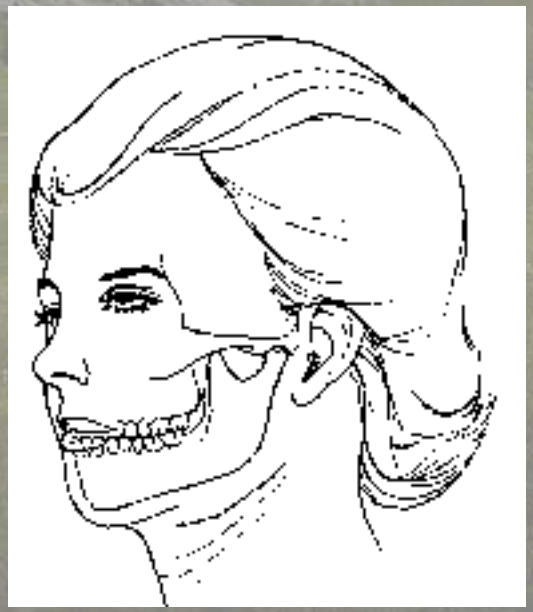
Surgical approaches

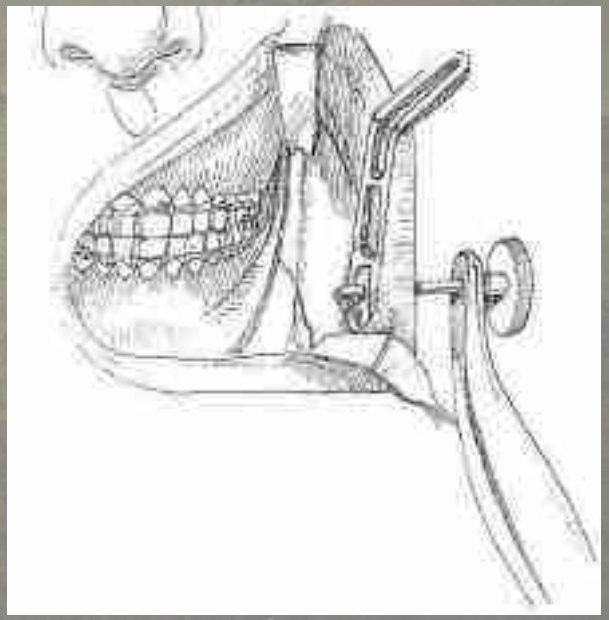
1-transoral.

2-submandibular.

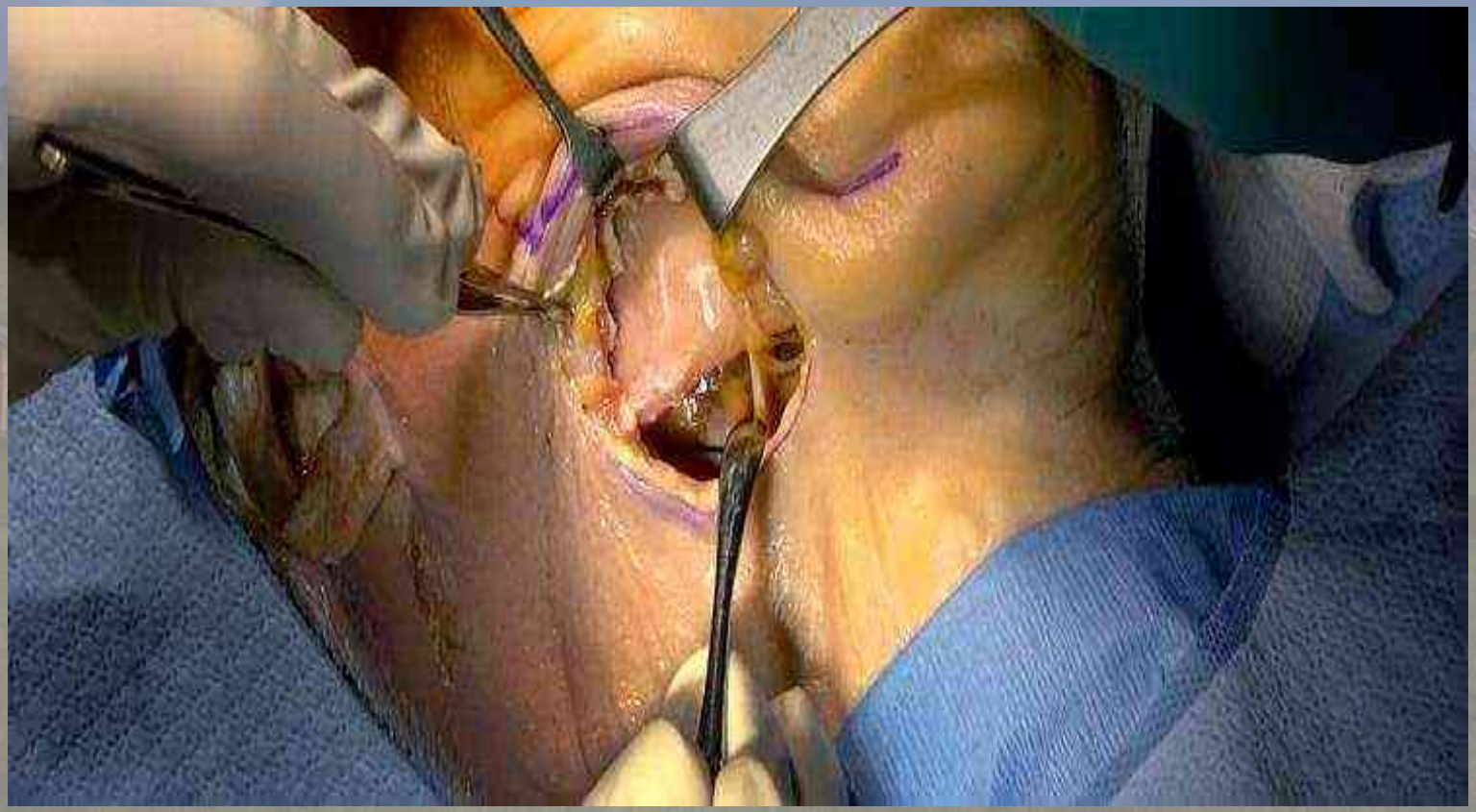
3-retromandibular



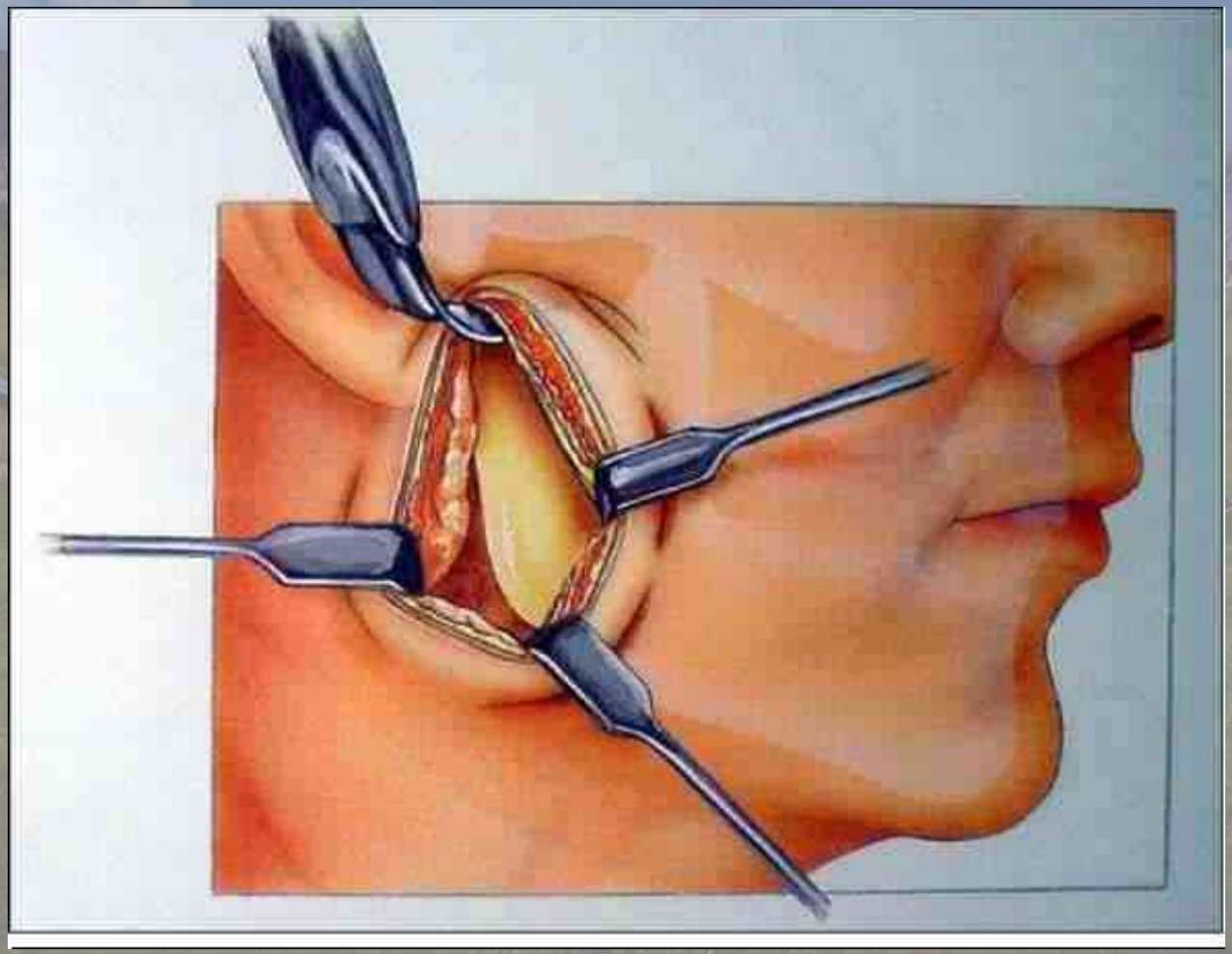




Surgical approaches



Surgical approaches



Fixation and immobilization

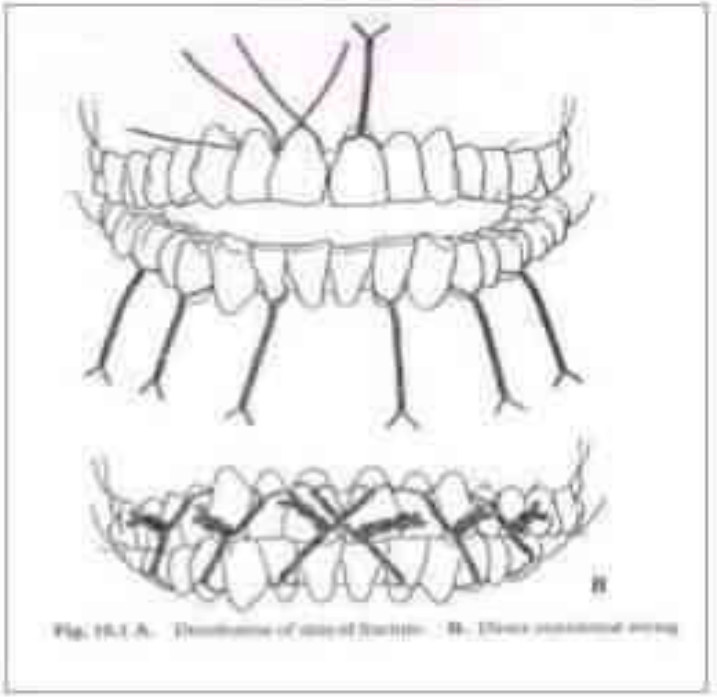
1. Dental wiring
a. Direct wiring
b. Eyelet wiring
2. Arch bar
3. Cap splint
4. Gunning type splint
6. Bone plating
7. Transosseous wiring
8. k-wire
9. Extra oral pin fixation

Direct interdental wiring

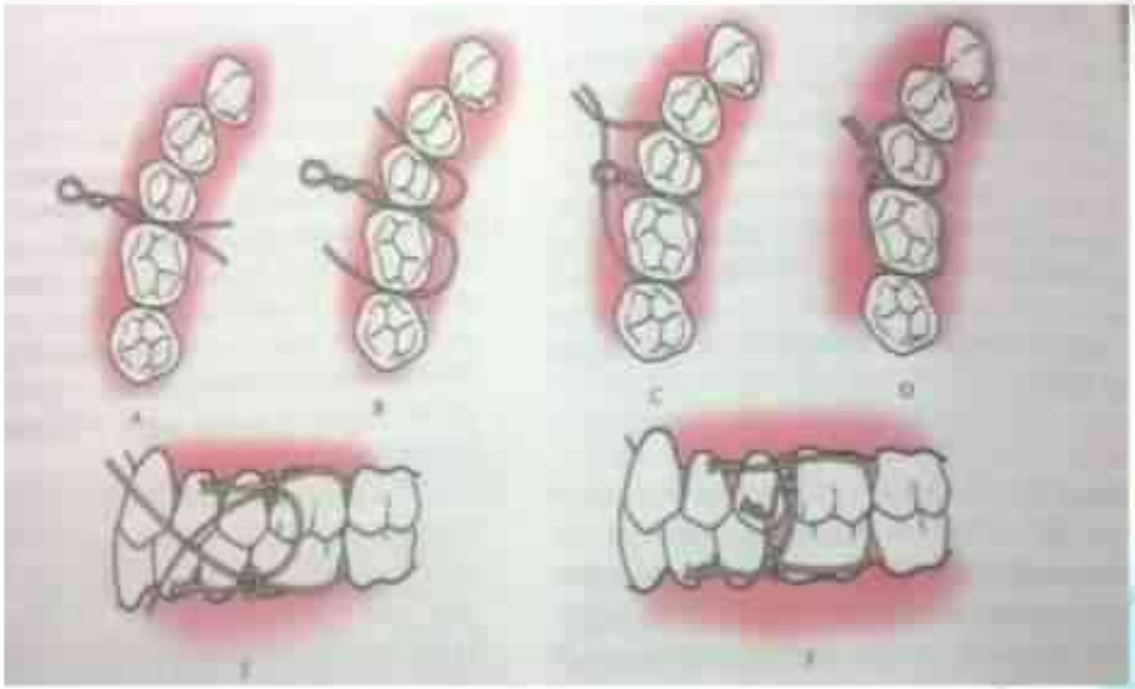
- **Gilmer's wiring**
- simple & rapid method of immobilization jaw
- first aid method
- temporary immobilization of # fragment

Disadvantage

- complete removal of wires
- extrusion of teeth



Ivy's Eyelet Wiring

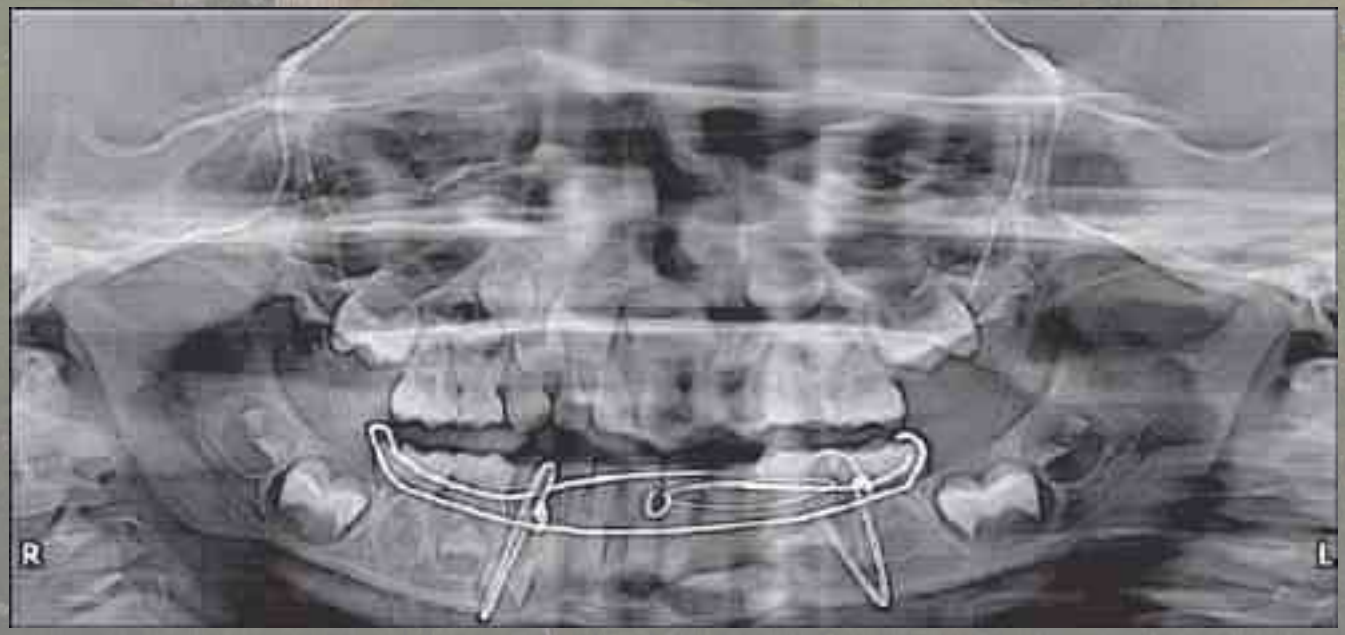


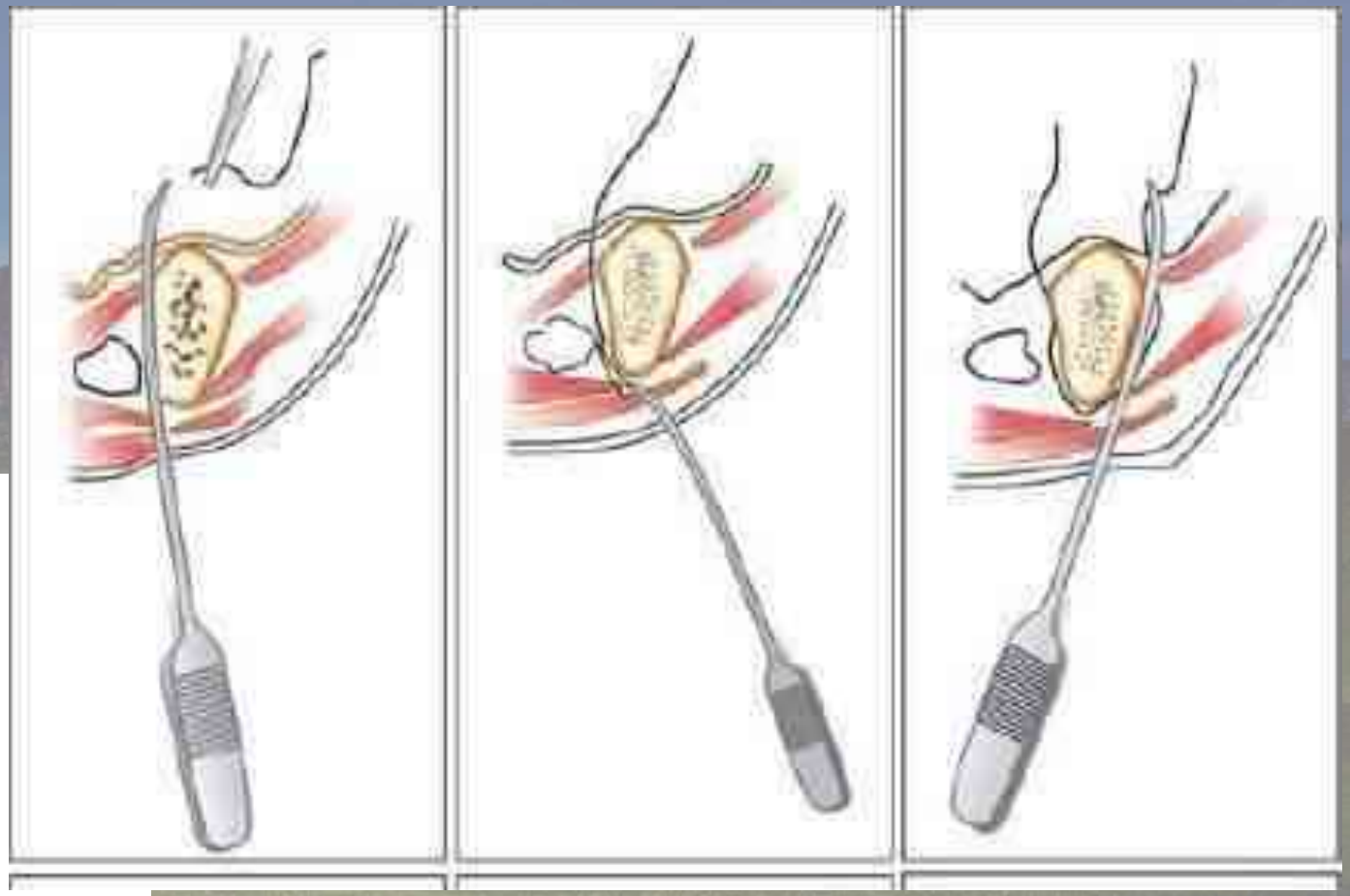
Fixation and immobilization

2. Arch bar

Fixation and immobilization

3. Cap splint



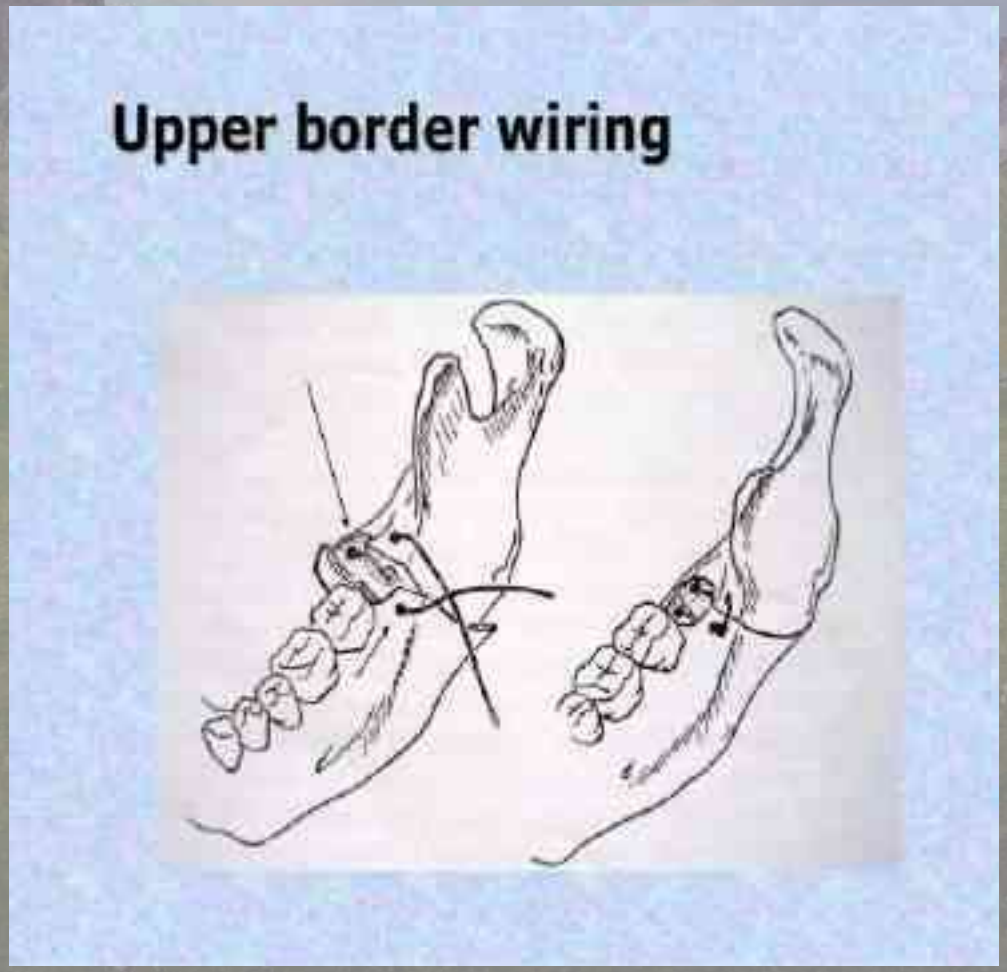


Fixation and immobilization

4. Gunning type splint

Fixation and immobilization

5. Transosseous wiring



Fixation and immobilization

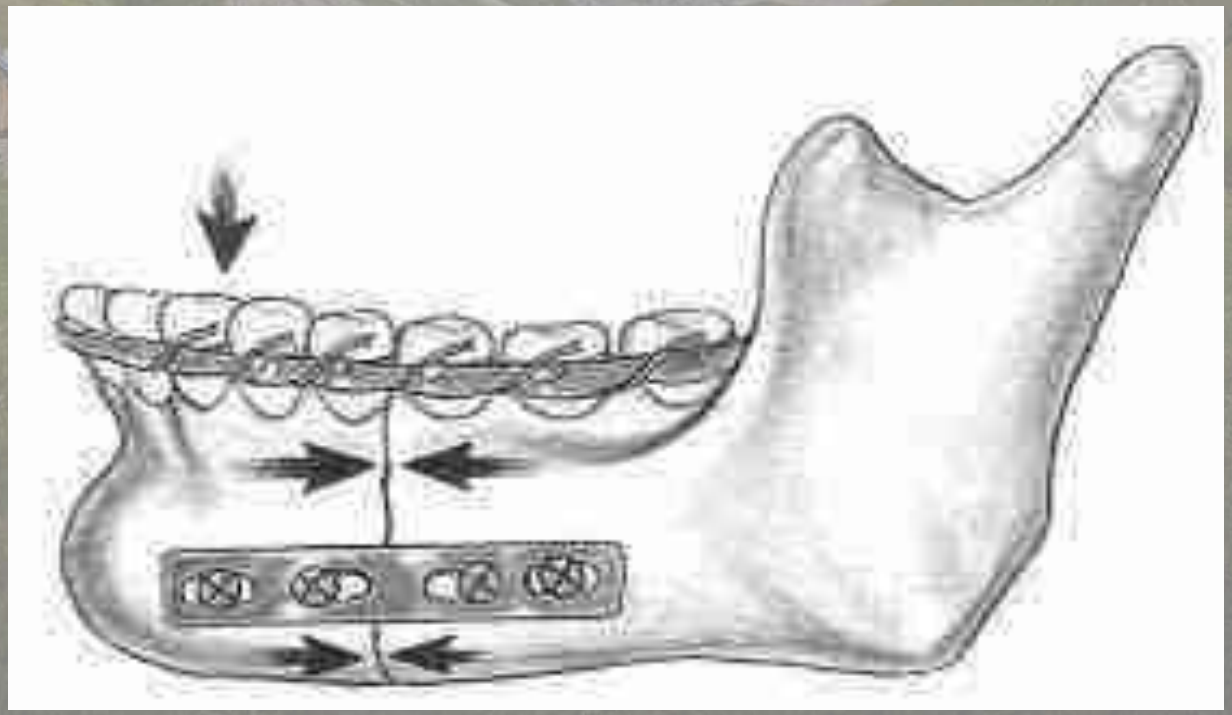
6. Bone plating

- **miniplates**

Fixation and immobilization

6. Bone plating

- **Compression plates**



Fixation and immobilization

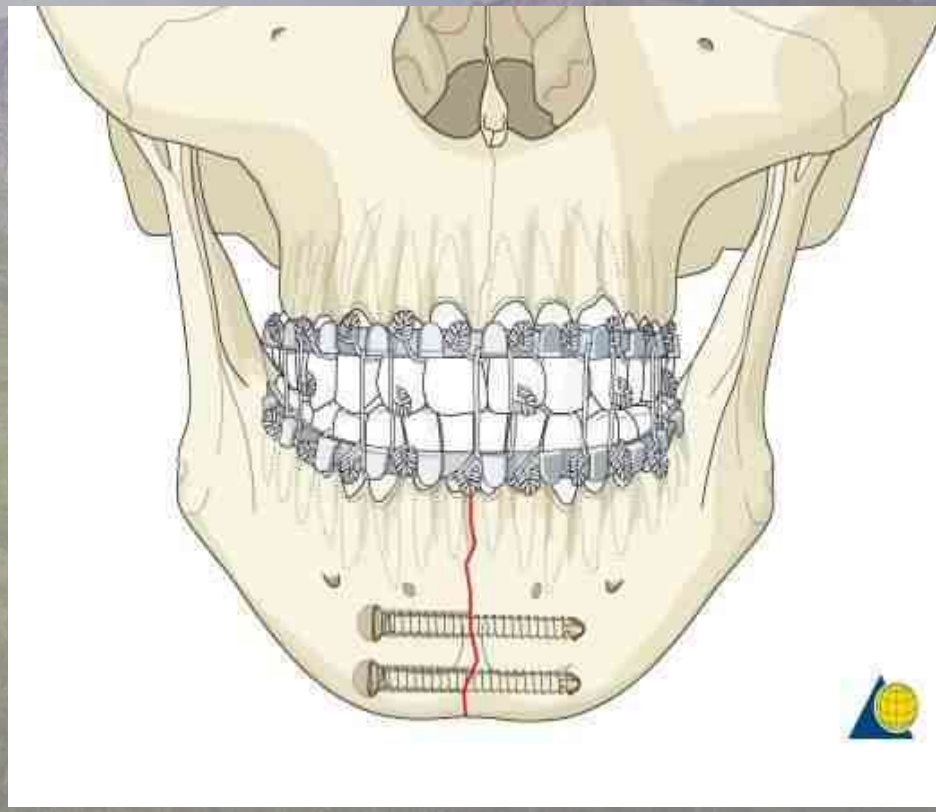
6. Bone plating

- **Reconstruction plates**

Fixation and immobilization

8. k-wire

1. Indication:-perpendicular fracture of anterior mandible that provide stable buttressing.



- Advantage:-
- They are cost effectiveness and regarded as on of reliable methods of rigid fixation.
- Disadvantage:

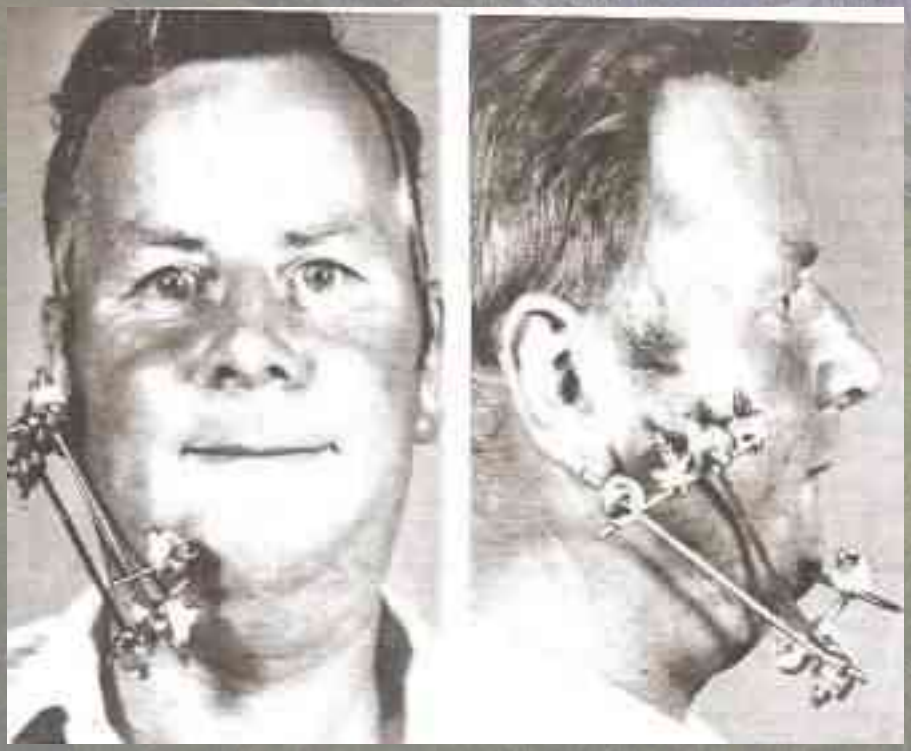
➢ Not ideal for oblique fractures and cause displacement.

➢ Potential injury to inferior alveolar nerve and tooth roots.

External fixation

Indications

- comminuted fracture mandible.
- atrophic mandible.
- infectetion .



Rigid vs semi-rigid fixation

1-semi-rigid fixation

- uses miniplate and monocortical screws along lines of osteosynthesis described by Champy.

2-rigid fixation

- uses bicortical screws and rigid plates along inferior or posterior border.

Tooth in fracture line

- **It affect on healing of fracture due to :**

1. **Fracture compound into the mouth via periodontal membrane**
2. **Blood supply to the tooth may damaged causing pulp necrosis and infection**
3. **Pre-existing pathological lesions**

Indications for removal of a tooth in fracture line

Absolute indications

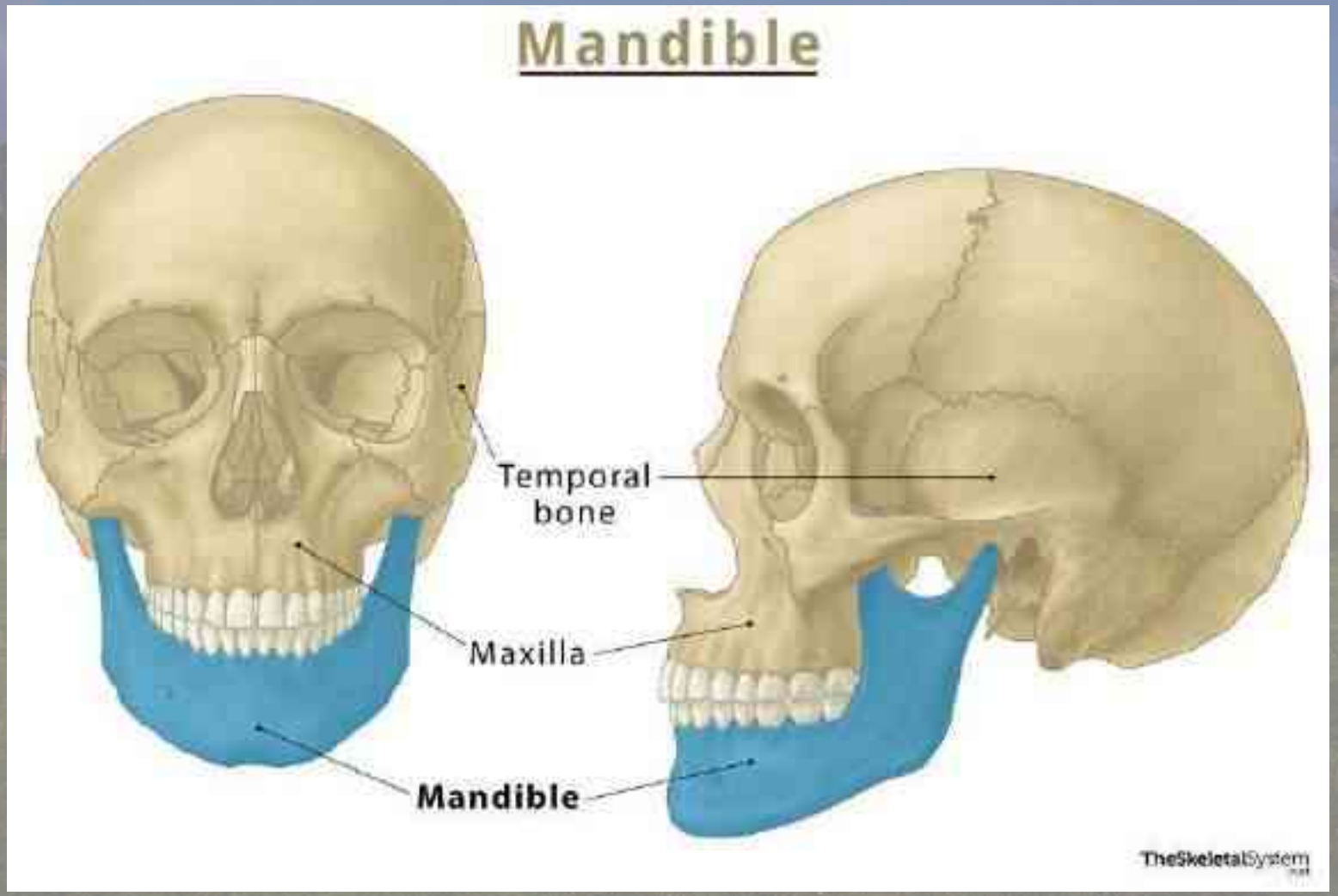
a. Longitudinal fracture of tooth involving the root
b. Subluxation of the tooth from its socket
c. Presence of periapical infection
d. Infected fracture line
e. Acute pericoronotis
f. Advanced periodontal disease

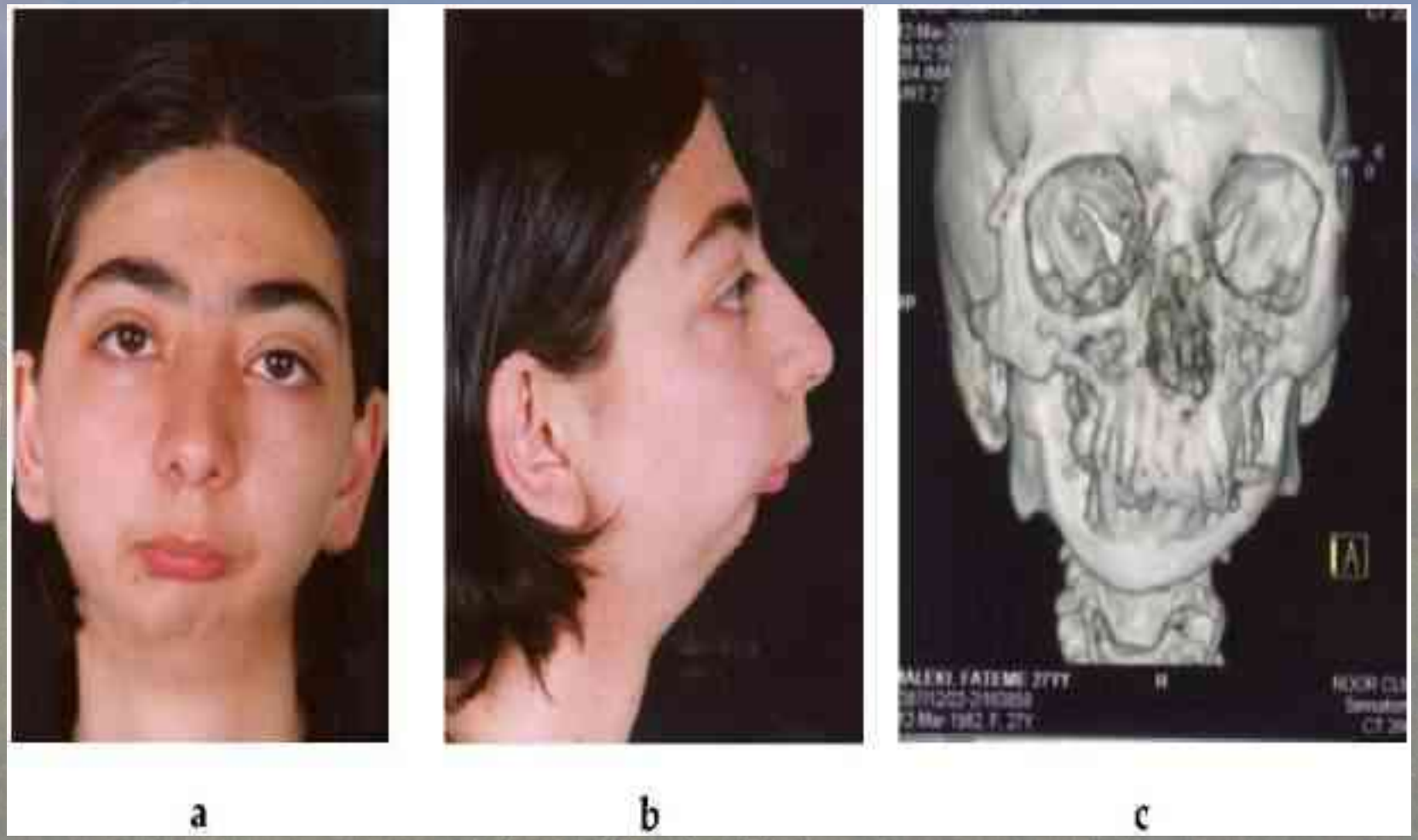
Relative indications :

a. Functionless tooth
b. Advanced caries
c. Doubtful teeth that could be added to existing dentures.

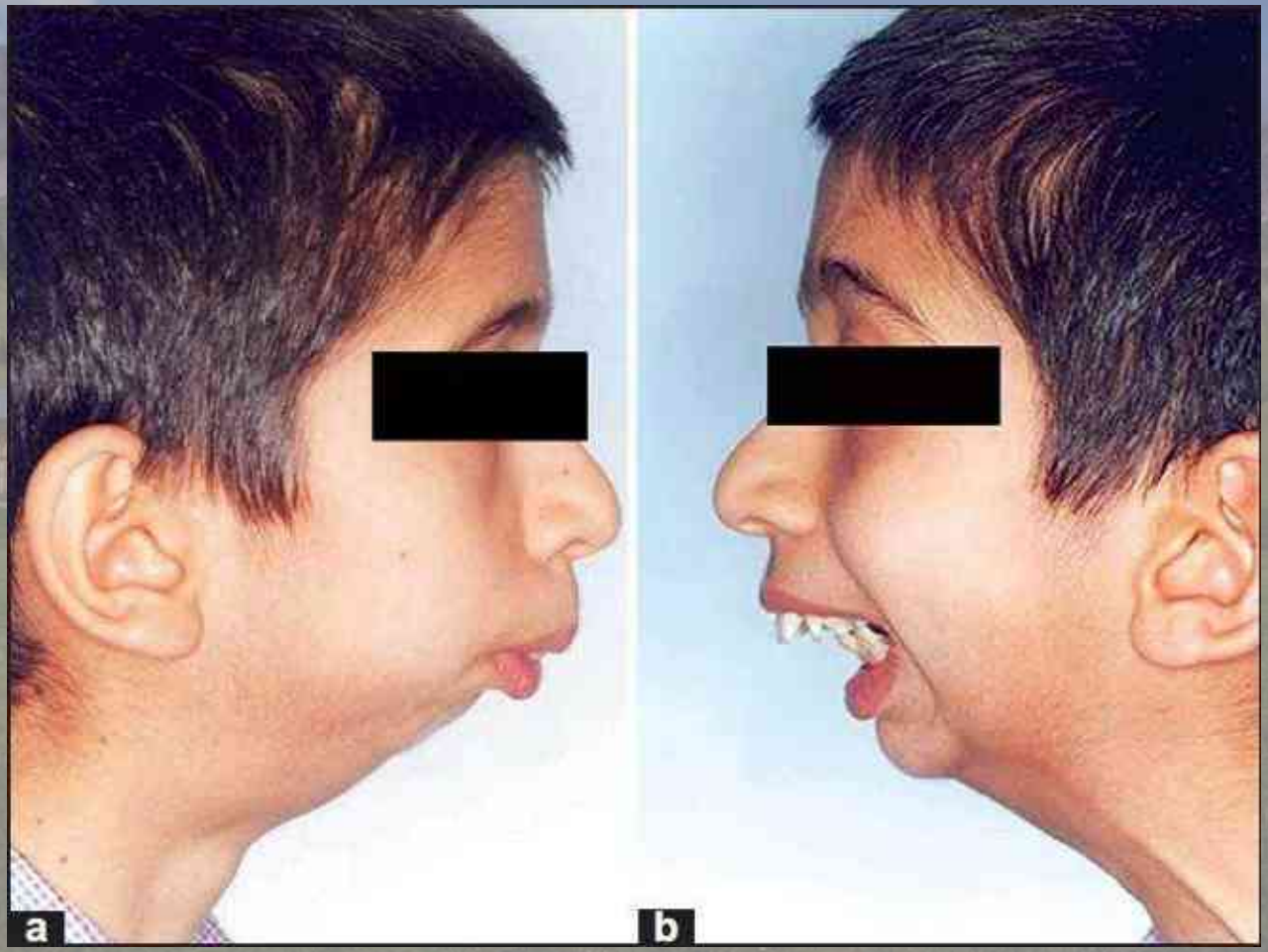
Treatment of condylar fracture:-

Elastic traction


Mandible
Temporal bone
Maxilla
Mandible
TheSkeletalSystem



a b c


a
b

Treatment of condylar fracture:-

Definitive treatment of Condylar region fracture

	Intracapsular		Extracapsular	
	Unilateral	Bilateral	Unilateral	Bilateral
Children	Active movements No immobilization		IMF for up to 10 days followed by active movements	
Adults	Early movement. Up to 2 weeks immobilization if painful	IMF for no more than 2 weeks. Intermittent IMF with night elastics for further 4 weeks	IMF for 4 weeks if occlusion is altered otherwise no active treatment	IMF for 4-6 weeks until occlusion is stable. Some cases may benefit from open reduction

Complications of mandibular fracture

1. Parasthesia
2. Scar
3. Occlusal derrangment
4. Ankylosis
5. Mal-union ,non union
6. Pyogenic infection
7. Traumatic myositis ossificans of the masseter muscle

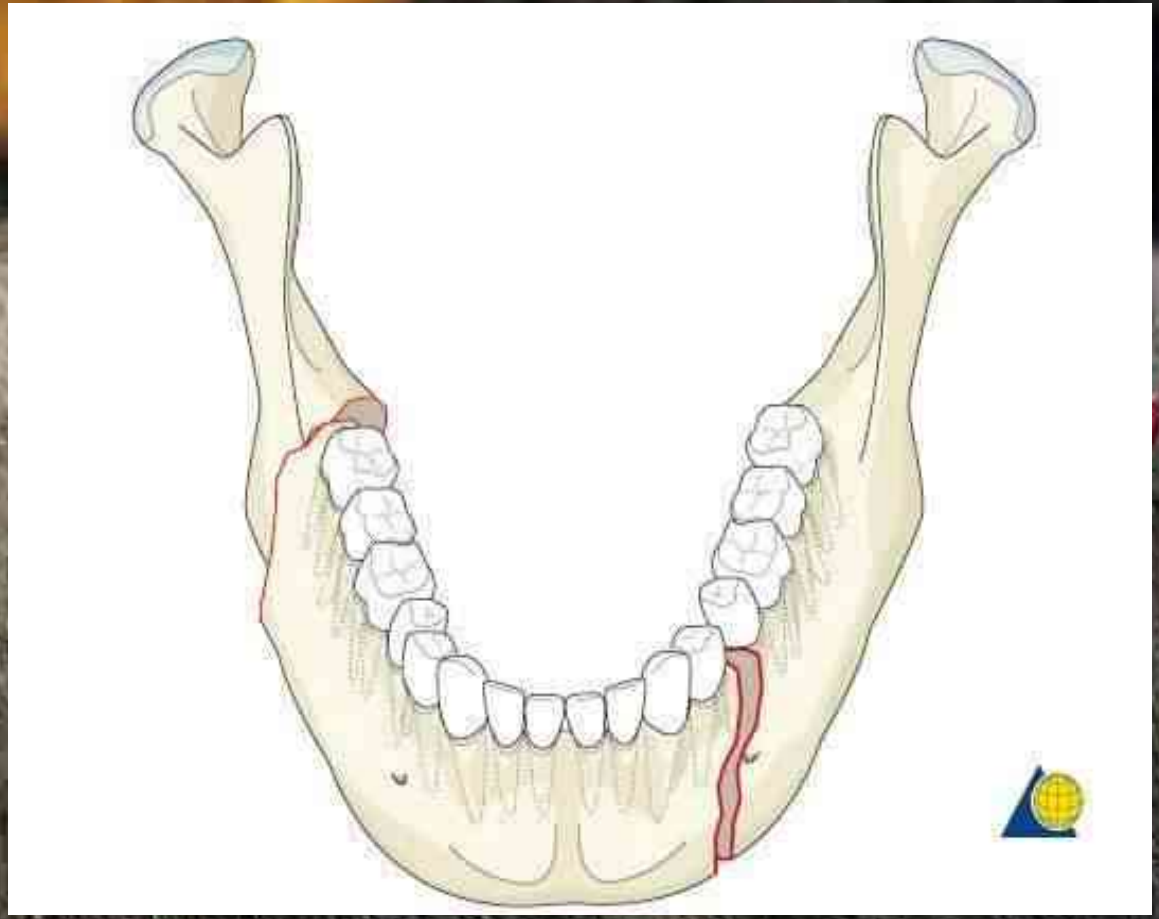

Thank you for listening

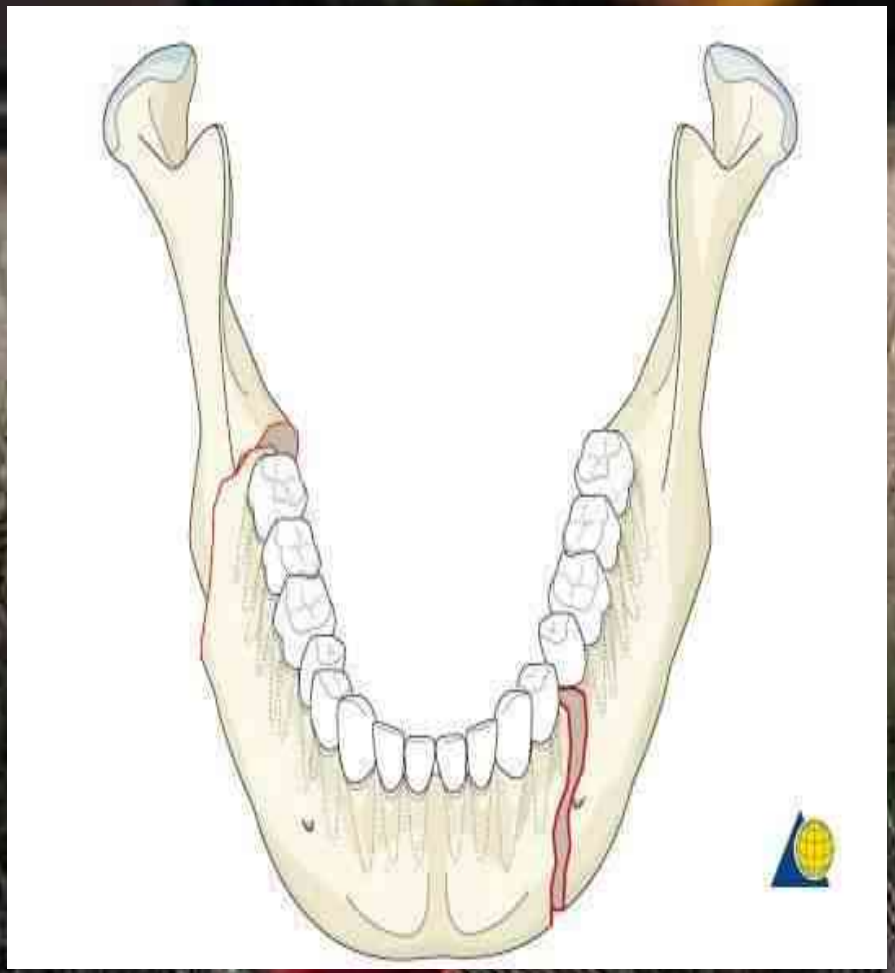

Management of midfacial fractures
Dr.Mohammed Rhael Ali
(Maxillofacial surgeon)
Tikrit dentisytry college

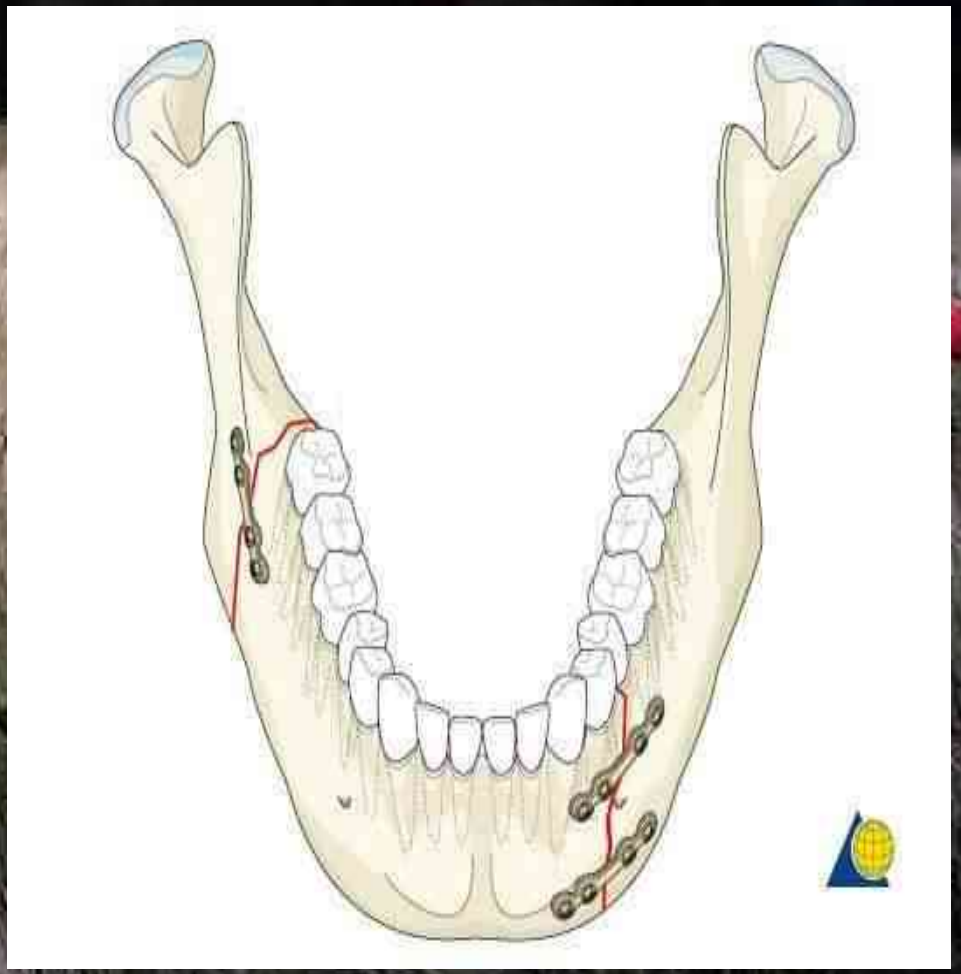

Priority to saving patient life (ABC)

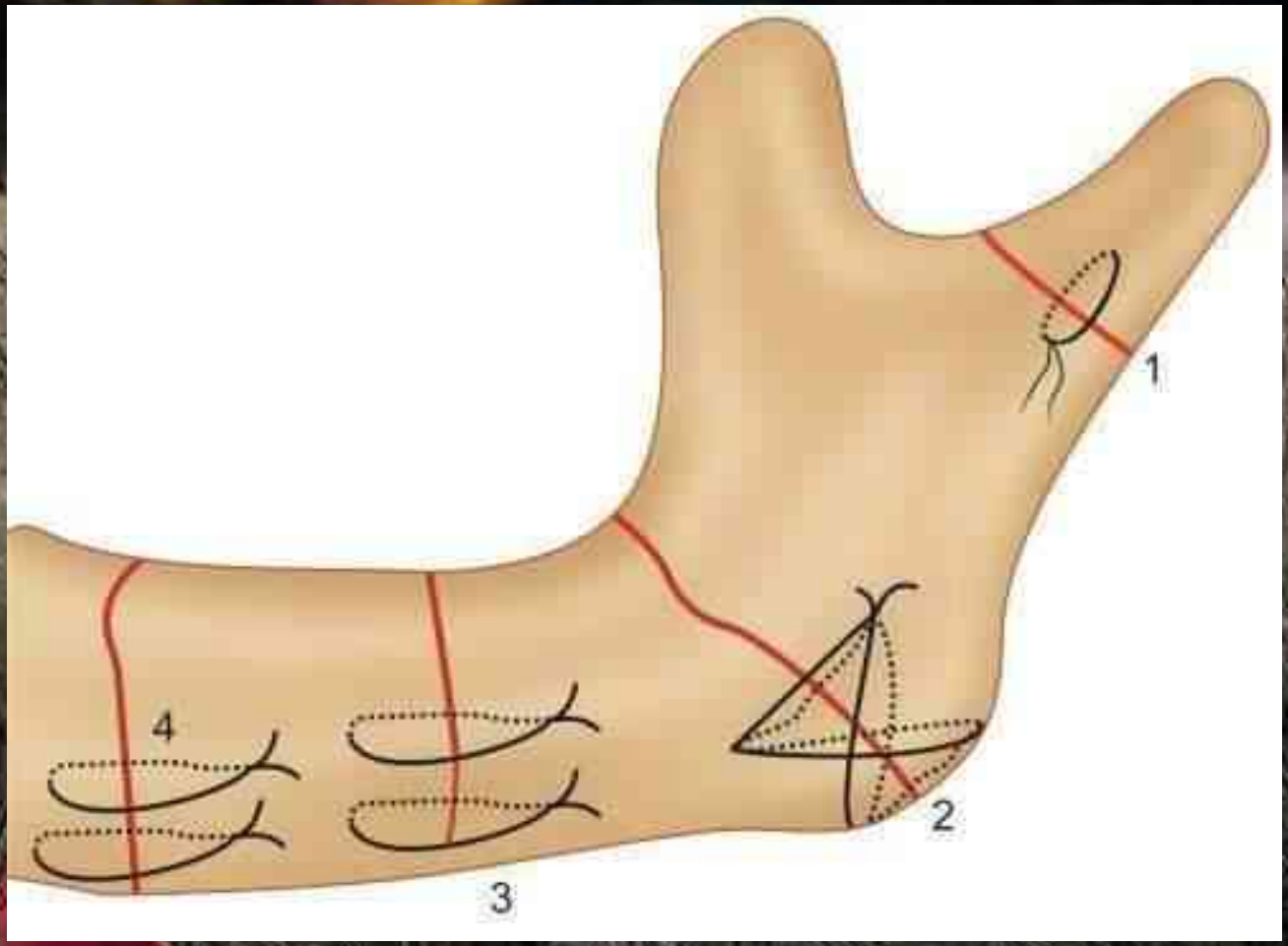
Principle of fractures management

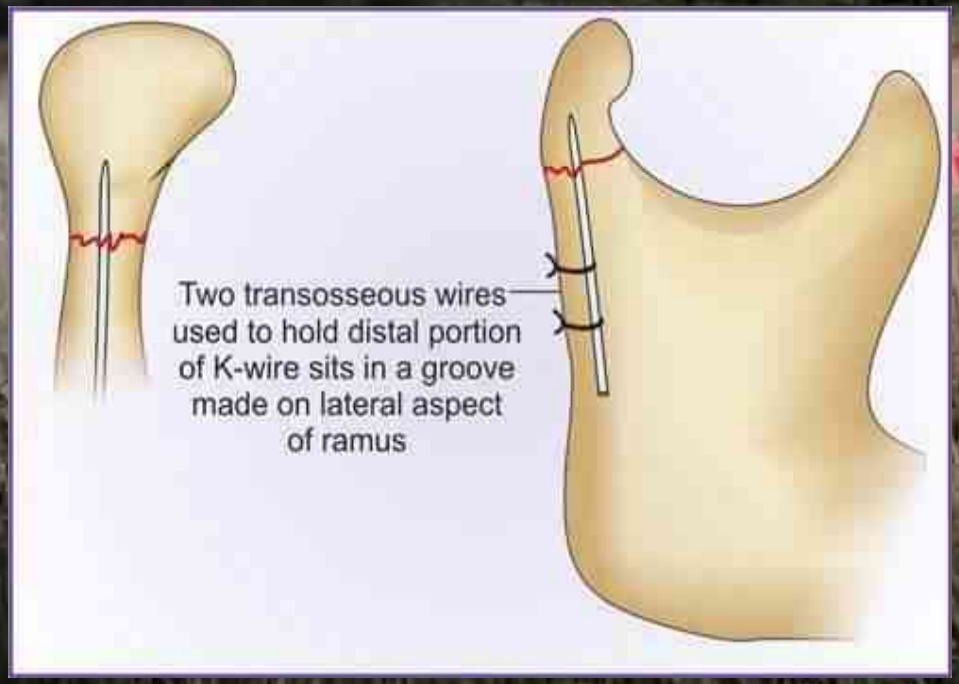
- Reduction
- Fixation
- Immobilization
- Follow up and rehabilitation

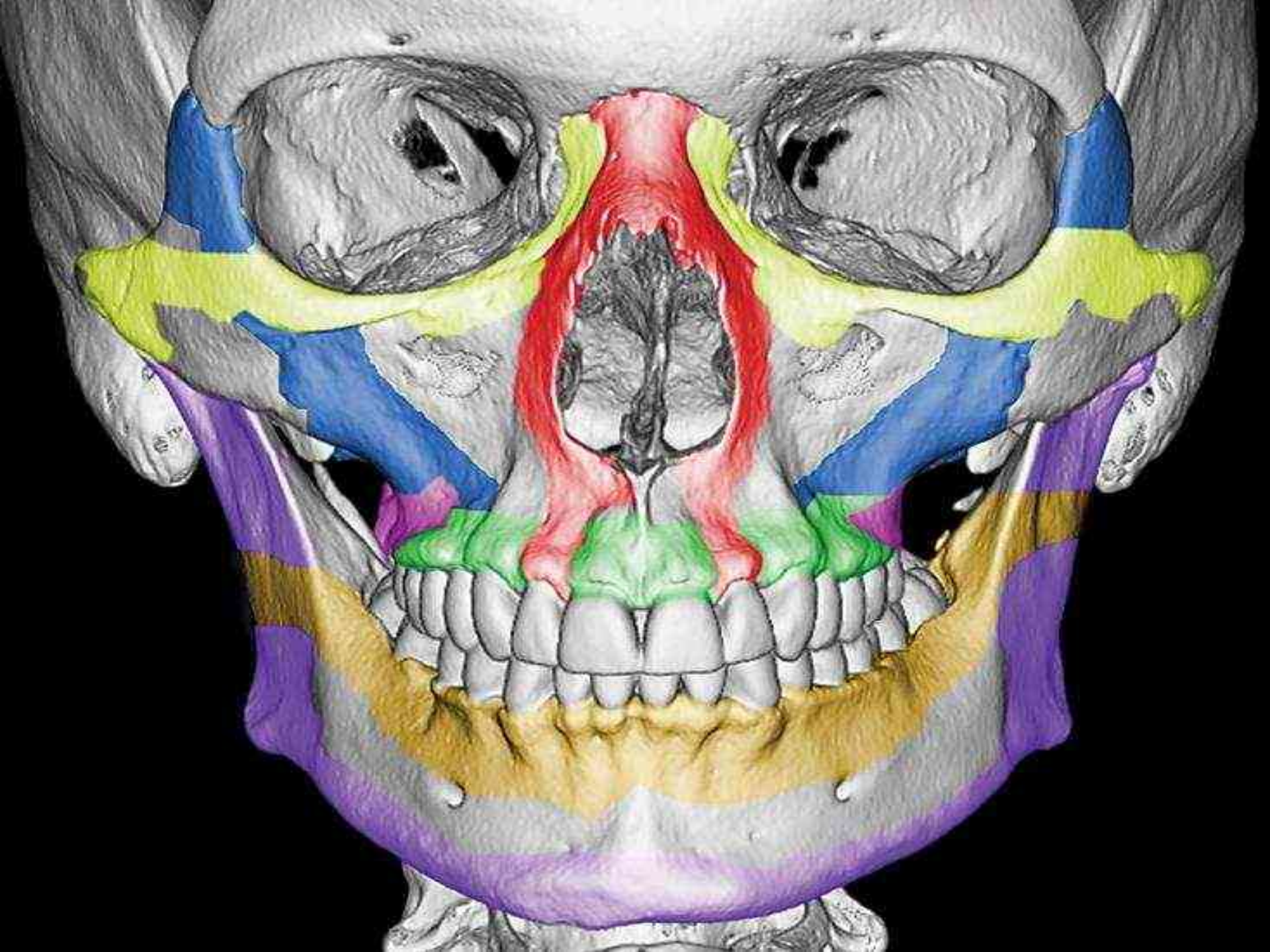




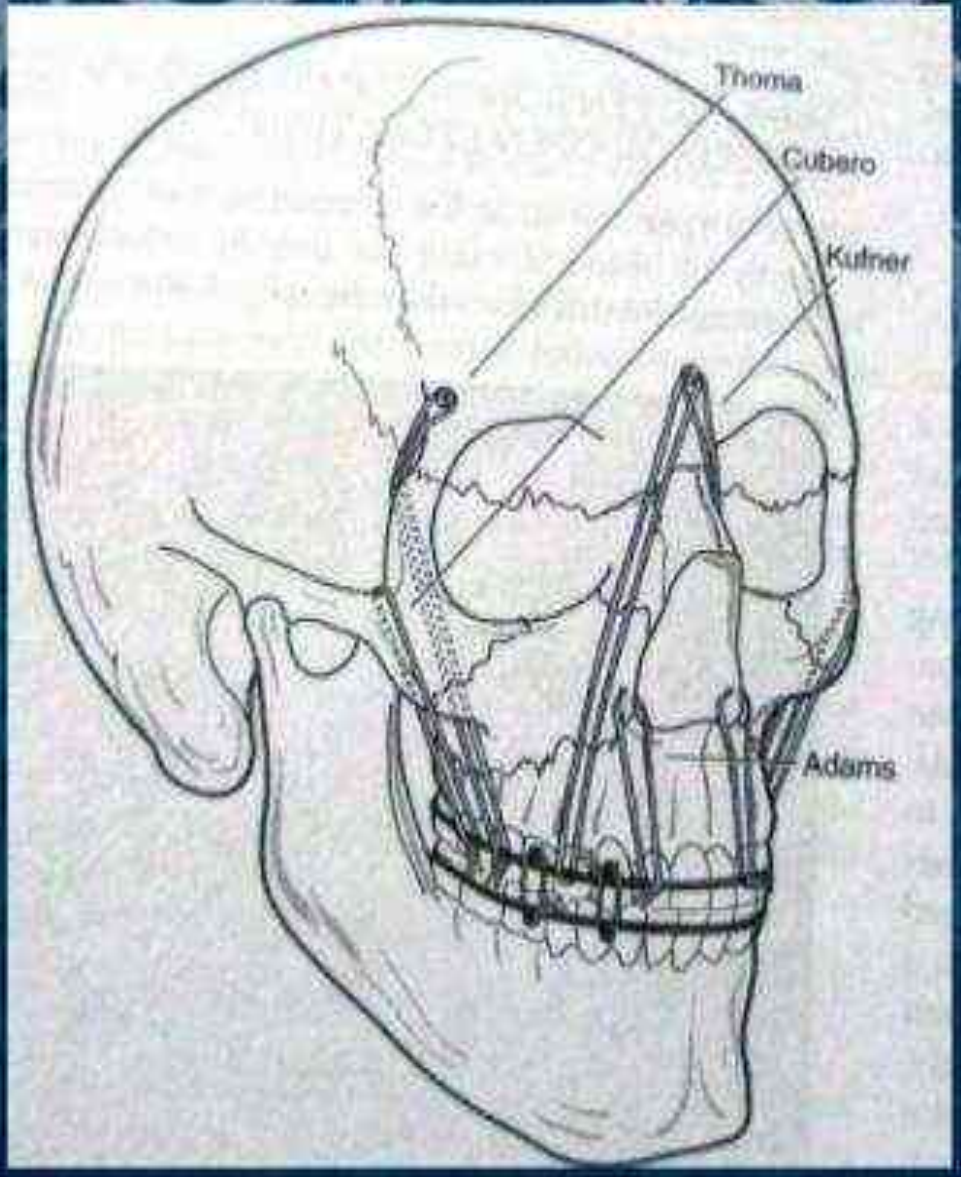



1
2
3
4


Two transosseous wires used to hold distal portion of K-wire sits in a groove made on lateral aspect of ramus



DIFFERENT TYPES OF INTERNAL FIXATION BY SUSPENSION WIRE

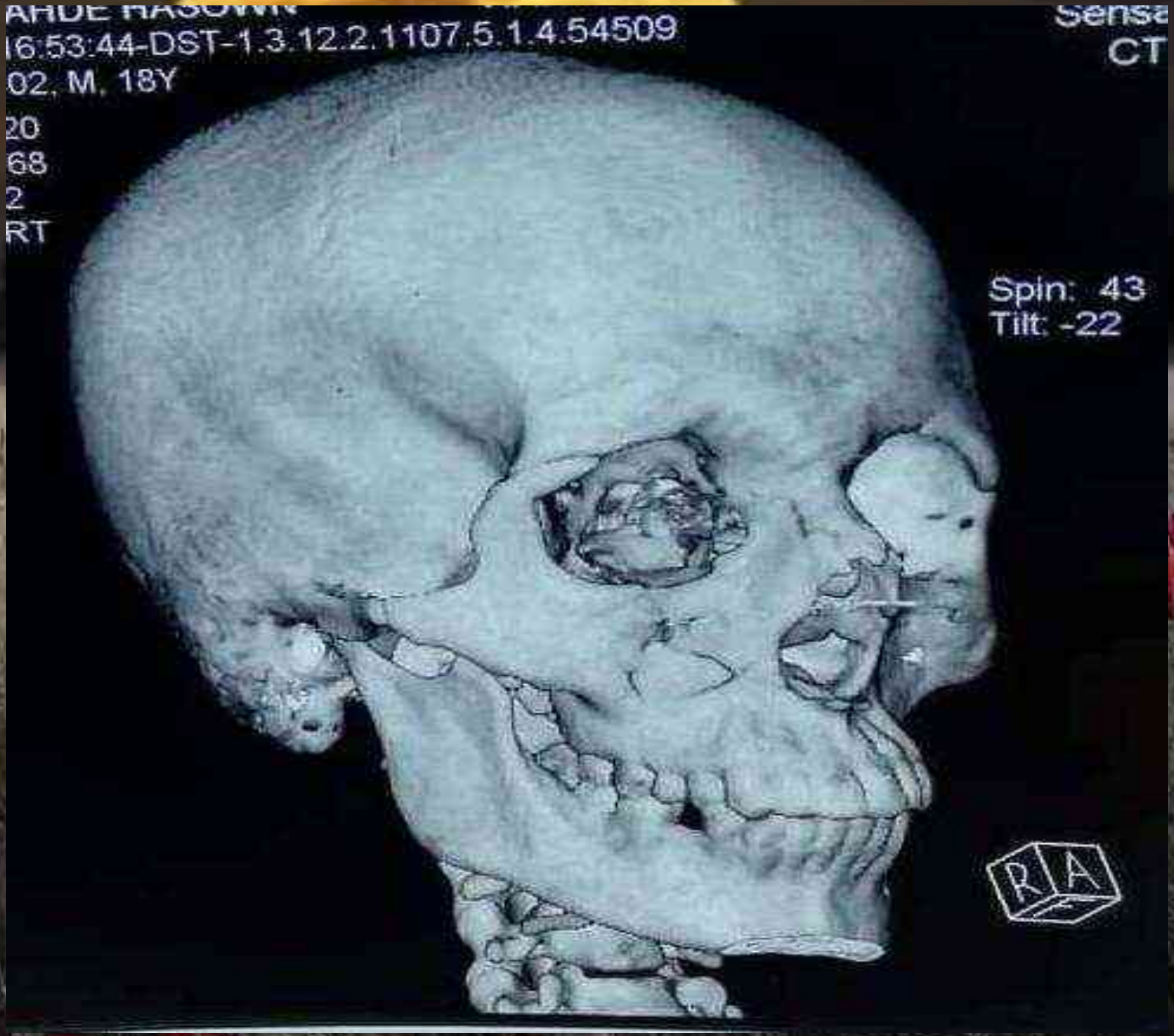


Zygomatic complex fracture

Indications for reduction

- *Diplopia*
- *Restriction of mandibular movement*
- *Restore orbit skeleton*
- *Restore normal contour of face*


Reduction
Time
Appraoches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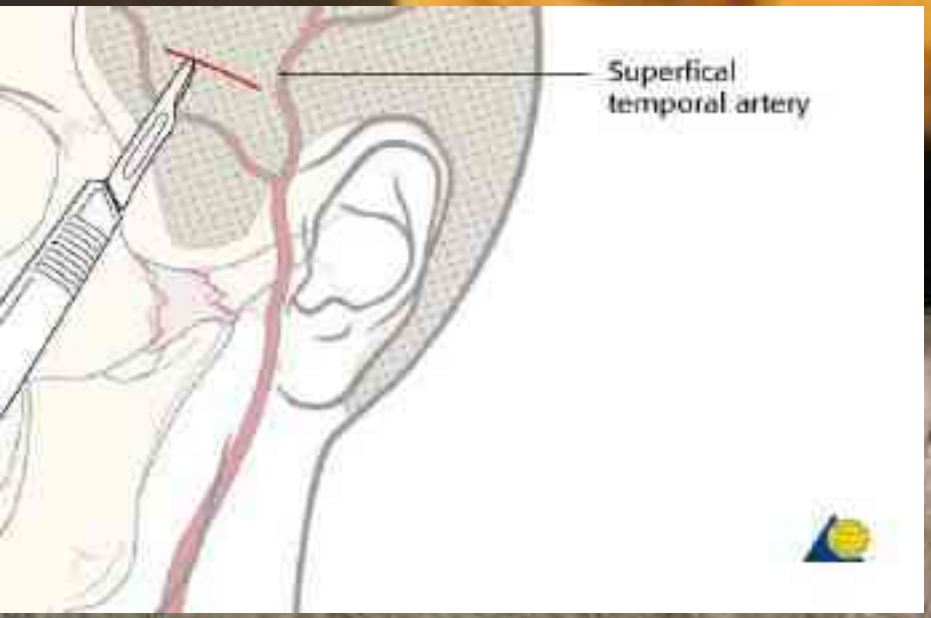
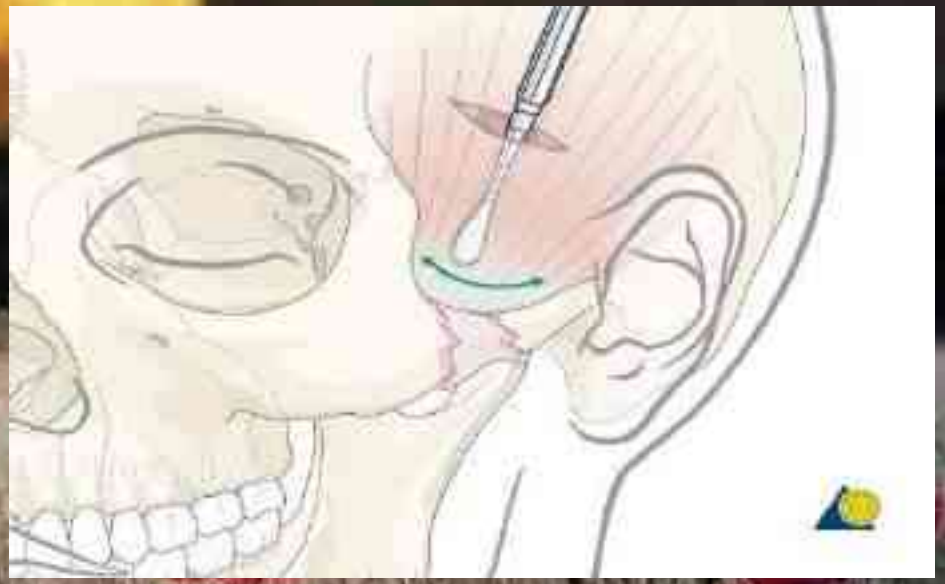
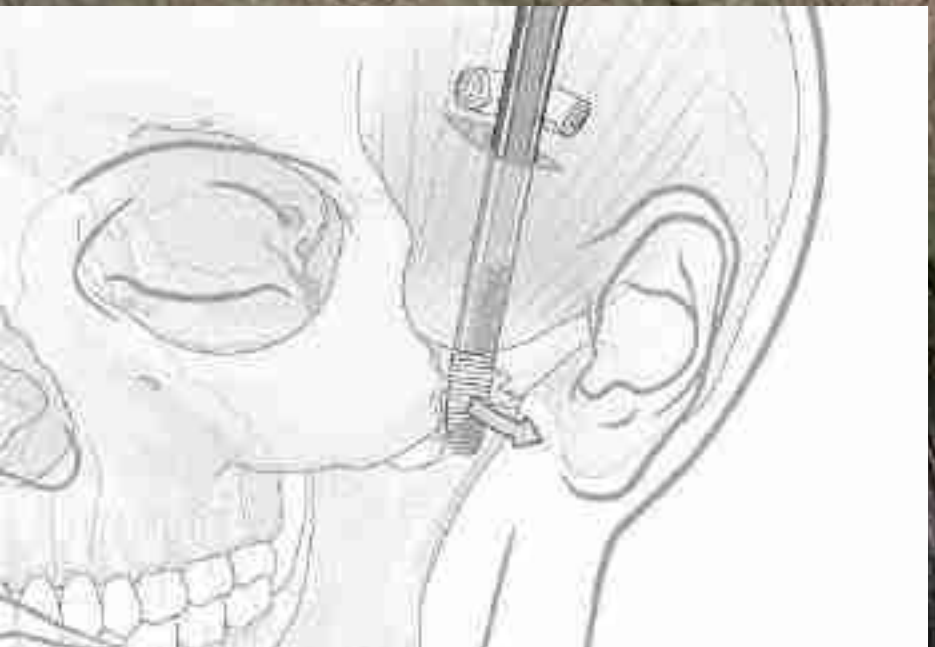
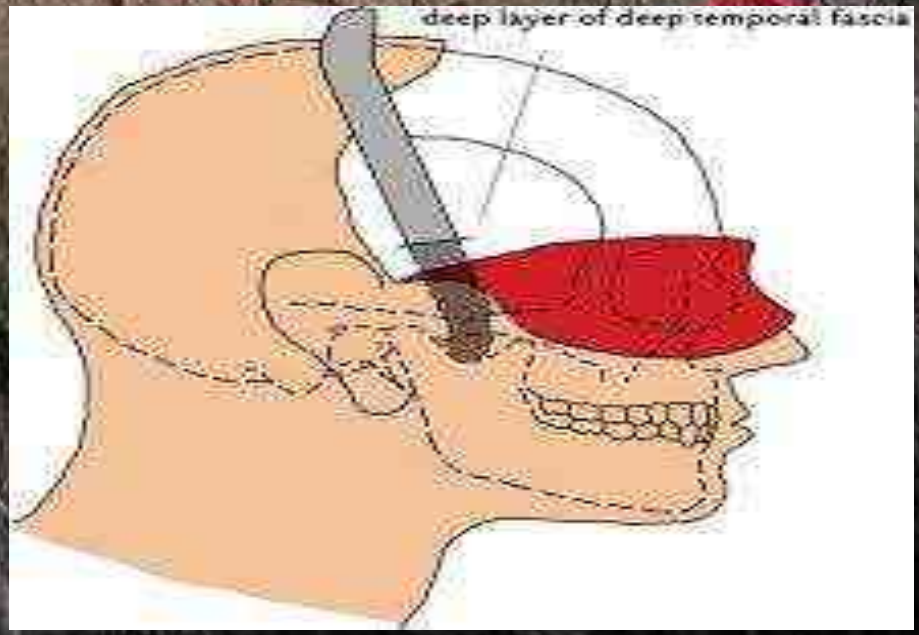
02, M, 18Y
20
68
2
RT
CT
Spin: 43
Tilt: -22
RA

Gillies approach

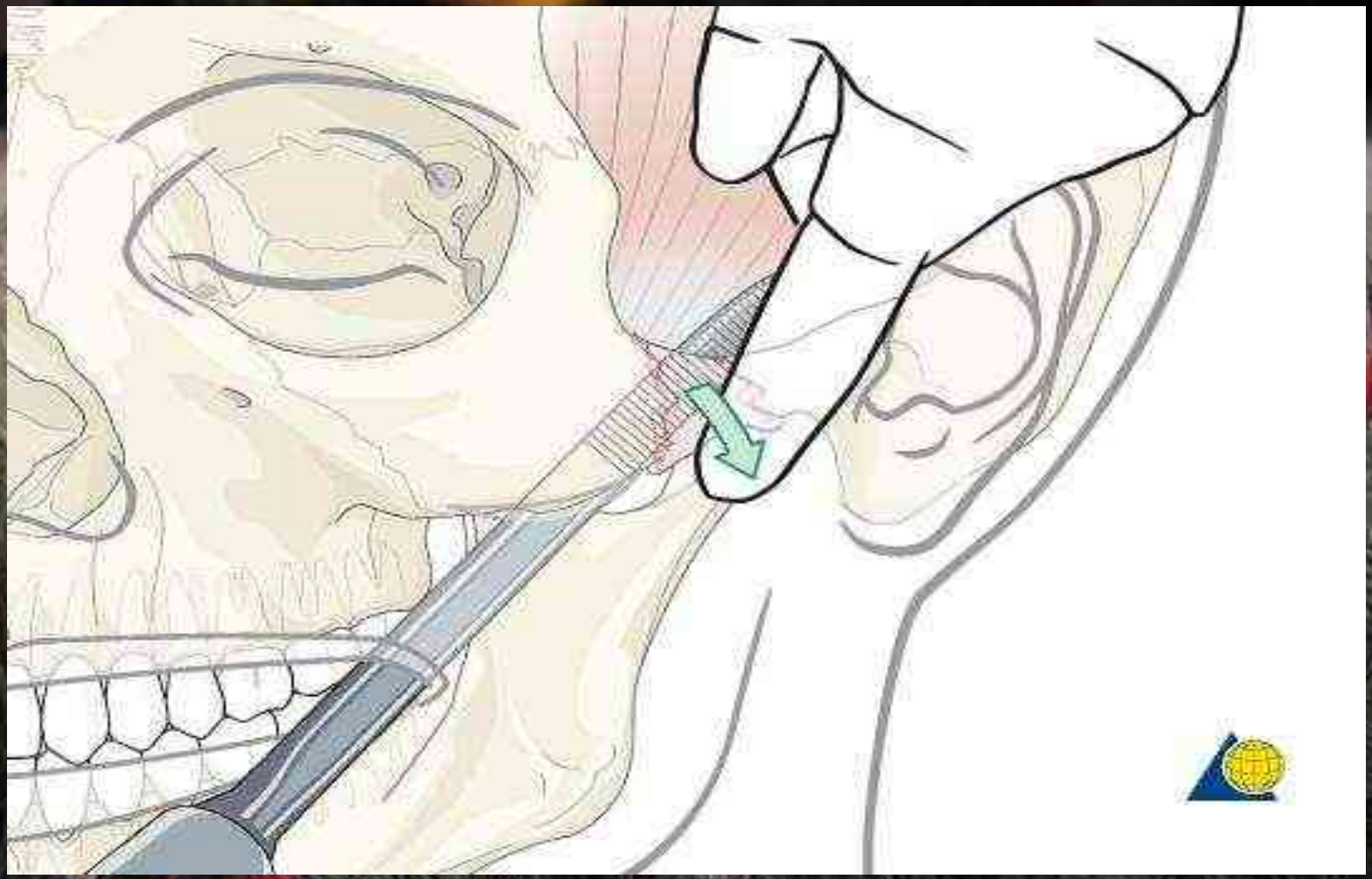






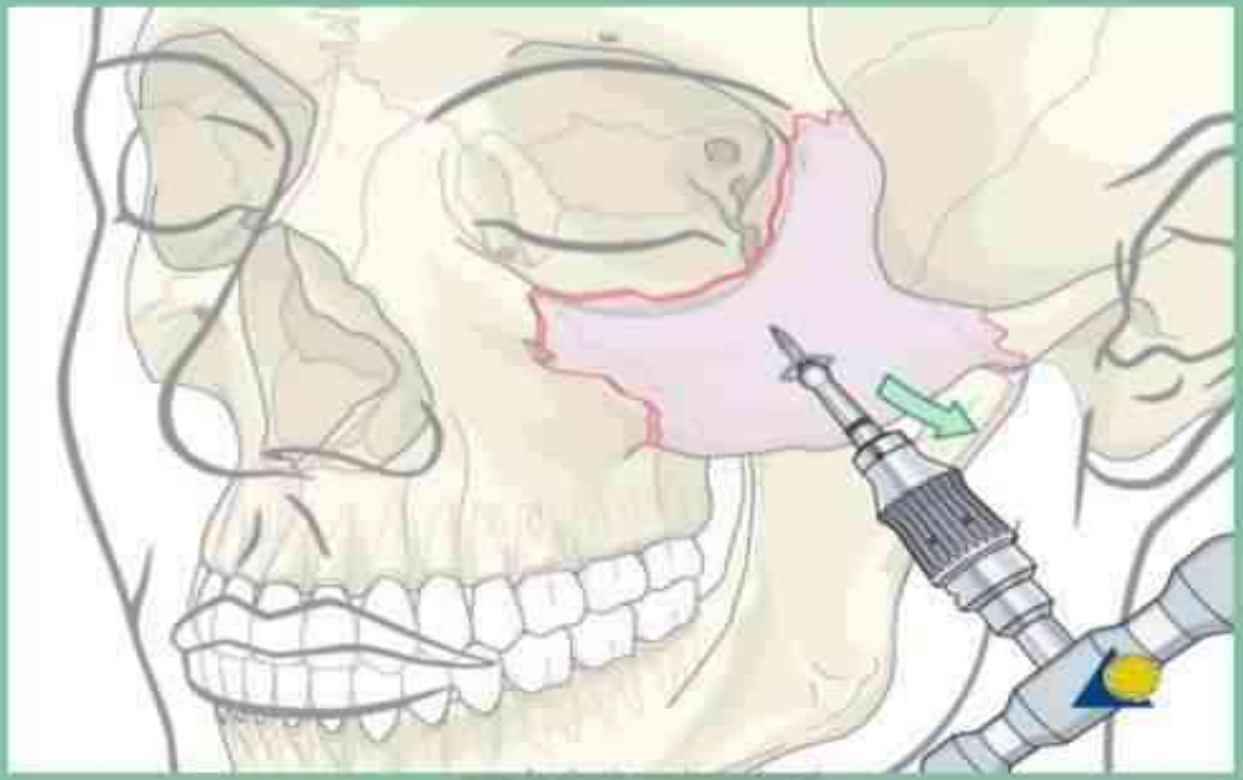


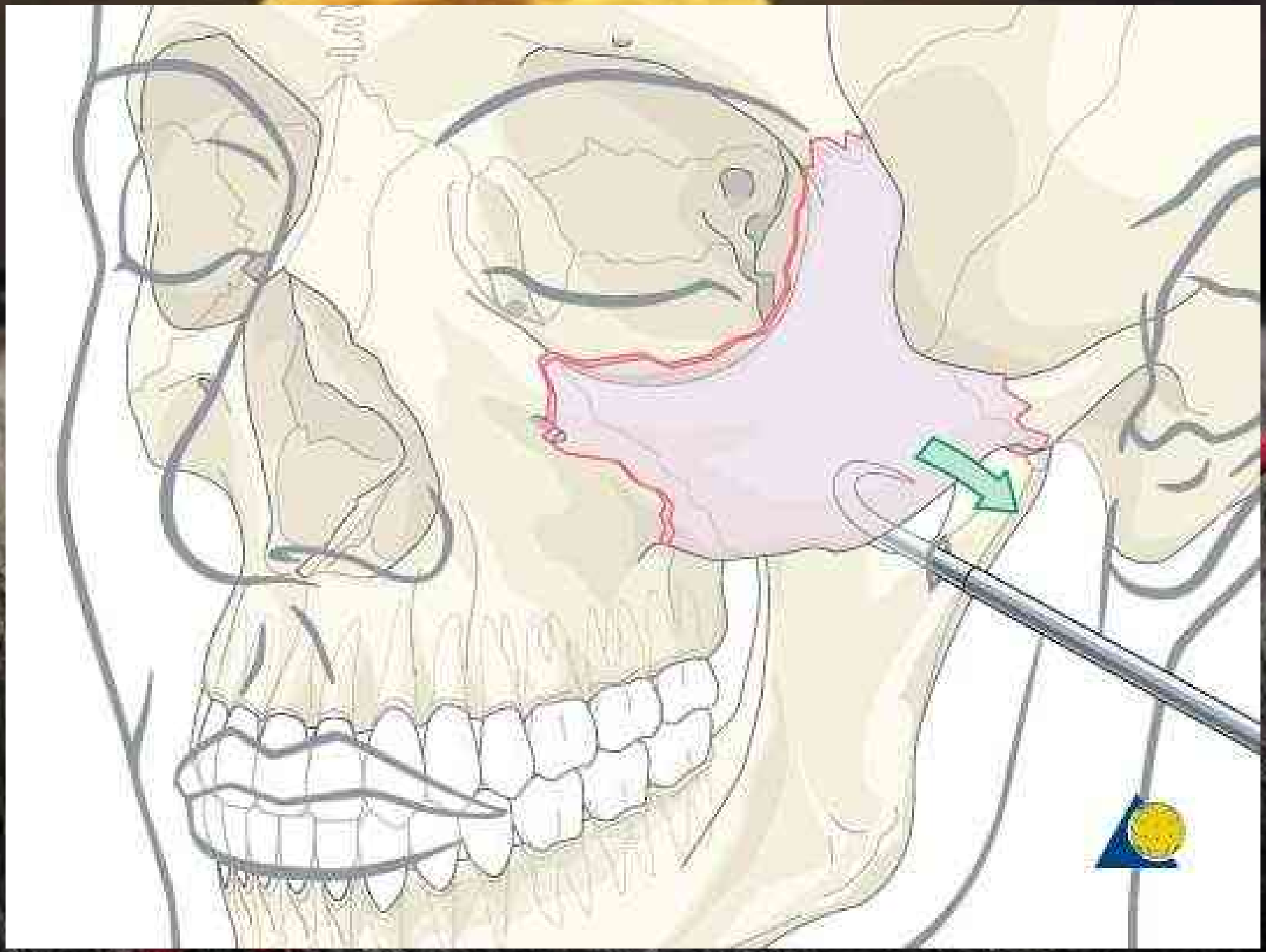
Intra oral approach (keen approach)



Percutaneous approach

Percutaneous : Carroll-Girard screw

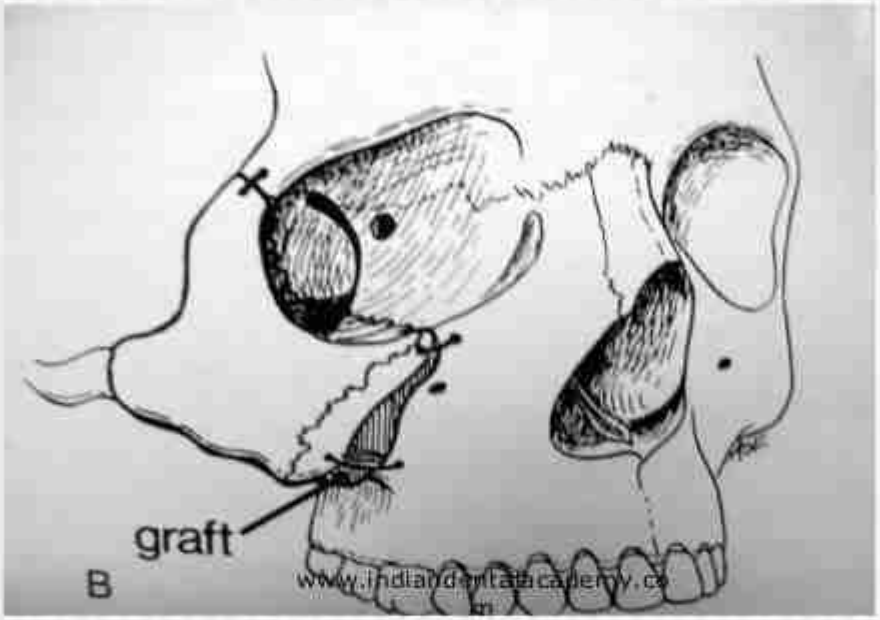




fixation

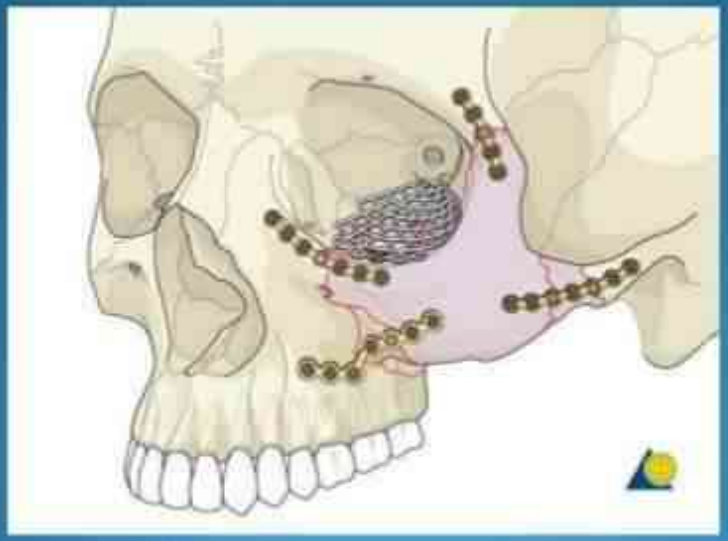
- *Trans-osseous wiring*

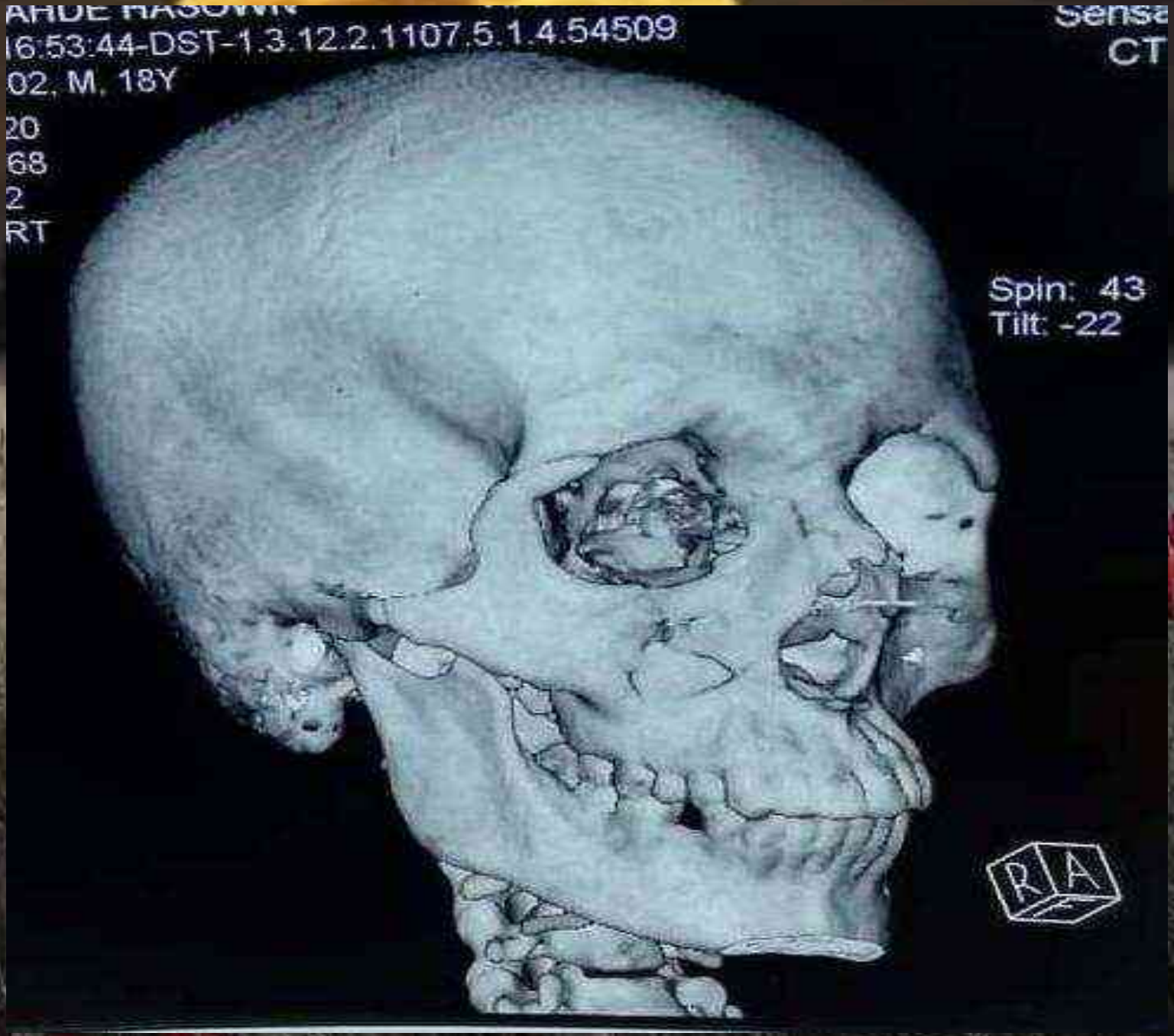
Grafting combined with trans osseous wiring



plating

Miniplates and screws



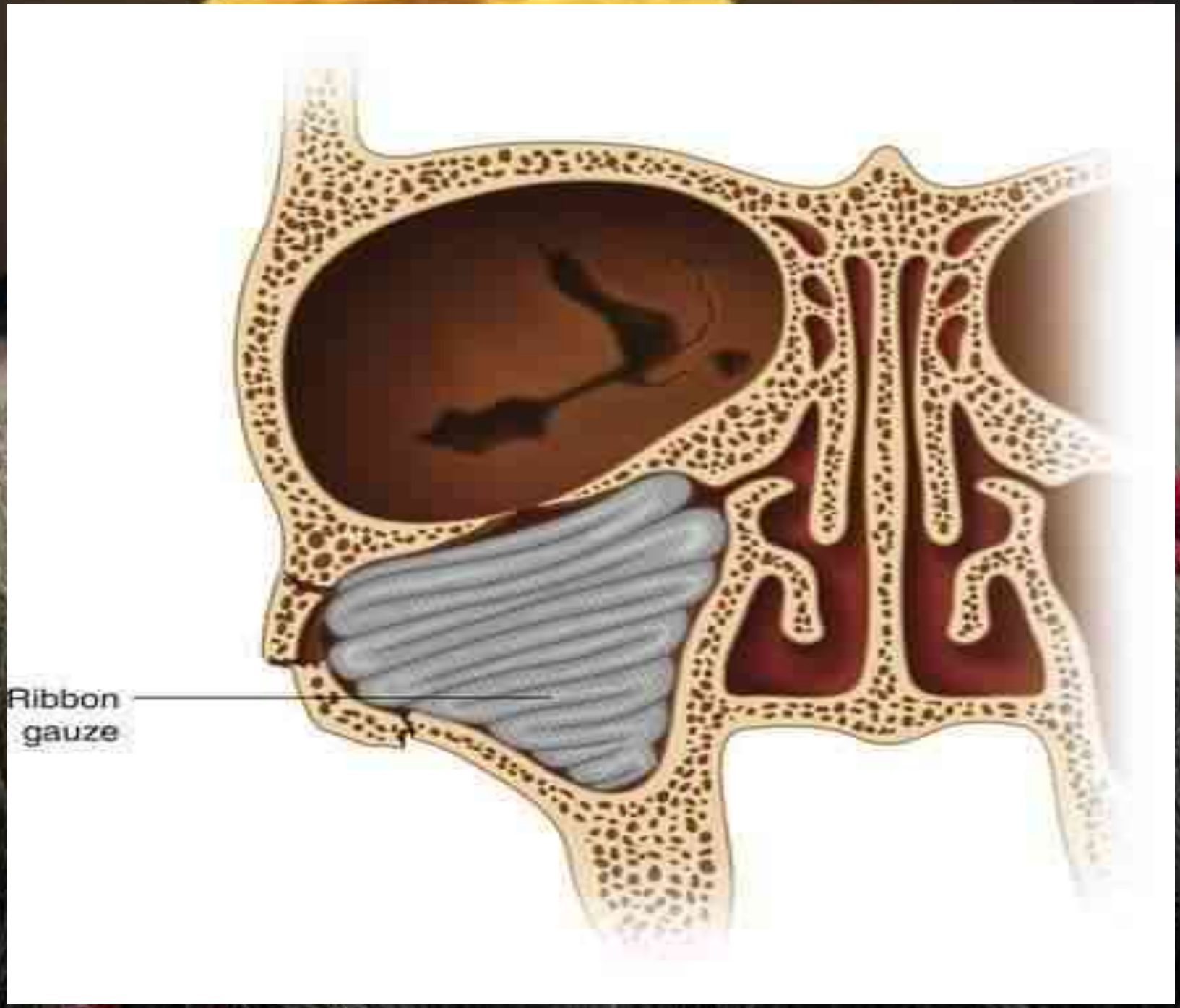

16:53:44-DST-1.3.12.2.1107.5.1.4.54509
02, M, 18Y
20
68
2
RT
CT
Spin: 43
Tilt: -22
RA



Fixation with pack in the maxillary sinus

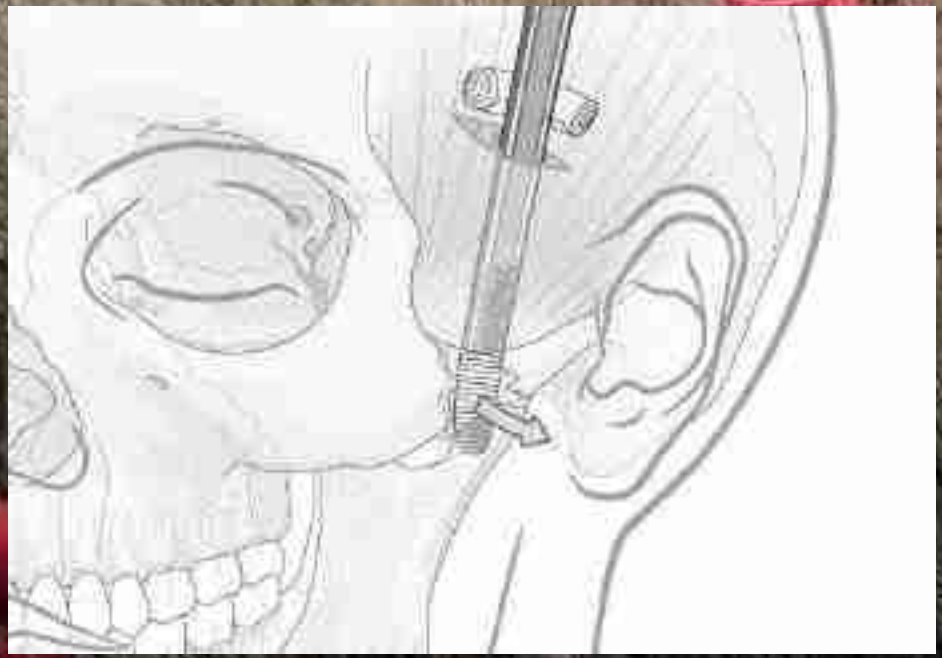
- *Comminuted fracture of zygoma*
- *Comminuted fracture of orbital floor*

- *Ballon or back can be used*

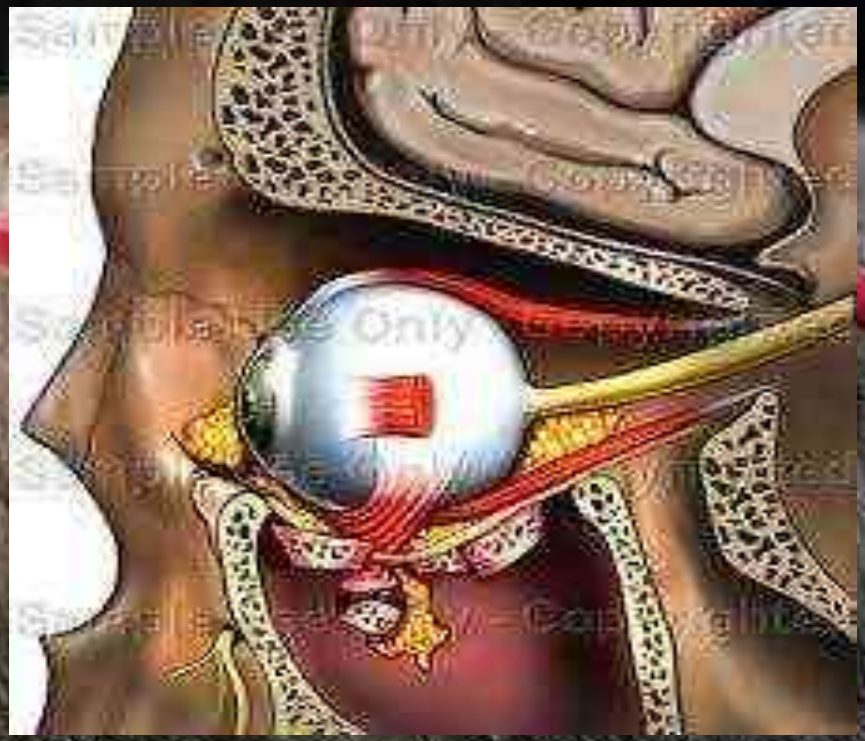

Ribbon
gauze

Fracture of zygomatic arch

- *Reduction through Gillies approach*
- *Fixation un necessary in recent fracture*

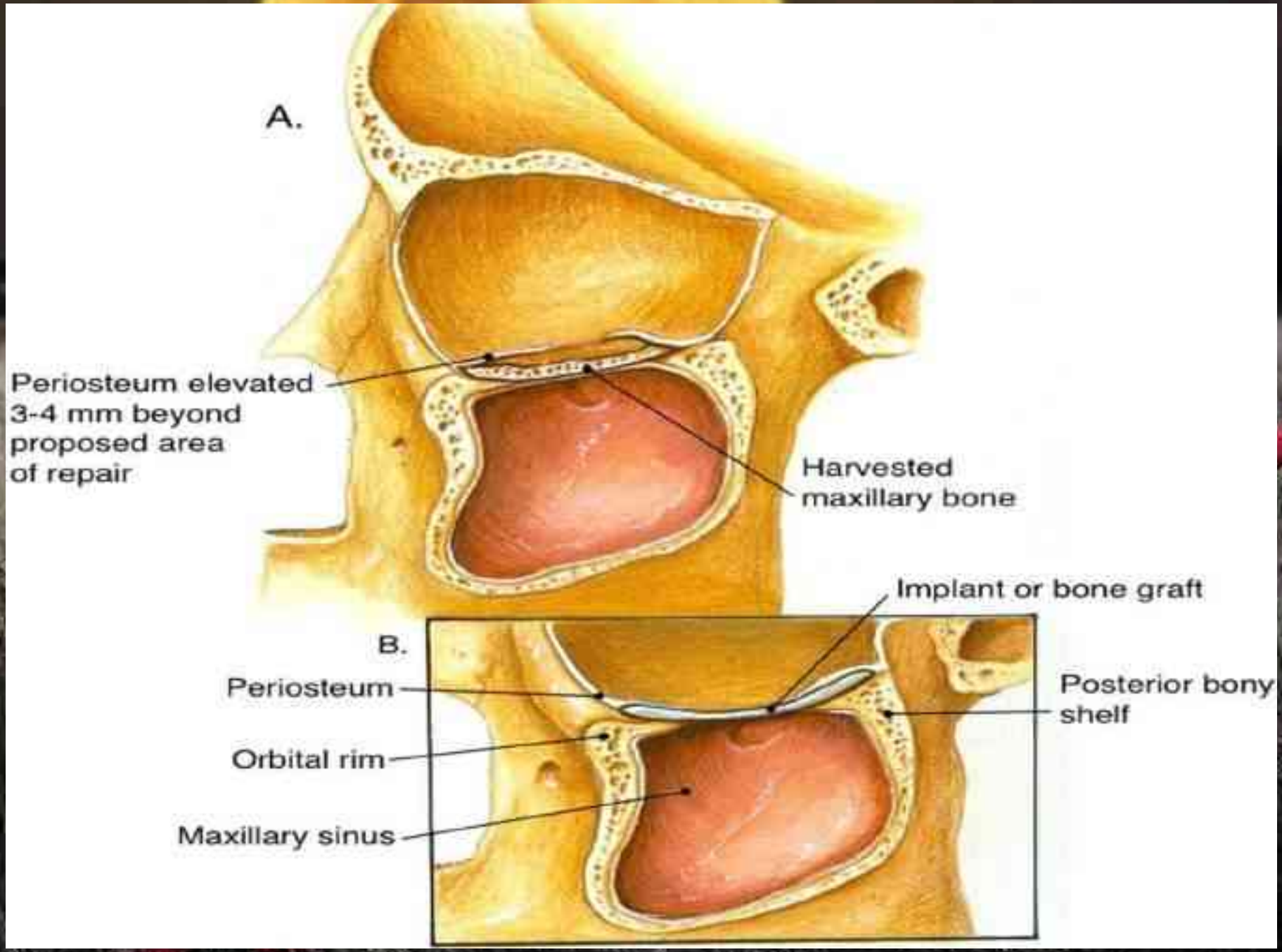


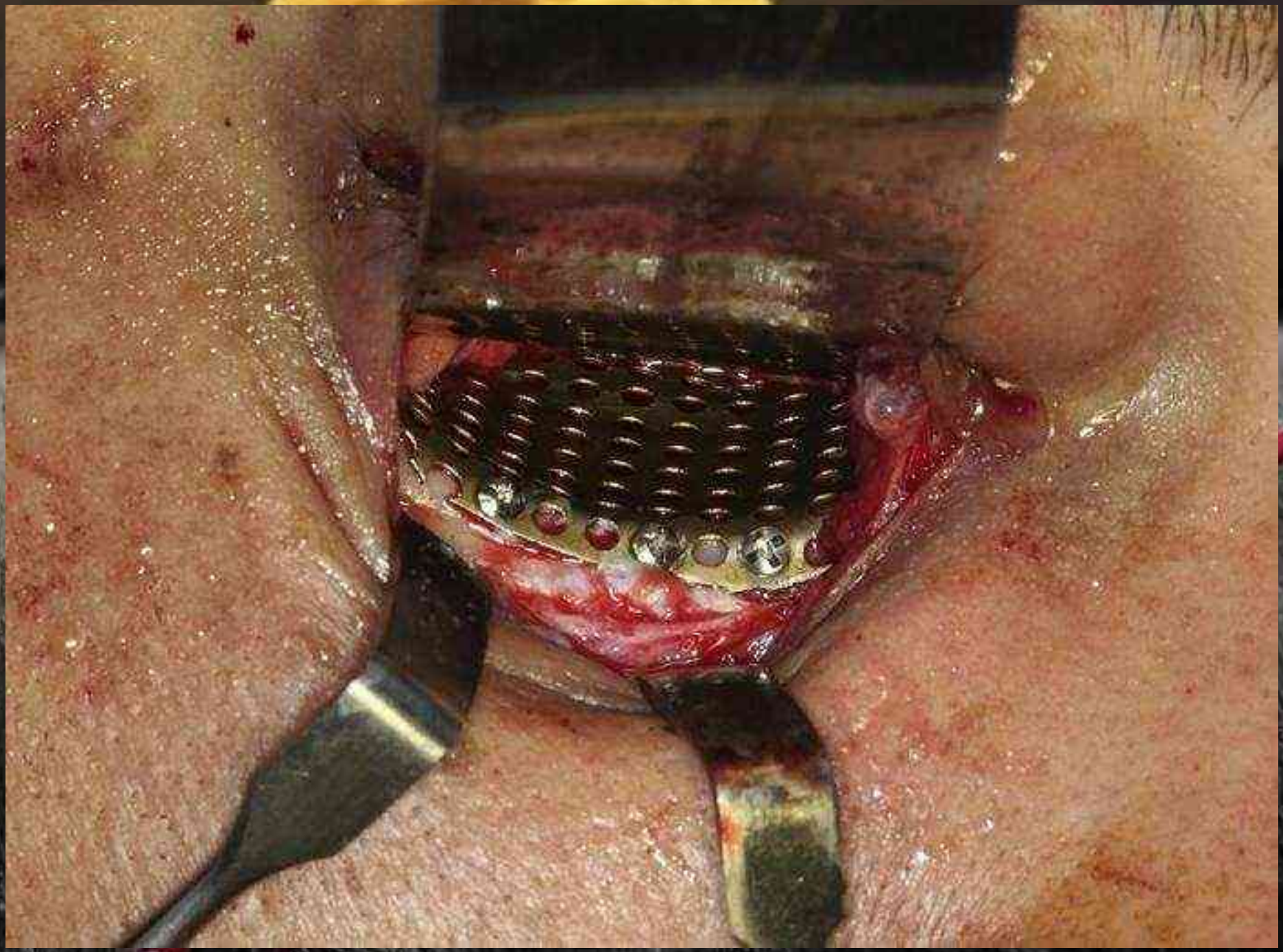
Fracture of orbital floor



Indications for treatment

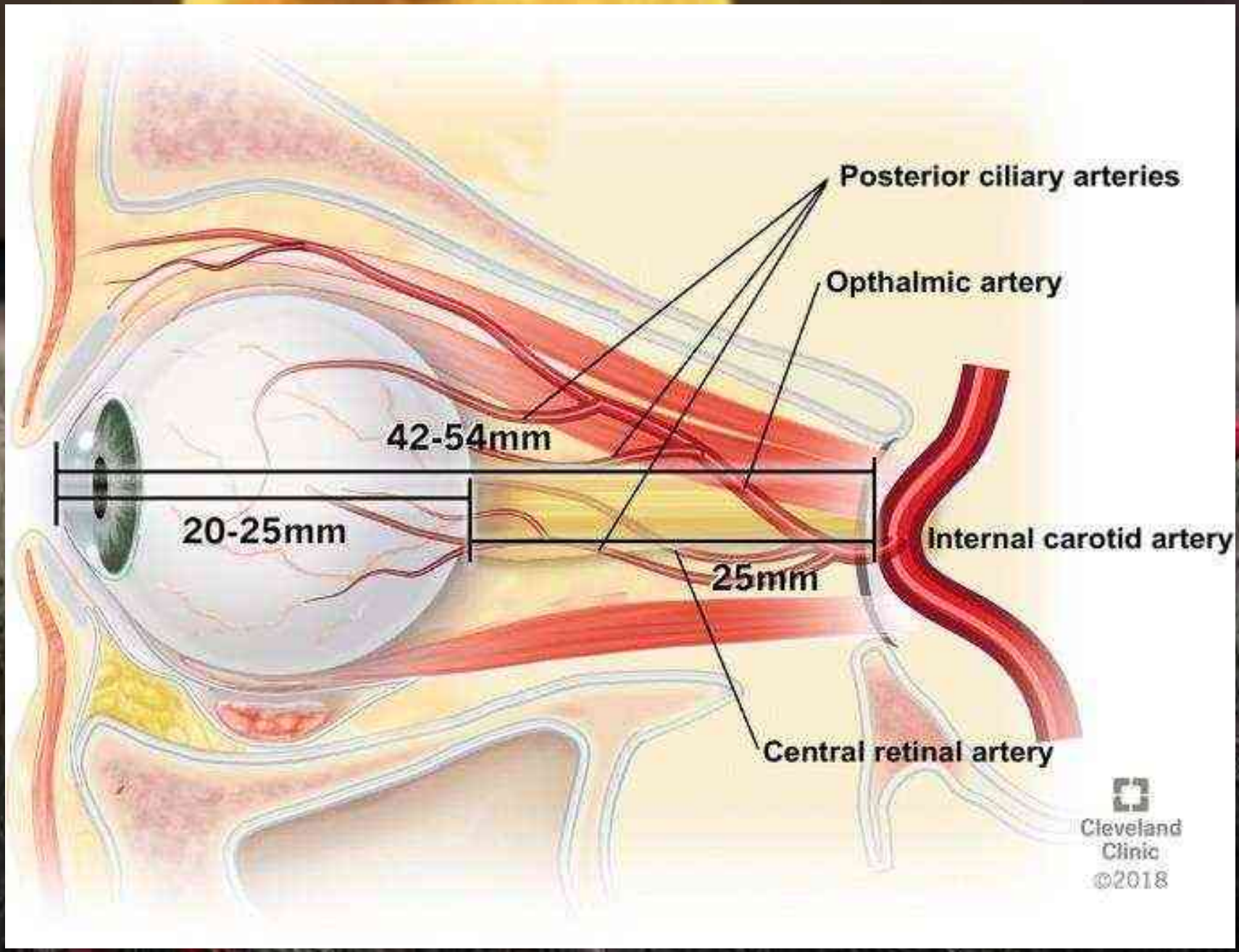
- *Diplopia not resolved after 10 days after injury*
- *Large herniation of tissue to the antrum*
- *Restriction of eye globe movement*
- *Enophthalmus greater than 3 mm*

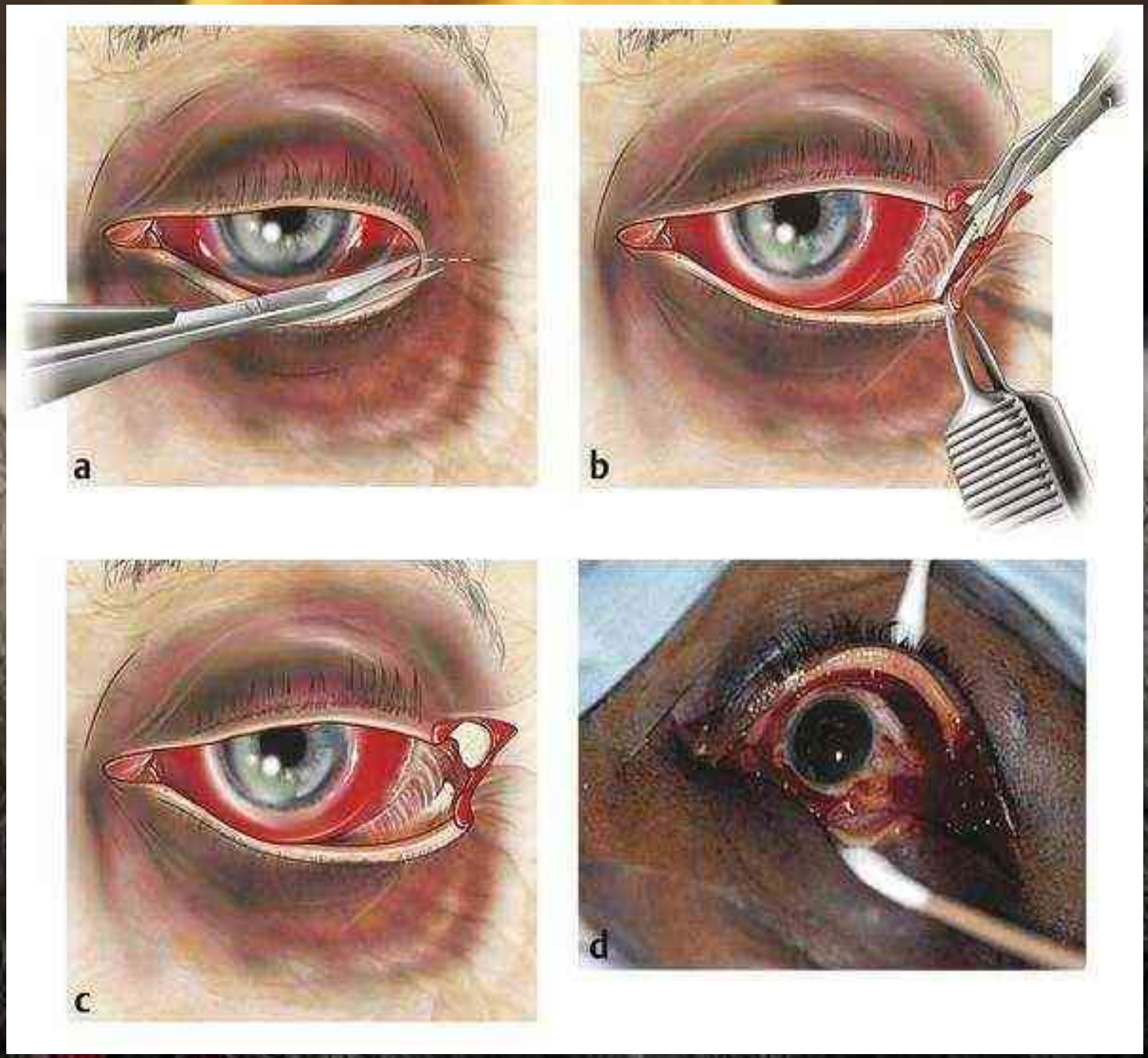

A.
Periosteum elevated 3-4 mm beyond proposed area of repair
Harvested maxillary bone
Implant or bone graft
B.
Periosteum
Orbital rim
Maxillary sinus
Posterior bony shelf



Retrobulbar hemorrhage (RBH)

- is a rapidly progressive, sight-threatening emergency that results in an accumulation of blood in the retrobulbar space

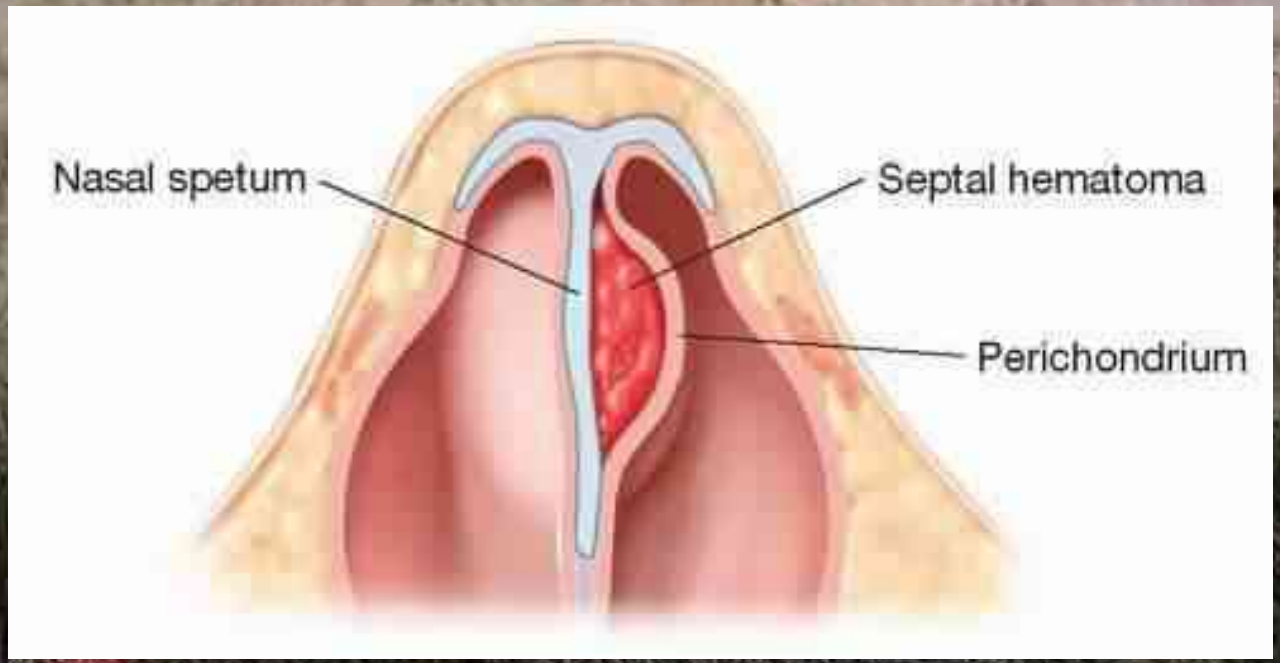

Posterior ciliary arteries
Opthalmic artery
42-54mm
20-25mm
Internal carotid artery
25mm
Central retinal artery
Cleveland Clinic ©2018

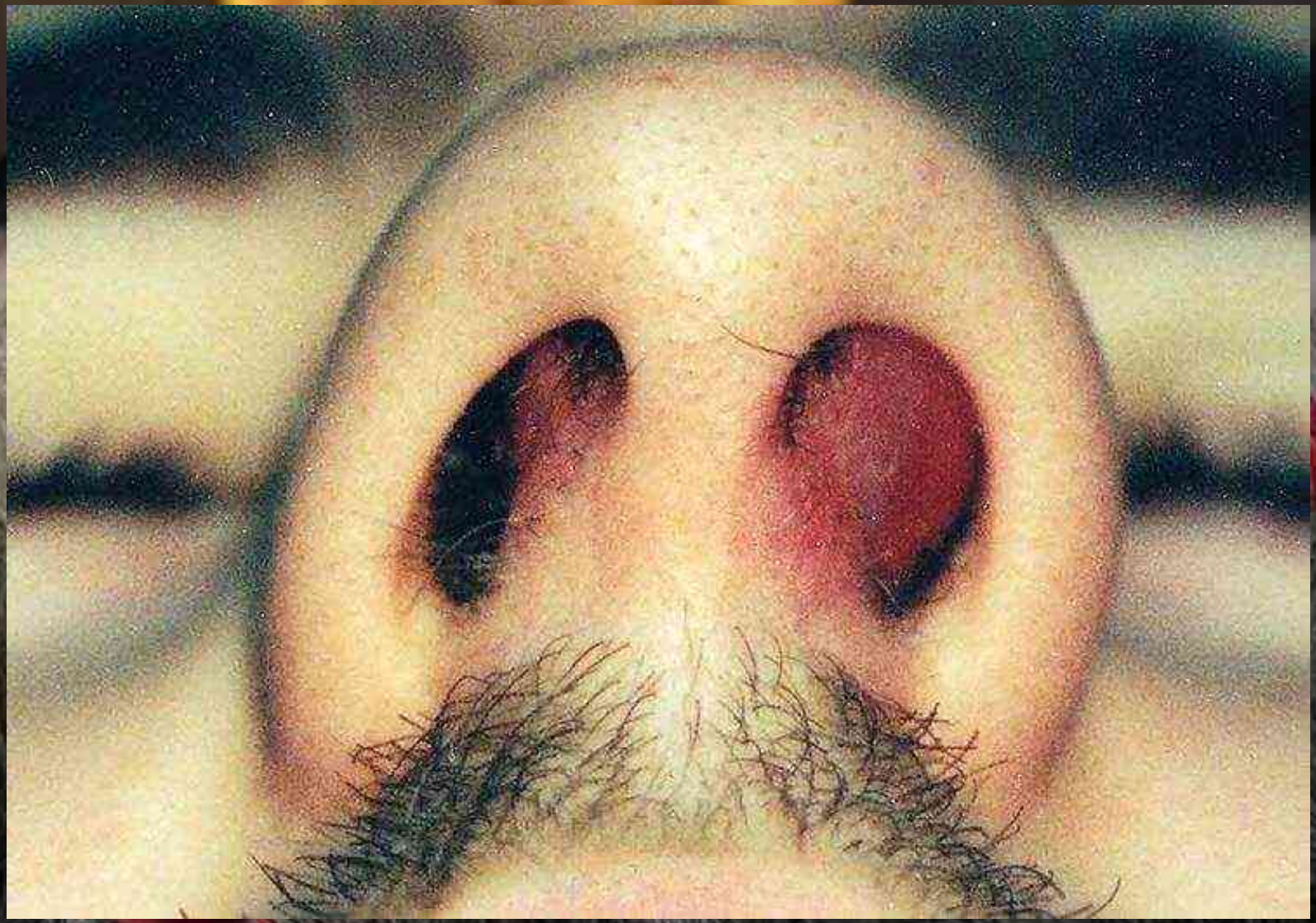

a
b
c
d

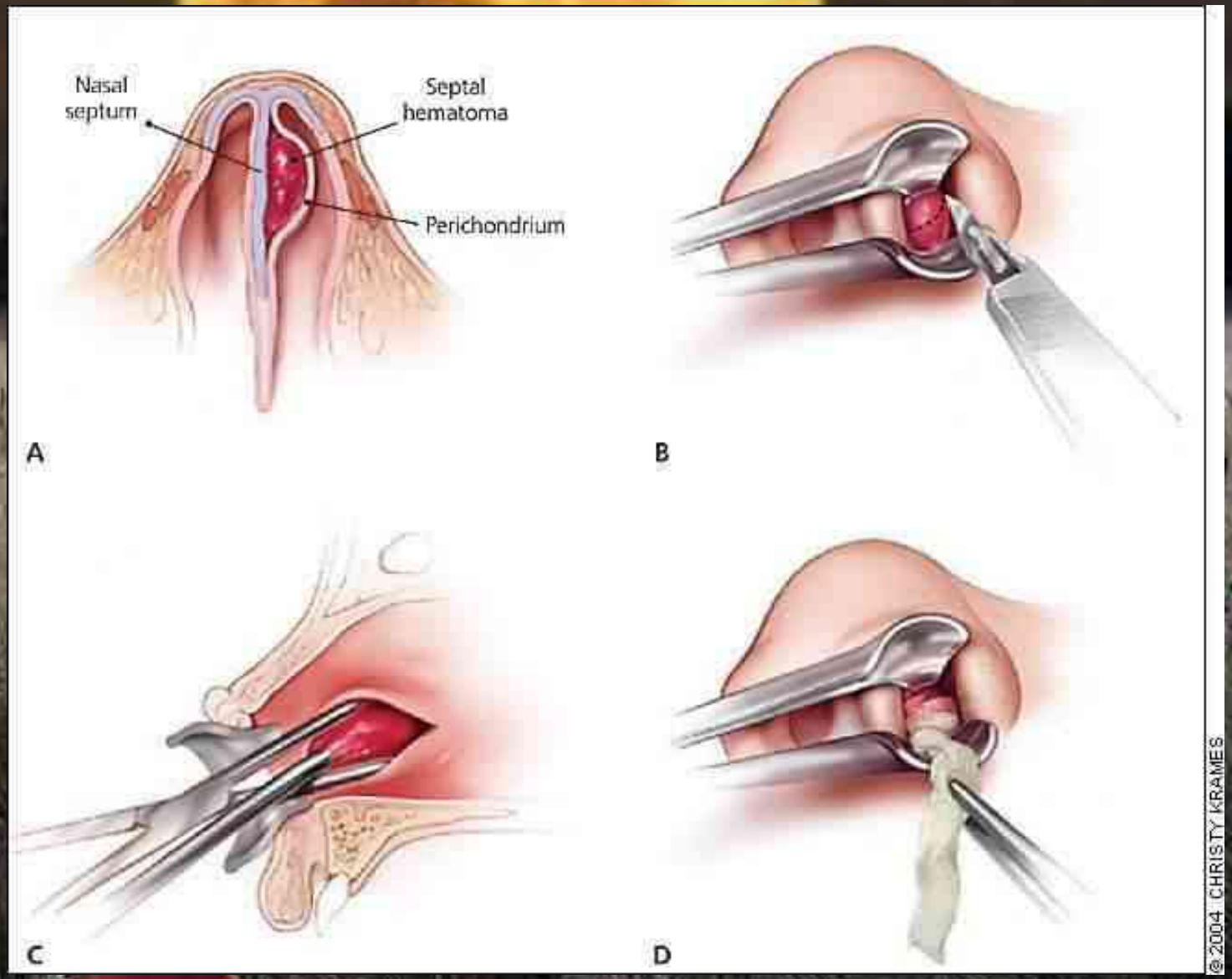
Nasal complex fracture

Nasal complex fracture

Always dealing with septal hematoma as emergency case



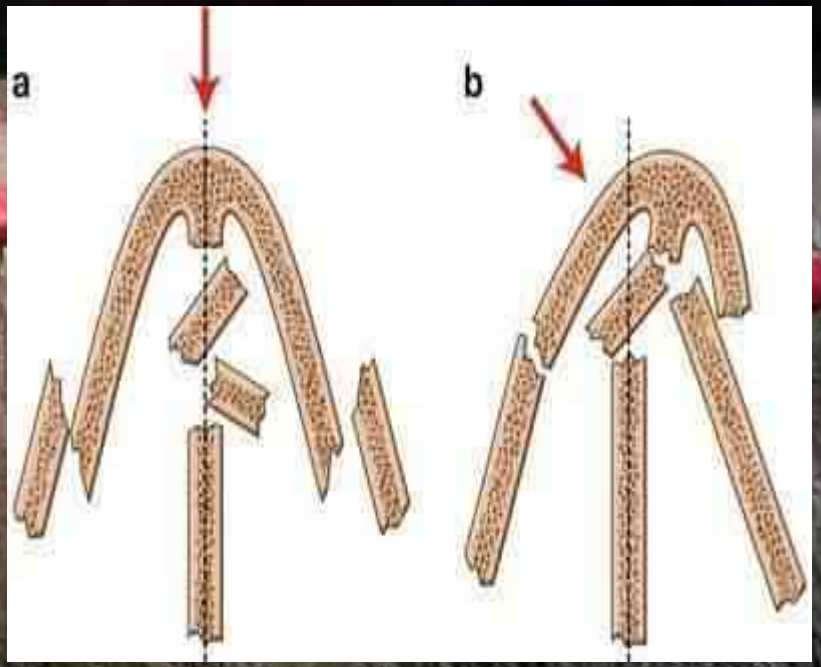



Nasal septum
Septal hematoma
Perichondrium
A
B
C
D
©2004 CHRISTY KRAMES

Nasal complex fracture

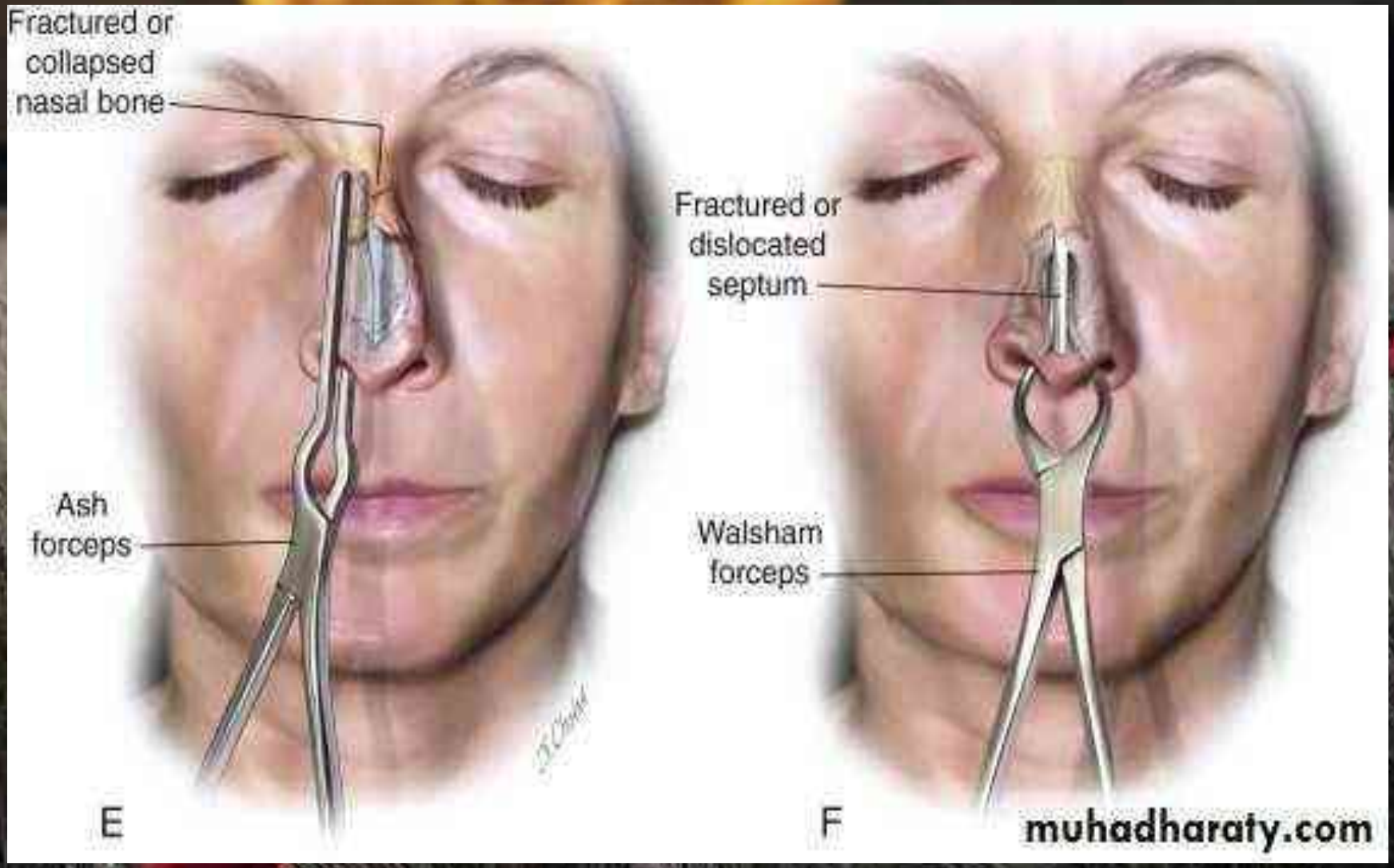
- **Reduction**

Walsham's forceps
Asche's forceps



Walsham Forceps

Ash forceps

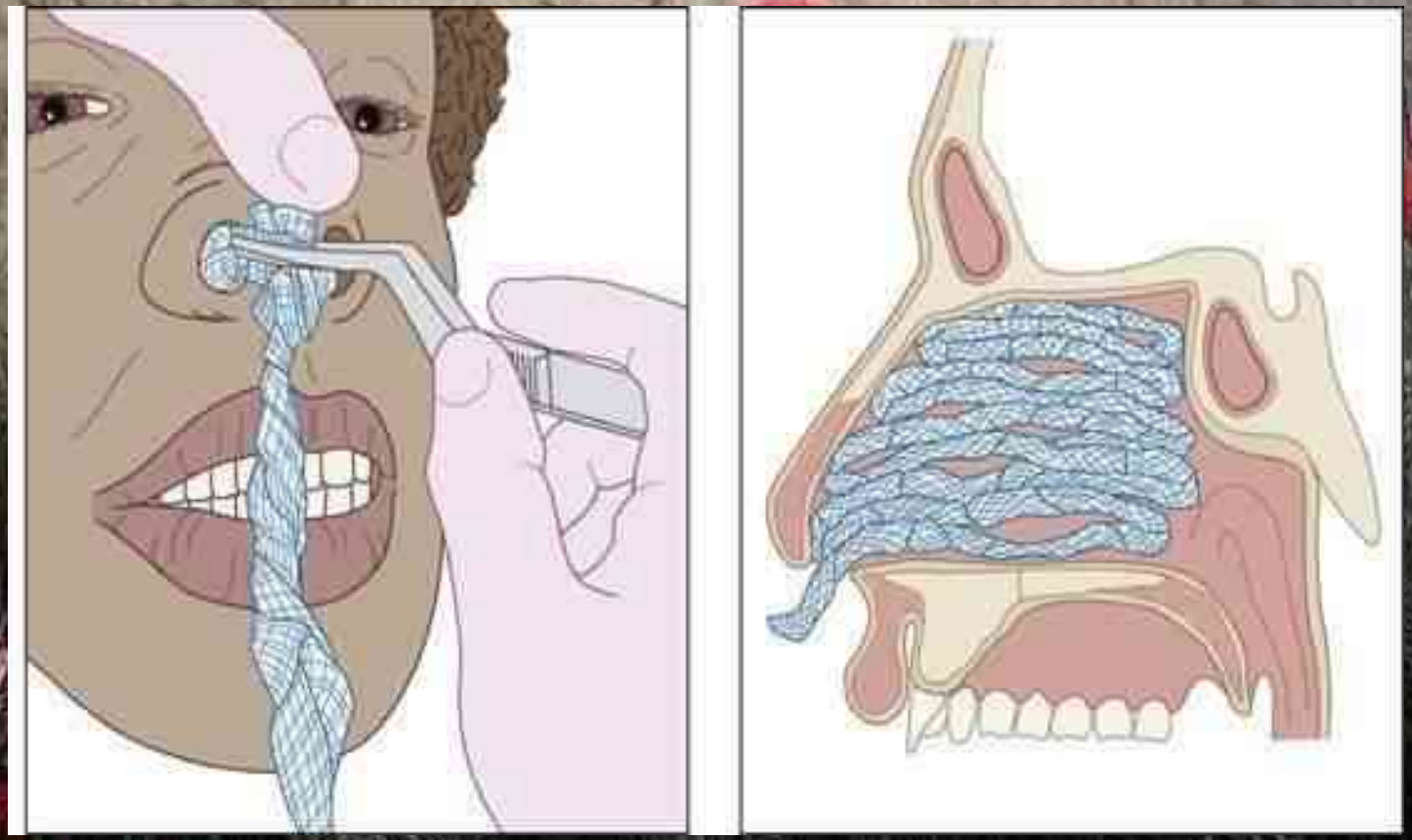

Fractured or collapsed nasal bone
Ash forceps
E
Fractured or dislocated septum
Walsham forceps
F
muhadharaty.com

fixation

- *POP*
- *Ribbon gauze packi*
- *Open reduction*

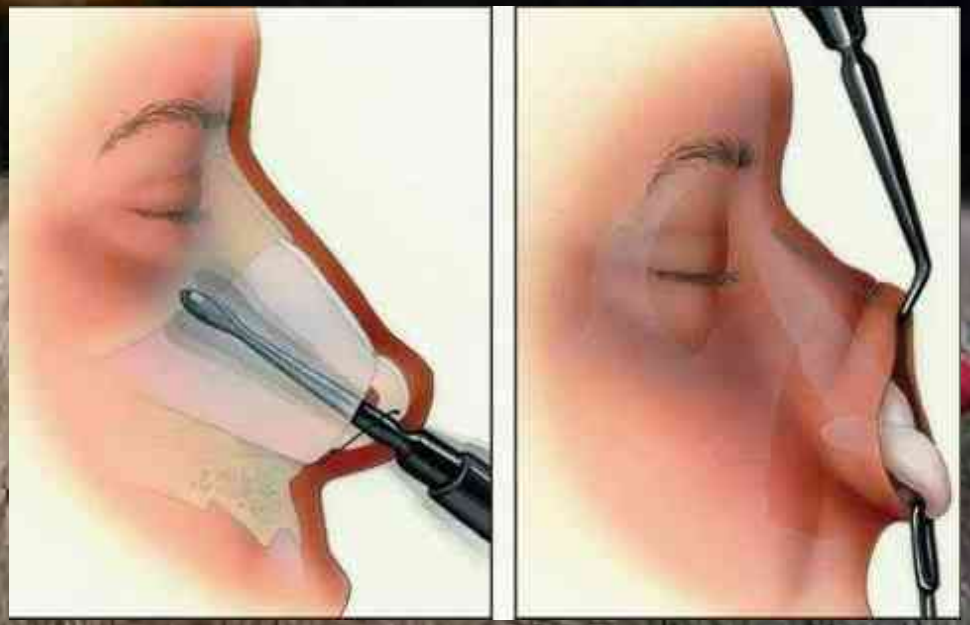
fixation

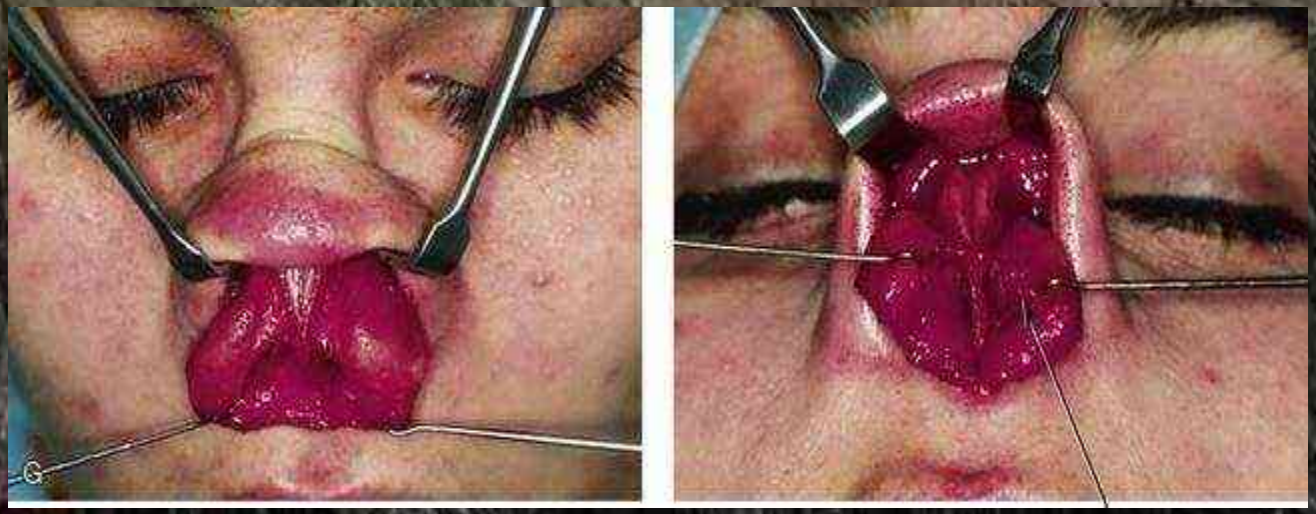
- *Ribbon gauze packing*
- *POP*
- *Open reduction*



fixation

- *POP*
- *Ribbon gauze packing*
- *Open reduction*

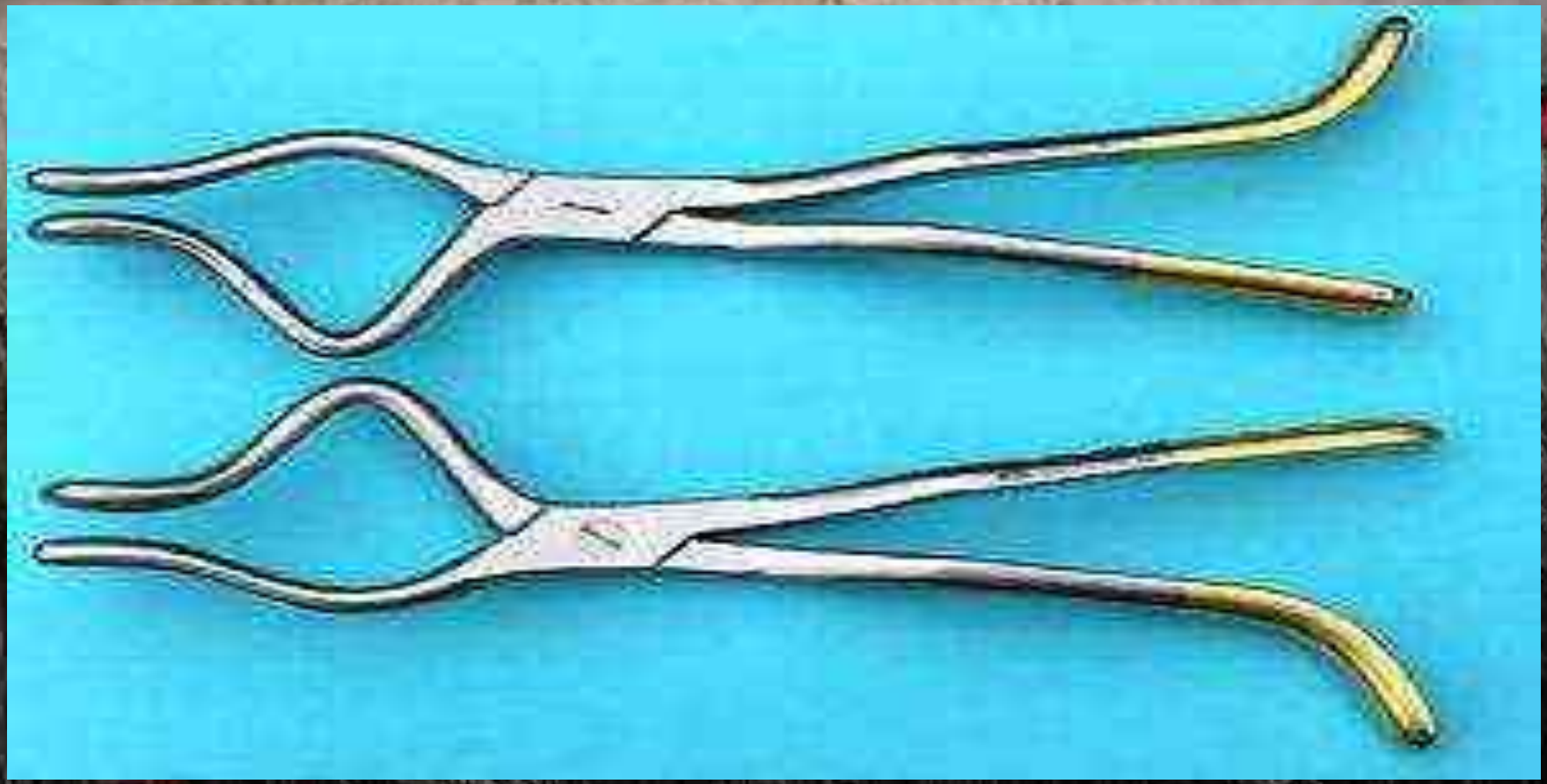


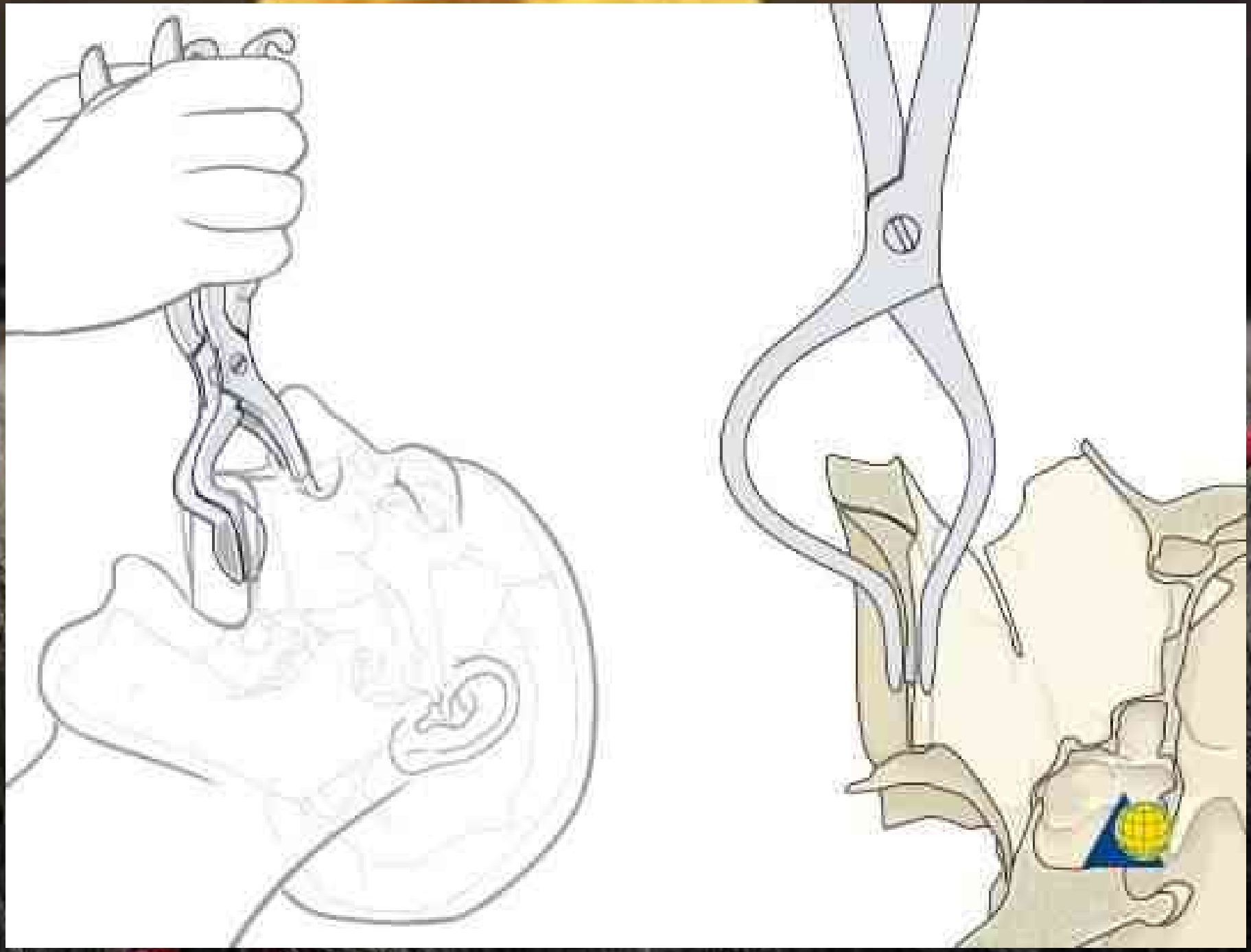



LeFort fractures

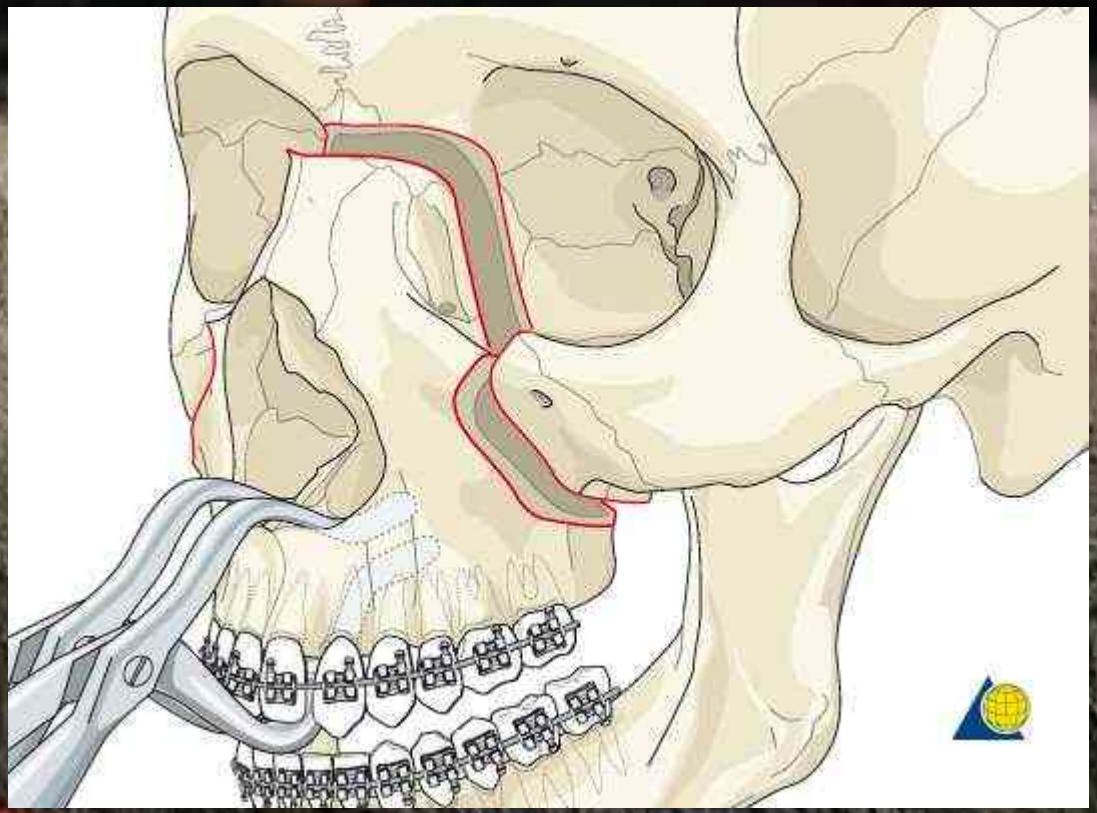
Le Fort I fracture

Rowe's disimpaction forceps

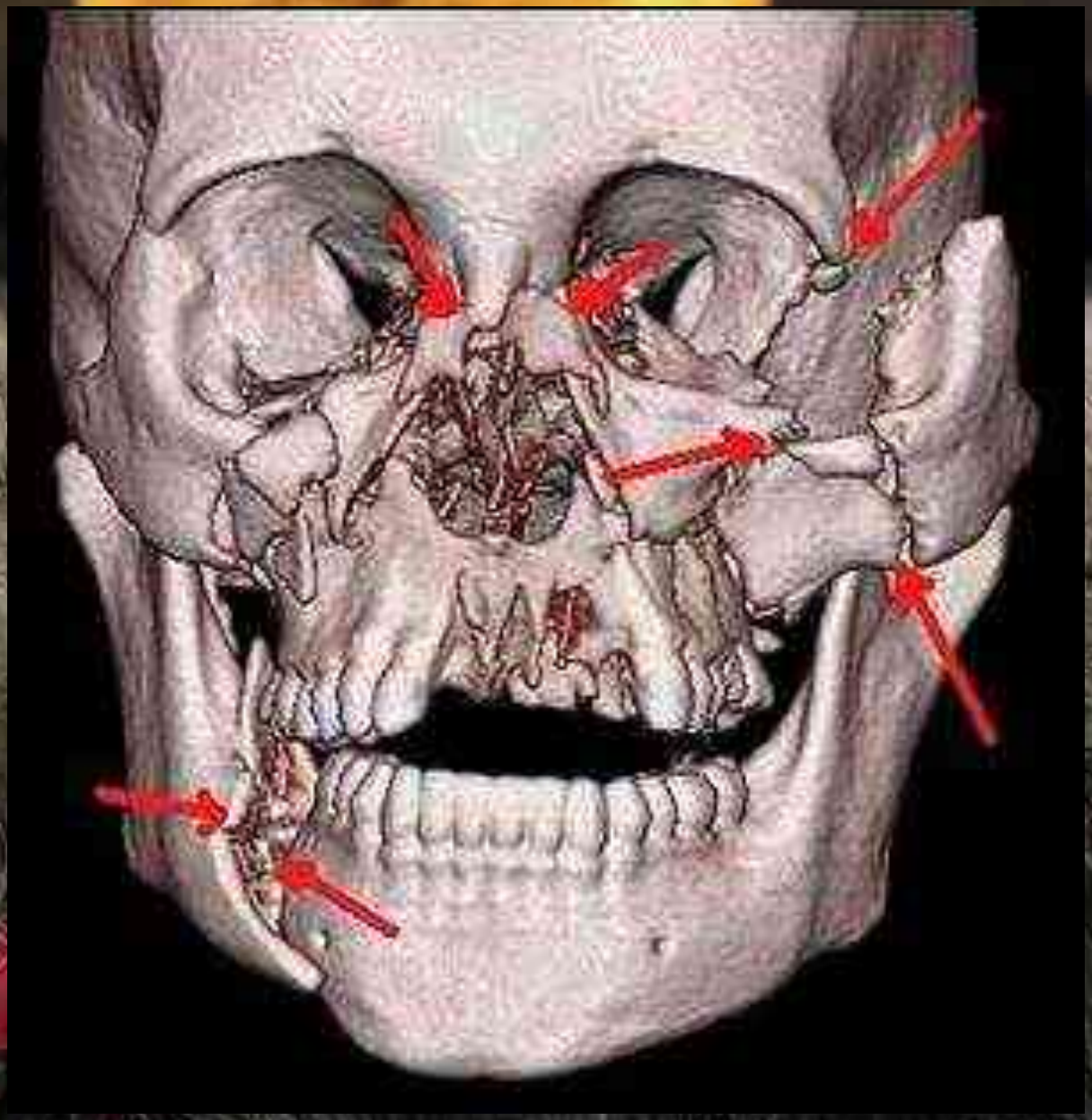




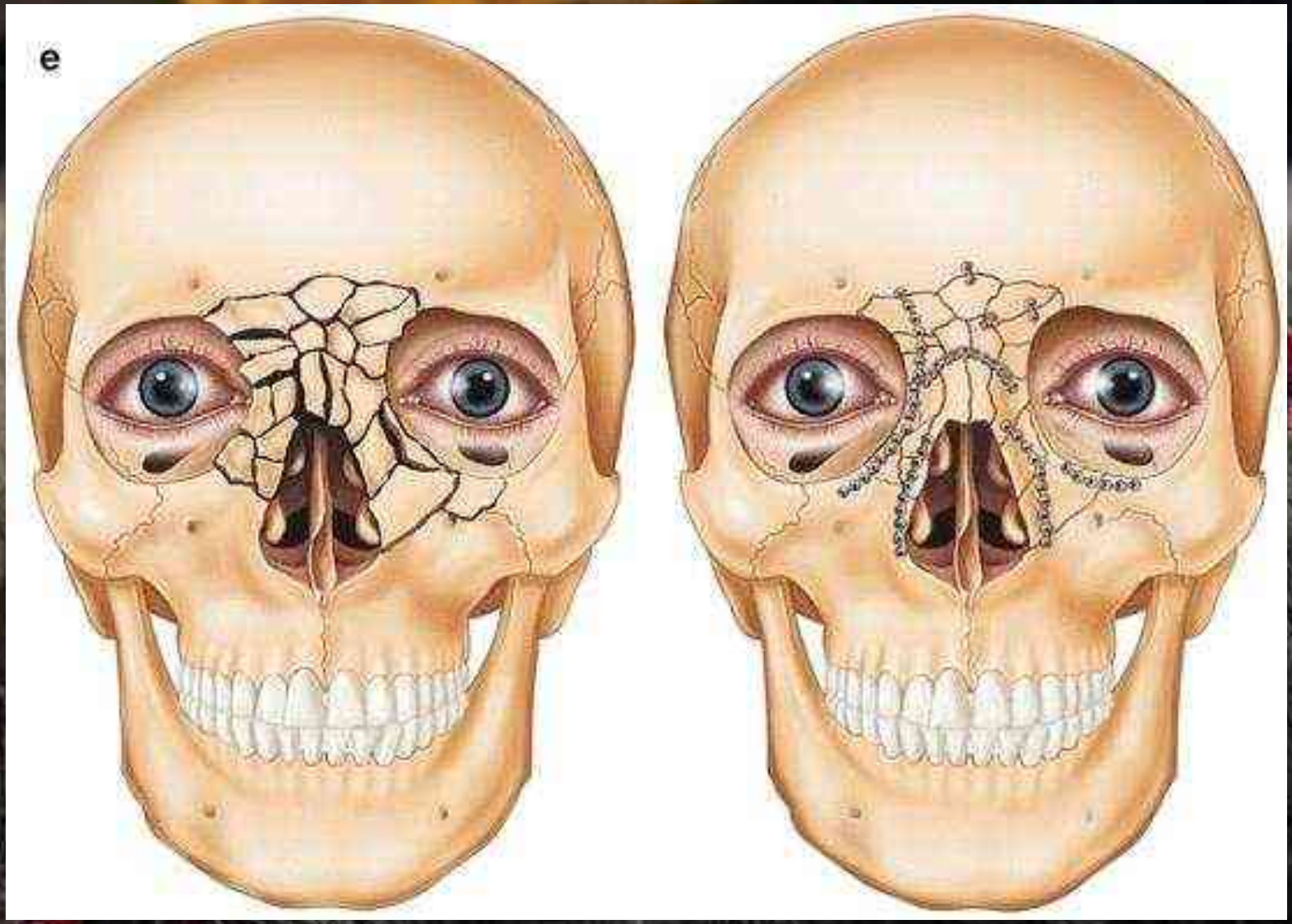
Lefort II

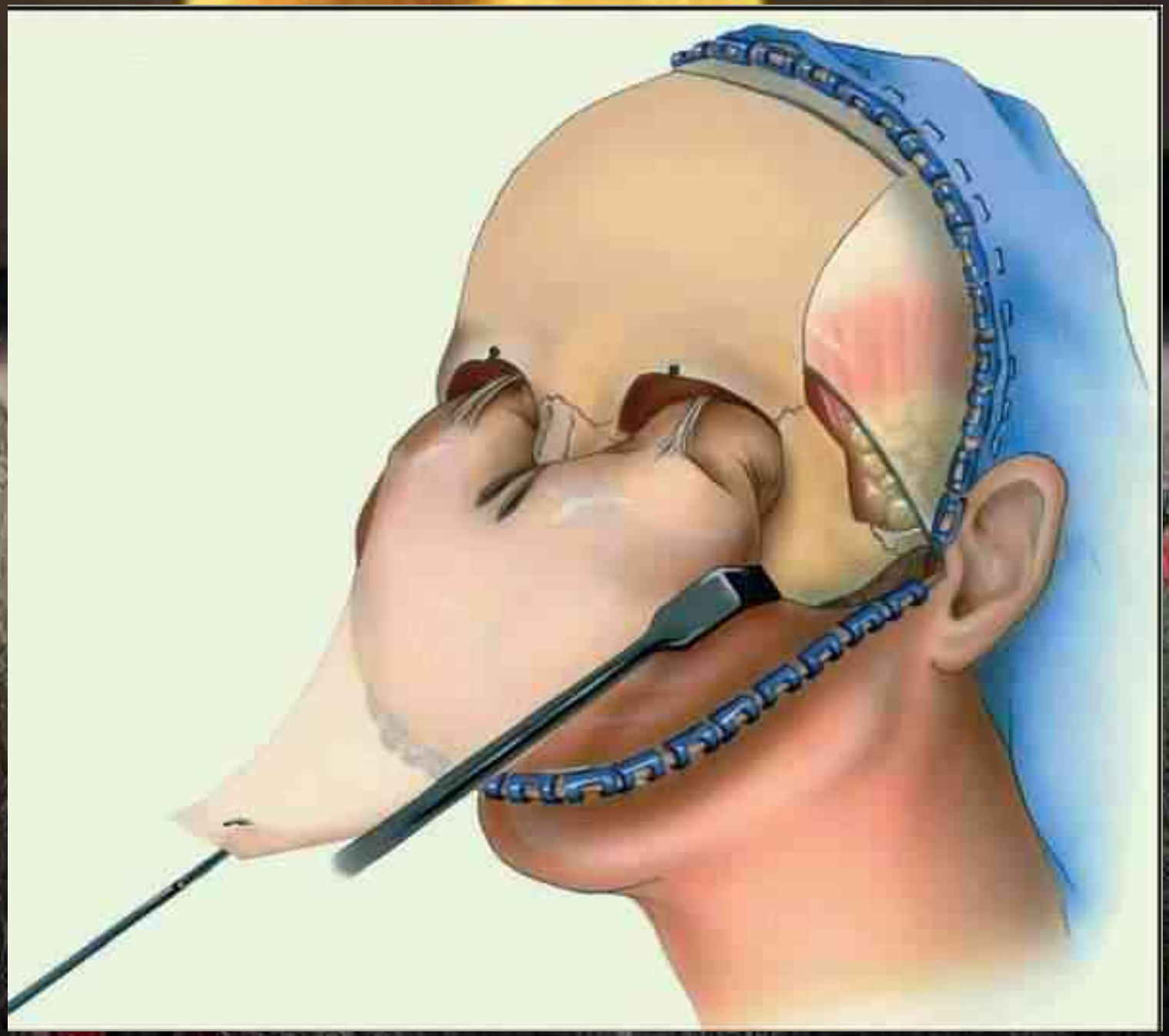


Lefort III and panfacial trauma



Lefort III and panfacial trauma





Lefort III and panfacial trauma

Priority of treatment ;

Reduction of zygomatic bone fracture

Teeth bearing portion

Naso-ethmoidal fracture

And finally nasal complex immobilization

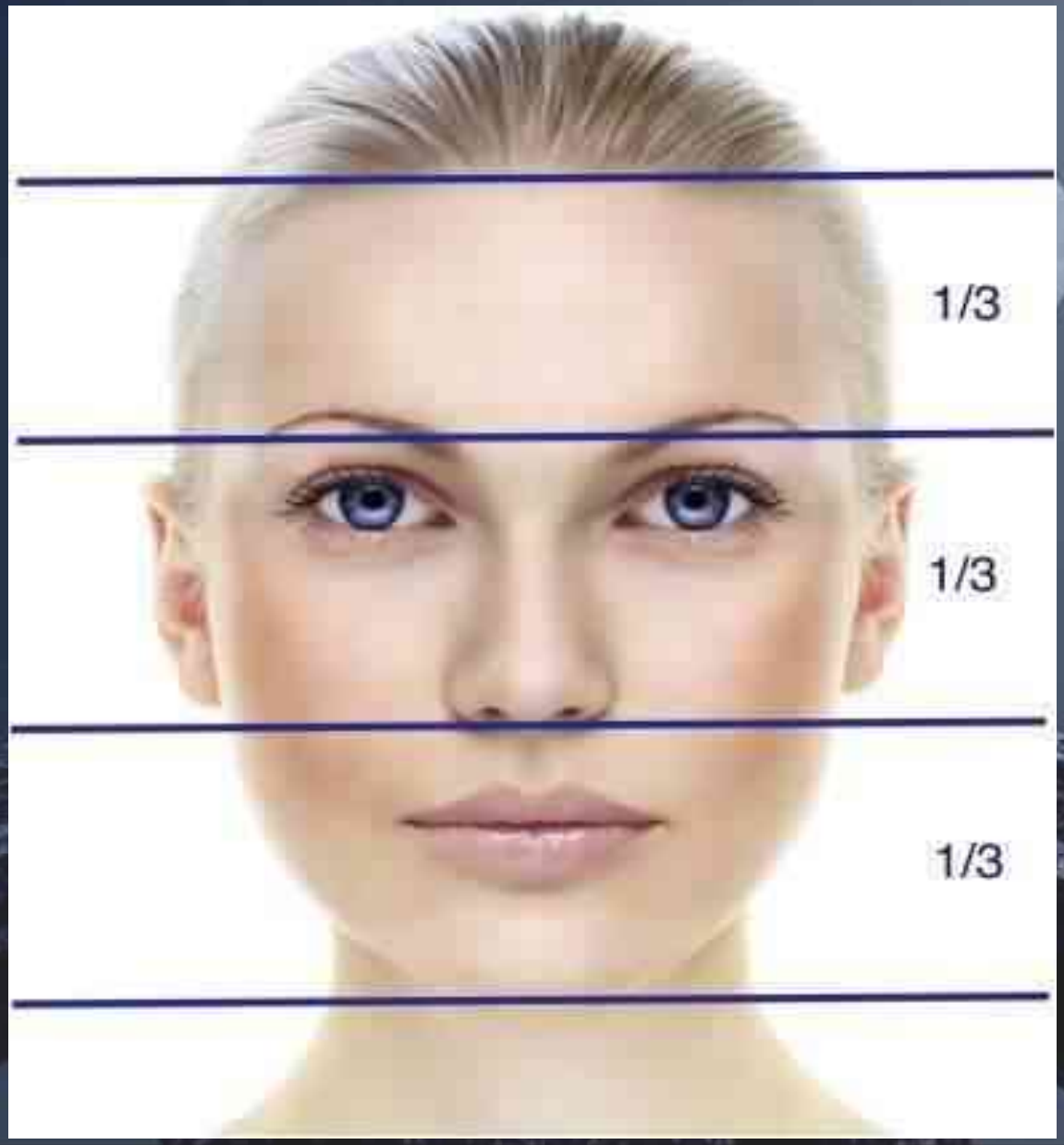
Complications of fractures

- *Complication from head injury*
- *Complications from fracture it self*
- *Complications associated with lacrimal system*
- *Ophthalmic complication*
- *Complications from neural damage*
- *Non - union*


Thank you for listening…

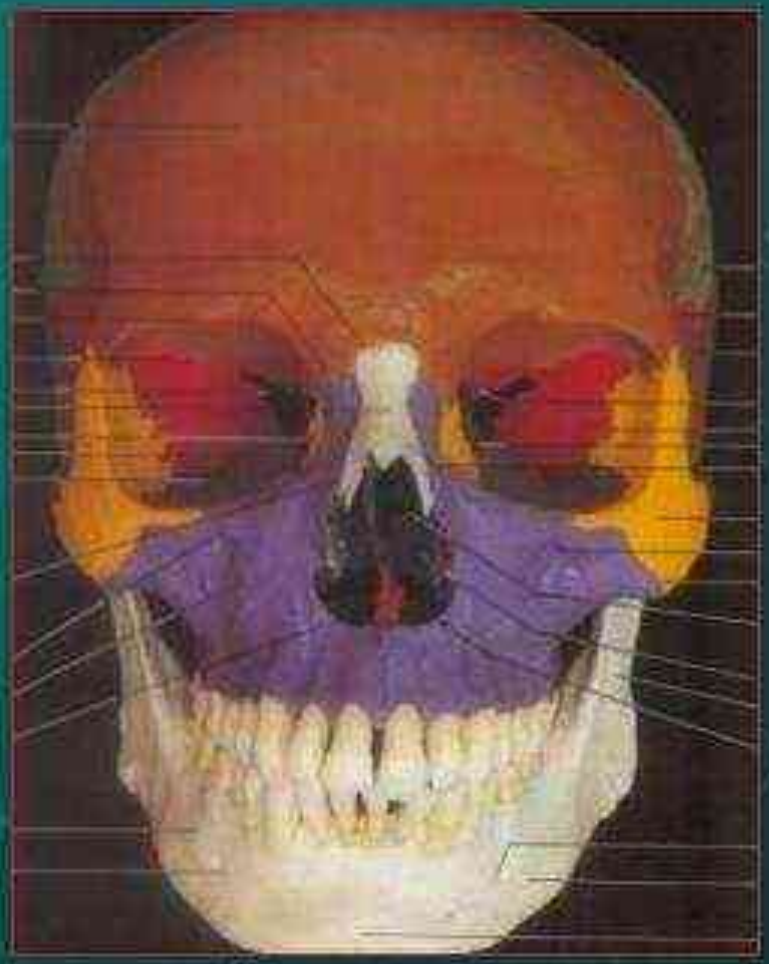
Middle third fractures

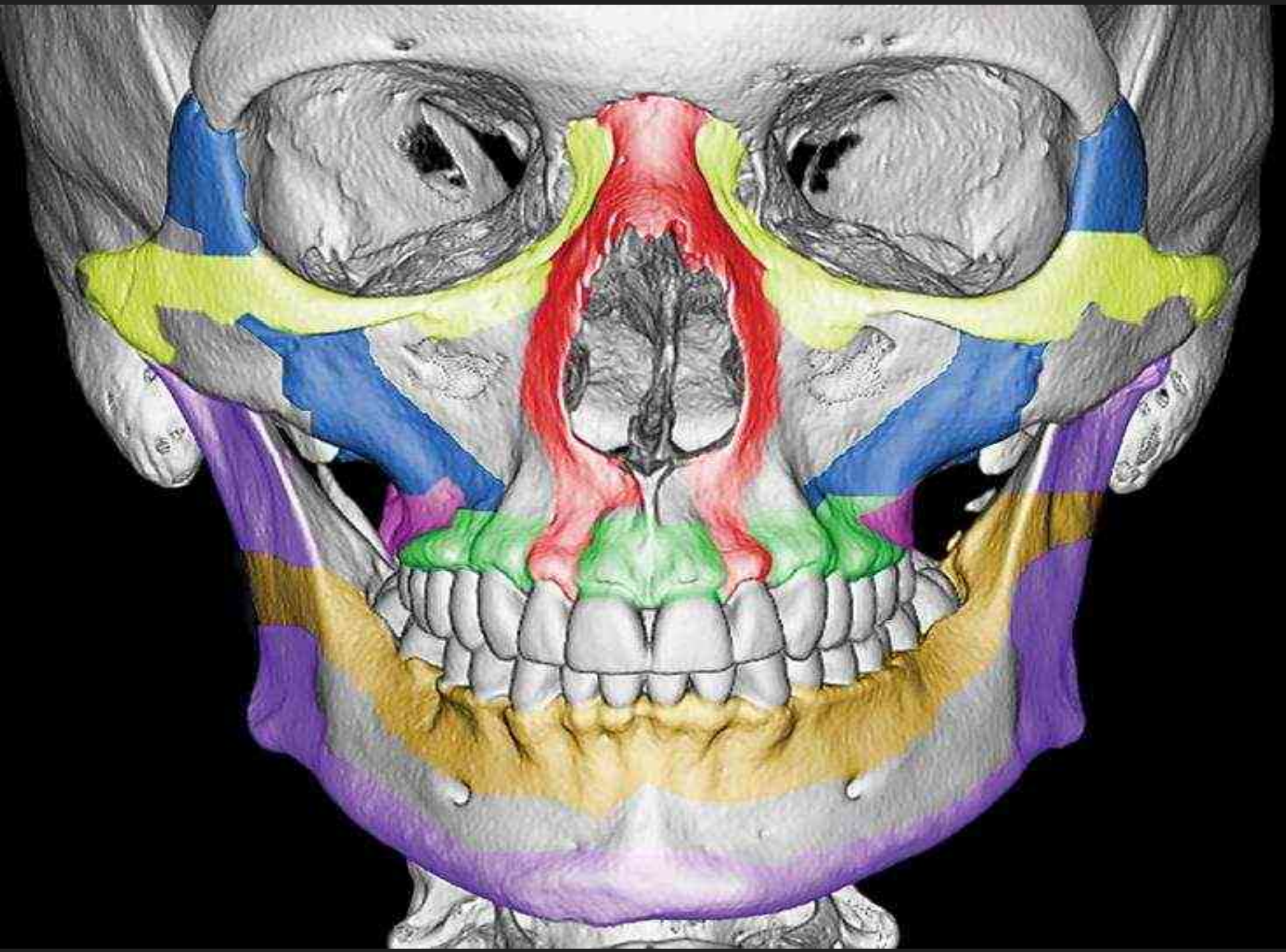
Dr.Mohammed Rhael Ali
(Maxillofacial surgeon)
Tikrit dentistry college

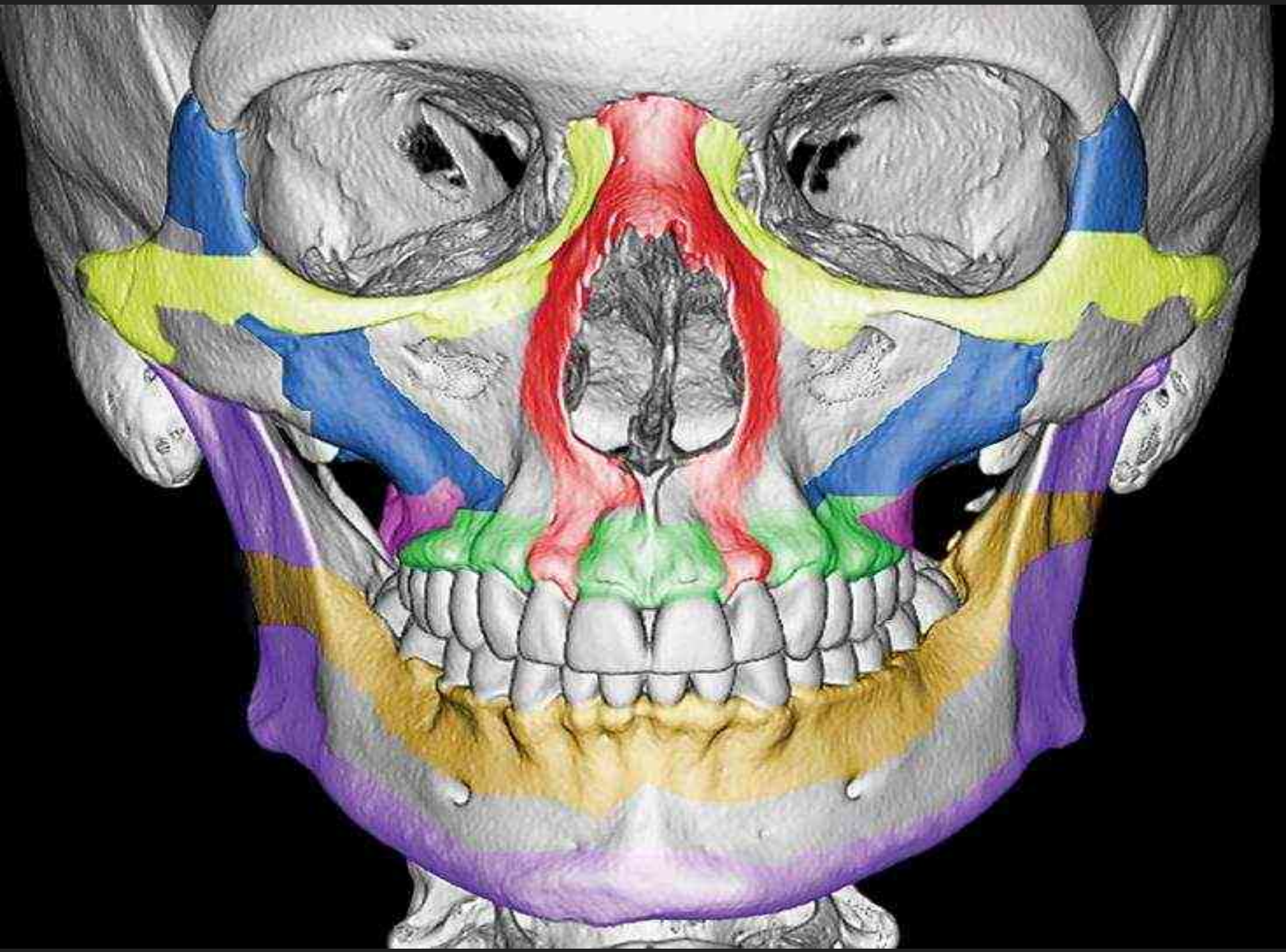

1/3
1/3
1/3

MidFace

- Maxillae
- Palatine bones
- Zygomatic bones
- Zygomatic processes of temporal bones
- nasal bones
- lacrimal bones
- Vomer
- Ethmoid bones & it's concha
- inf. Turbinates
- Pterygoid plates of sphenoid







Physical characteristics of midfacial skeleton

1.middle third consist from multiple bones which is rarely fractured in isolation

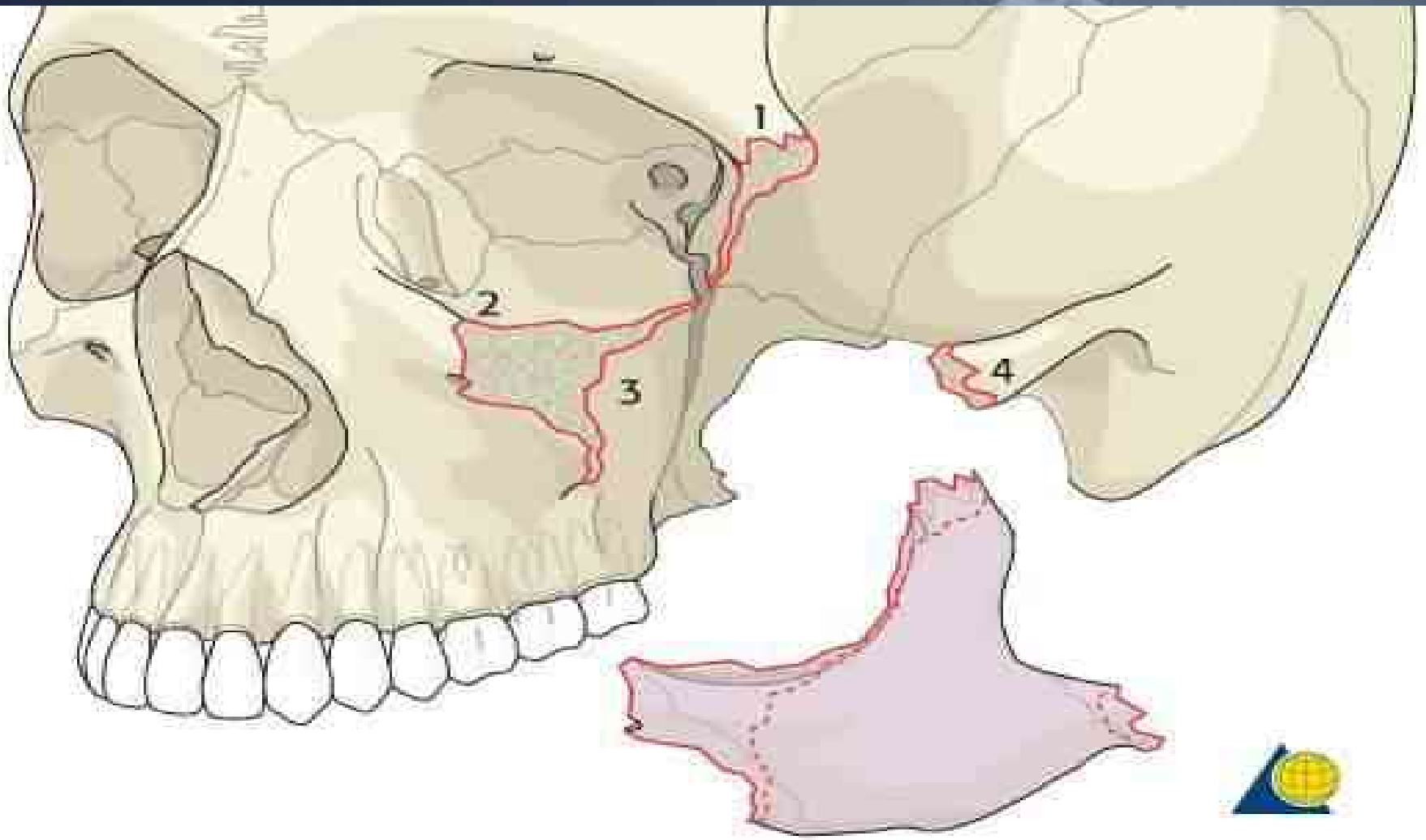
2. it act as a cushion for trauma directed to the cranium

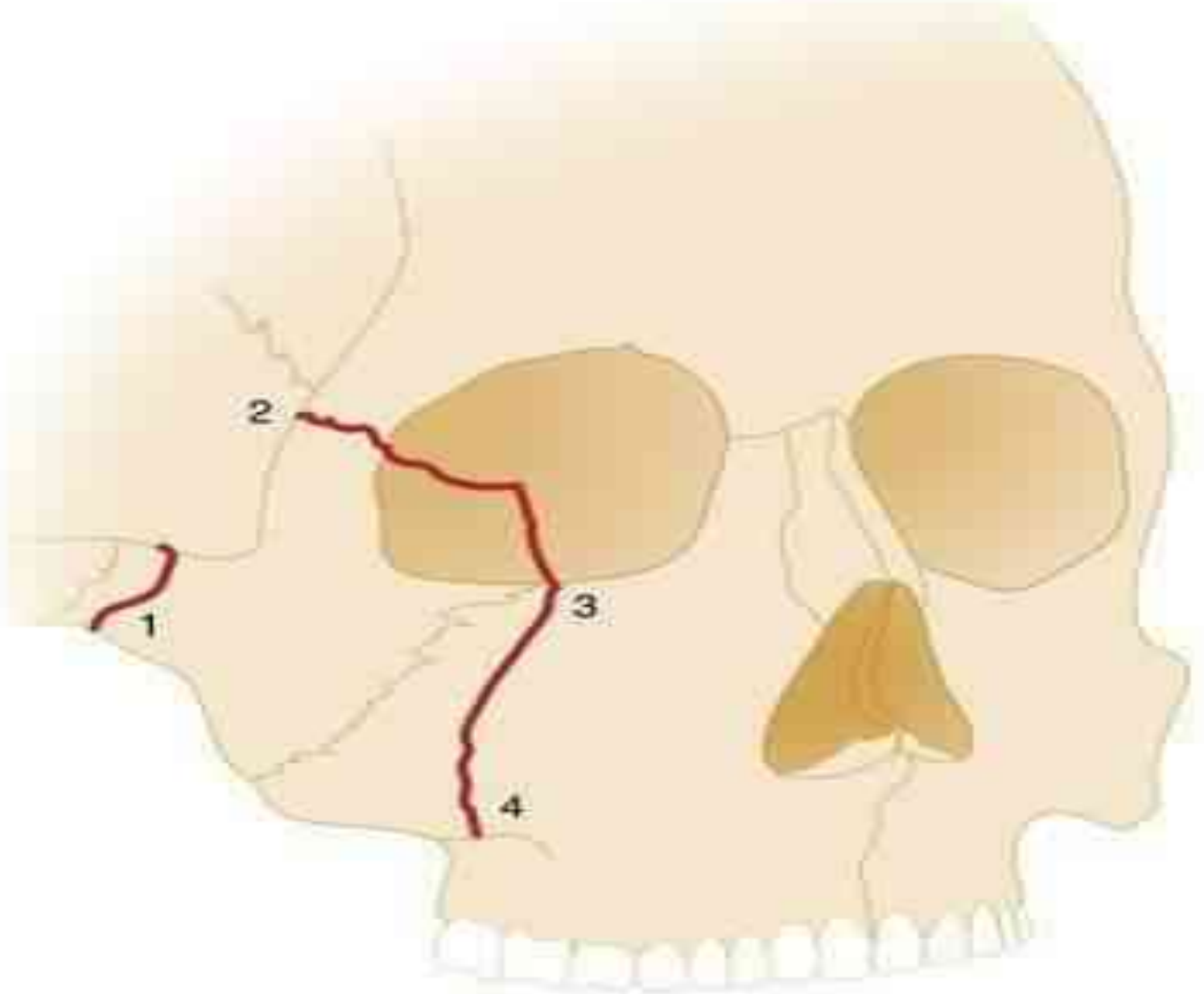
Classification of mid face fractures

- *Dentoalveolar fractures*
- *Zygomatic complex fracture*
- *Orbital floor fracture*
- *Nasal complex fracture*
- *Le Fort I*
- *Le Fort II*
- *Le Fort III*


CLINICAL PRESENTATIONS

Fracture of zygomatic ((complex))



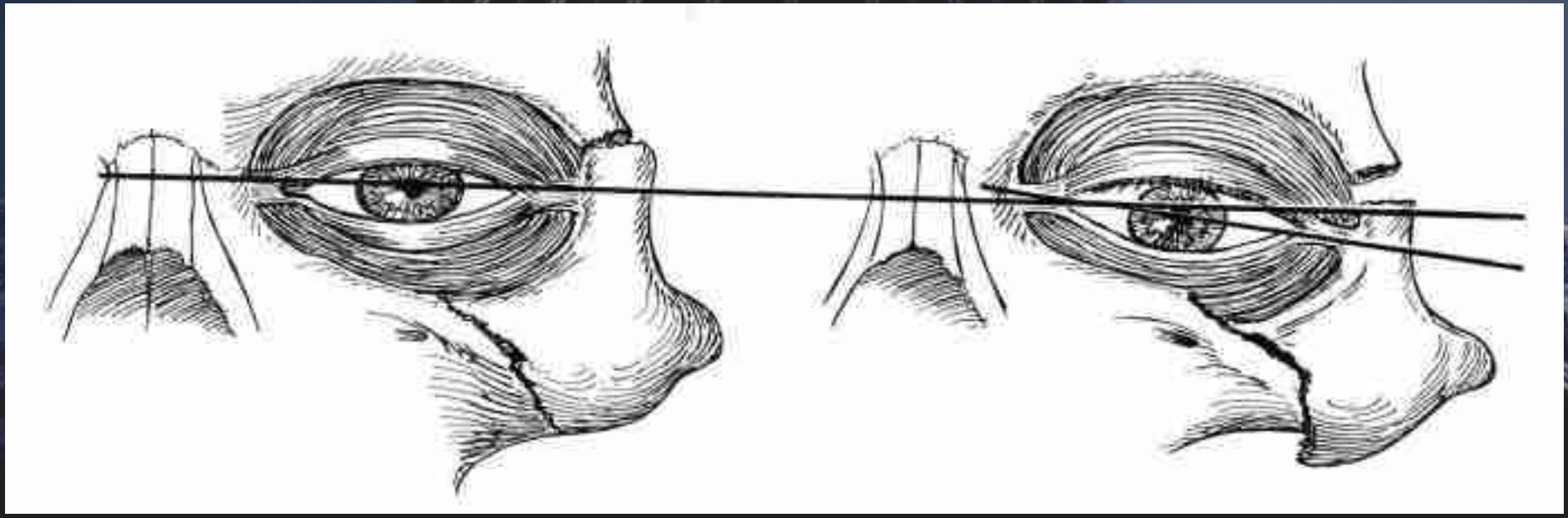


Source: Tintinalli JE, Stapczynski JS, Ma OJ, Cline DM, Cydulka RK, Meckler GD: *Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 7th Edition*: http://www.accessmedicine.com

Classification of zygomatic complex fracture

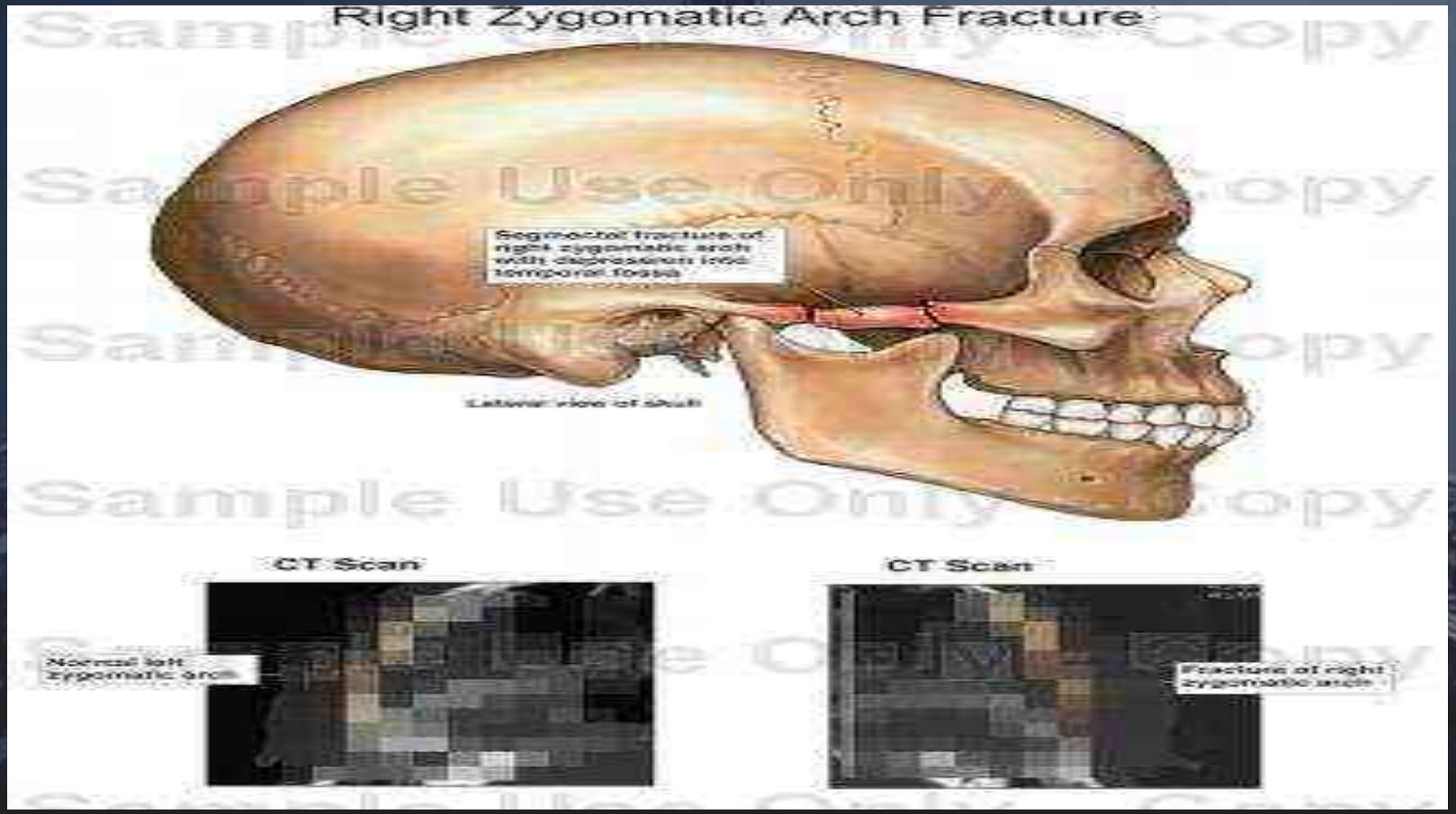
I . **Fracture of the body**

a. Minimal or no displacement
b. Inward and downward displacement
c. Inward and posterior displacement
d. Outward displacement
e. Comminution



II. Fracture of zygomatic arch

a. Minimal or no displacement
b. V-type fracture
c. comminuted



Signs and symptoms

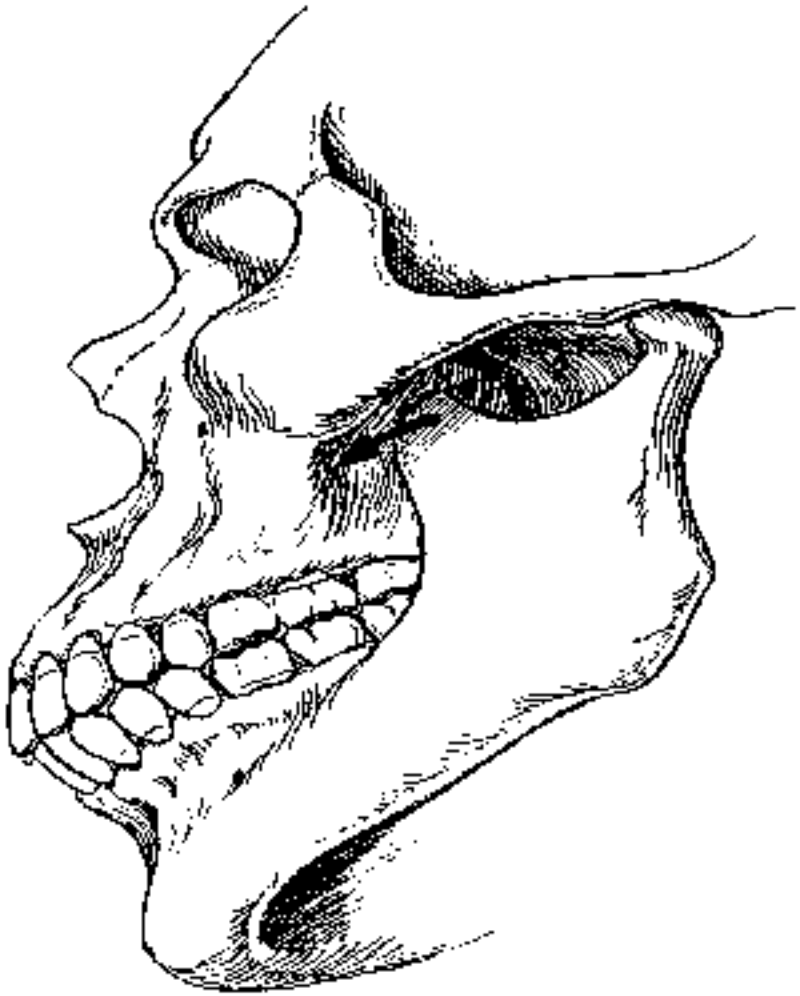
I. Extra oral

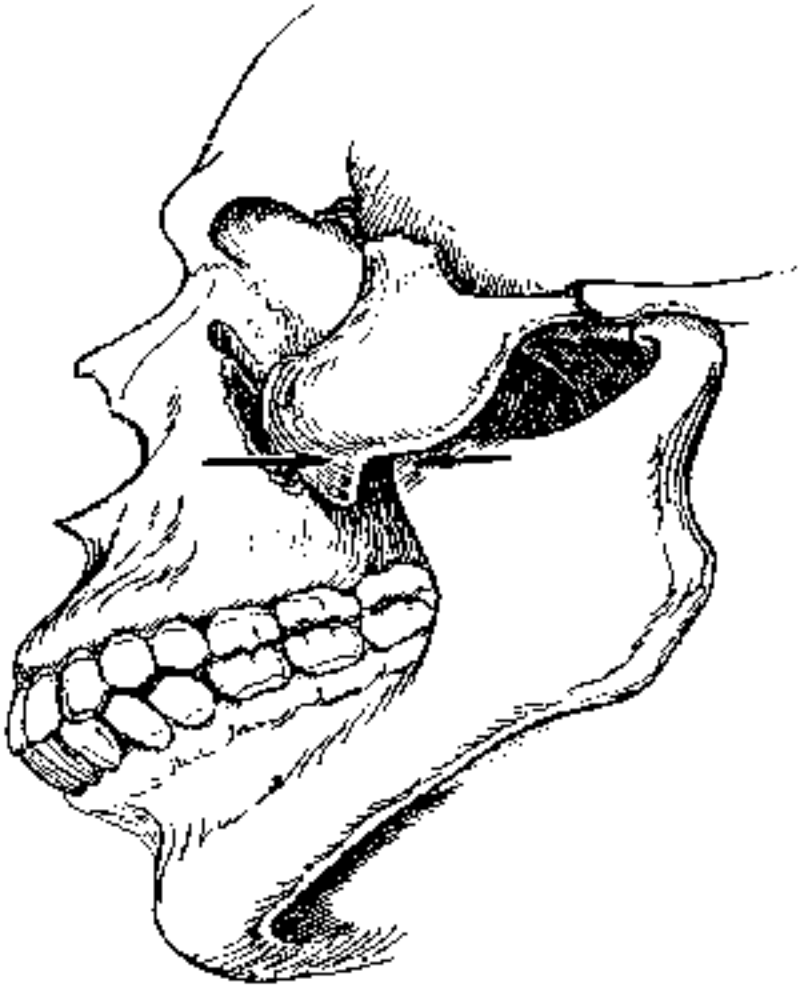
- Inspection

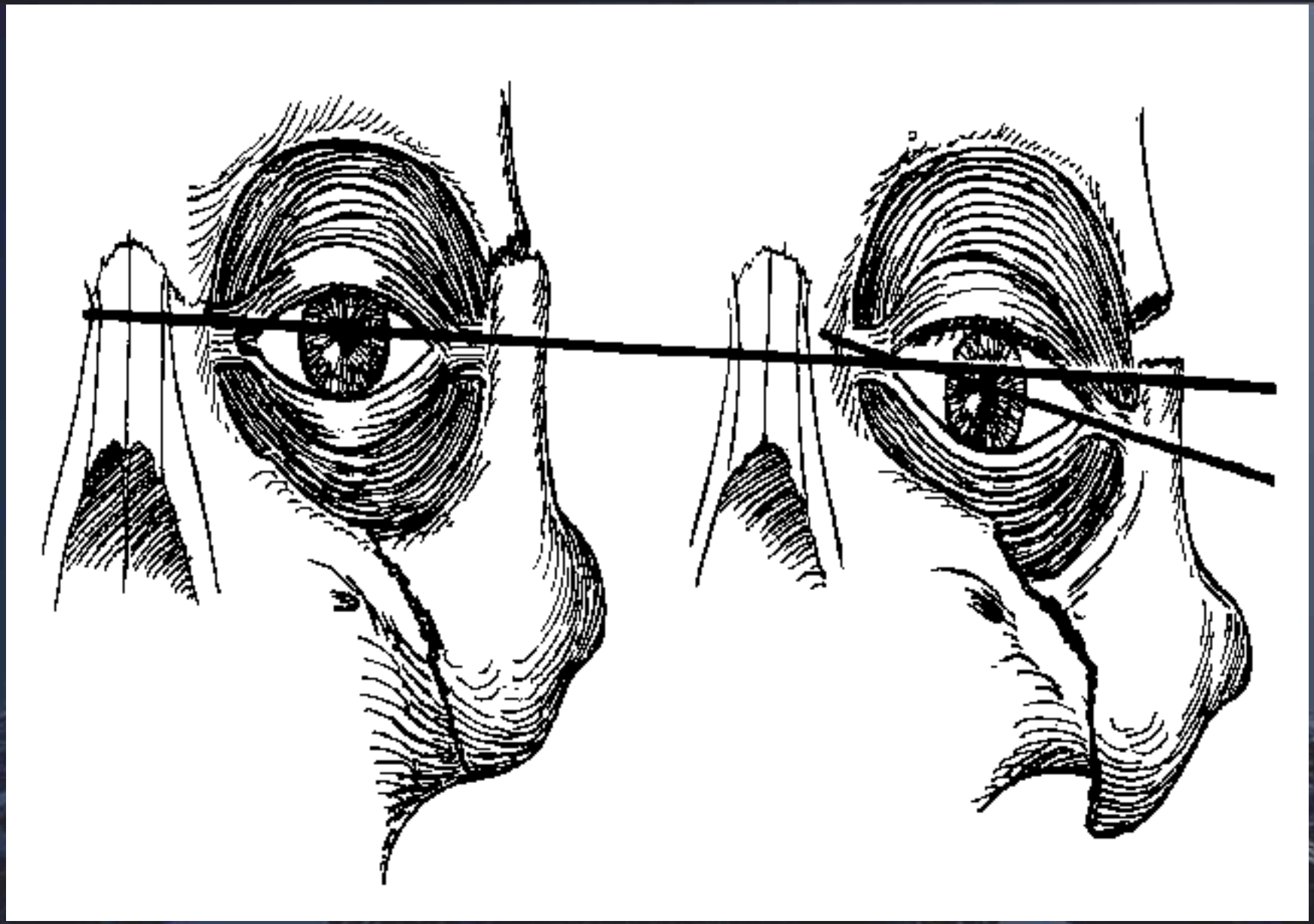
a. Circumorbital ecchymosis
b. Subconjunctival heamorrhage
c. Edema
d. Flattening zygoma region
e. Limitation of ocular movement
f. Diplopia
g. Strabismus
h. Enophthalmos
i. Limitation of mouth opening
j. Unilateral epistaxis

BIRD'S EYE VEIW

Method of assessing posterior displacement of the ZMC from behind the patient. The clinician should firmly depress the fingers into the edematous soft tissue while palpating along infraorbital areas.







- ***Palpation***

a. ***Tenderness over the cheek bones***
b. ***Tenderness and separartion at frontozygomatic suture***
c. ***Step at inferior orbital rim***
d. ***Parasthesia of the cheek***

Clinical features of Zygomatic Fractures

Common clinical features:

- Edema
- Circumorbital ecchymosis
- Subconjunctival hemorrage
- Malar depression
- Step defect at infraorbital rim
- Step defect at frontozygomatic suture
- Unilateral Epistaxis

Intra oral examination

- By inspection

a. Ecchymosis at the buccal vestibule in the region of zygomatico-maxillary suture

b. Possible of occlusion gagging in molar region

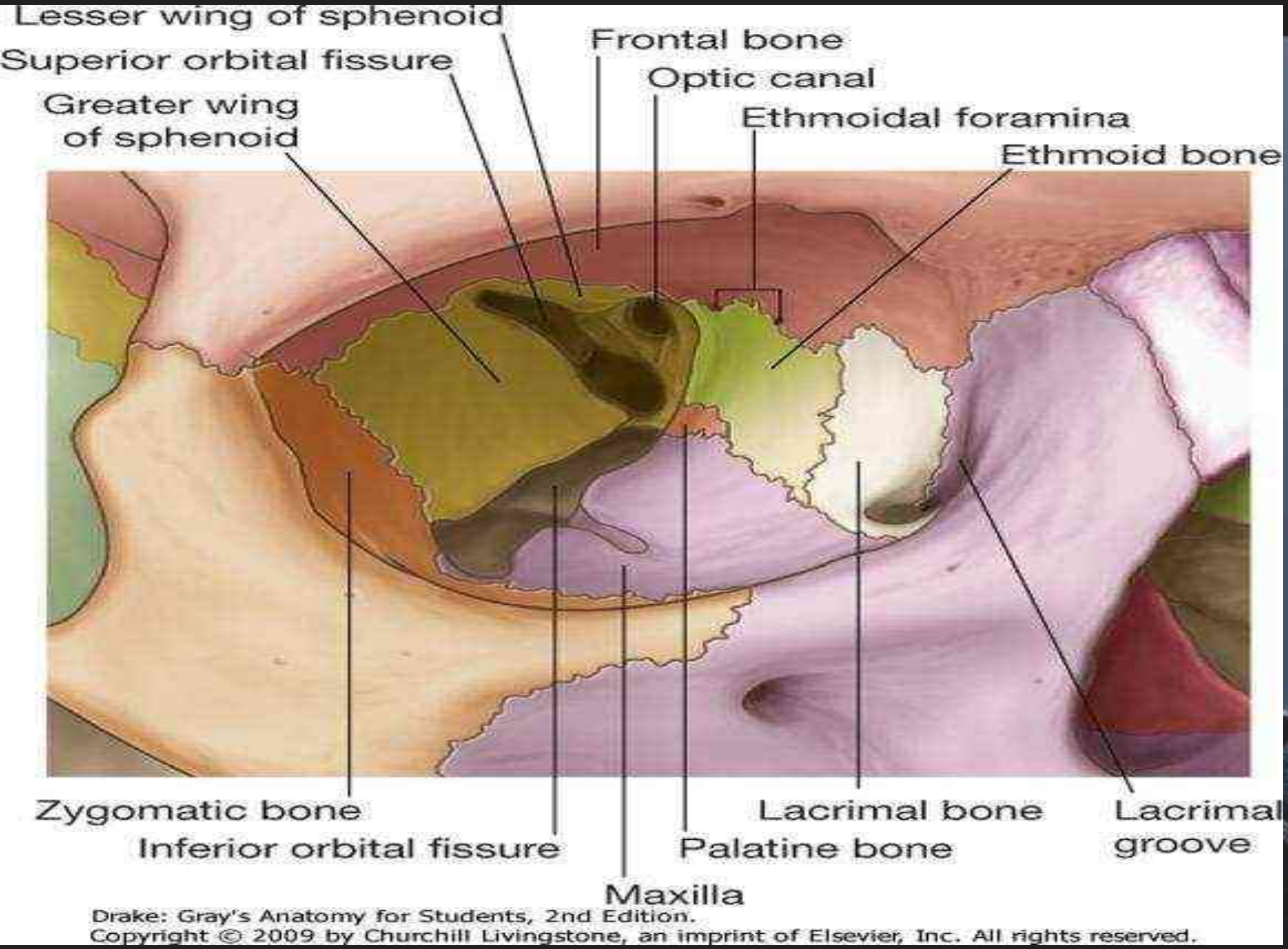
- By palpation

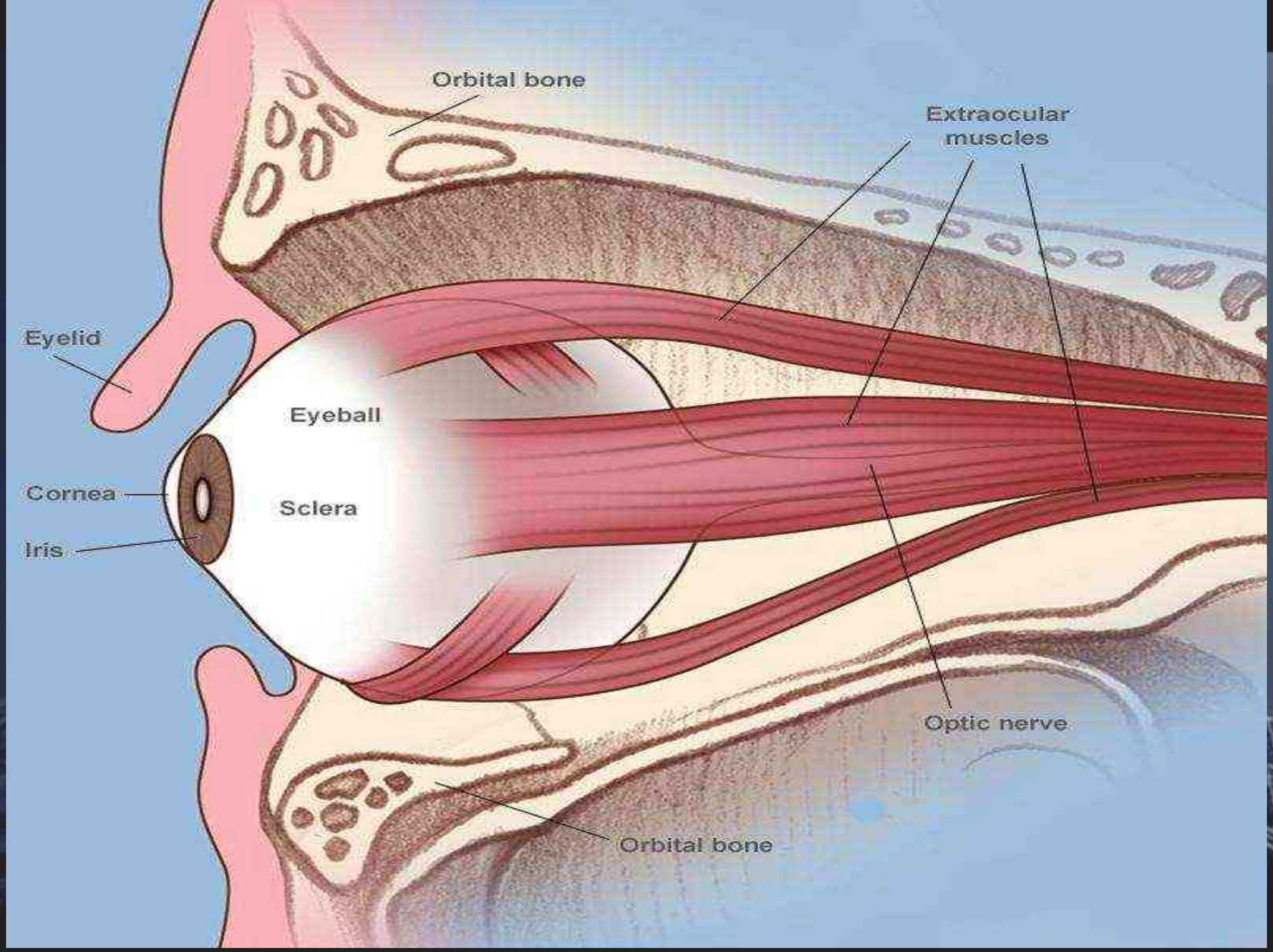
- Tenderness
- Anasthesia at the upper lip

Zygoma Arch Fractures Clinical Findings

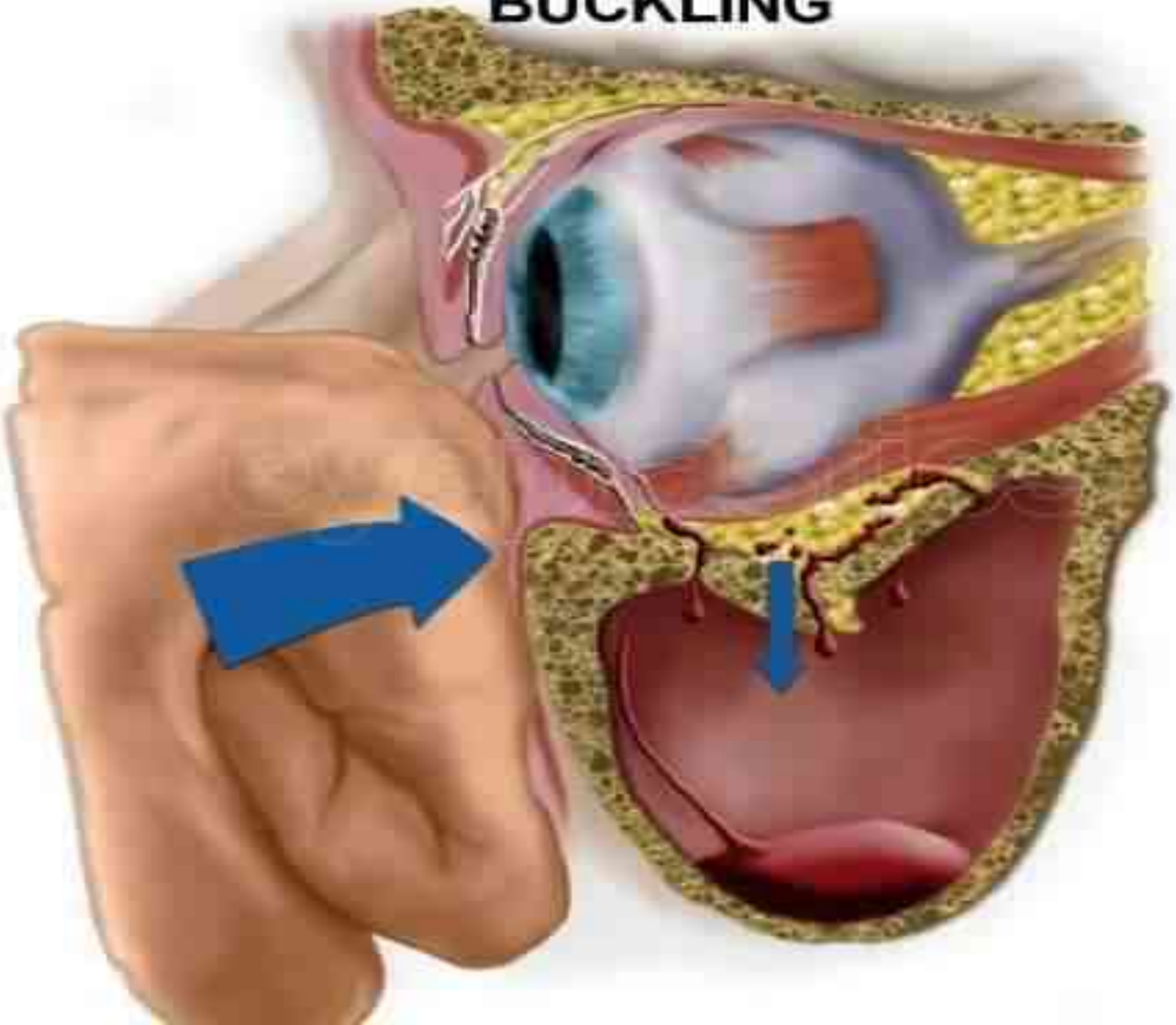
- Palpable bony defect over the arch
- Depressed cheek with tenderness
- Pain in cheek and jaw movement
- Limited mandibular movement


Orbital floor fracture




Orbital bone
Extraocular muscles
Eyelid
Eyeball
Cornea
Sclera
Iris
Optic nerve
Orbital bone

BUCKLING



Signs and symptoms

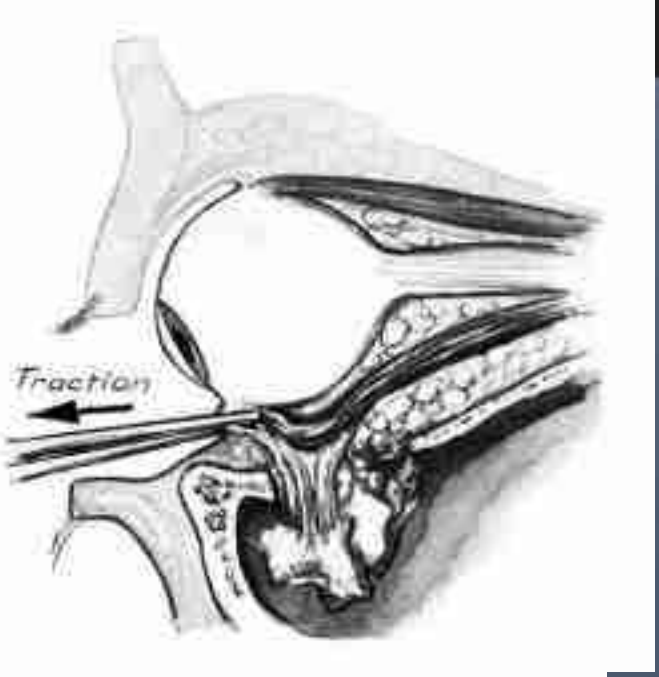
- *Edema , COE , SCE , Emphysema*
- *Unilateral epistaxis*
- *Parasthesia within the distribution of infra-orbital nerve*
- *Limitation of eye movement*
- *Enophthalmus,diplopia,ptosis*
- *proptosis*

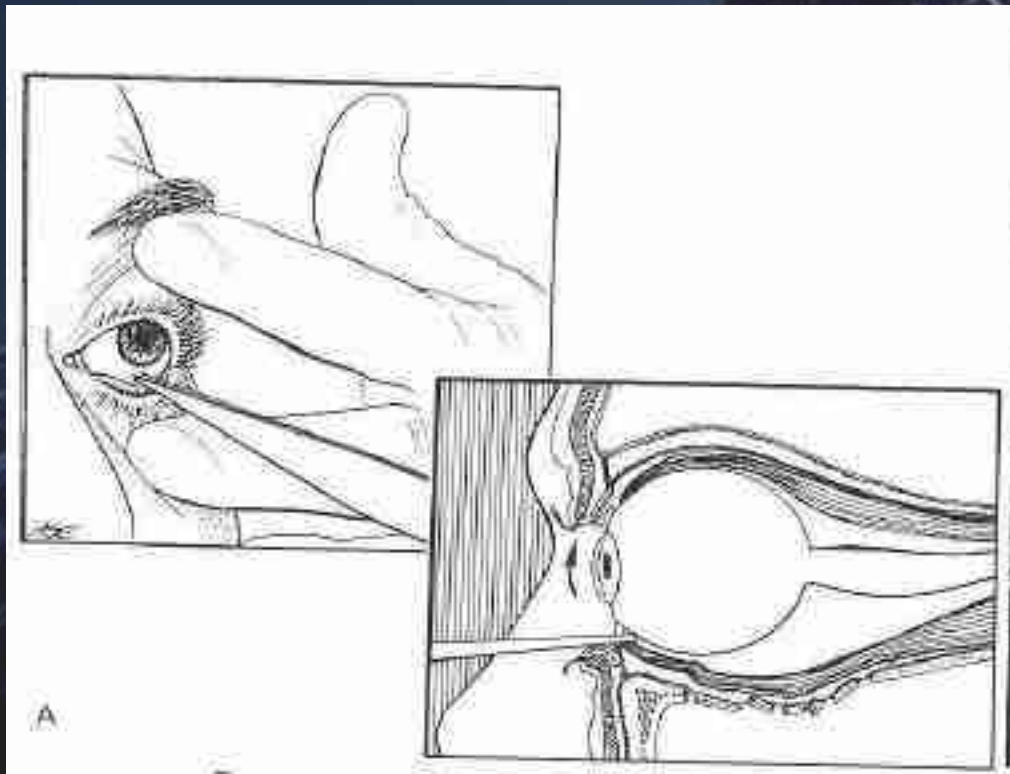
Invesigations

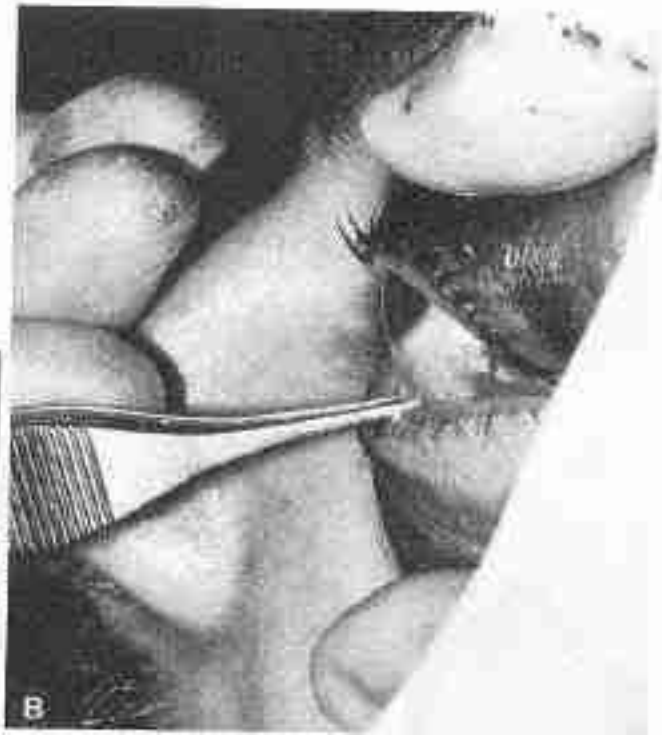
- ***Forced duction test***
- ***Cardinal position of the gaze***

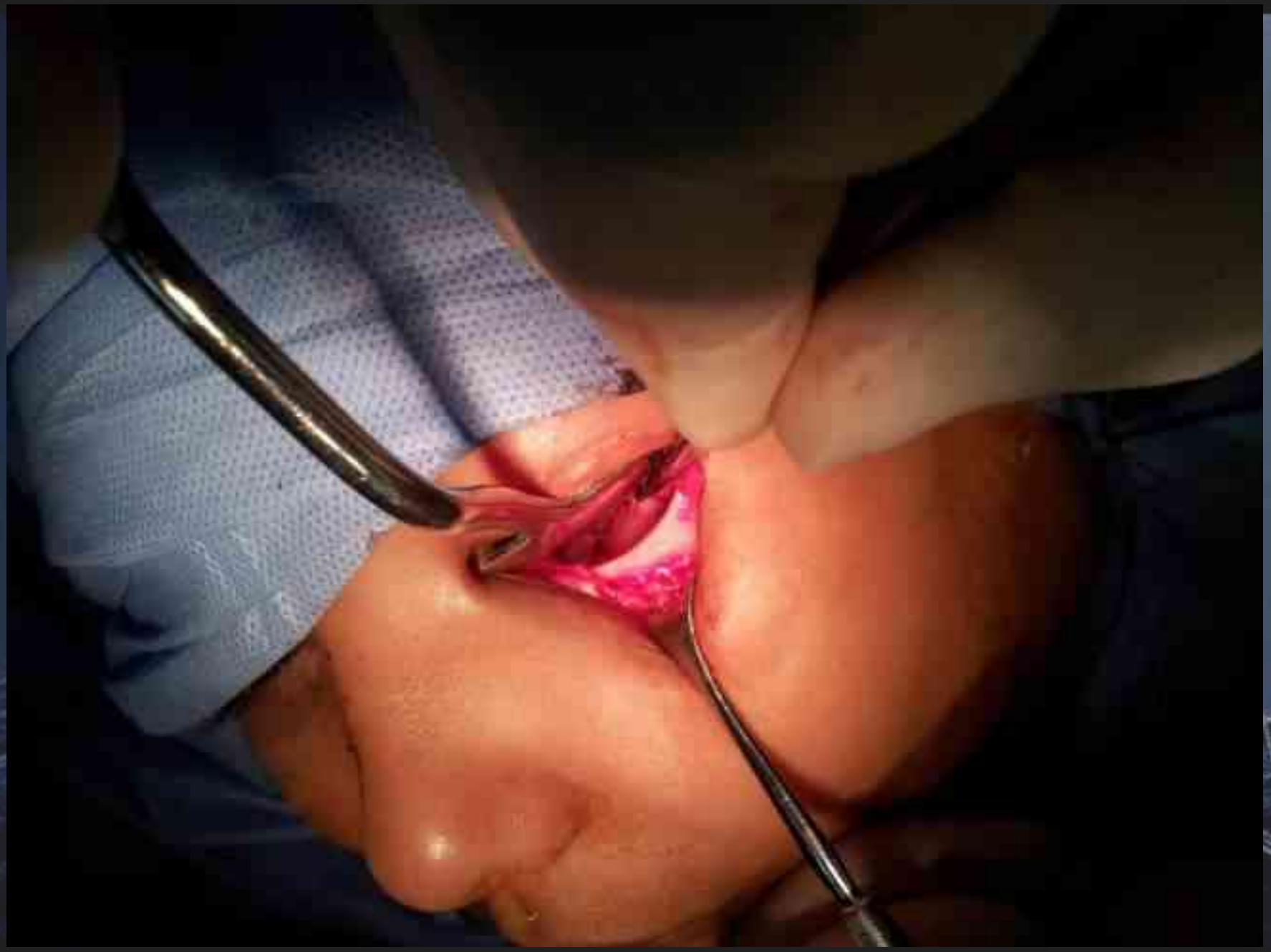
Forced duction test:

This test use to differentiate between Muscle entrapment and muscle paralysis





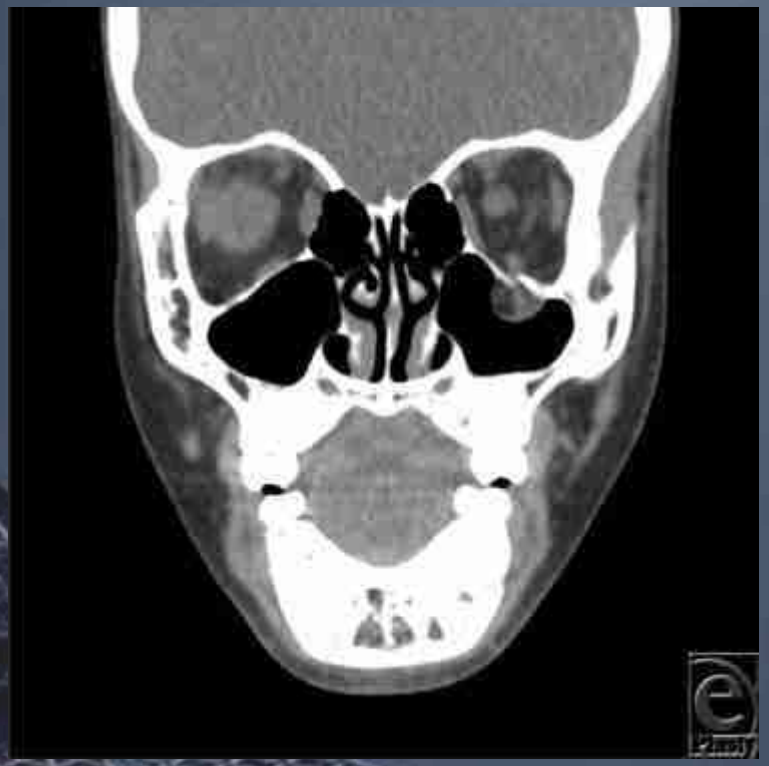




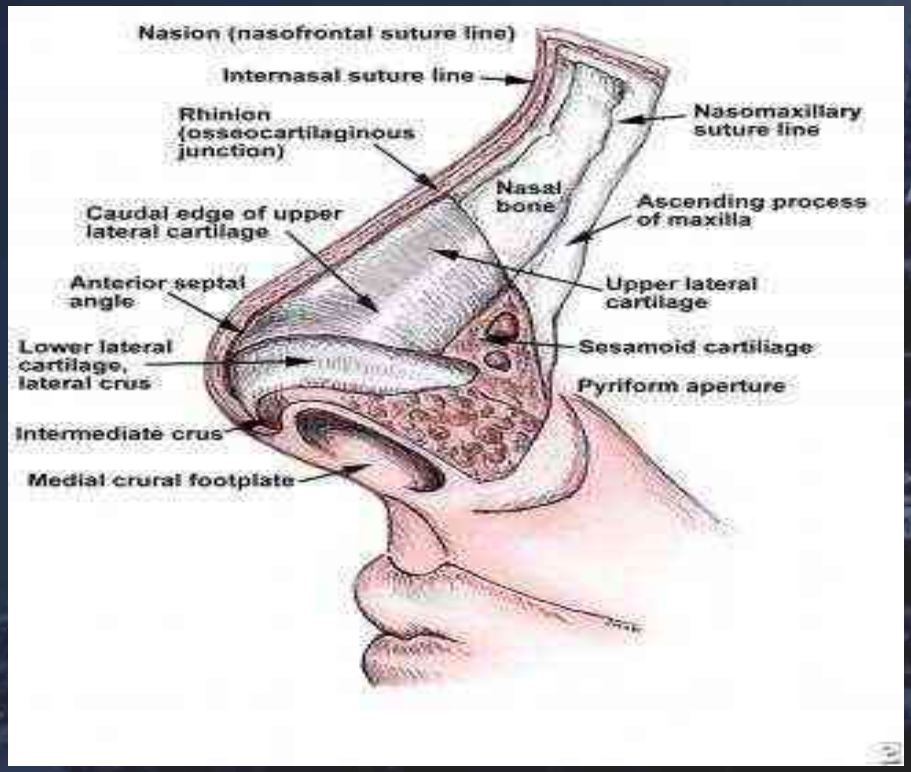
➢ Radiology

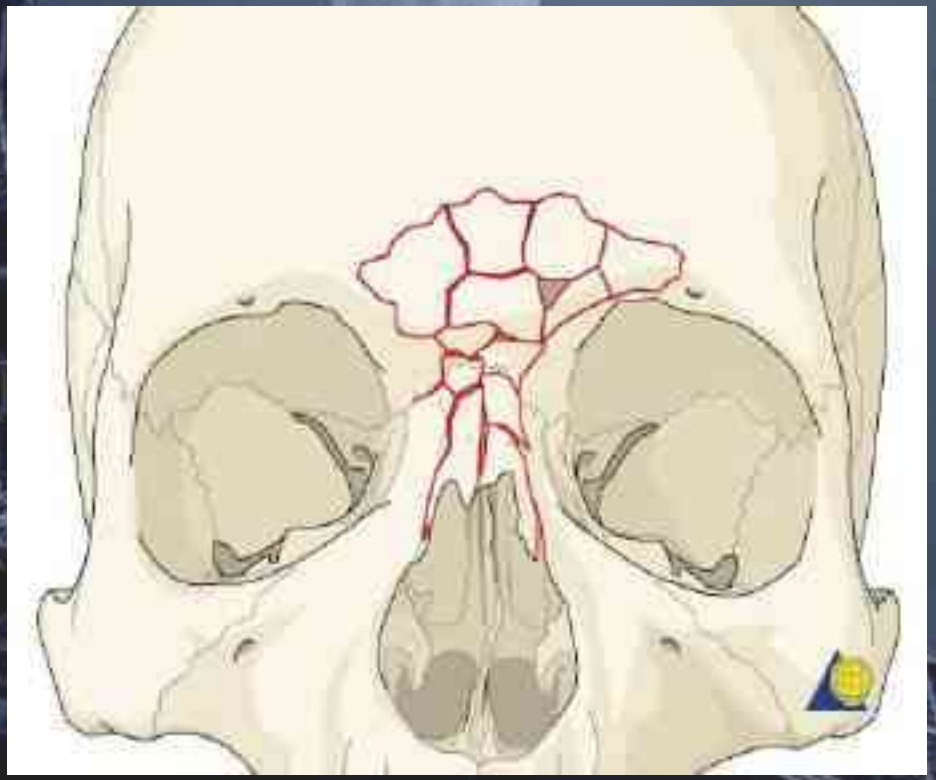
a. Opacity of sinusis

b. Hanging drop sign



Nasal complex fracture

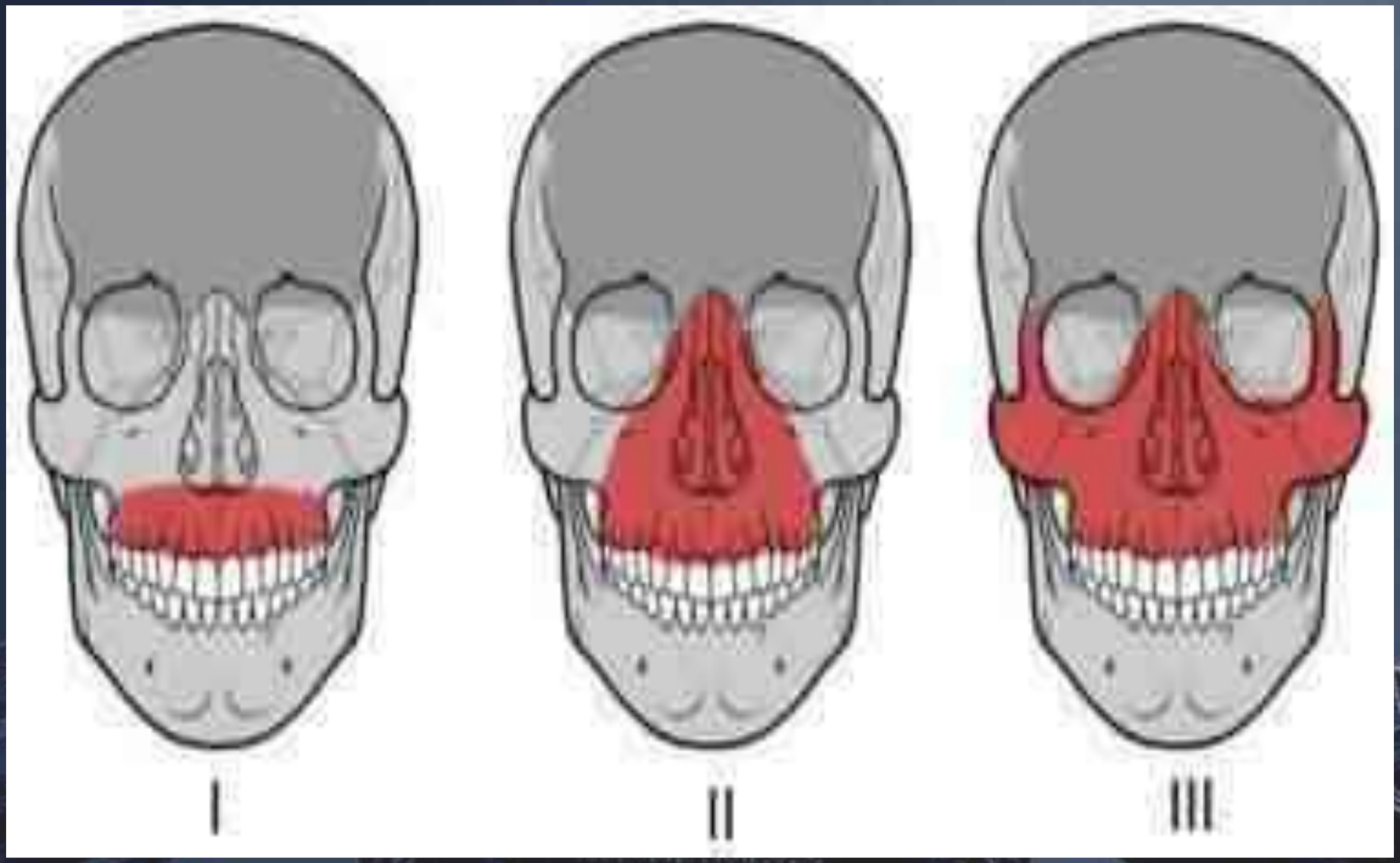


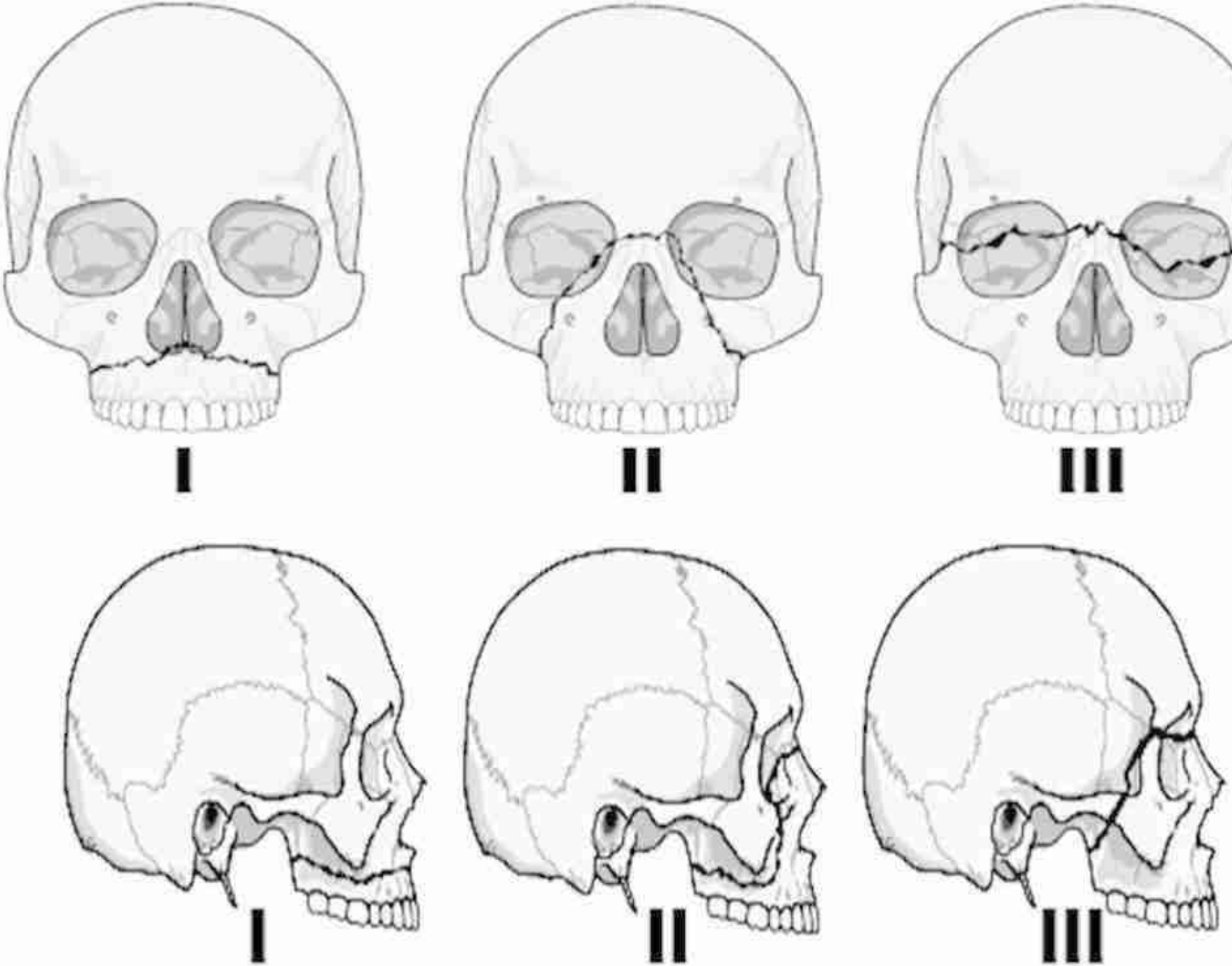


Signs and symptoms

- *Edema , SCH, COE ,lacerations*
- *Epistaxis*
- *Deviation of the nose*
- *Mobility of bone*
- *epiphoria*

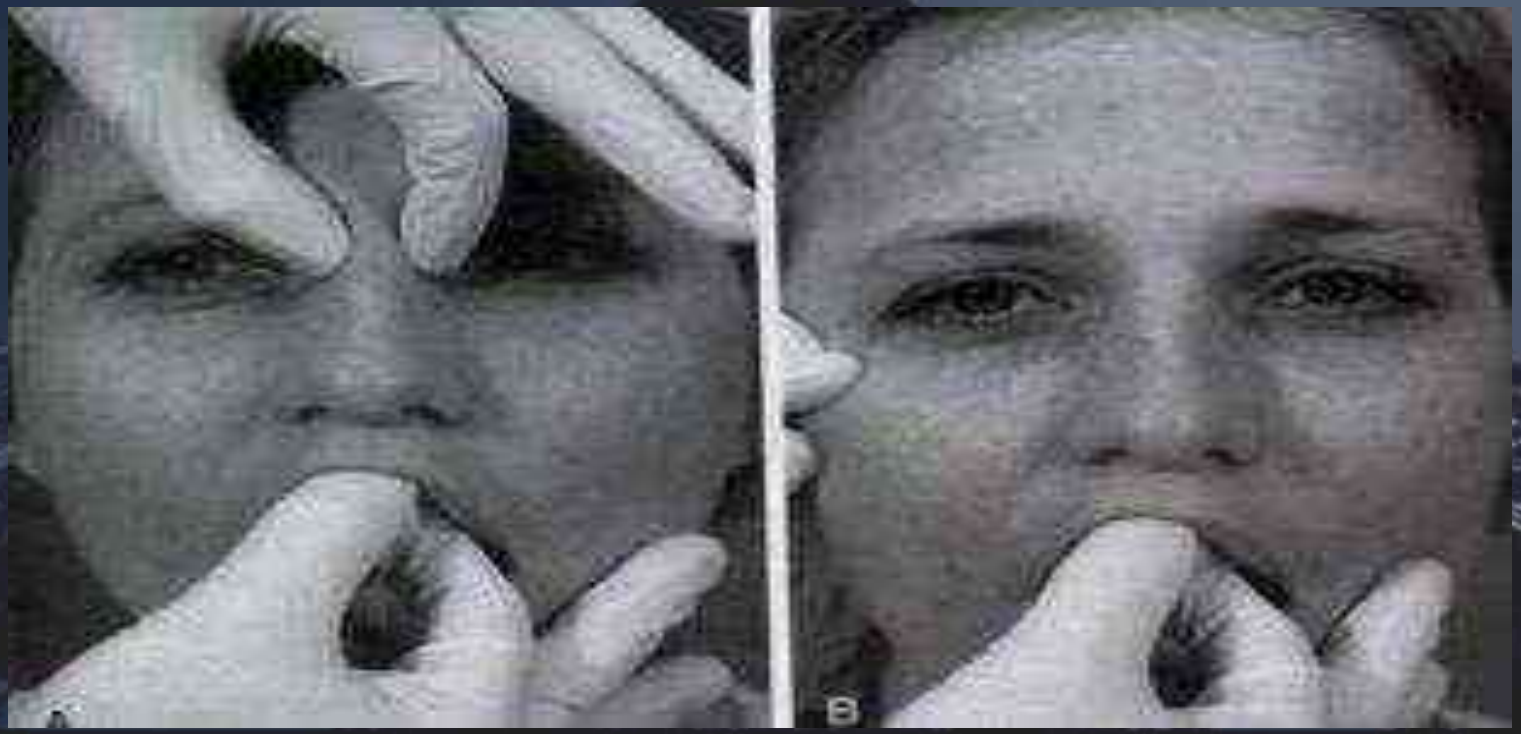

LEFORT FRACTURES


I
II
III


I
II
III
I
II
III

Lefort I

- ***Clinical findings:***
  - ***Facial edema***
  - ***Malocclusion of the teeth***
  - ***Motion of the maxilla while the nasal bridge remains stable***

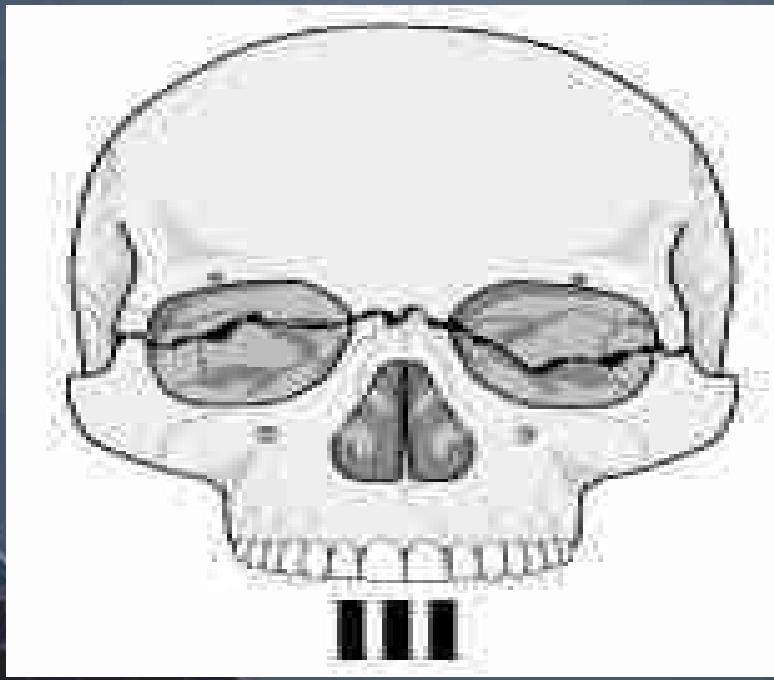


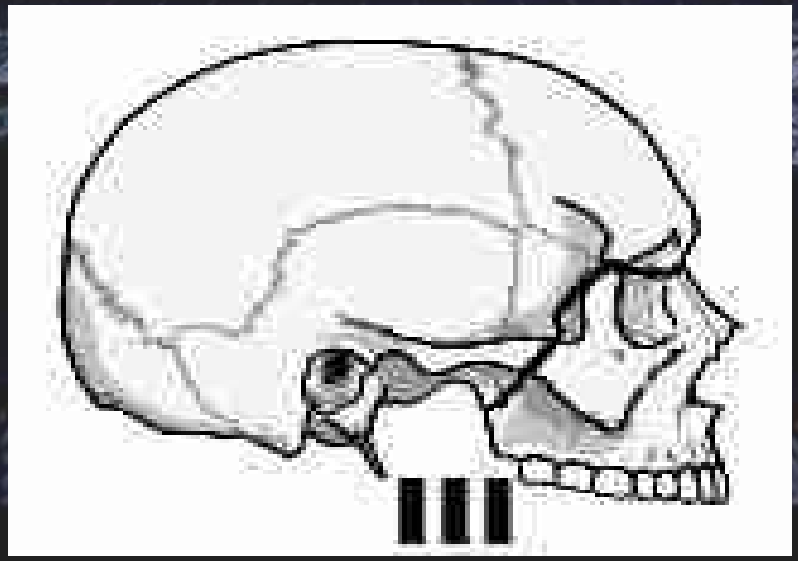
LeFort II

- ***Clinical findings:***
  - ***Marked facial edema***
  - ***Nasal flattening***
  - ***Traumatic telecanthus***
  - ***Epistaxis or CSF rhinorrhea***
  - ***Movement of the upper jaw and the nose.***

LeFort III

– *Fractures through:*
  - *Maxilla*
  - *Zygoma*
  - *Nasal bones*
  - *Ethmoid bones*
  - *Base of the skull*

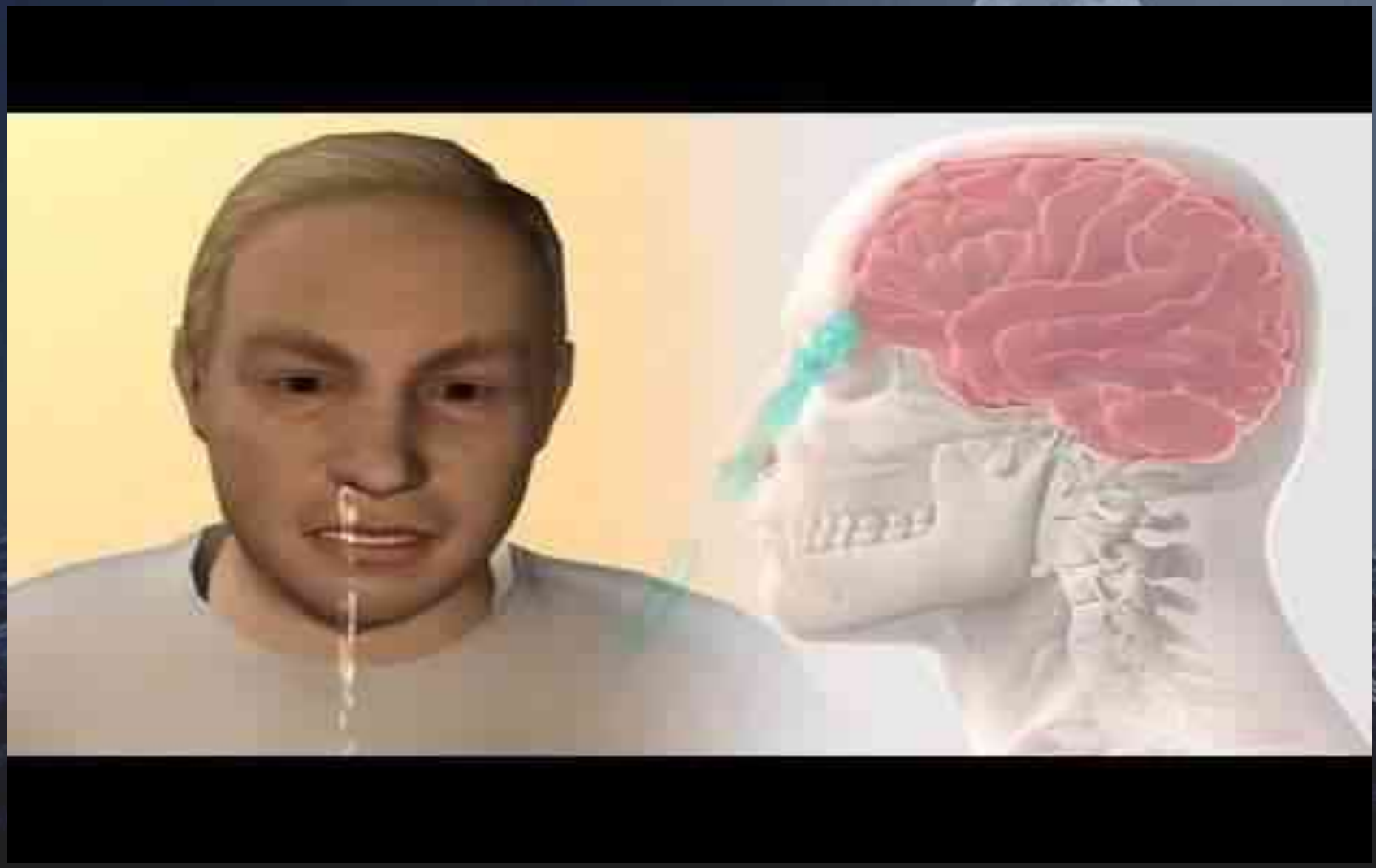




LeFort III

- *Clinical findings:*
  - *Dish faced deformity*
  - *Epistaxis and CSF rhinorrhea*
  - *Motion of the maxilla, nasal bones and zygoma*
  - *Severe airway obstruction*

CSF leak



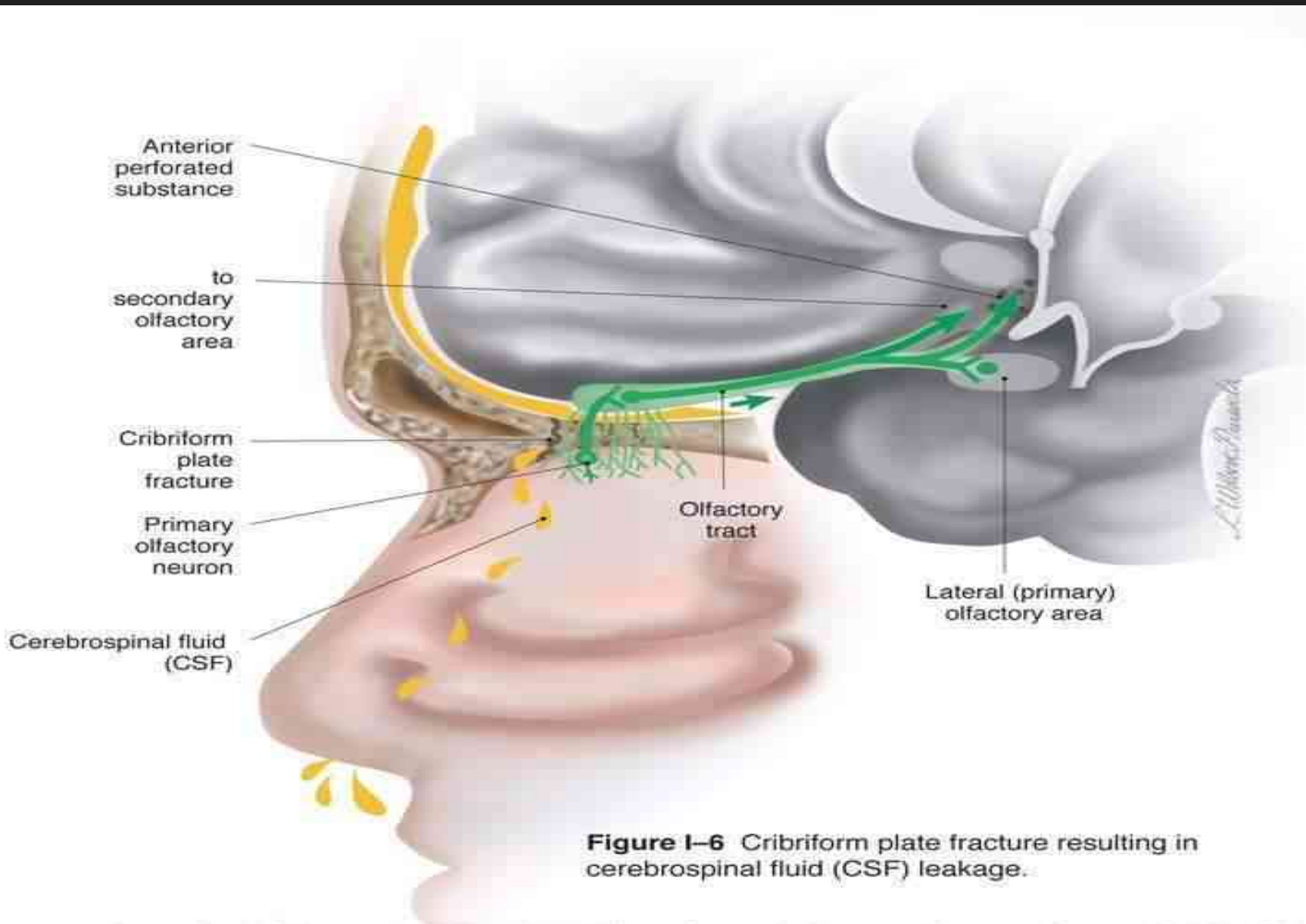
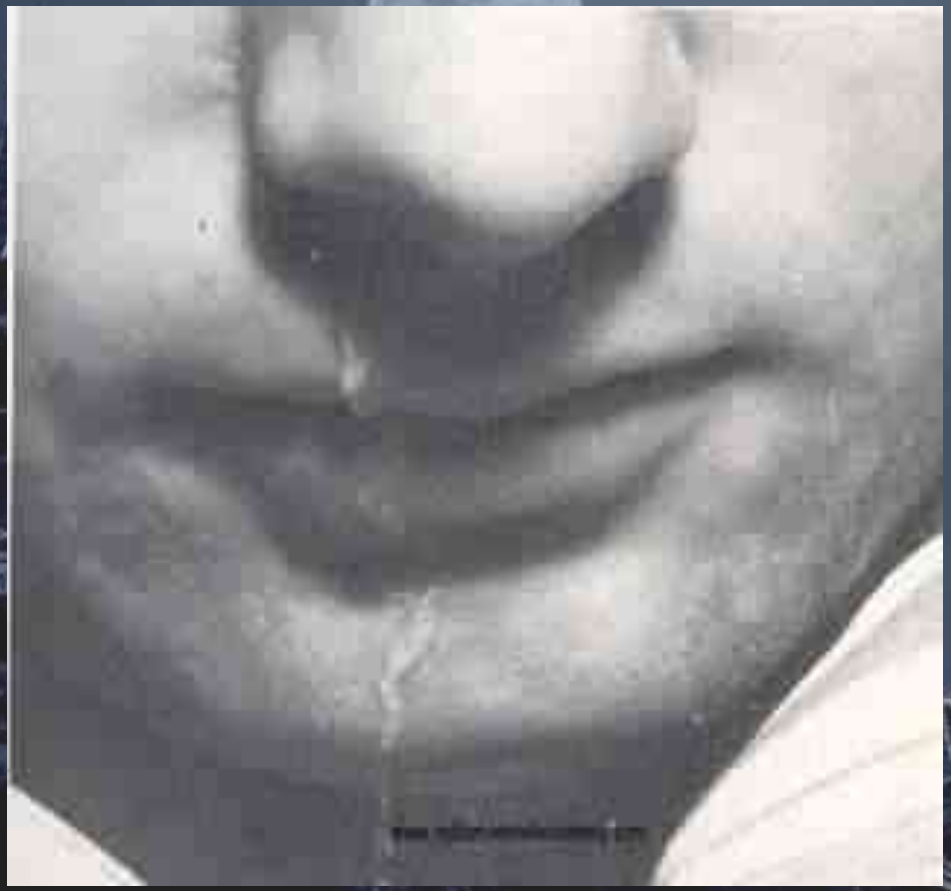


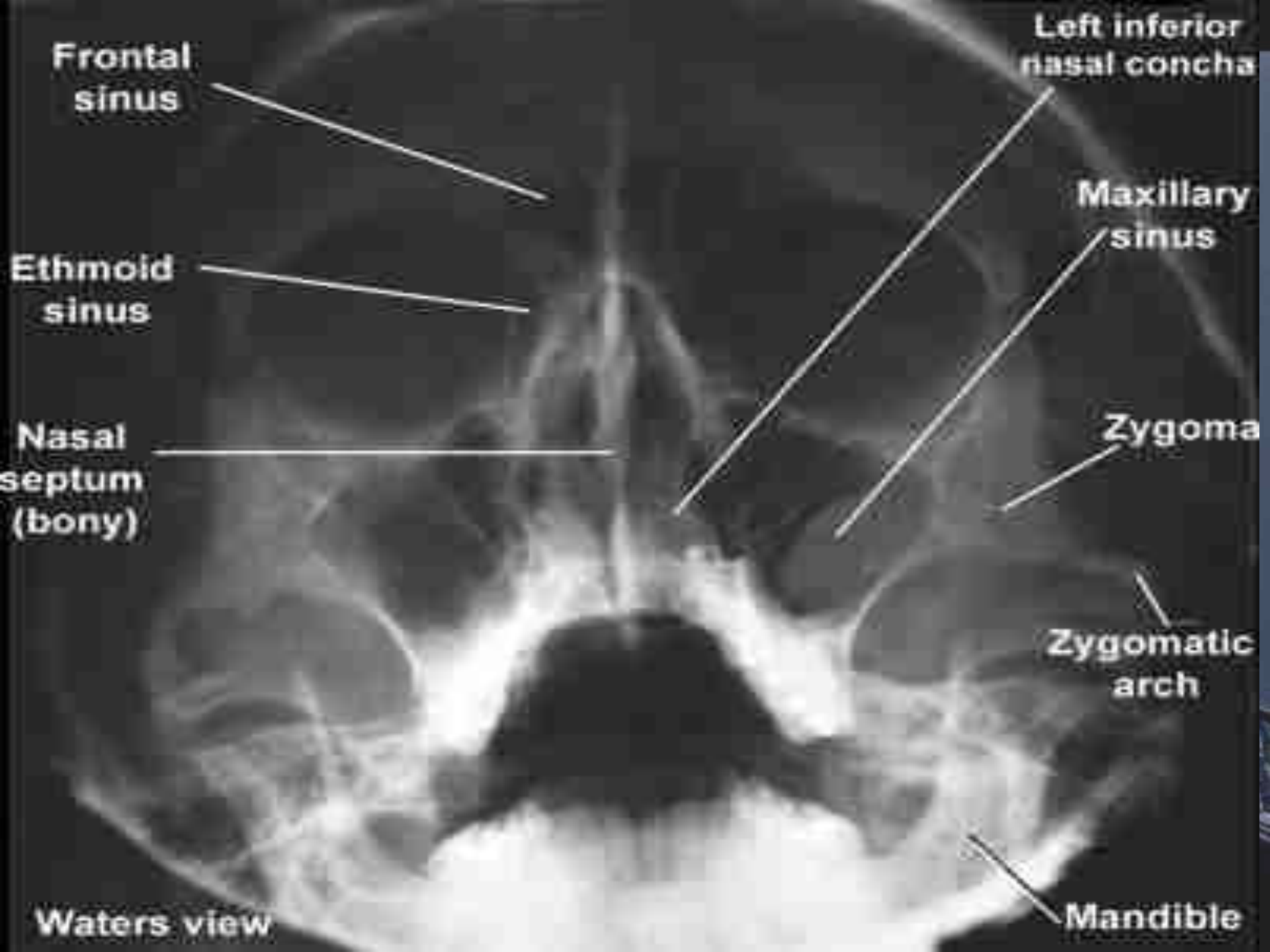
Figure I–6 Cribriform plate fracture resulting in cerebrospinal fluid (CSF) leakage.

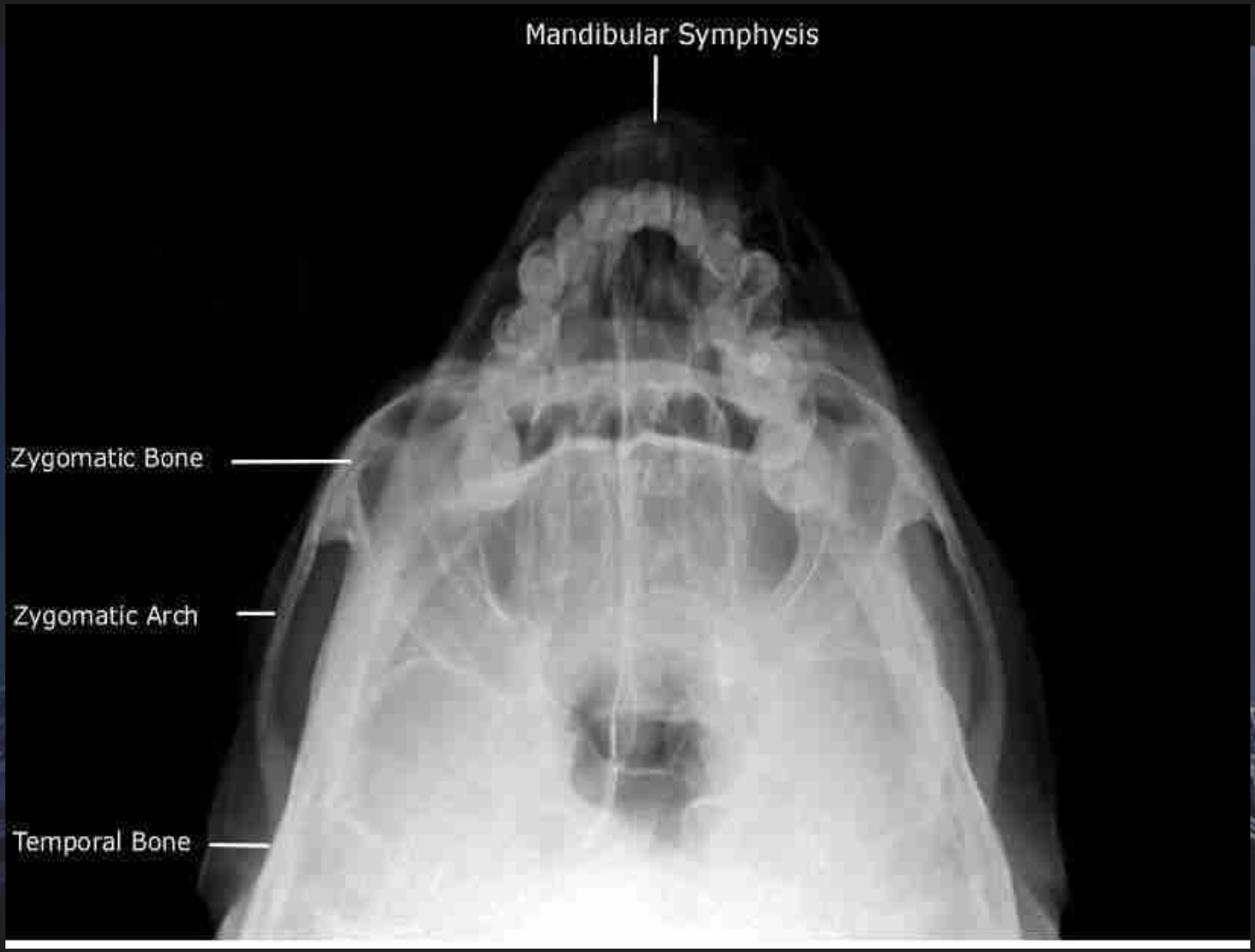
Tramline pattern



Beta - 2 transferrin

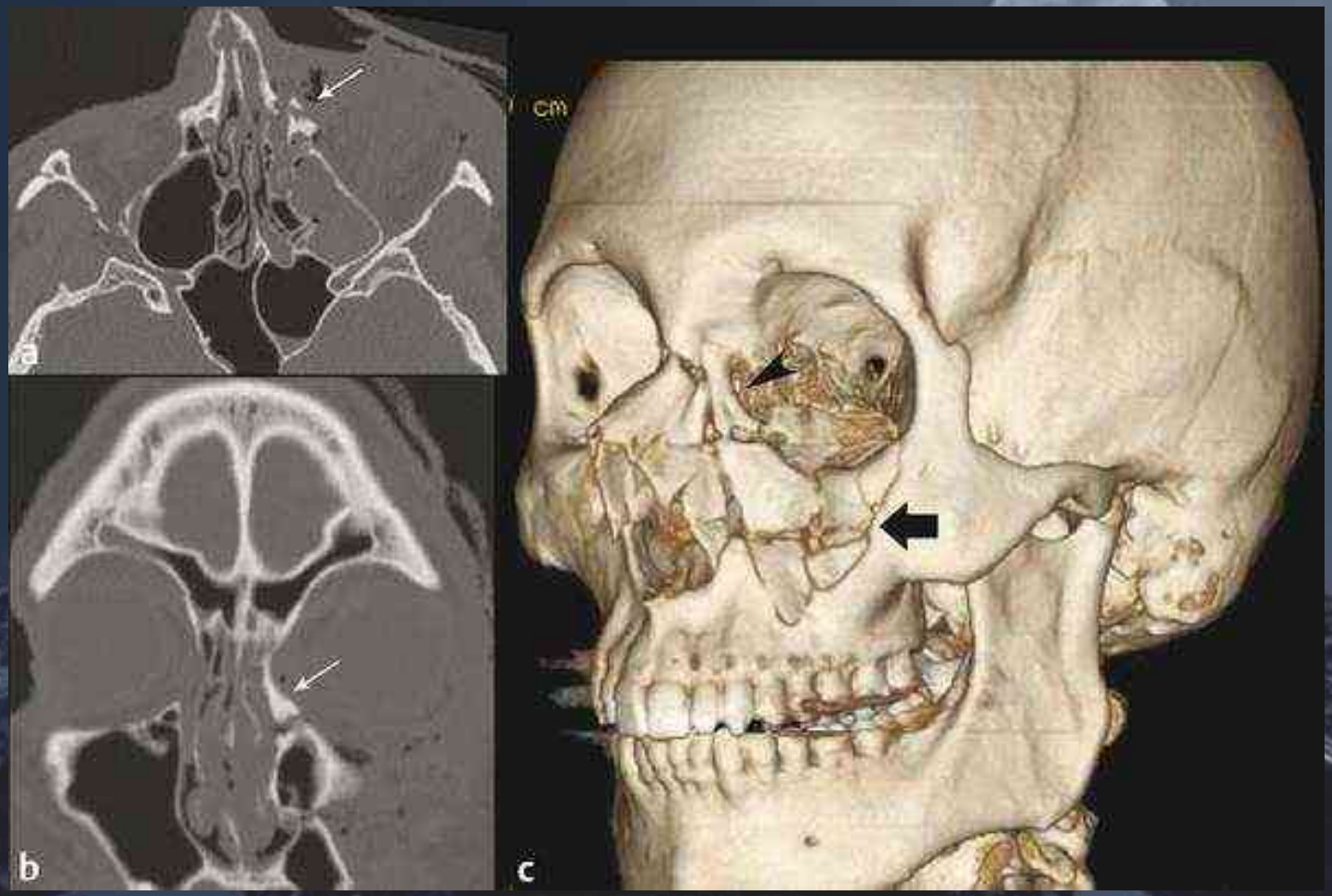
Radiograph for maxillofacial trauma

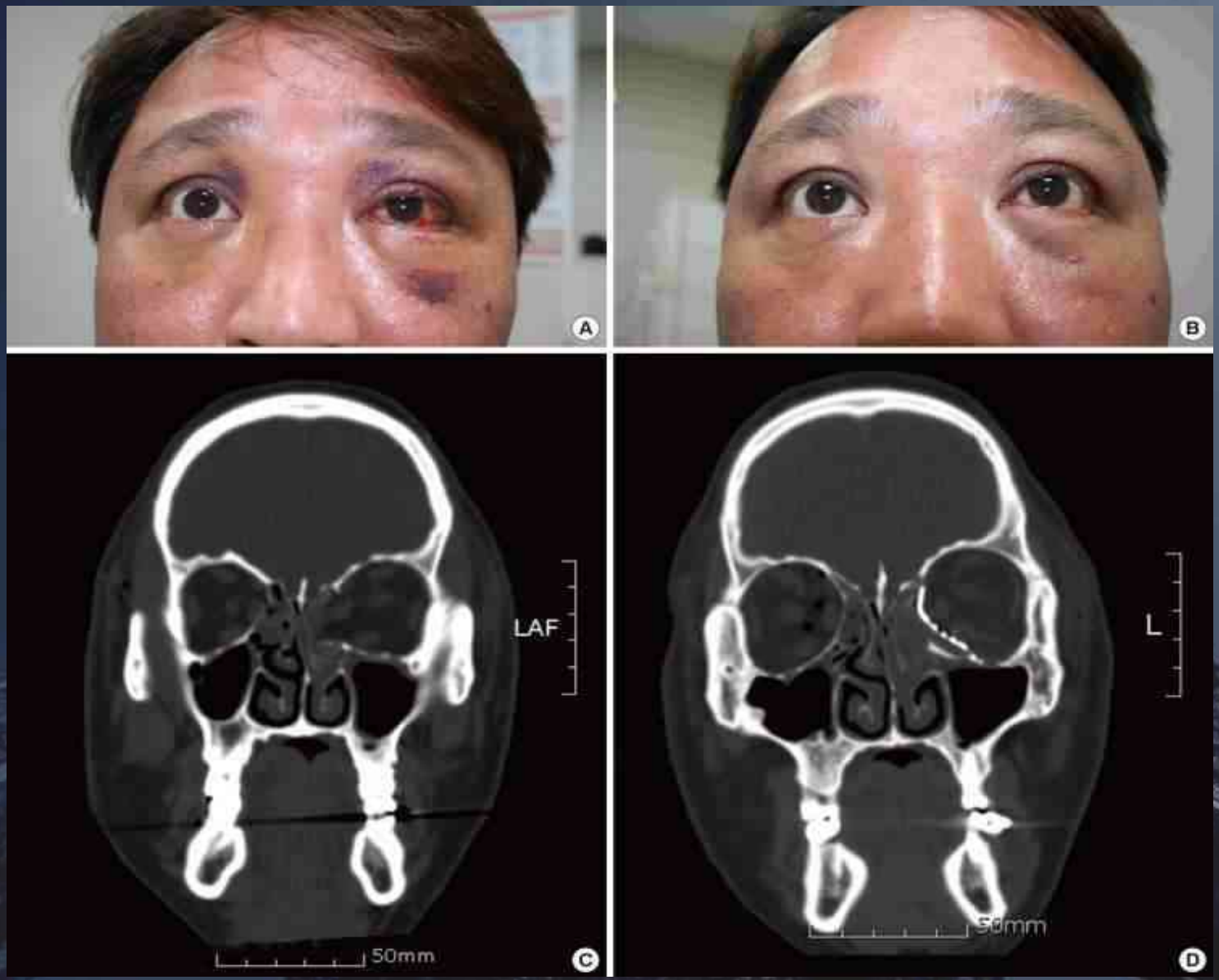

Frontal sinus
Left inferior nasal concha
Maxillary sinus
Ethmoid sinus
Nasal septum (bony)
Zygoma
Zygomatic arch
Mandible
Waters view


Mandibular Symphysis
Zygomatic Bone
Zygomatic Arch
Temporal Bone


L
A
F
M

Ct scan




A
B
LAF
50mm
C
L
50mm
D

Thank you for listening

Oral Cancer

Dr.Mohammed Rhael Ali

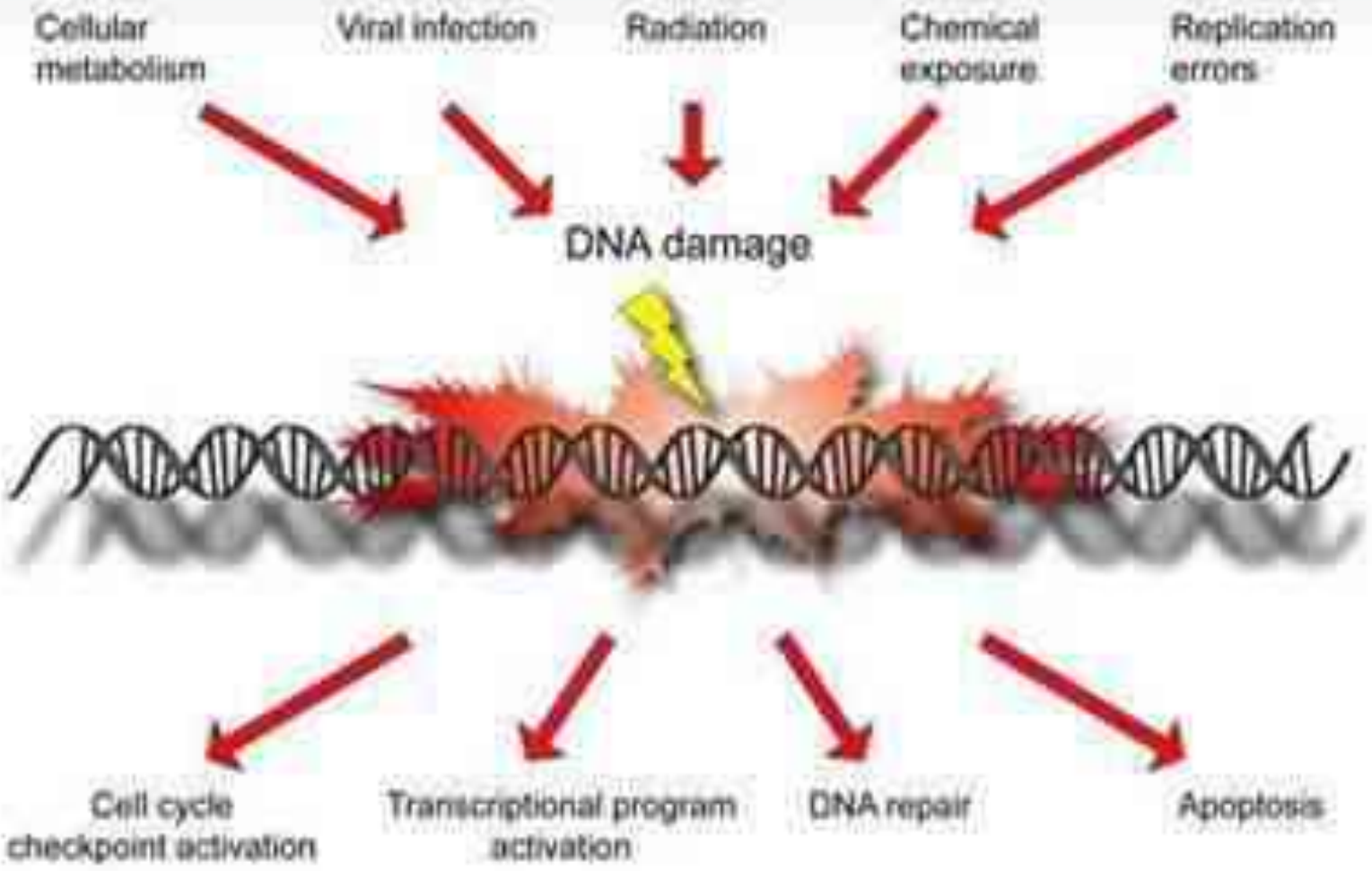
(Maxillofacial surgeon)

Tikrit dentistry college

What is cancer ?

Apoptosis

DNA damage response



Cancer :

WHO defines it as the uncontrolled growth and spread of cells.

Growths often invade surrounding tissue and can metastasize to distant sites.

Global Scenario of Oral Cancer

- *World Health Report 2004 describes cancer as accounting for 7.1 million deaths in 2003*

- *overall number of new cases will rise by 50% in the next 20 years.*

- *Oral Cancer is the eleventh most common cancer worldwide*
- *In South-central Asia – Oral Cancer ranks the 3rd most common type of cancer.*

➢ *More than 90% of oral cancers are Squamous cell carcinomas.*

➢ *The other 10% are salivary gland tumors, lymphoma, sarcoma and others.*

Types of Intraoral Malignancies

1. Tumors originate from surface epithelium:
   a. Squamous cell carcinoma. Most common type (90-95 %)
   b. Melanoma
2. Tumors originate from glandular tissues (salivary glands , metastatic cancer from breast,prostate, lung) :
   a.adenocarcinoma
   b.adenocystic carcinoma
   c.mucoepidermoid carcinoma
3. Tumors originate from mesenchymal tissues :
   a. Sarcoma (osteosarcoma ,chondrosarcoma . fibrosarcoma,Ewing sarcoma)
   b. Lymphoma

Spread of Squamous Cell Carcinomas of the Oral Cavity

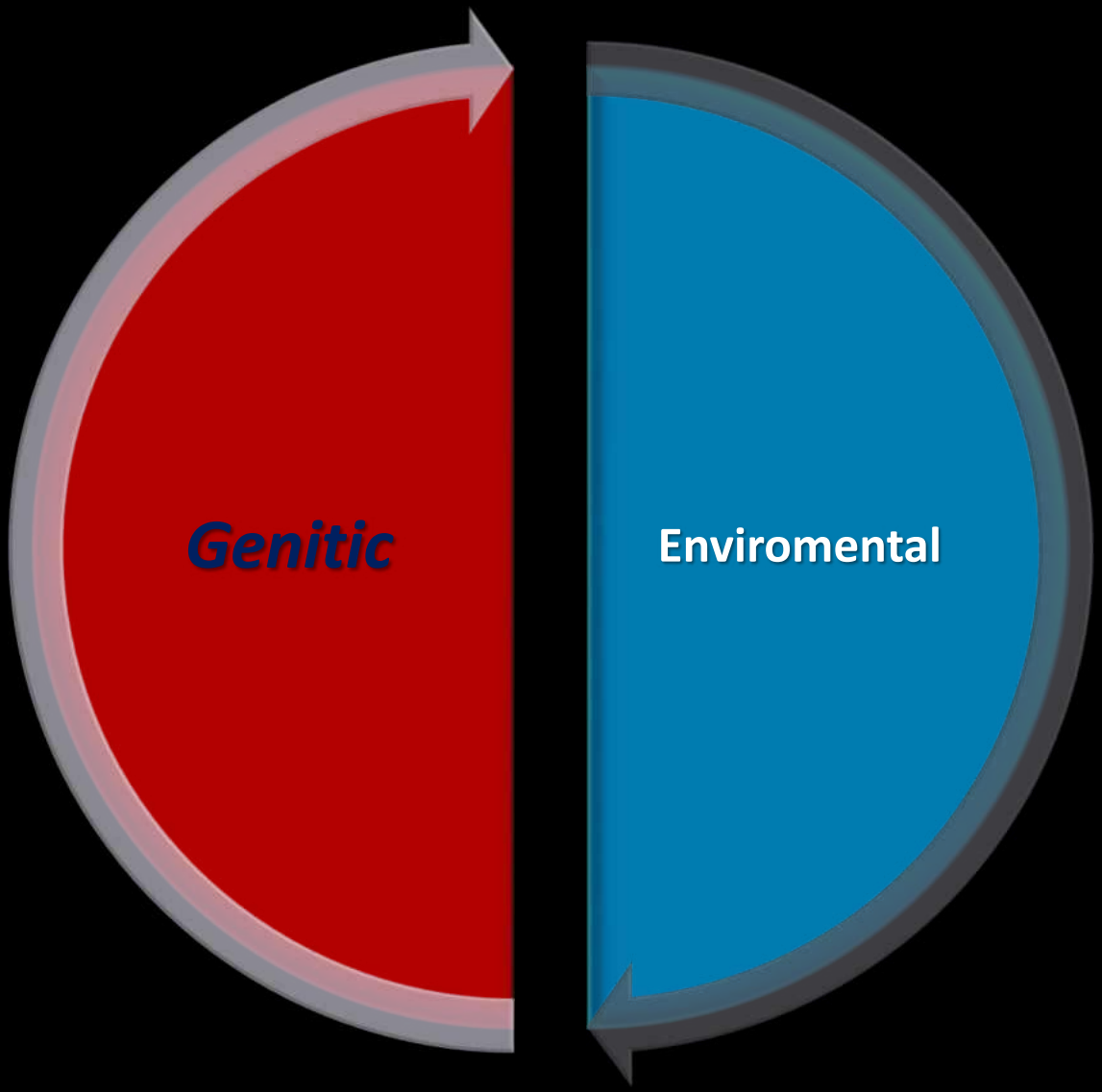
A. Local infiltration

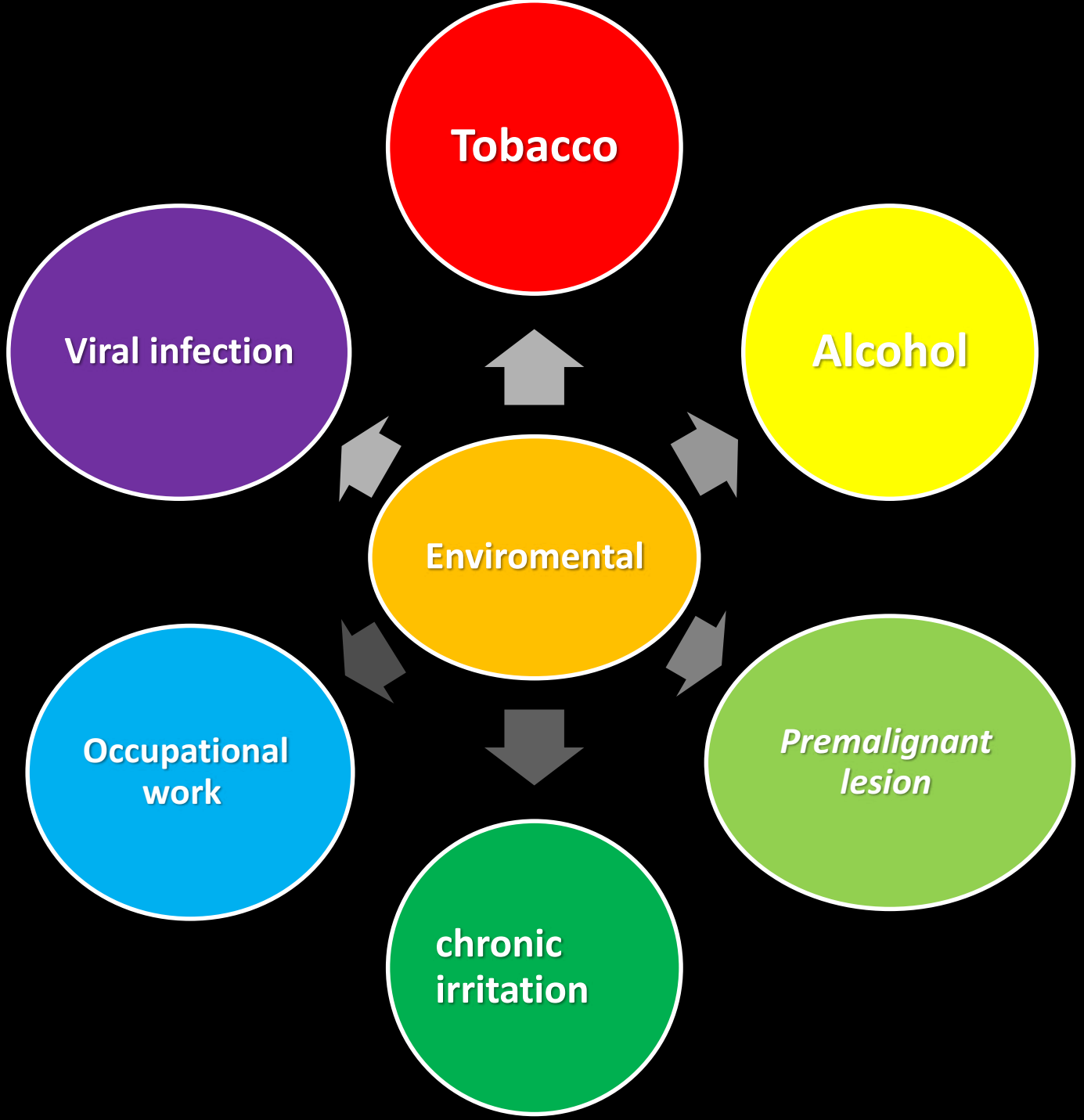
- ***1. Invasion of local soft tissues.***
- ***2. Invasion of perineural spaces.***
- ***3. Invasion of bone.***

B. Lymphatic Spread—Metastasis in regional lymph nodes.

C. Blood borne metastasis (Distant spread)

Causative factors




Tobacco
Alcohol
Viral infection
Enviromental
Occupational work
Premalignant lesion
chronic irritation

Tobacco

- *Tobacco*
- *Tobacco contains over 30 known carcinogens*
- *smokers have 2-3 times greater tendency than general population while smokless tobacco 2-26 times .*

Synergistic effect of tobacco and alcohol increase the risk up to 15 times more

Dental cause … chronic irritations

Human papilloma virus (HPV)

- ***Associated for Oropharynx, specially cancer of tonsils followed by base of tongue.***
- ***Commonly affects younger age groups , male, non smokers.***
- ***Better outcomes, more responsive to Radiotherapy, higher survival rate.***

- ***Radiation** (x-ray ,sunlight,UV light)*
- ***Heriditary syndroms** (basal cell nevus syndrome , xeroderma pigmentosa)*
- ***Premalignant conditions** (lichen plannus,tertiary syphilis,leukoplakia, chronic candidiasis, Plumer –Venson syndrome)*
- ***Malnutrition** (vitamin deficiency)*

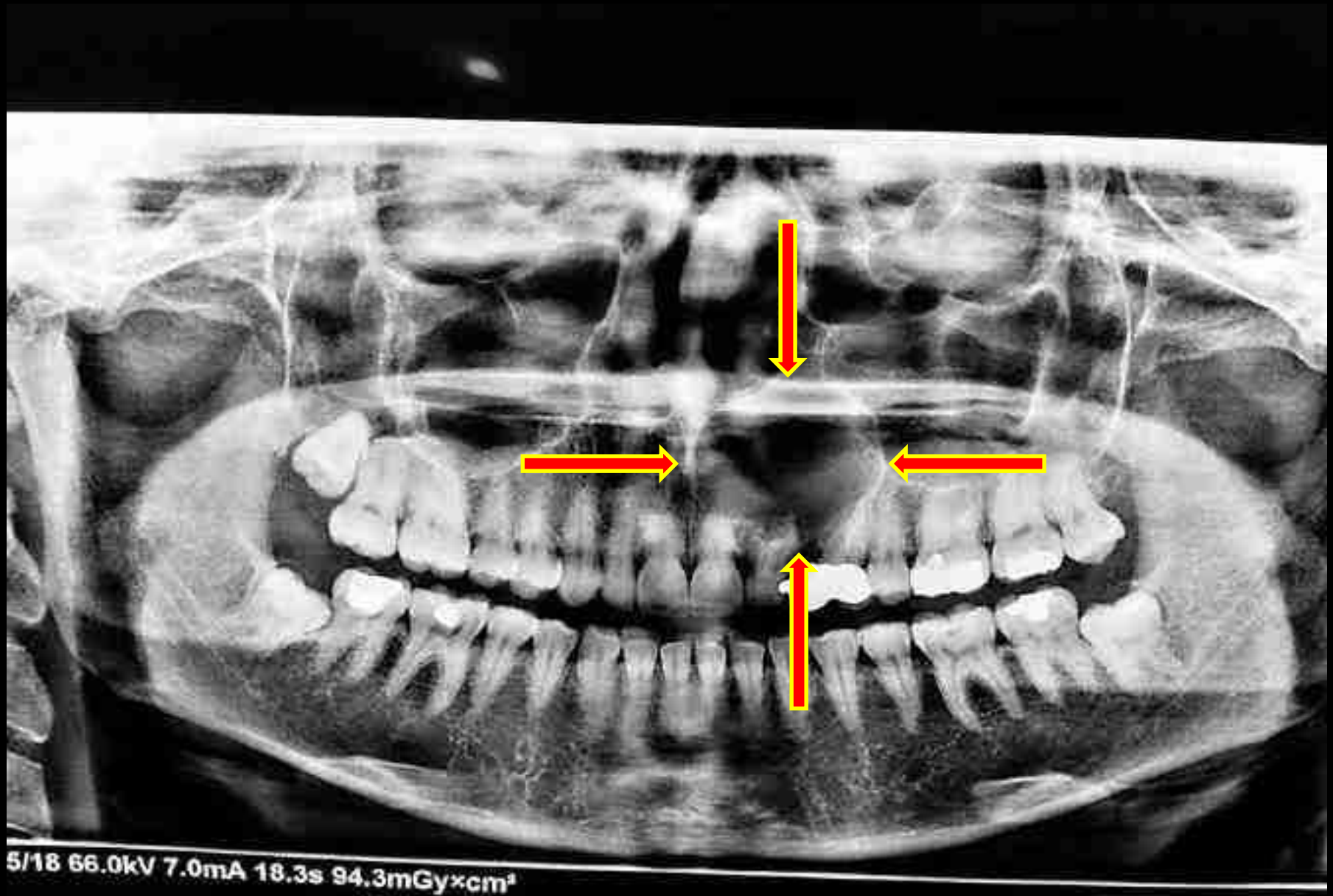
Other related factors

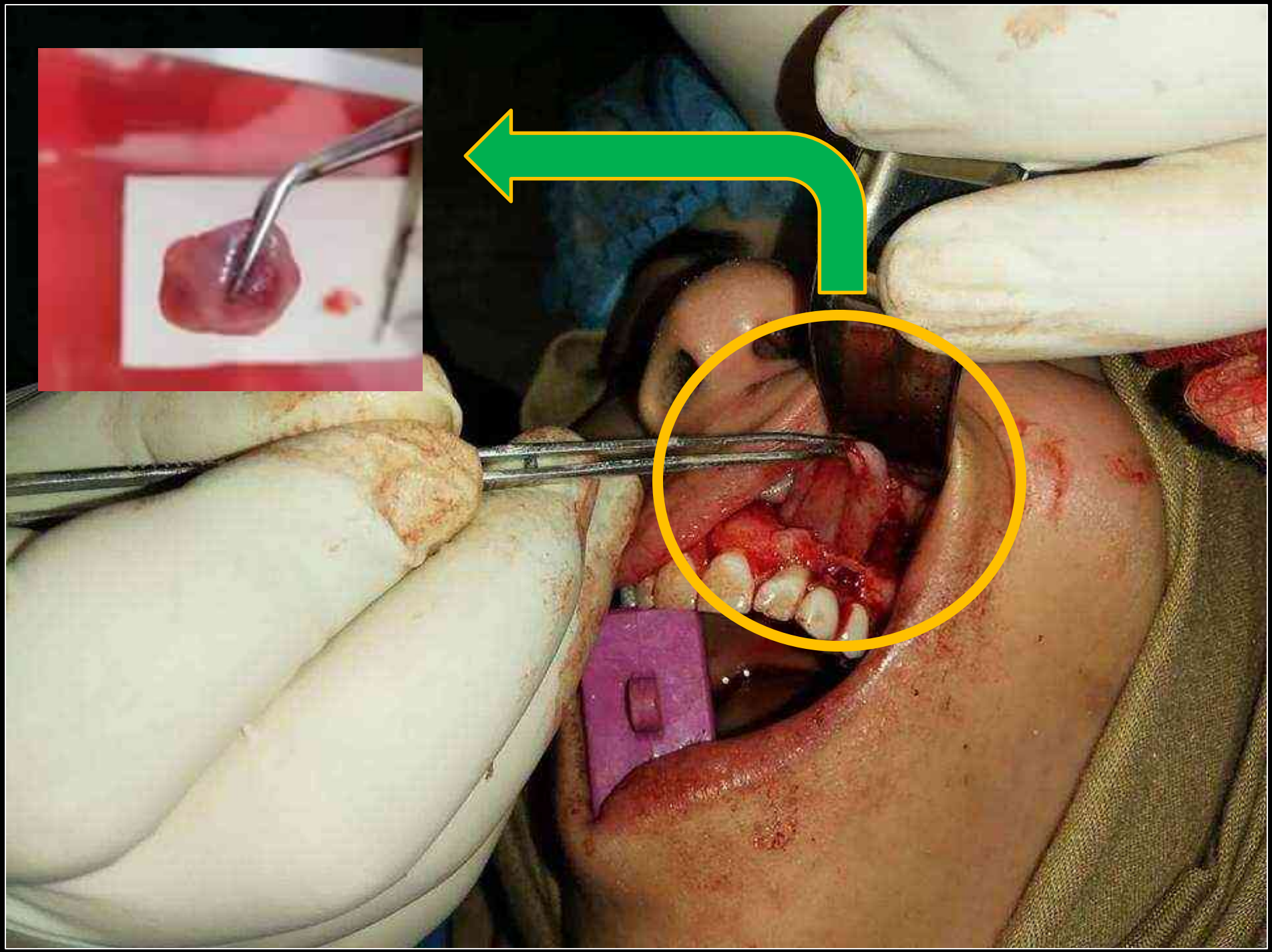
- ***Age:***

Mean age of occurrence of cancer in different parts of oral cavity is usually between

51 - 55 years

- ***Intra-osseous cyst lining :***


5/18 66.0kV 7.0mA 18.3s 94.3mGy×cm²



Gross: Cyst measuring 2x2x1 cm

Microscopic: Sections show cyst wall lined by multiple layers of squamous epithelial cells with palisading basal layers & corrugated surface layers and associated with epithelial nests near basal layer .The histological picture is consistent **with keratocyst**

No malignancy seen

Pathologist

Clinical Presentations of oral Cancer

Ulcer

Growth or fungation

Tooth moblity / Pain /parasthesia

Failure of healing of socket

Red patches

White patches

Lymphadenopathy

الدكتور
ساهد سعد محمد
MRCHB. MSc, F.I.C.M.S

مختبر
الدكتور راجي حسين الحديثي
MRCPath, FICMS

Histopathology report

Name of patient: [redacted]

Age: 52 y.

Referred by: د. محمد رسول الحمداوي

Ref. No: 829-18

Date: 8 / 1 / 2018

Specimen: palate mass

Gross: Single piece of tissue measuring 1x0.5 cm, cut section revealed white nodule measuring 0.4 cm, bisected, all taken.

Microscopic: Sections show submucosal tumor composed of proliferation of intermediate cells, some showing squamous differentiation &few showing clearing changes, focally there was cystic changes, no necrosis

The histological picture is consistent with **low grade muco epidermoid tumor**

Pathologist

الدكتور
باسم محمد محمد
M.B.Ch.B, MSc, F.I.C.M.S

مختبر
الدكتور راجي حسون الحديثي
الفحص النسجي والخلوي (FNA) وعينات
٢٠١٧

الدكتور
راجي حسون الحديثي
Path. Pathology
M.B, MSc, F.I.C.M.S

Histopathology report

Name of patient: [redacted]

Age: 65 y

Referred by: د. محمد وهيب المعلم

Ref. No: 8333/18

Date: 4 / 4 / 2018

Specimen Incisional biopsy

Gross: Single piece of tissue measuring 1.5×1×1 cm, bisected, all taken.

Microscopic: **Sections show feature of invasive well differentiated squamous cell carcinoma involving the muscular layer.**

The deep and one lateral margins were involved by the tumor

Pathologist

07709239739 الموقف

الدكتور
سليمان سعد محمد
استاذ الطب الشرعي والسموم
M.B.Ch.B, MSc, F.I.C.M.S

مختبر
الدكتور راجي حسين الحديثي
الاختصاص التشريحي والنسيجي (1985) وبعدها
(الأول)

الدكتور
راجي حسين الحديثي
استاذ الأمراض في الكلية الطبية البيطرية
Prof. Pathology
M.V.Sc, MSc, F.C.V.P

Histopathology report

Name of patient: [redacted]

Age: 88 y.

Referred by: د. محمد وجيل علي المختبر

Ref. No: 8027-18

Date: 10/ 4 / 2018

Specimen: palate biopsy

Gross: Single piece of tissue measuring 1x1x0.5 cm

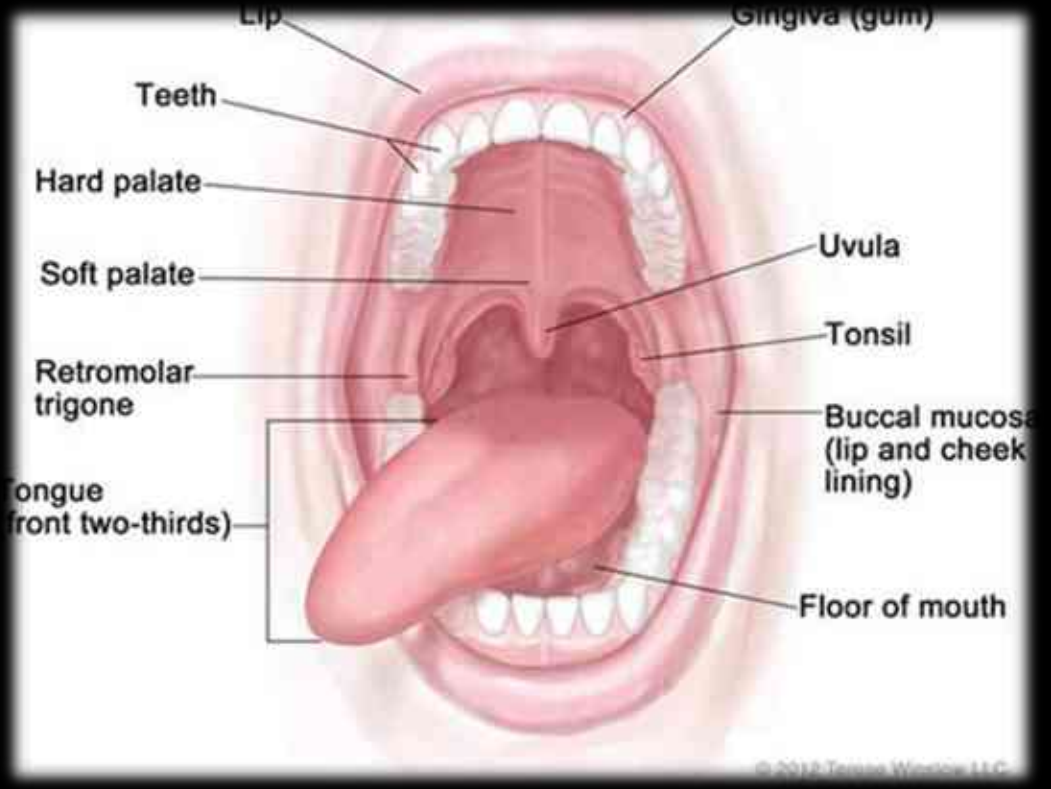
Microscopic: Sections show feature of invasive well differentiated squamous cells carcinoma

Pathologist

Acute VS chronic ulcer

Site distribution

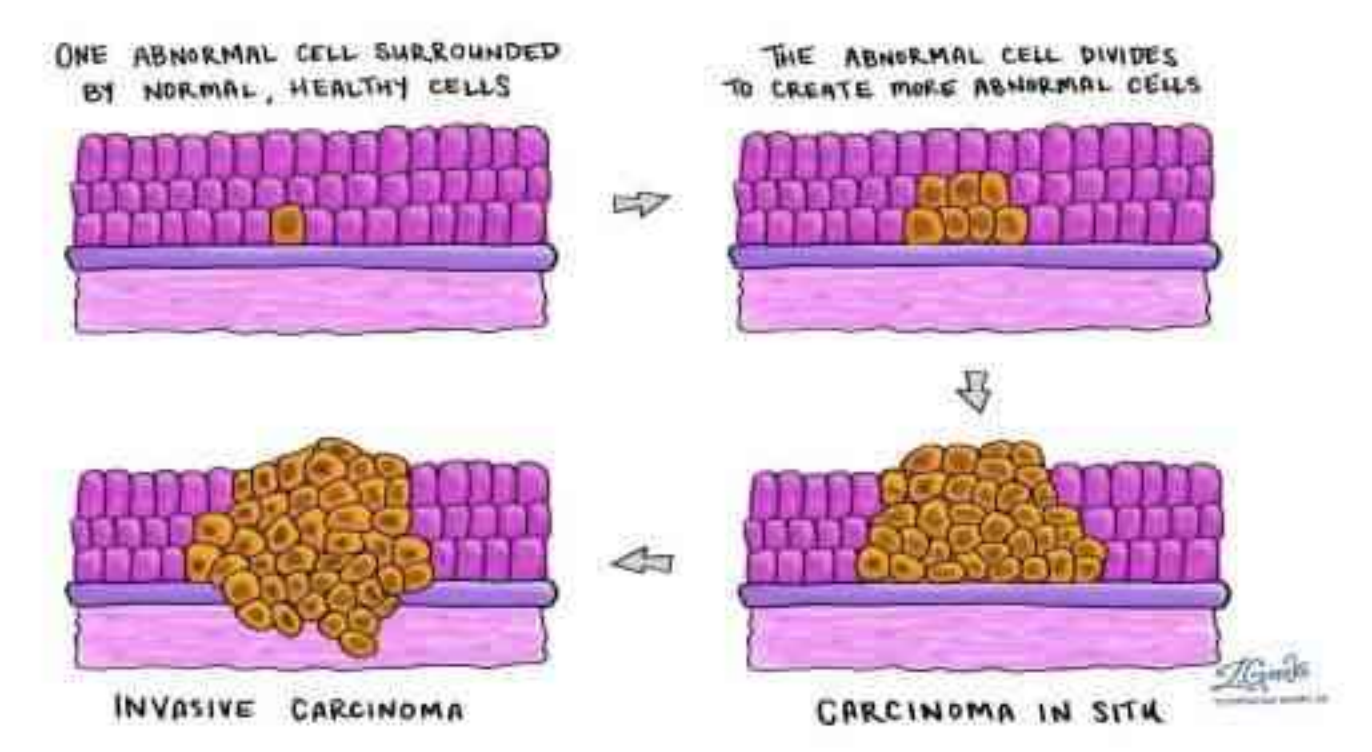
- Tongue 35 %
- Floor of mouth 30%
- Lower alveolus 15%
- Buccal mucosa 10%
- Upper alveolus 5%
- Hard palate 3%
- Retromandibular trigon 2%



TNM Staging

- *Clinical staging system designed to express the severity, or extent, of the disease. It is meant to facilitate an estimation of prognosis and provide useful information for treatment decisions.*

- ***T staging** : tumor size (length and width depth)*

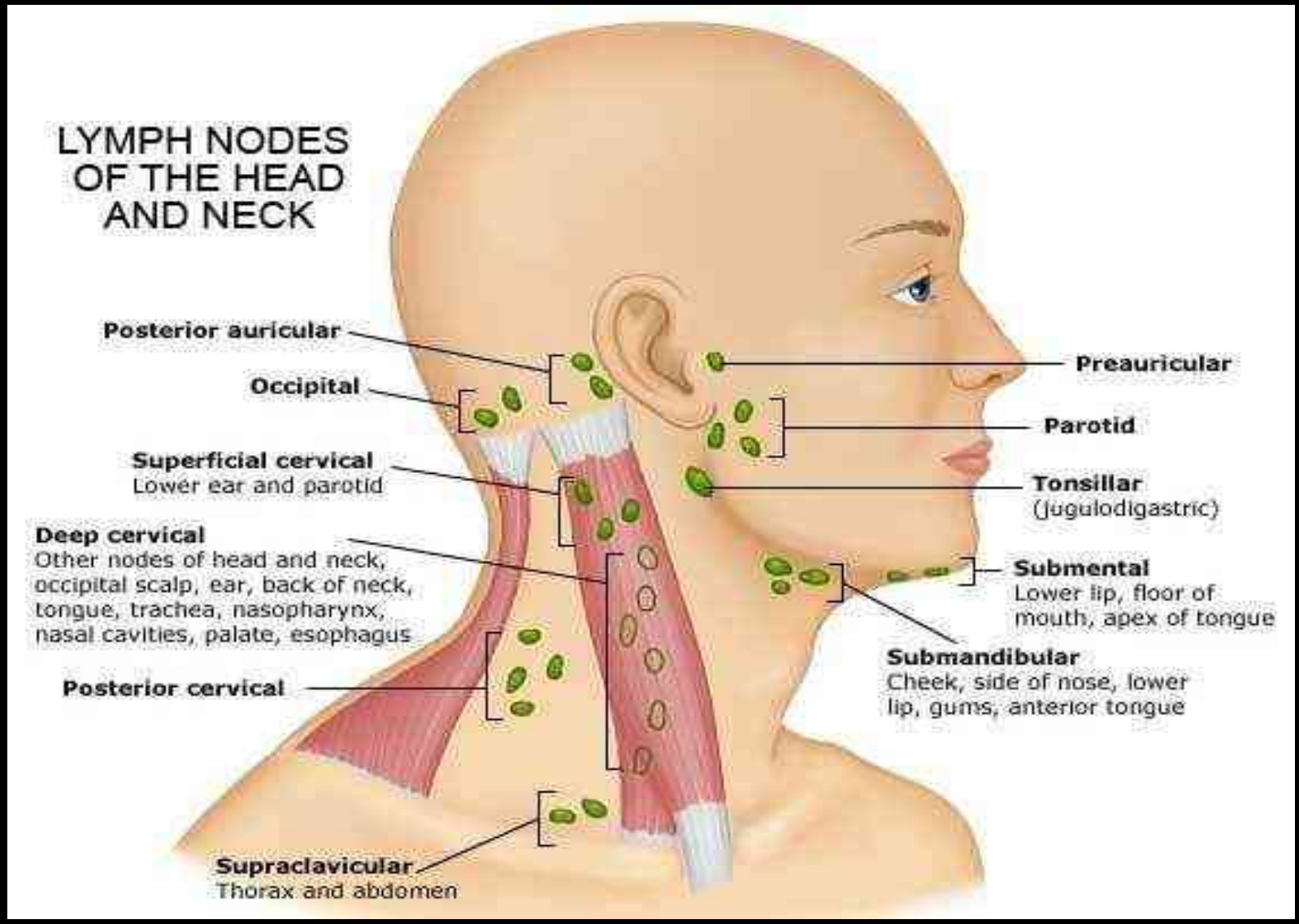


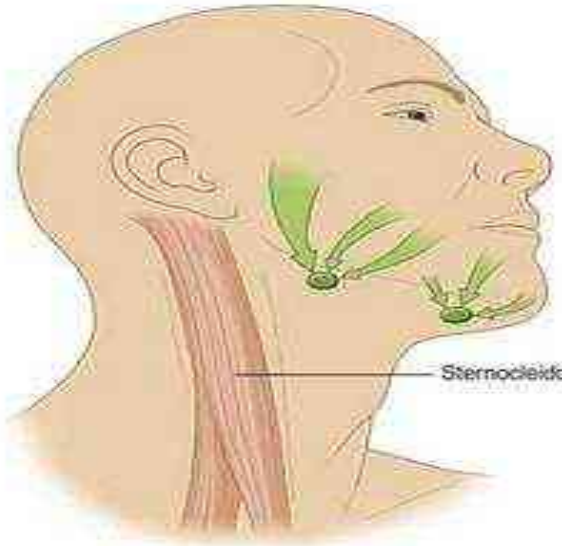
T staging : tumor size (length , width and depth)

Definition of Primary Tumor (T)

T CATEGORY	T CRITERIA
TX	Primary tumor cannot be assessed
Tis	Carcinoma in situ
T1	Tumor≤2 cm , ≤ 5 mm depth of invasion (DOI) DOI is depth of invasion and not tumor thickness.
T2	Tumor ≤ 2 cm, DOI > 5 mm and ≤ 1 0 mm *or* tumor > 2 cm but ≤ 4 cm, and ≤ 10 mm DOI
T3	Tumor>4 cm *or* any tumor> 10 mm DOI
T4a	Moderately advanced local disease **(Lip)** Tumor invades through cortical bone or involves the inferior alveolar nerve, floor of mouth, or skin of face (i.e., chin or nose) **(Oral cavity)** Tumor invades adjacent structures only (e.g., through cortical bone of the mandible or maxilla, or involves the maxillary sinus or skin of the face) Note: Superficial erosion of bone/tooth socket (alone) by a gingival primary is not sufficient to classify a tumor as T4.
T4b	Very advanced local disease Tumor invades masticator space, pterygoid plates, or skull base and/or encases the internal carotid artery

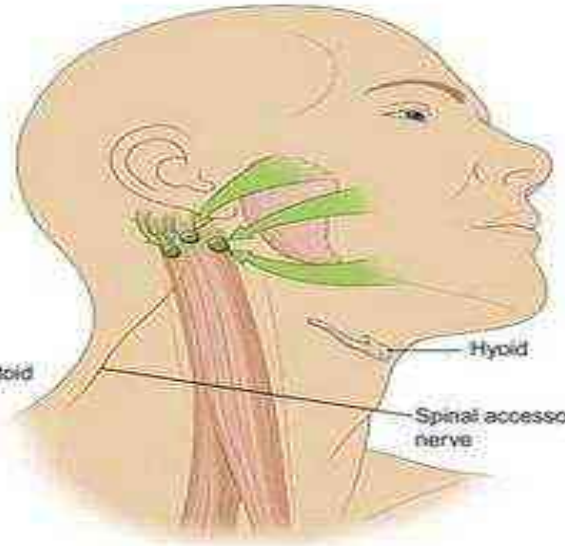
N Staging : assess regional lymph nodes involvement



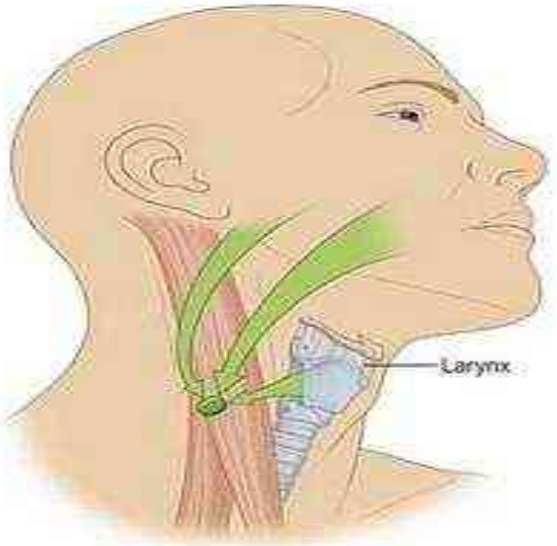


Level IA
- Floor of mouth, anterior oral tongue, anterior mandibular alveolar ridge, lower lip

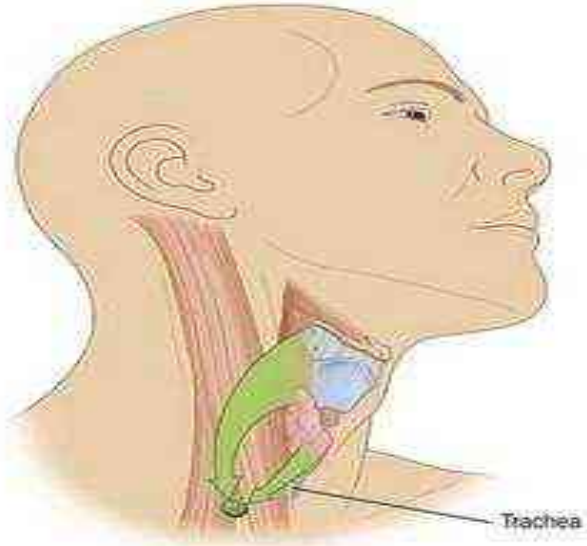
Level IB
- Oral cavity, anterior nasal cavity, soft tissue of midface, submandibular gland



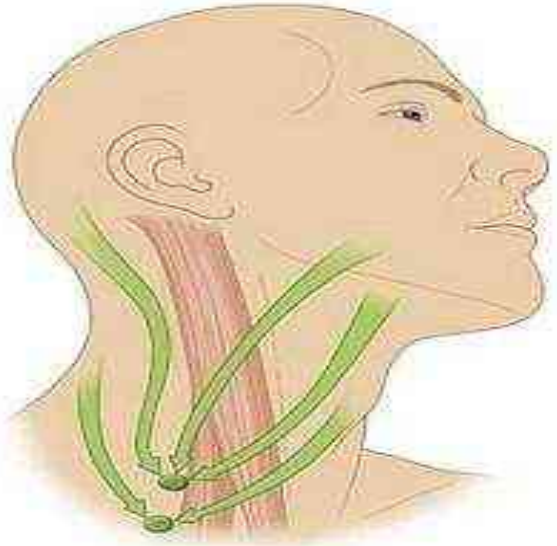
Level IIA & IIB
- oral cavity, nasal cavity, nasopharynx, oropharynx, hypopharynx, larynx, parotid gland
(Greater risk of metastases from oral and larynx tumors to level IIA. Greater risk of metastases from oropharynx tumors to level IIB)



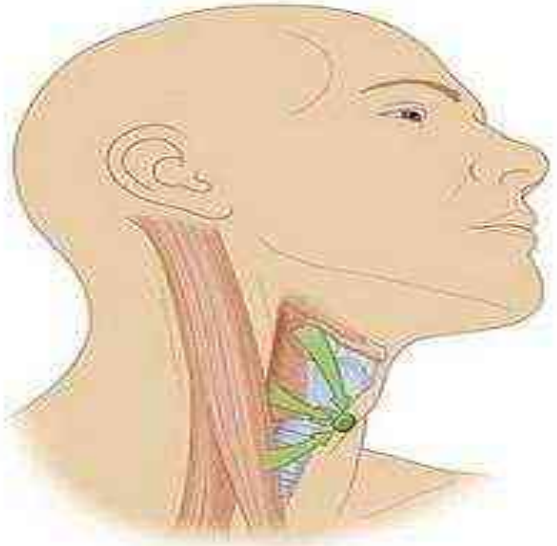
Level III
- oral cavity, nasopharynx, oropharynx, hypopharynx, larynx



Level IV
- Hypopharynx, thyroid, cervical esophagus, larynx

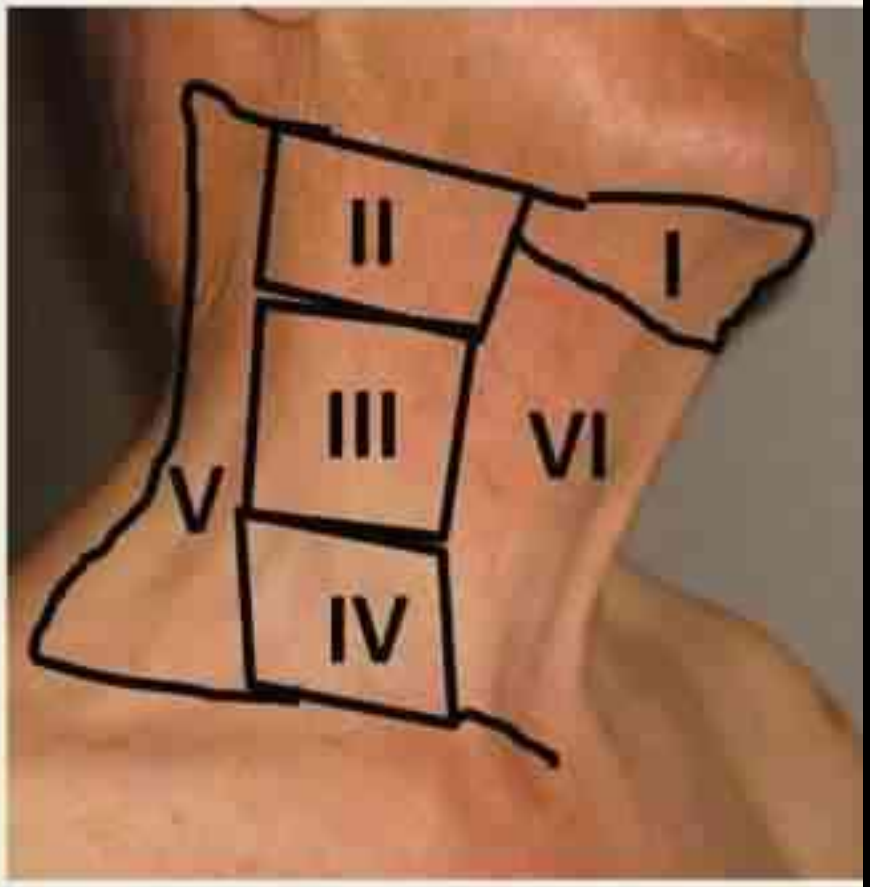


Level VA & VB
- Nasopharynx, oropharynx, posterior scalp/neck skin



Level VI
- Thyroid gland and subglottic larynx, apex of piriform sinus, cervical esophagus

LEVEL AND NODAL GROUPS	CANCER SITES of LYMPHATIC SPREAD
I--Submental and submandibular nodes	Lip; anterior tongue; floor of mouth; gingiva; buccal mucosa
II--Upper jugulodigastric group	Oral cavity; pharynx; larynx
III--Middle jugular nodes	Nasopharynx; oropharynx; oral cavity; hypopharynx; larynx
IV--Inferior jugular nodes	Hypopharynx; subglottic larynx; esophagus
V-- Posterior triangle group	
VI--Anterior compartment group	



N Staging : assess regional lymph nodes involvement

Definition of Regional Lymph Node (N)

Clinical N (cN)

N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension ENE(-)
N2a	Metastasis in a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension, and ENE(-)
N2b	Metastasis in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension, and ENE(-)
N2c	Metastasis in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension, and ENE(-)
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-)
N3b	Metastasis in any node(s) and clinically overt ENE(+)

ENE (-): Without Extranodal Extension

ENE (+): With Extranodal Extension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Science Photo Library
95835144B

N Staging : assess regional lymph nodes involvement

Definition of Regional Lymph Node (N)

Clinical N (cN)

N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension ENE(-)
N2a	Metastasis in a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension, and ENE(-)
N2b	Metastasis in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension, and ENE(-)
N2c	Metastasis in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension, and ENE(-)
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-)
N3b	Metastasis in any node(s) and clinically overt ENE(+)

ENE (-): Without Extranodal Extension

ENE (+): With Extranodal Extension

- ***M stage***
- ***M0 no distant metastasis***
- ***M1 distant metastasis present***

AJCC prognostic stage groups

When T is...	And N is...	And M is...	Then the stage group is...
T1	N0	M0	I
T2	N0	M0	II
T3	N0	M0	III
T1, T2, T3	N1	M0	III
T4a	N0, N1	M0	IVA
T1, T2, T3 T4a	N2	M0	IVA
Any T	N3	M0	IVB
T4b	Any N	M0	IVB
Any T	Any N	M1	IVC

- ***Histological grading :***

- *It represent the degree of resembles of tumor cells to the original cells*

- *it determine the aggressiveness of tumor*

- ***Well differentiated** (have nearly same shape of normal cells ,produce keratine ,less mitotic activity) is the least aggressive one while **undifferentiated** (not resemble the original cells, high mitotic activity, not produce keratine) is the most aggressive tumor*

Histologic grade (G)

G1	Well differentiated
G2	Moderately differentiated
G3	Poorly differentiated
G4	Undifferentiated

Preoperative evaluation

1.History : *include ;*

a.history of general health; chest pain, limited exercise tolerance ,shortness of breath, anemia…

b.history of the lesion(mass or ulcer); onset of occurrence,duration, pain , Tumor's location, size, and relationship to adjacent anatomic structures

2.Clinical examinations:

a.extraoral examination ;

1.inspection of head ,face ,neck for any asymmetry or changes in the color of the skin , Trismus or decreased tongue mobility , Cranial nerve deficits

2.examination of the regional lymph nodes bilaterally .

b.intraoral examination; inspection and palpation of the tumor for checking borders, shape ,size , tenderness .

3.radiographical examination

Pretreatment imaging is important to evaluate:

The tumor size and extent.

Involvement of adjacent anatomic structures.

Staging the cervical lymph nodes.

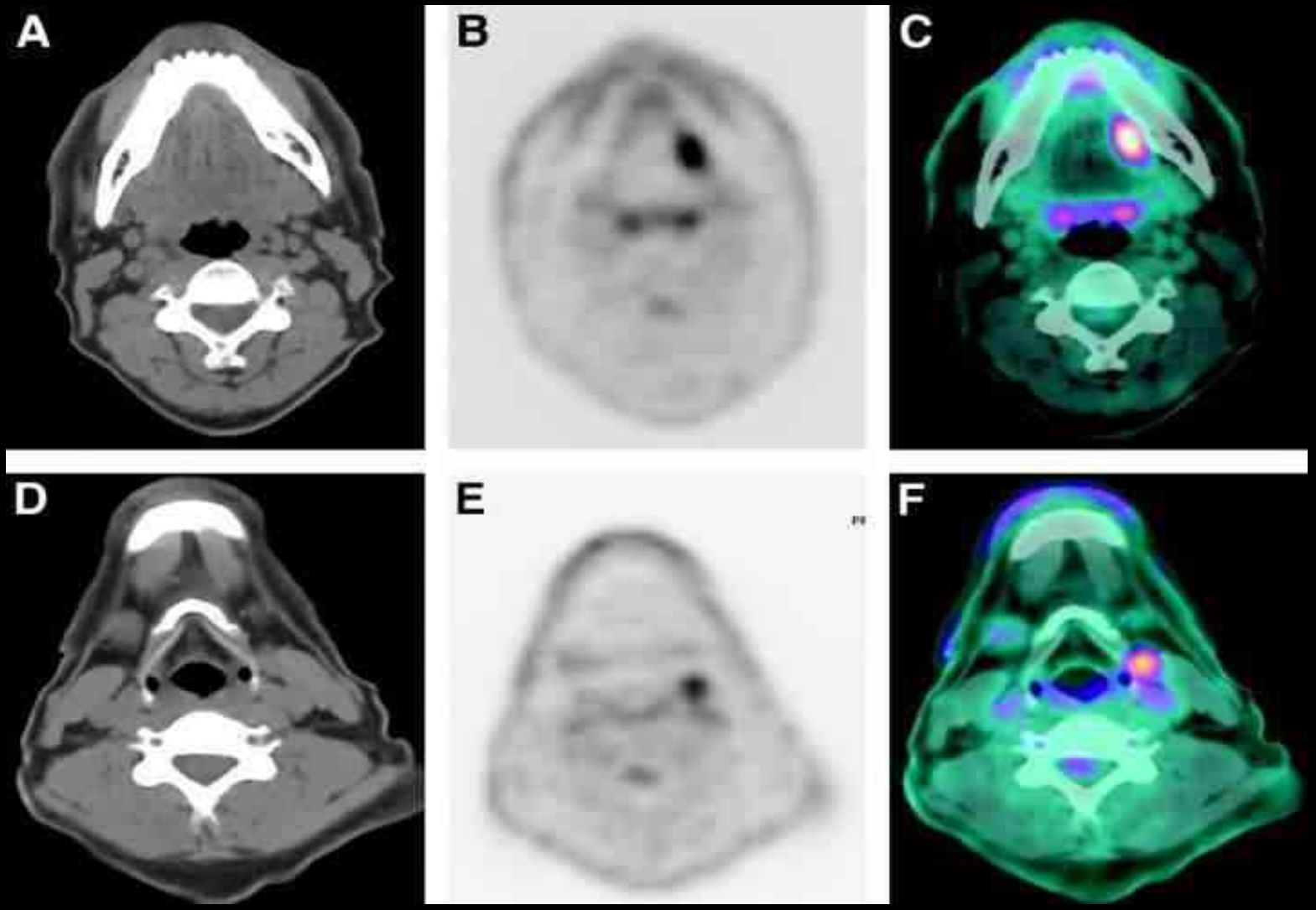
Tumor invasion for the bone especially the mandible.

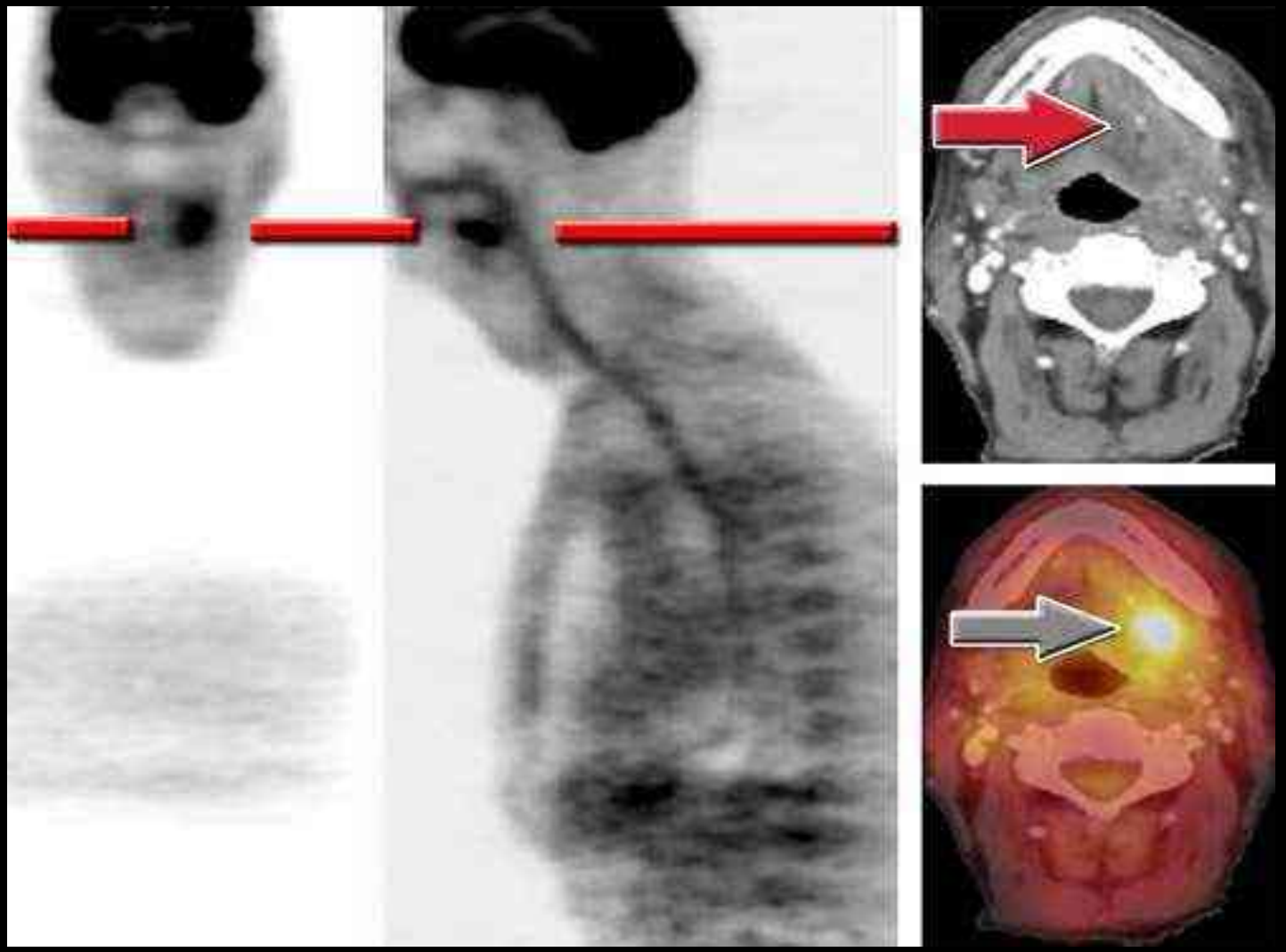
3.radiographical examination; OPG, CT scan ,MRI for evaluation of primary site and regional lymph nodes (some times we need chest x-ray to exclude metastasis to the lung)..

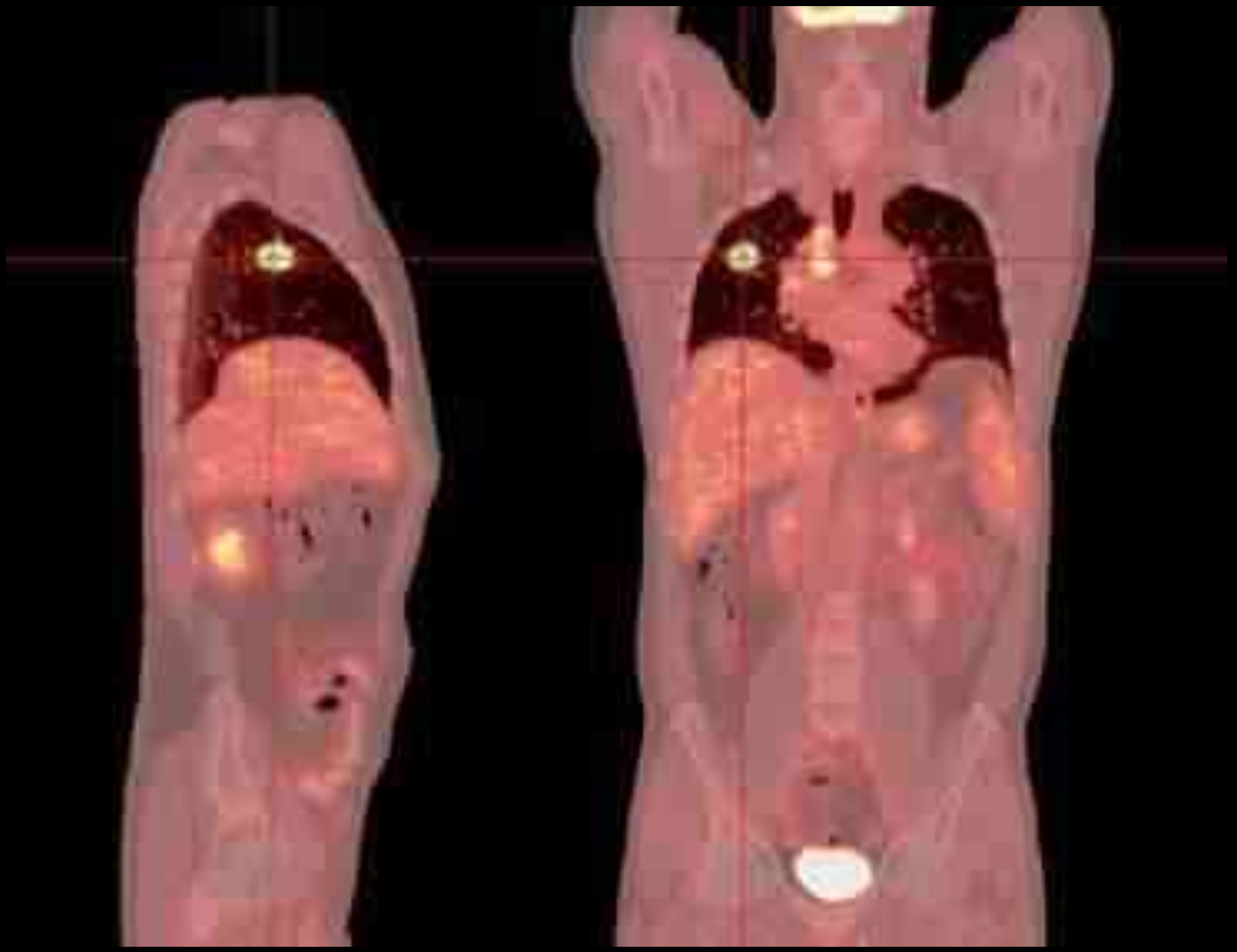
better imaging to assess bony involvement and extension are CT scan , while Imaging to assess extent of soft tissue spread and recurrent tumors are MRI .

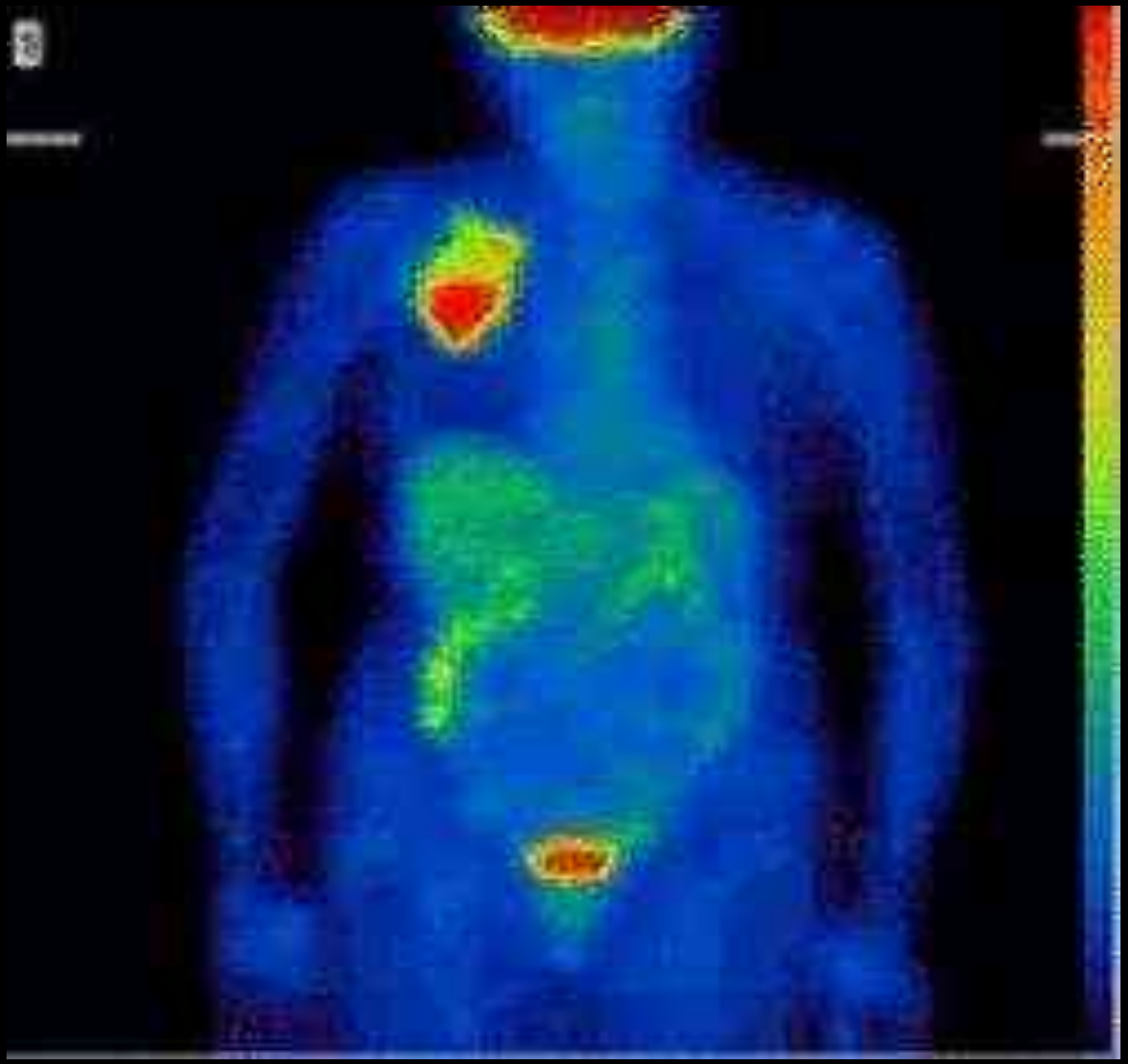
Pet scan

Pet scan









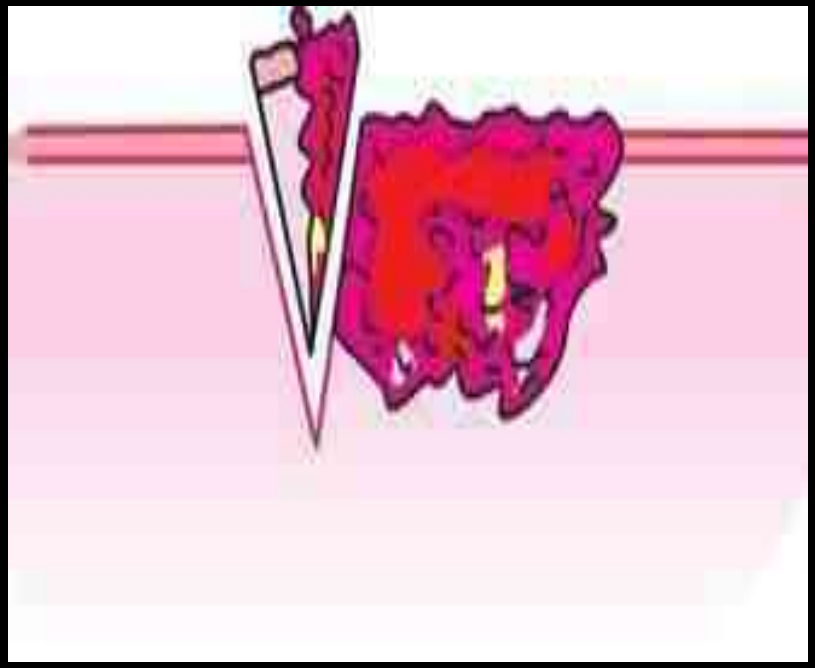
5.biopsy ;

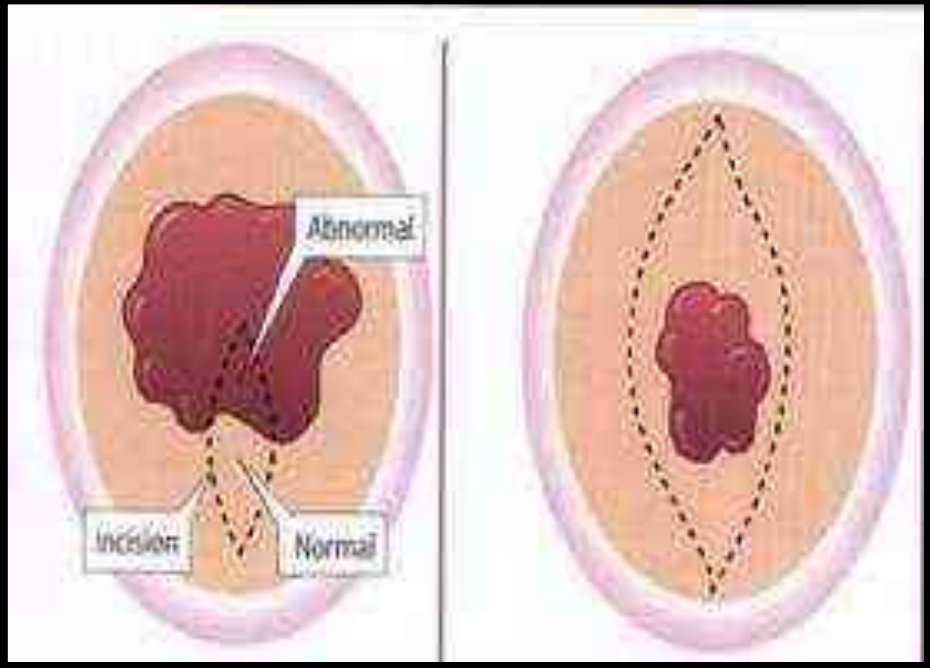
- *a.Excisional Biopsy ;When the lesion is small, it should be totally excised.*
- *b. Incisional Biopsy;indicated in the large lesions or when complete excision is not possible*
- *c. Aspiration Biopsy;If the lesion is deep seated, cystic or hemorrhagic aspiration biopsy should be done.In oral cancer its mostly usful in evaluation of enlarged lymph nodes*
- *d. Punch Biopsy;It is of limited value in the oral cavity. It is useful when small tissue specimen is to be taken from inaccessible areas e.g. the maxillary sinus, the lateral or posterior pharyngeal walls.*

Excisional biopsy

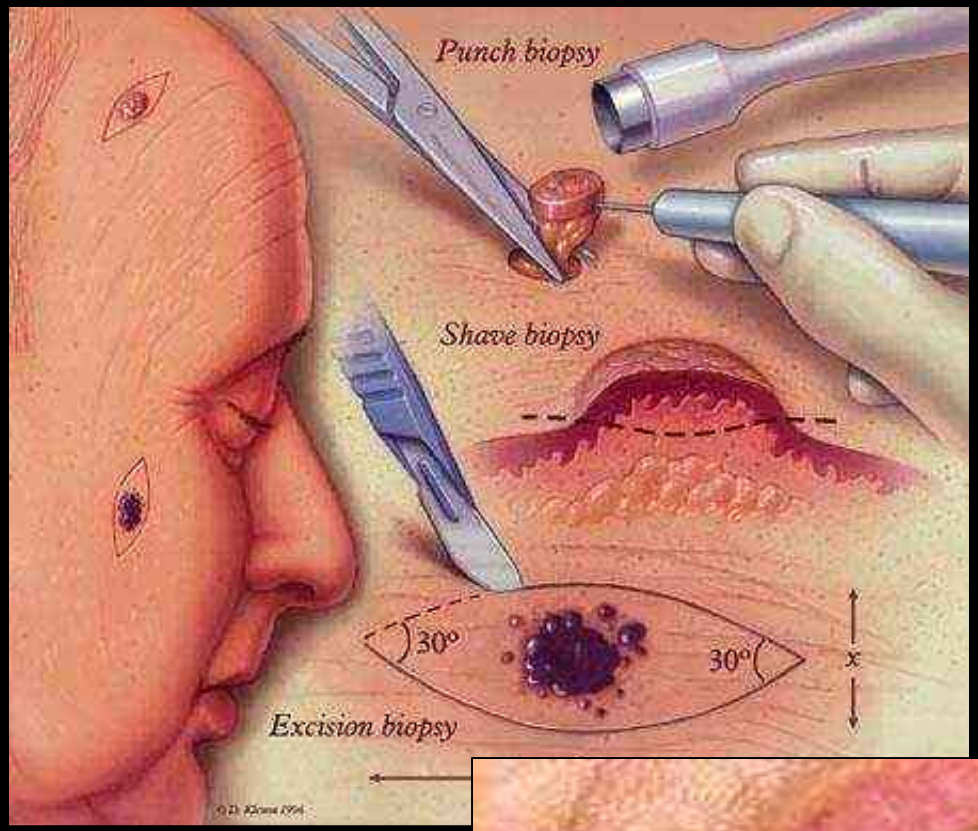

Age: 38 yr.
HISTOPATHOLOGY REPORT
N- 1001/18
Specimen: - Skin biopsy
Gross: - A piece of tissue received measuring 1.5X0.5 cm, grey rubbery.
The tissue piece is bisected and submitted in 1 tissue block.
Microscopy:
Sections show basal cell carcinoma, pigmented type.
Tumour width = 11 mm.
Tumour depth = 5 mm.
The lateral and deep surgical resection margins are tumor free.
Dr. Mohamed Rahil

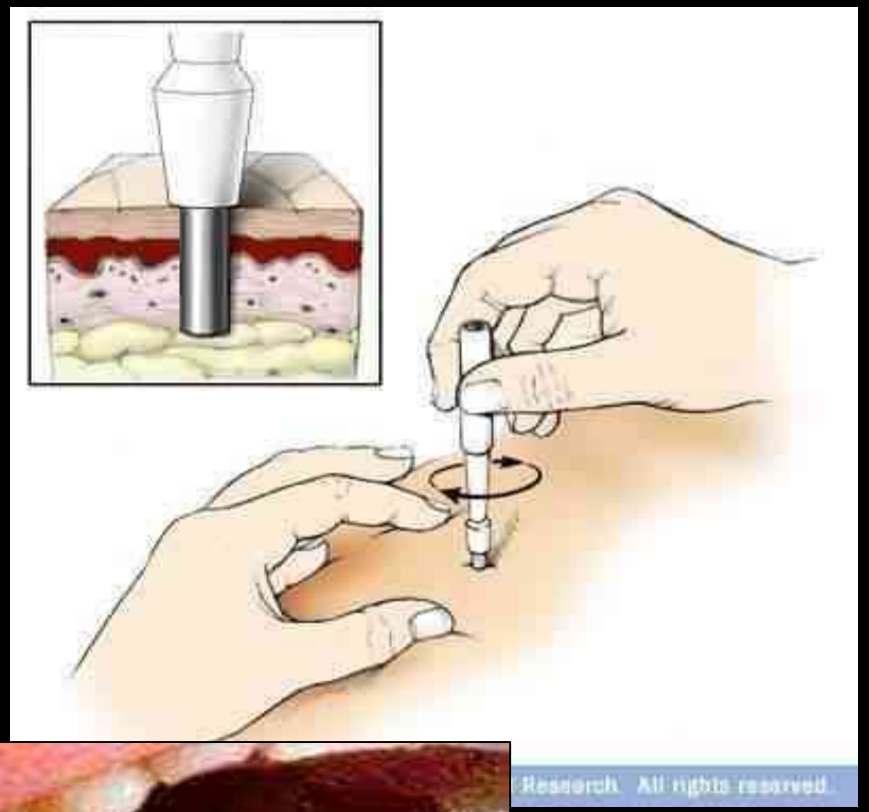
Incisional biopsy



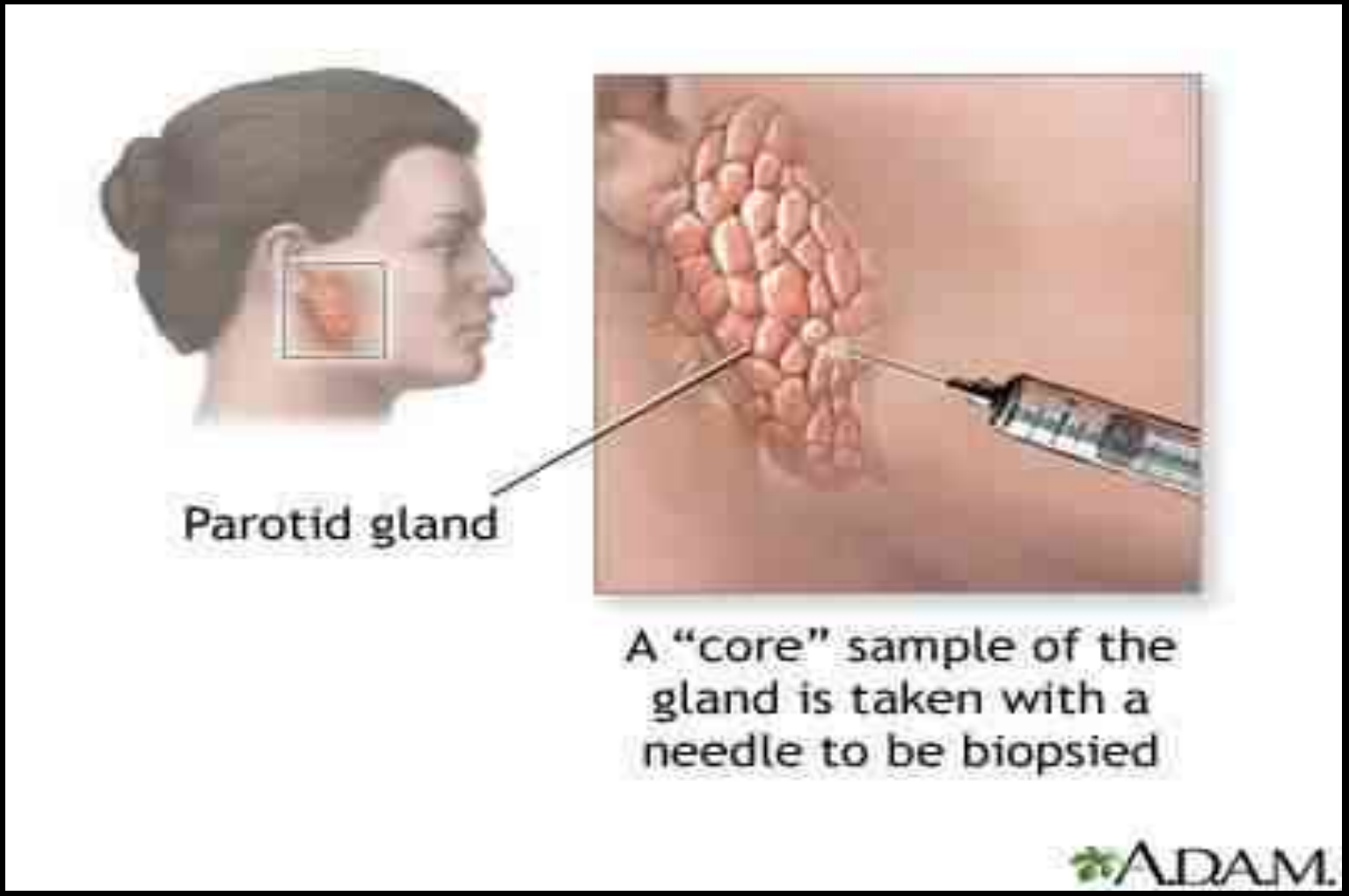


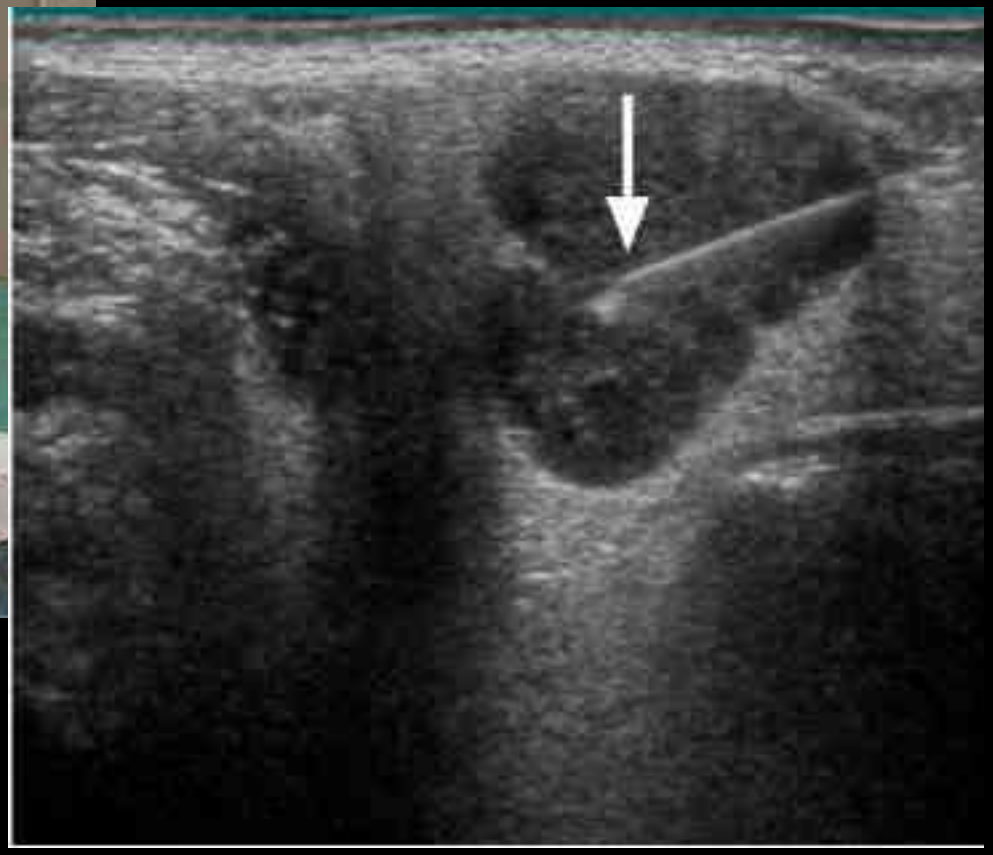
Punch Biopsy





Aspiration


Parotid gland
A "core" sample of the gland is taken with a needle to be biopsied
A.D.A.M.



Management of oral cancer

- ***Treatment modalities for oral cancer involve :***
- ***1.surgery***
- ***2.radiotherapy***
- ***3.chemotherapy***
- ***4.additional treatment modalities : immune therapy, photodynamic therapy***

- ***Surgery is the preferred treatment of choice , radiotherapy is reserved for patients who are not willing for surgery or when surgery will cause significant cosmetic or functional defects or if patients are unfit for general anaesthesia.***

- *Selection the modality depends upon the stage of cancer at diagnosis. The broad guidelines are as follows:*

- ***Early stage oral cancer*** *(Stage I and II) can be treated with single modality treatment. Surgery or radiotherapy .*

- ***advanced cancers*** *(Stage III and IV) need to be treated with combined modality treatment (surgery and radiotherapy).*

- *Some cases tumor are consided inoperable(not indicated for surgery and should be treated palliatively (chemotherapy and /or radiotherapy)*

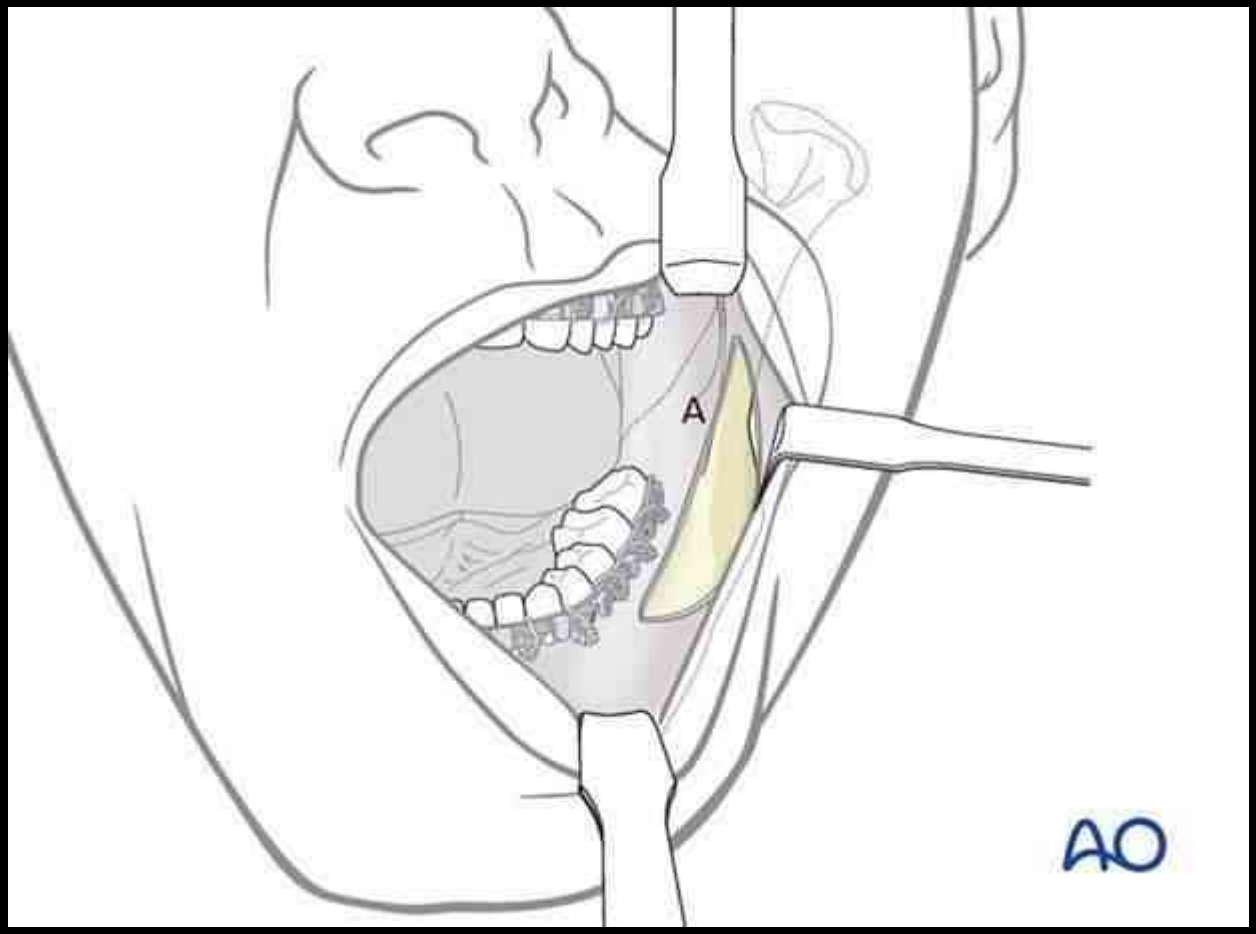
Criteria for considering tumor inoperable

- *Recent onset of trismus (gross infratemporal fossa invasion)*
- *Base of skull involvement*
- *Involvement of internal carotid artery*
- *Distant metastasis*

Access to the oral cavity

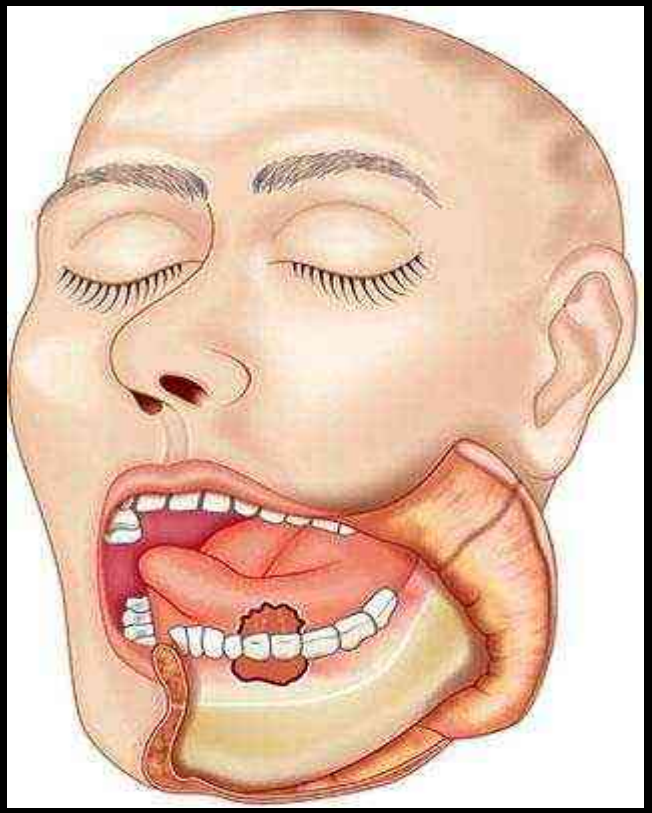
Access to the oral cavity

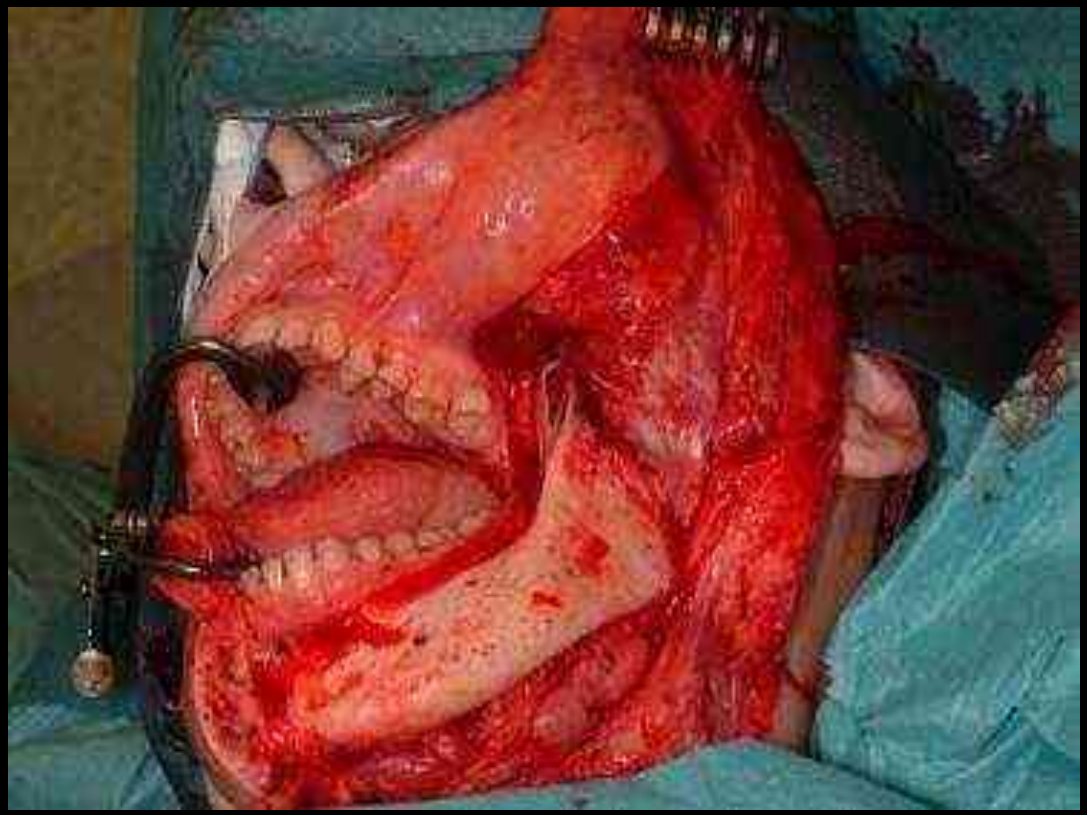
Peroral or Transoral approach



Access to the oral cavity

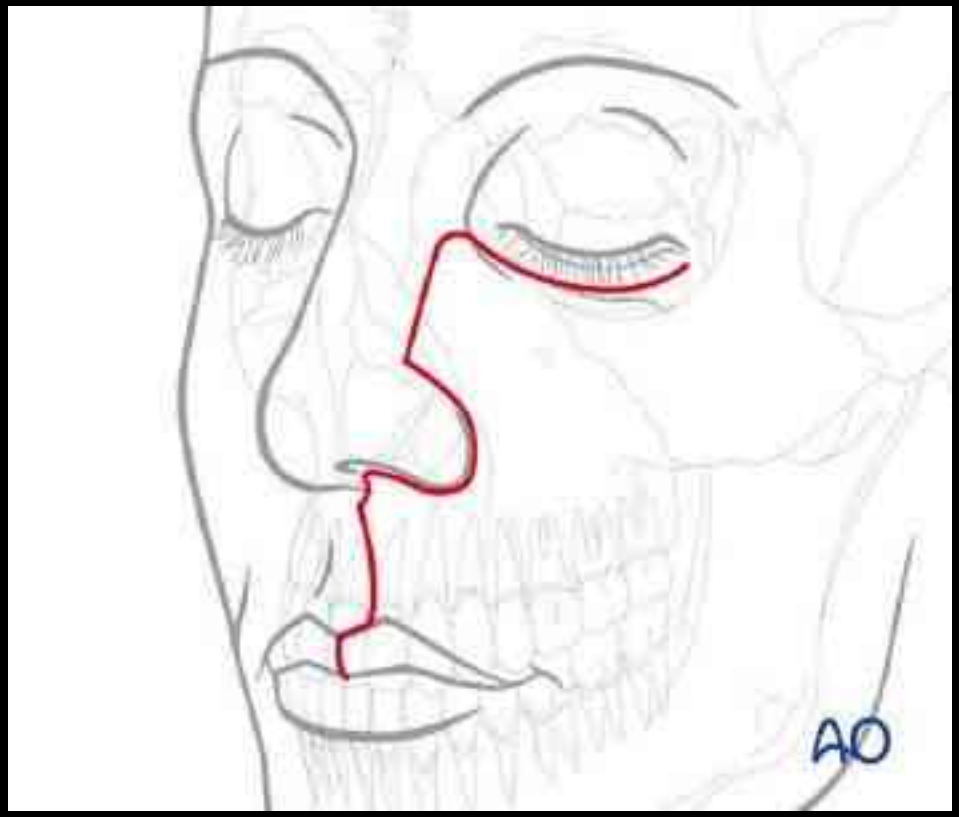
Lower cheek flap

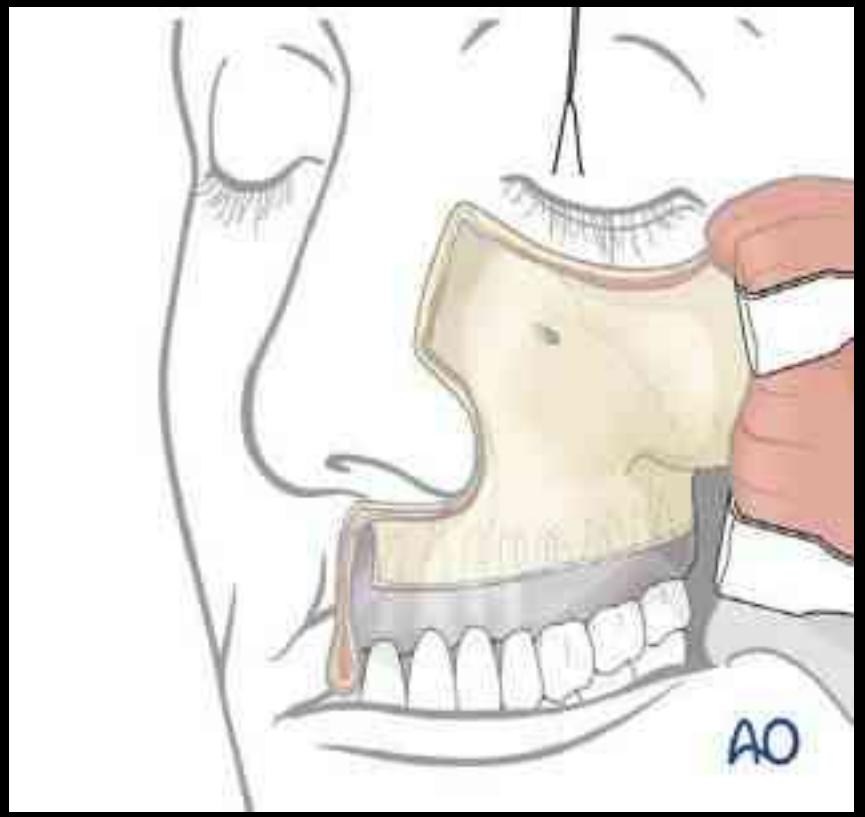


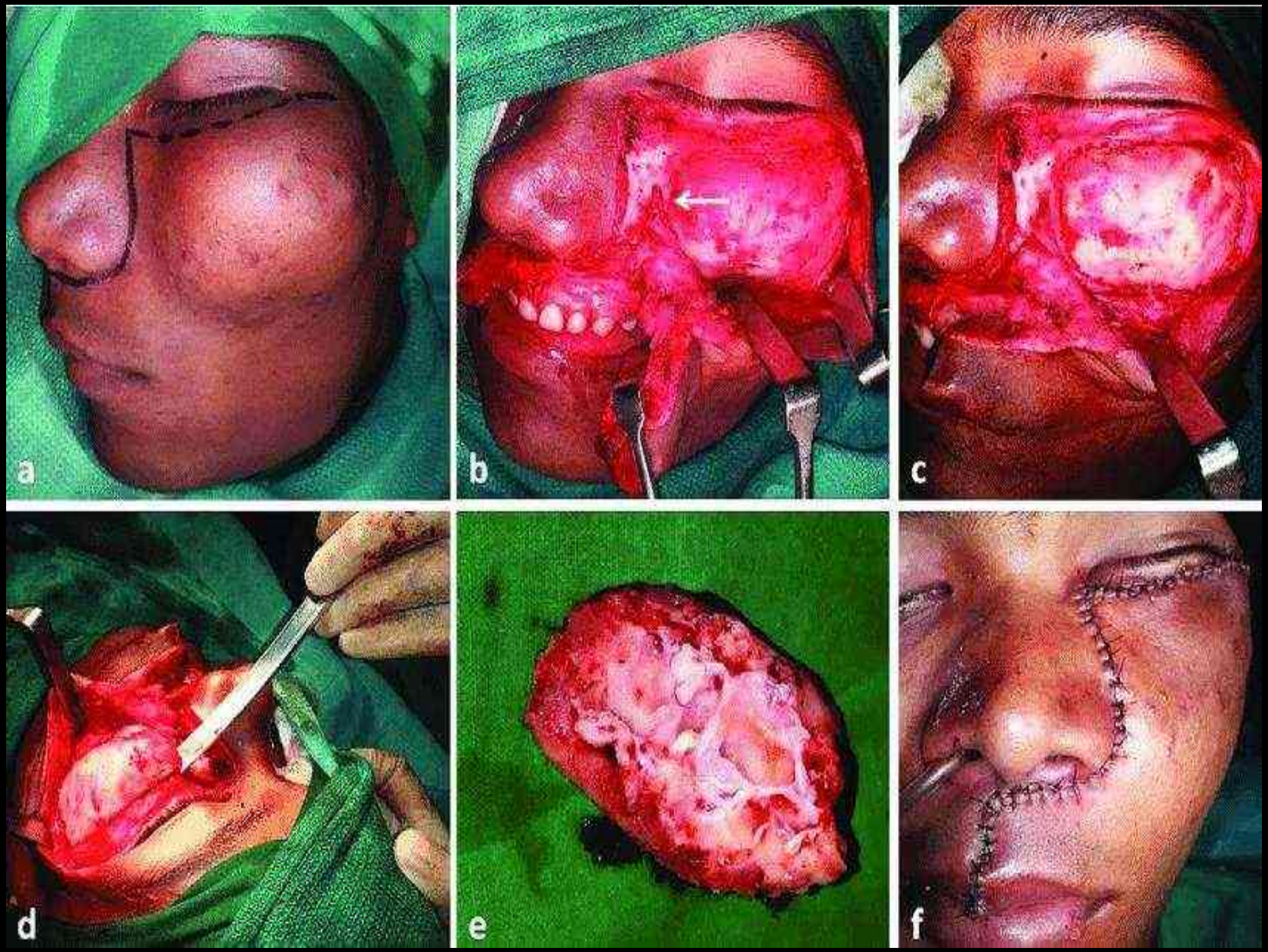


Access to the oral cavity

Upper cheek flap (Weber-Ferguson incision)

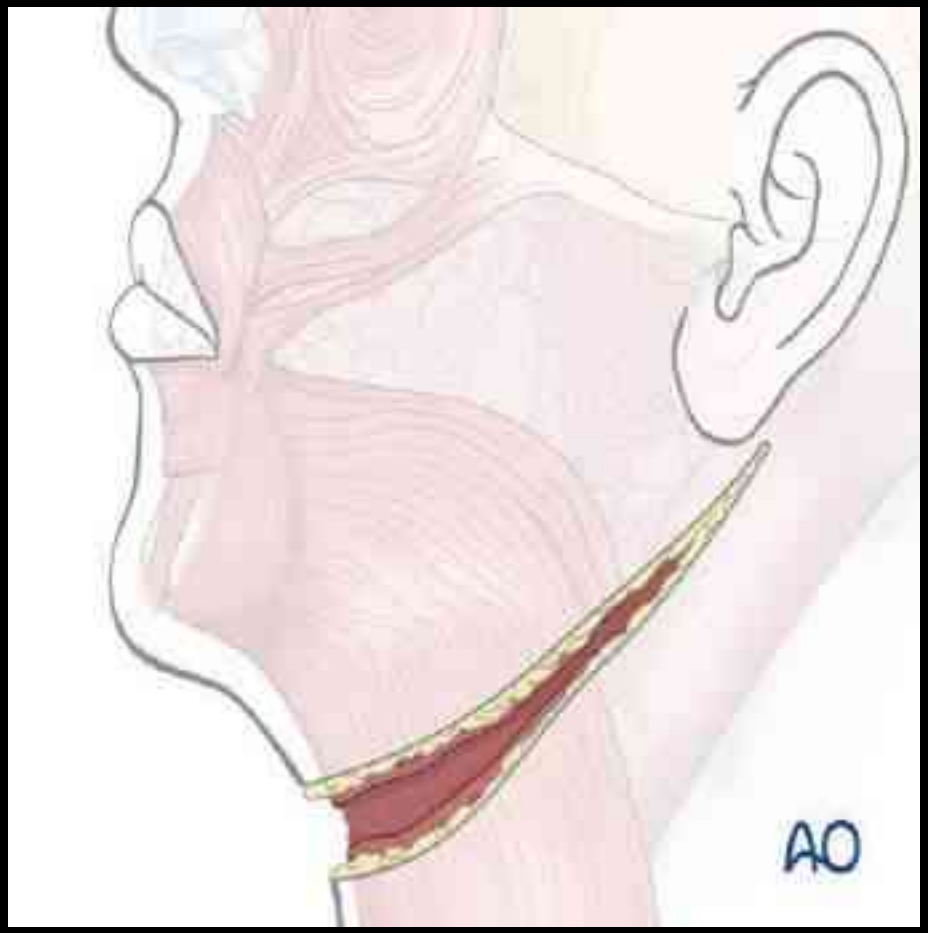


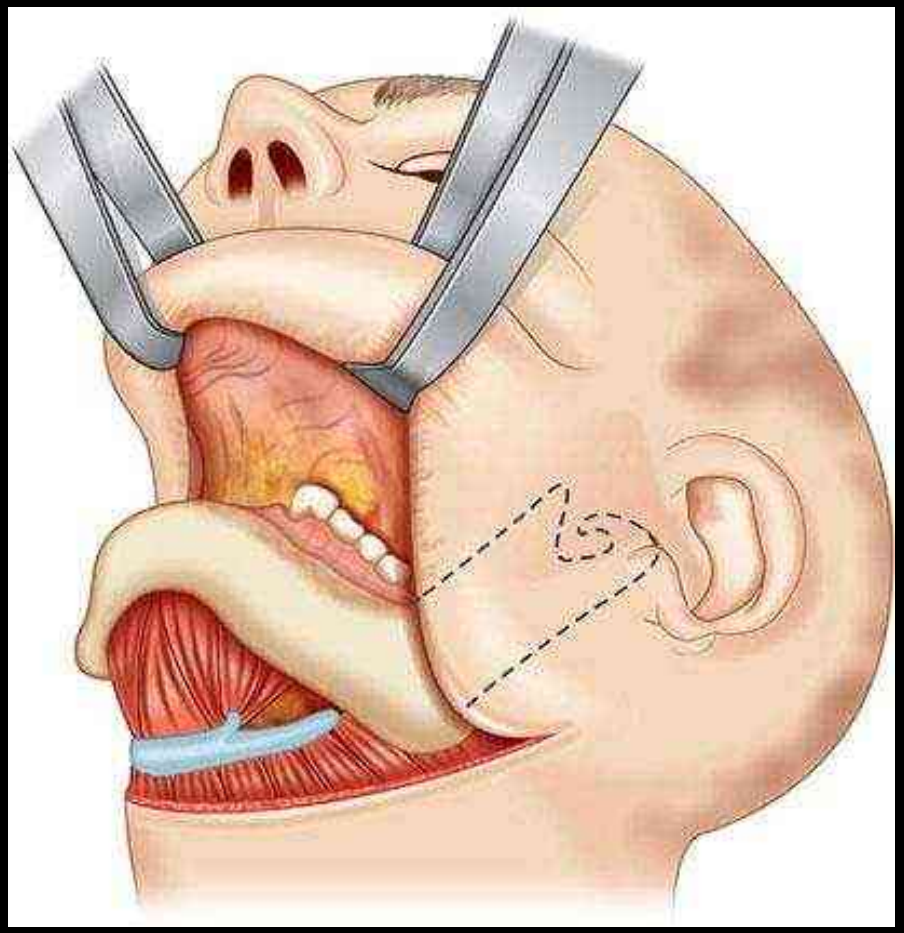



a
b
c
d
e
f

Access to the oral cavity

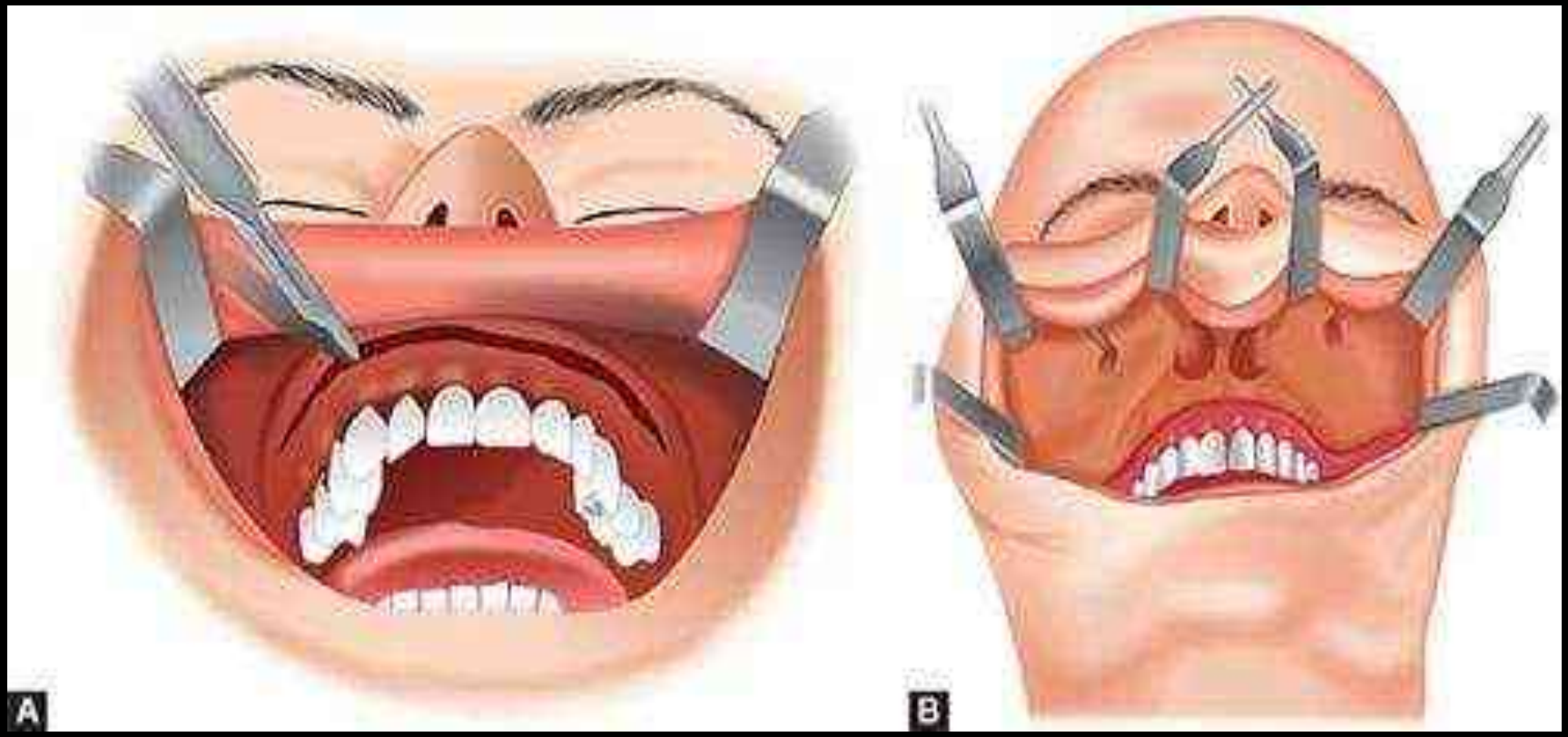
Visor Flap

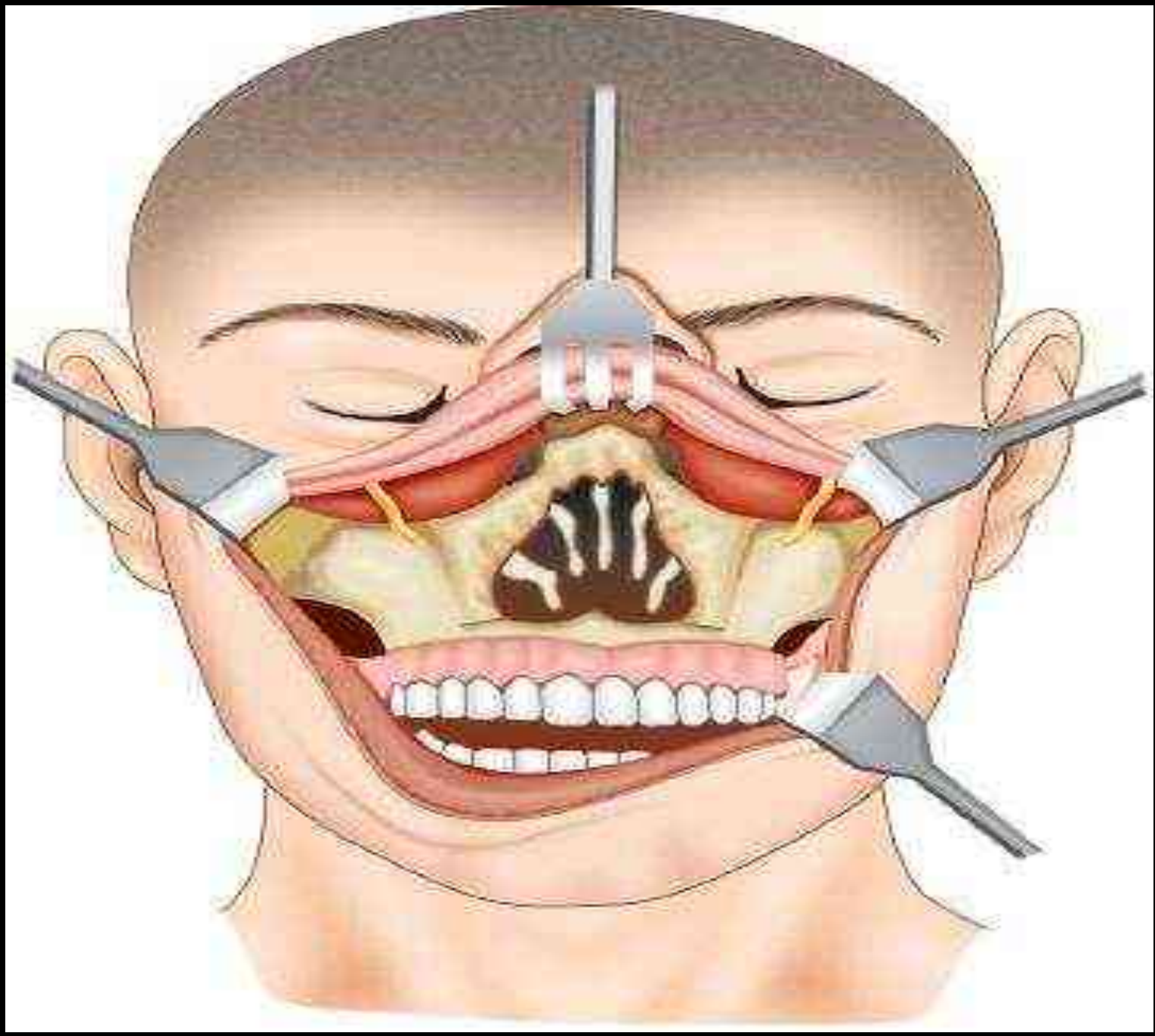




Access to the oral cavity

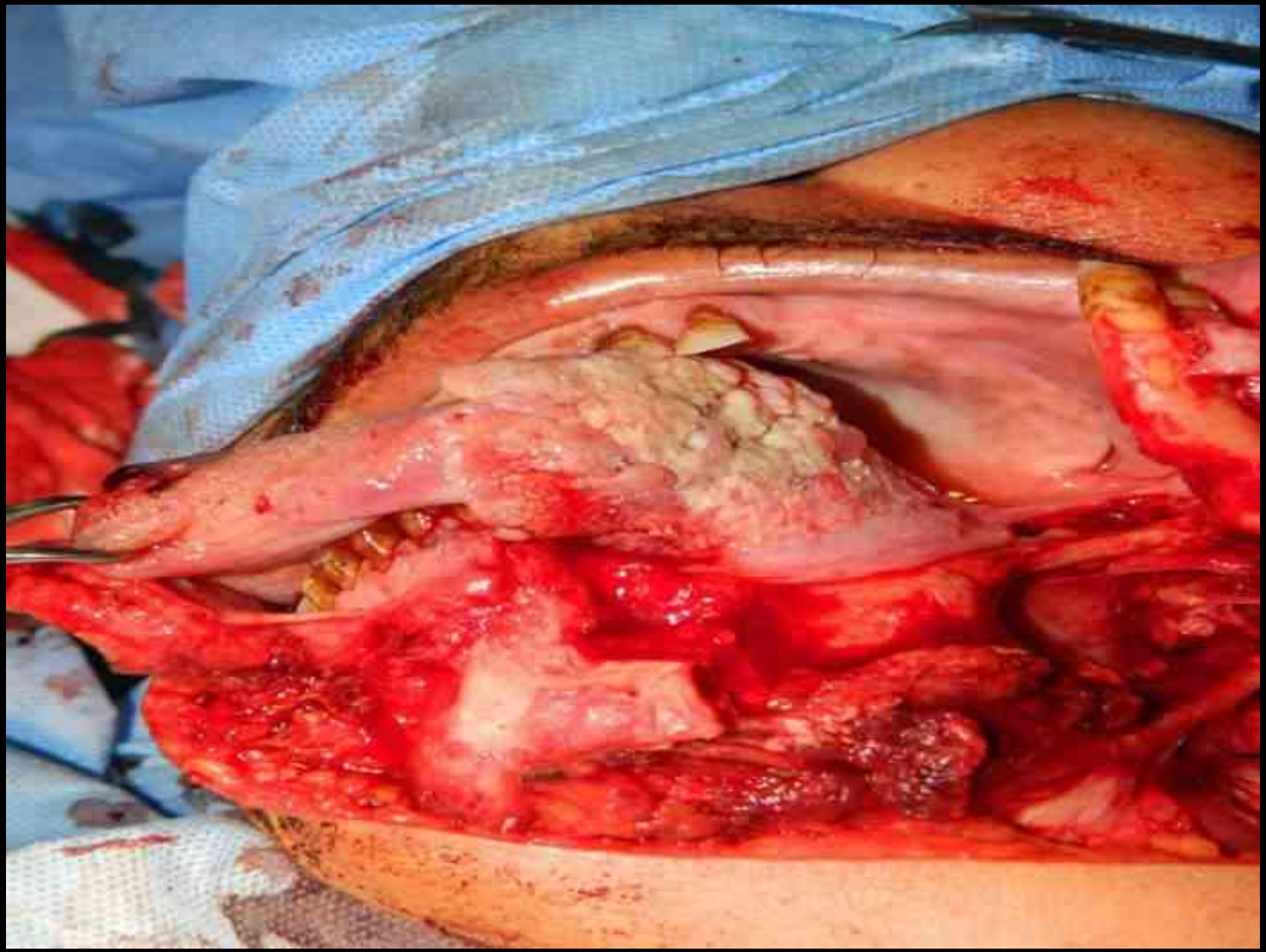
Midfacial degloving flap

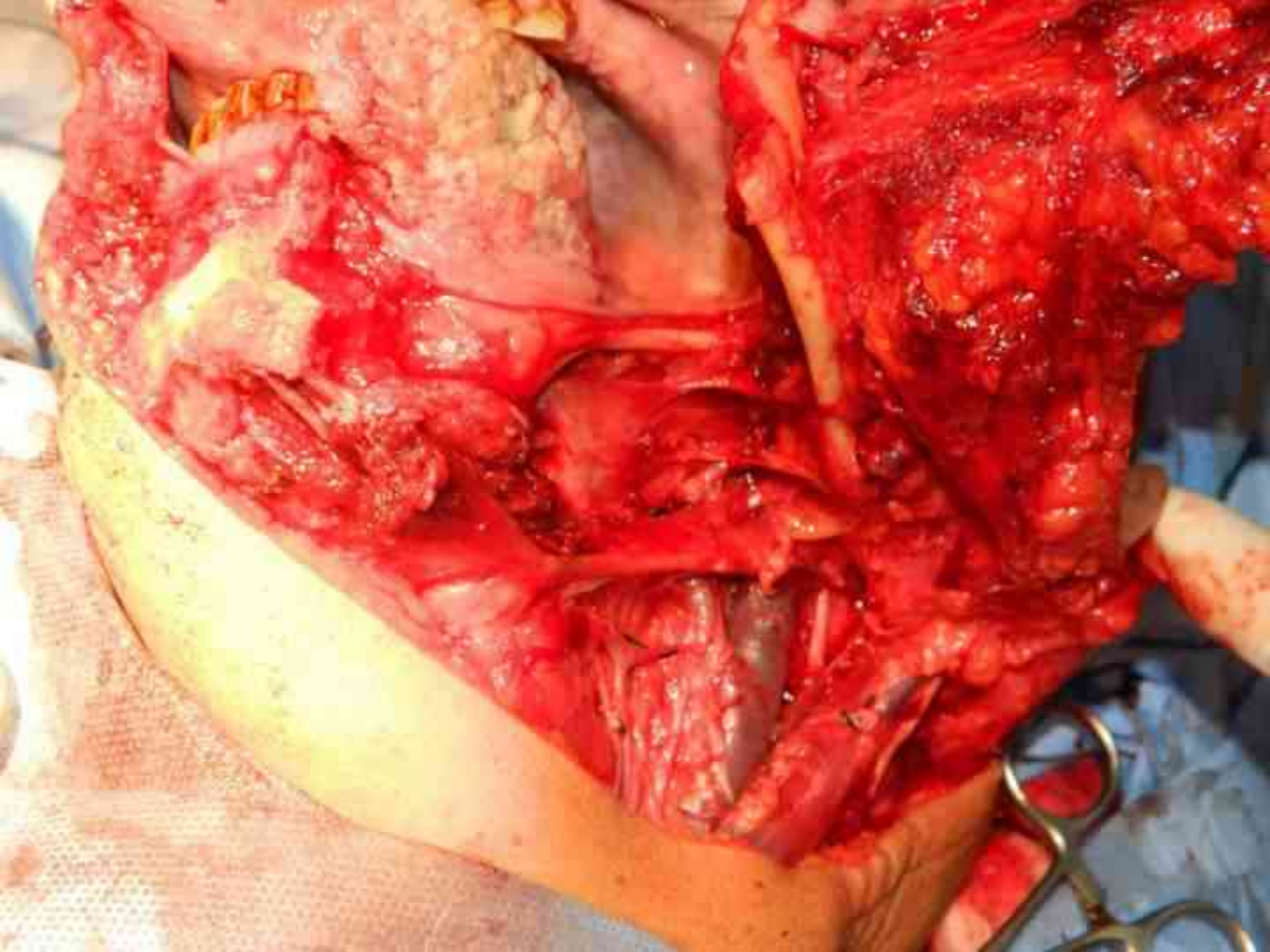


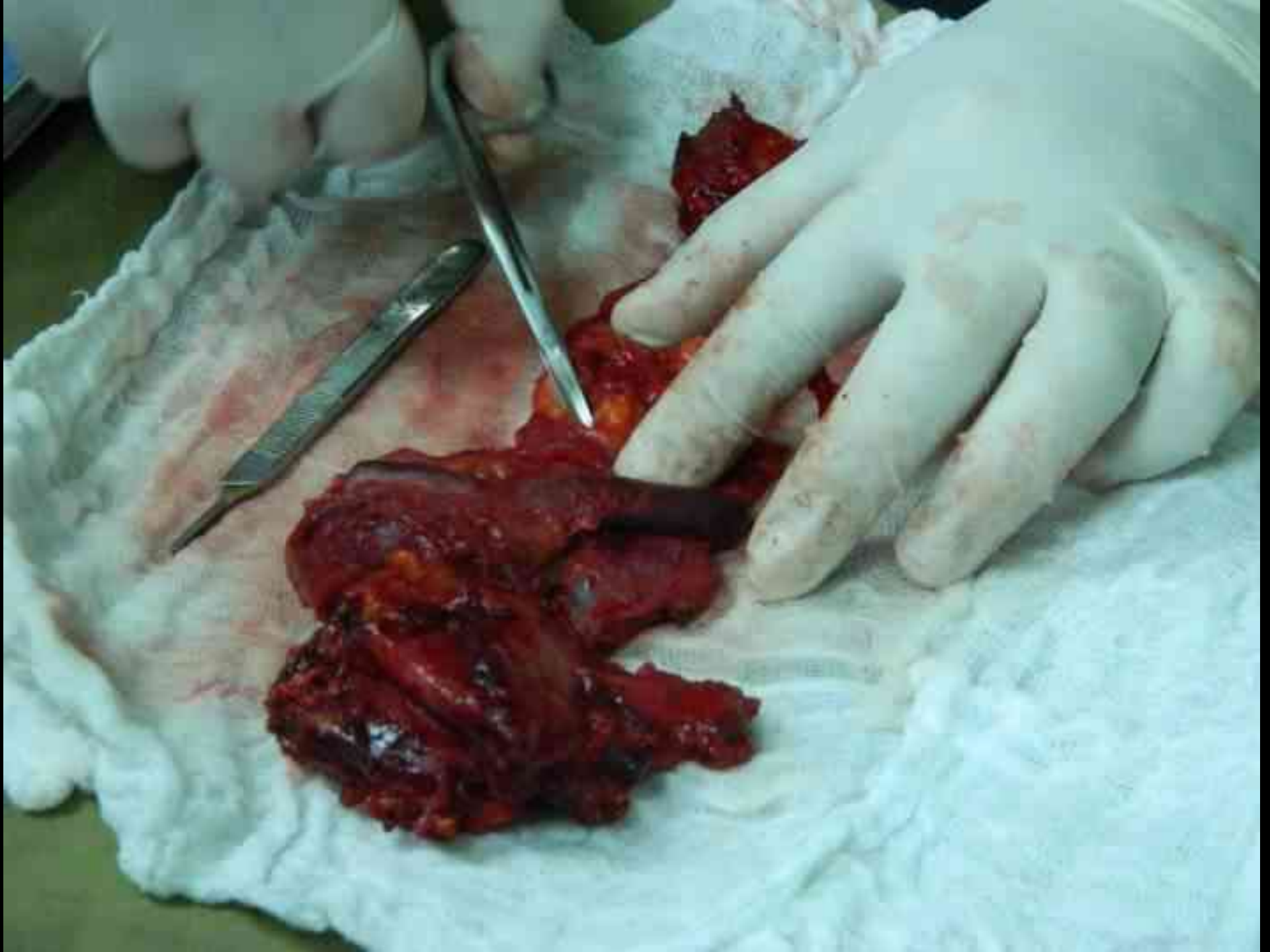


Access to the oral cavity

Mandibulotomy







Management of the Neck Lymph Nodes

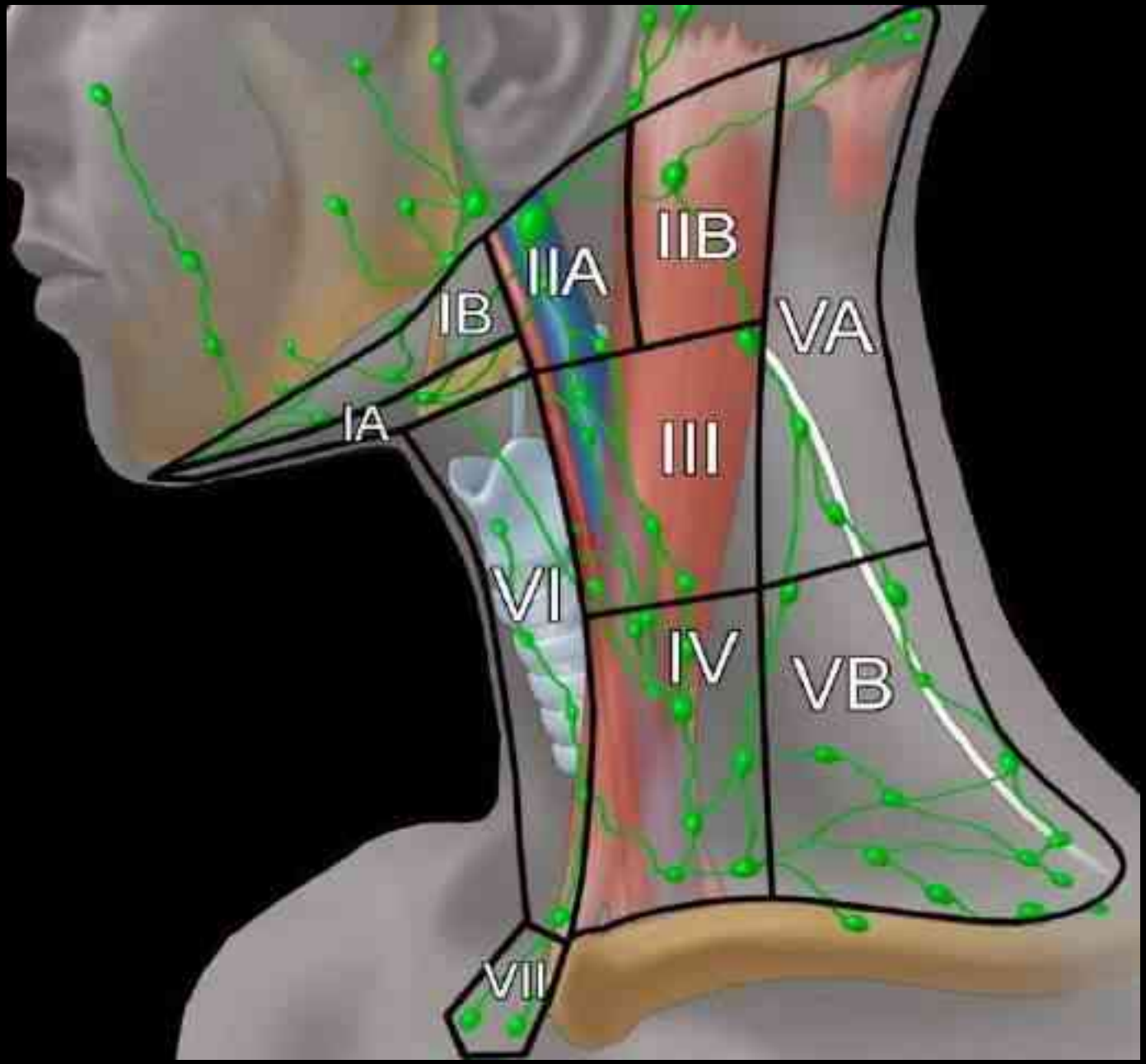
- *Involvement of regional lymph nodes by oral cancer is dependant on following factors:*

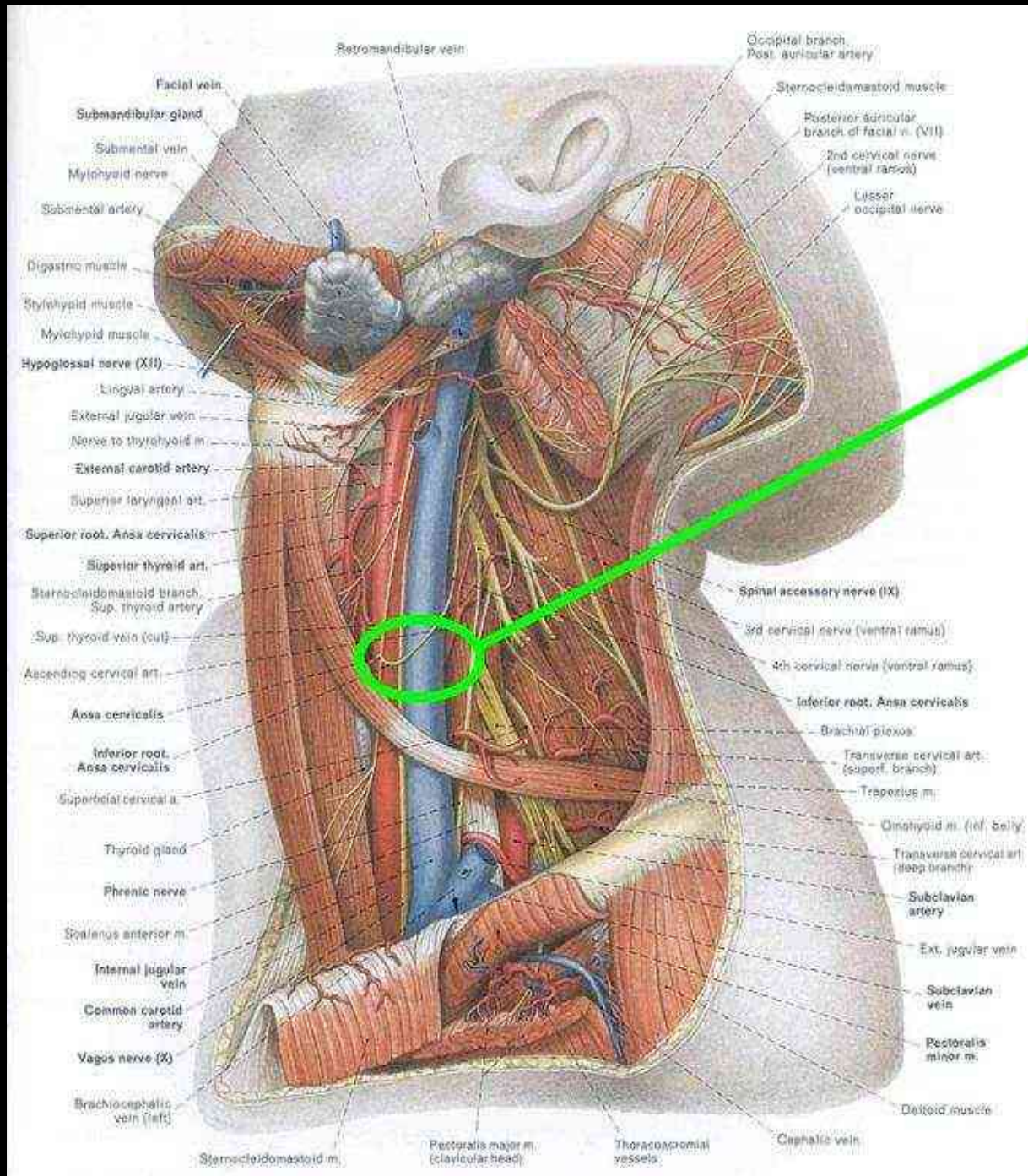
1. *Site and location of primary lesion , tongue and floor of the mouth lesions show more increased risk of nodal metastasis than hard palate lesion*
2. *Size of primary site*
3. *T stage ,increasing stage will increase the risk of nodal metastasis, irrespective to site.*
4. *Histomorphologic feature, poorly differentiated carcinoma have increased risk of metastasis than well differentiated carcinoma.*

Management of the Neck Lymph Nodes

1. *Surgical treatment ; neck dissection (radical ND, modified ND , Selective ND) for surgical clearance of all involved lymph nodes and those suscepected to be involved .*

2. *Radiotherapy*

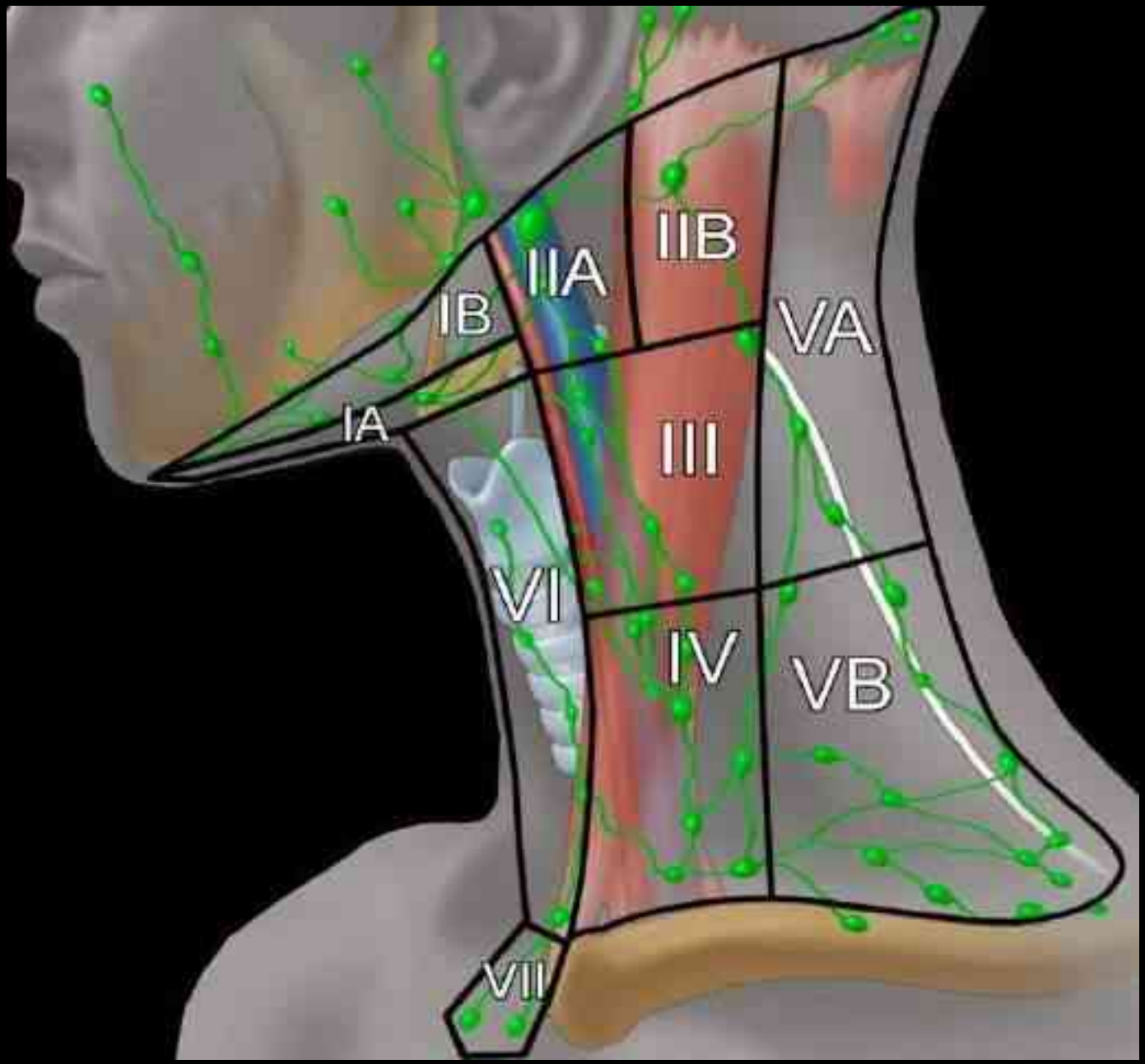

IIB
IIA
IB
VA
IA
III
VI
IV
VB
VII



Carotid Sheath:

- Carotid Artery
- Jugular Vein
- Vagus Nerve

Do you remember what foramina these pass through?!


IB
IIA
IIB
VA
IA
III
VI
IV
VB
VII

Type of Neck Dissection	Nodal Levels Dissected	Structures Preserved
Radical neck dissection (RND)	I–V	None
Type I modified radical neck dissection (MRND I)	I–V	SAN
Type II modified radical neck dissection (MRND II)	I–V	SAN SCM
Type III modified radical neck dissection (MRND III)	I–V	SCM IJV SAN
Supraomohyoid neck dissection (SOHND)	I–III	SCM IJV SAN
Lateral (jugular) neck dissection (LND)	II–IV	SCM IJV SAN
Anterolateral neck dissection (ALND)	I–IV	SCM IJV SAN
Posterolateral neck dissection (PLND)	II–V	SCM IJV SAN

SAN = spinal accessory nerve; SCM = sternocleidomastoid; IJV = internal jugular vein.

Postoperative follow up

Postoperative visit	Examination schedule
0-3 months	Biweekly examination
3-12 months	Monthly examination
1-2 years	Examination every 2 months
2-4 years	Examination every 4 months
4-5 years	Examination every 6 months

Radiotherapy

Radiotherapy

- ***Absolute indications*** ***for postoperative irradiation are; involved (positive) margins at the primary tumor resection site and extracapsular spread (ENE) of involved lymph nodes.***
- ***Near absolute indications include close (less than 5 mm) margins, two or more involved cervical lymph nodes and invasion of the soft tissues of the neck.***
- ***The relative indications include; the presence of lymphovascular space invasion and perineural invasion.***

Techniques of radiotherapy

- Brachytherapy (internal radiotherapy)
- Conventional (external beam or teletherapy) radiotherapy

Fractionation of radiotherapy

- **Conventional:** 65 Gy (Gray) is given in protracted treatment course of 2 Gy× 30 fractions for 42 days (conventional).
- **Hyperfractionation**: when the number of fractions is increased beyond the conventional levels, so the ratio of dose/fraction is reduced. The treatment should be given 2-3 times/day with 6 hours interval.
- **Acceleration:** is reduction in overall treatment time.
- **Continuous hyperfractionated accelerated radiation therapy (CHART):** 12 days, 3 fractions/ day, 7 days/week. This is given to prevent repopulation of malignant cells.
- **Split courses:** designed to reduce the severity of mucosal reaction, so the radiotherapy course is divided into 2 halves separated by 2 weeks, but this may lead to repopulation of tumor cells so it is not recommended.

Chemotherapy

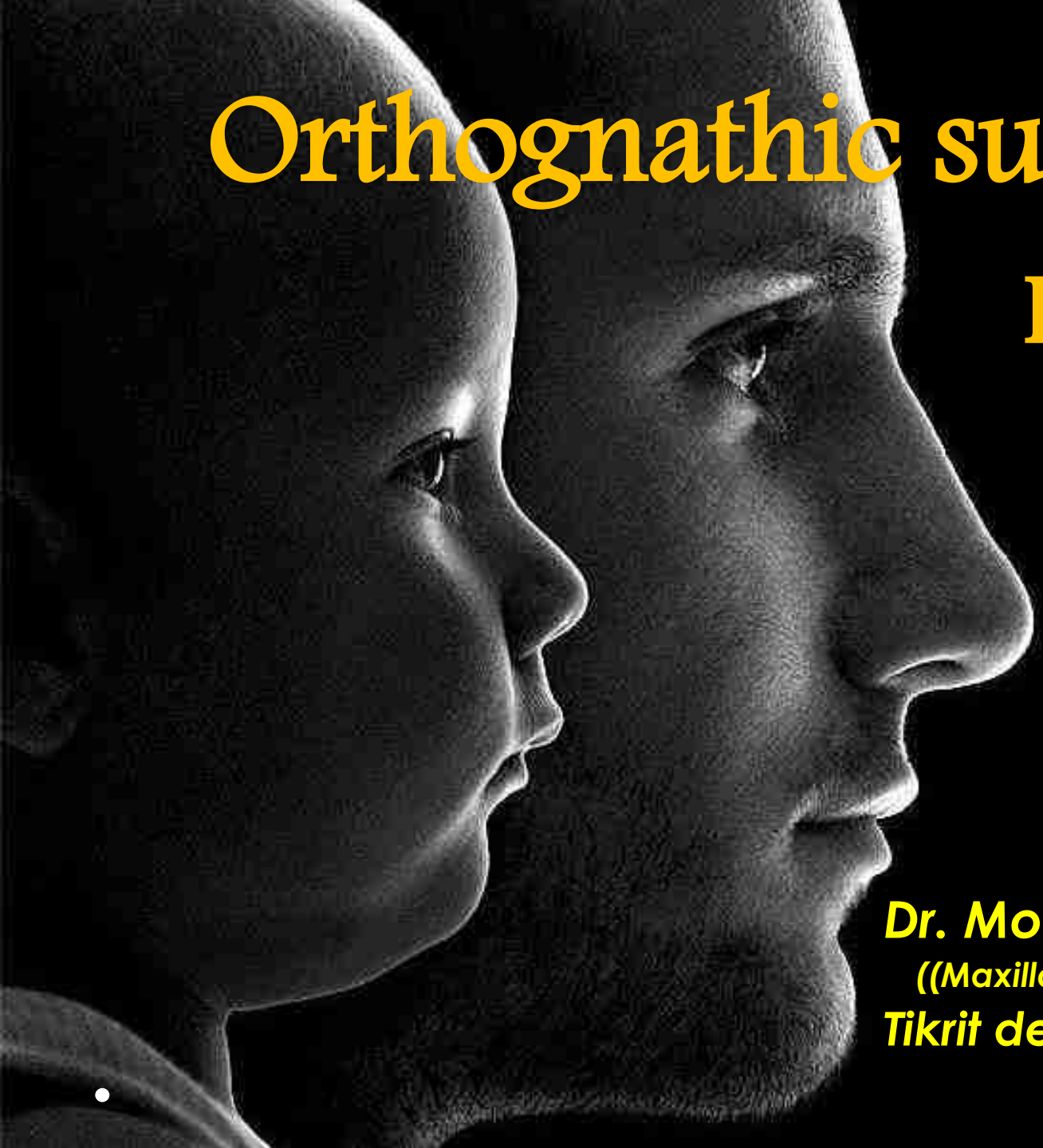
- ***used in combination with radiotherapy and/or surgery in radical treatment or alone in palliative treatment.***

Classes of chemotherapeutic agents

- Antimetabolites
- DNA damaging agents
- Mitosis inhibitors
- Cancer cell enzyme inactivators

Orthognathic surgery

Part II



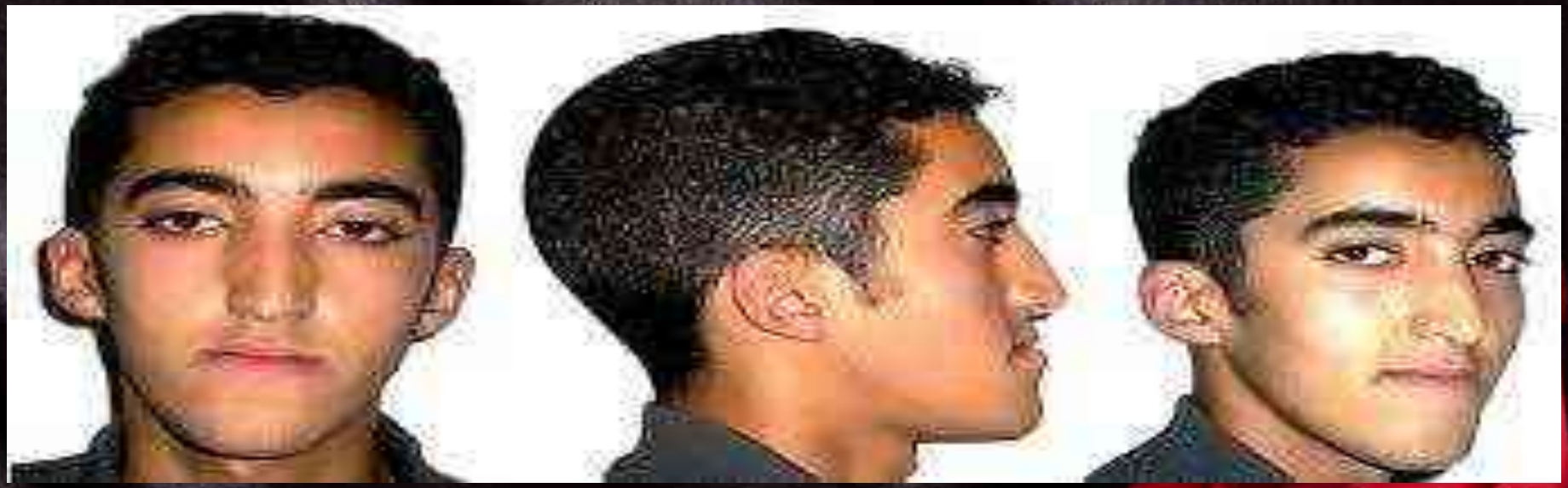
Dr. Mohammed Rhael
((Maxillofacial surgeon))
Tikrit dentistry college

Surgical treatment

Mandibular surgical procedures

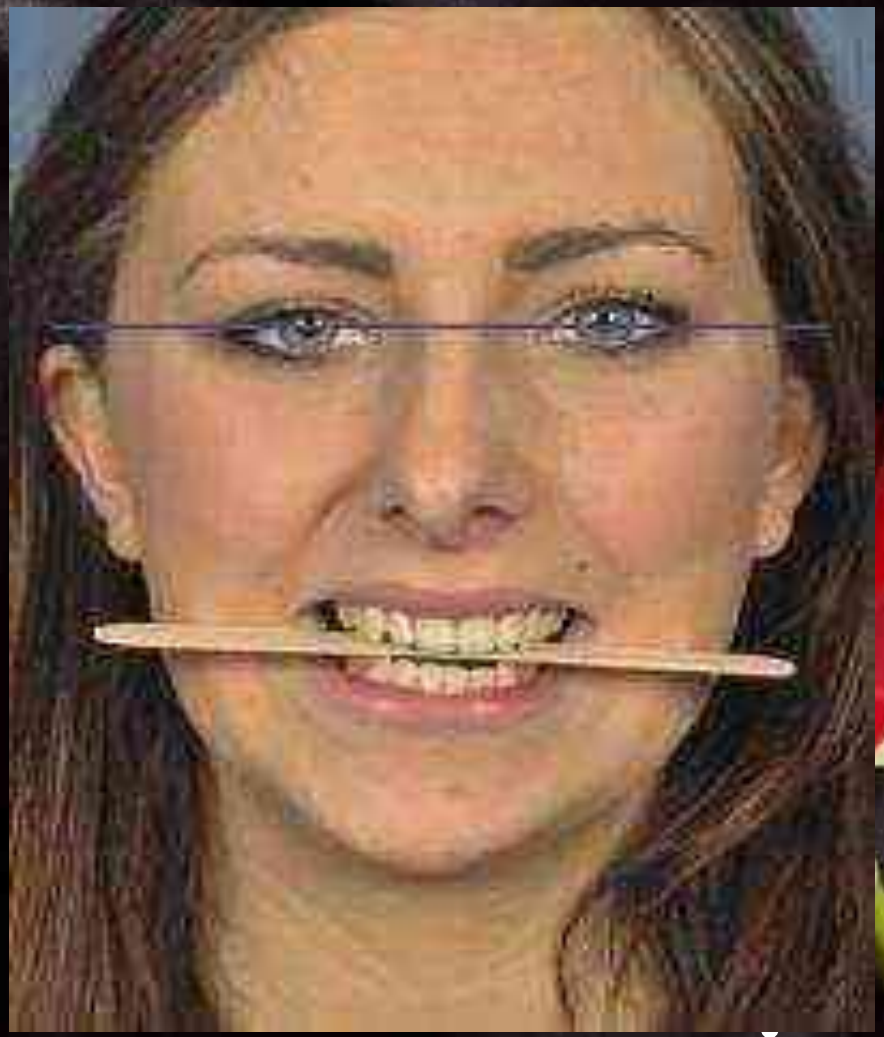
- Saggital split osteotomy
- Body osteotomy
- Subcondylar osteotomy
- Inverted L osteotomy
- Genioplasty

Mandibular excess



Mandibular deficiency

Cant occlusion

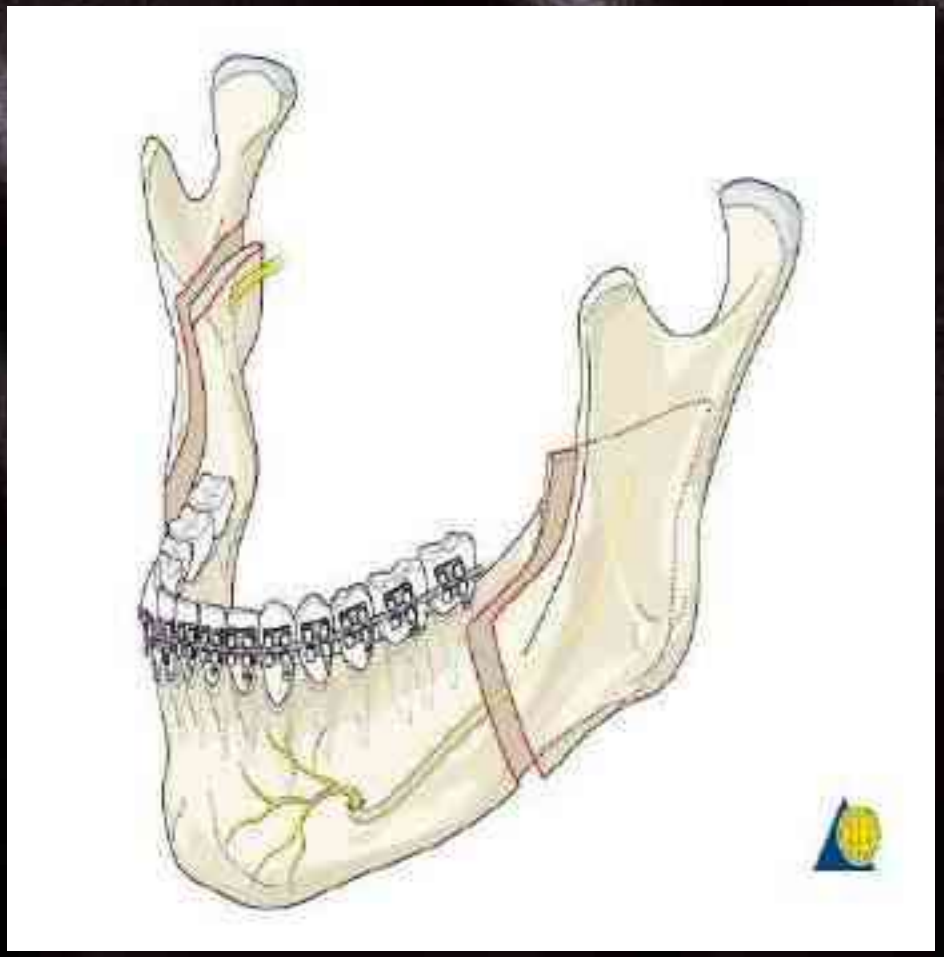


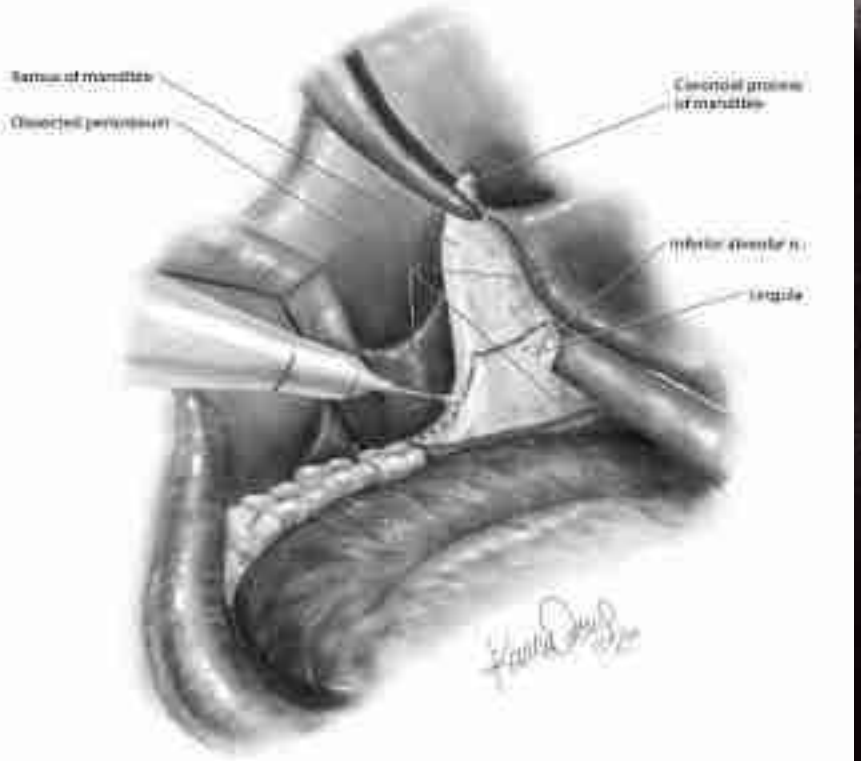
Anterior open bite

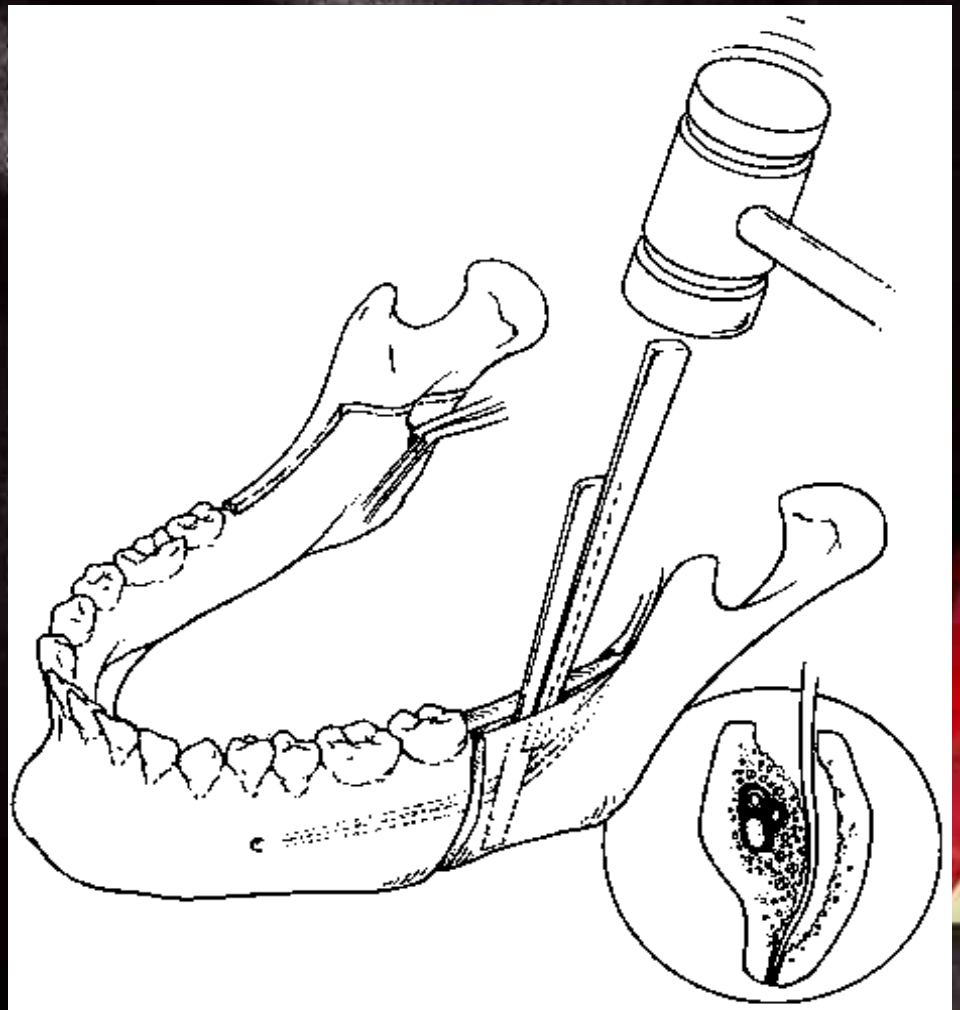
Saggital split osteotomy

- A sagittal split osteotomy is an procedure that is done to correct any serious misalignment of the upper and lower teeth.
- The bone on the sagittal (side) of the lower mandible of the jaw is cut on each side to form a split.
- This allows the front part of the mandible to slide backward or forward until the teeth are aligned.
- The bones are then held in place with screws and allowed to heal. Patients with a severe overbite or underbite may benefit from the sagittal split osteotomy.
- All surgical incisions are made through the mouth so there is no visible scarring on the face after the procedure.
- The surgeon will begin by making an incision to expose the bone on each side of the mouth behind the last molars.
- A surgical saw will be used to slice the bone of the mandible lengthwise from the back of the jaw to the area beneath the second molars.

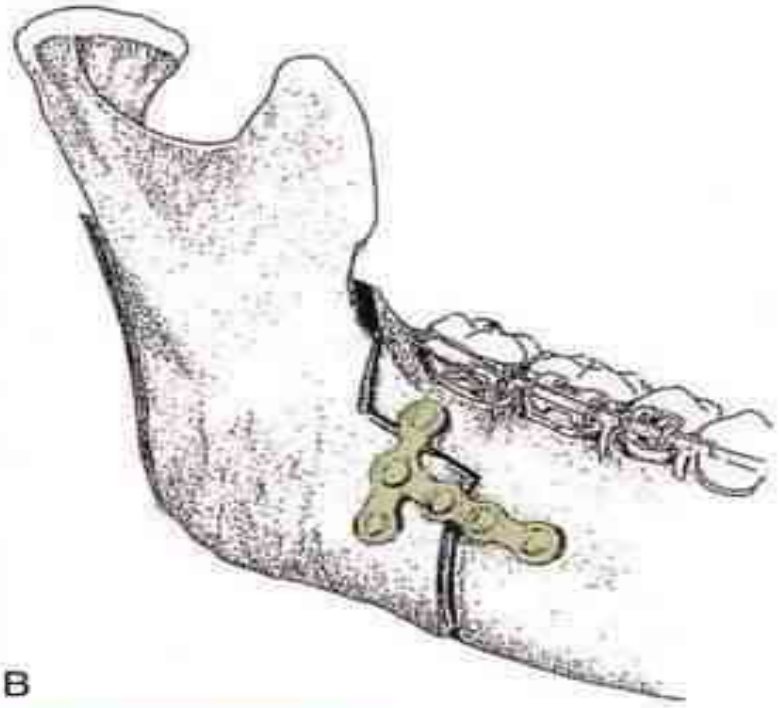
Saggital split osteotomy




Ramus of mandible
Dissected periosteum
Coronoid process of mandible
Inferior alveolar n.
Lingula

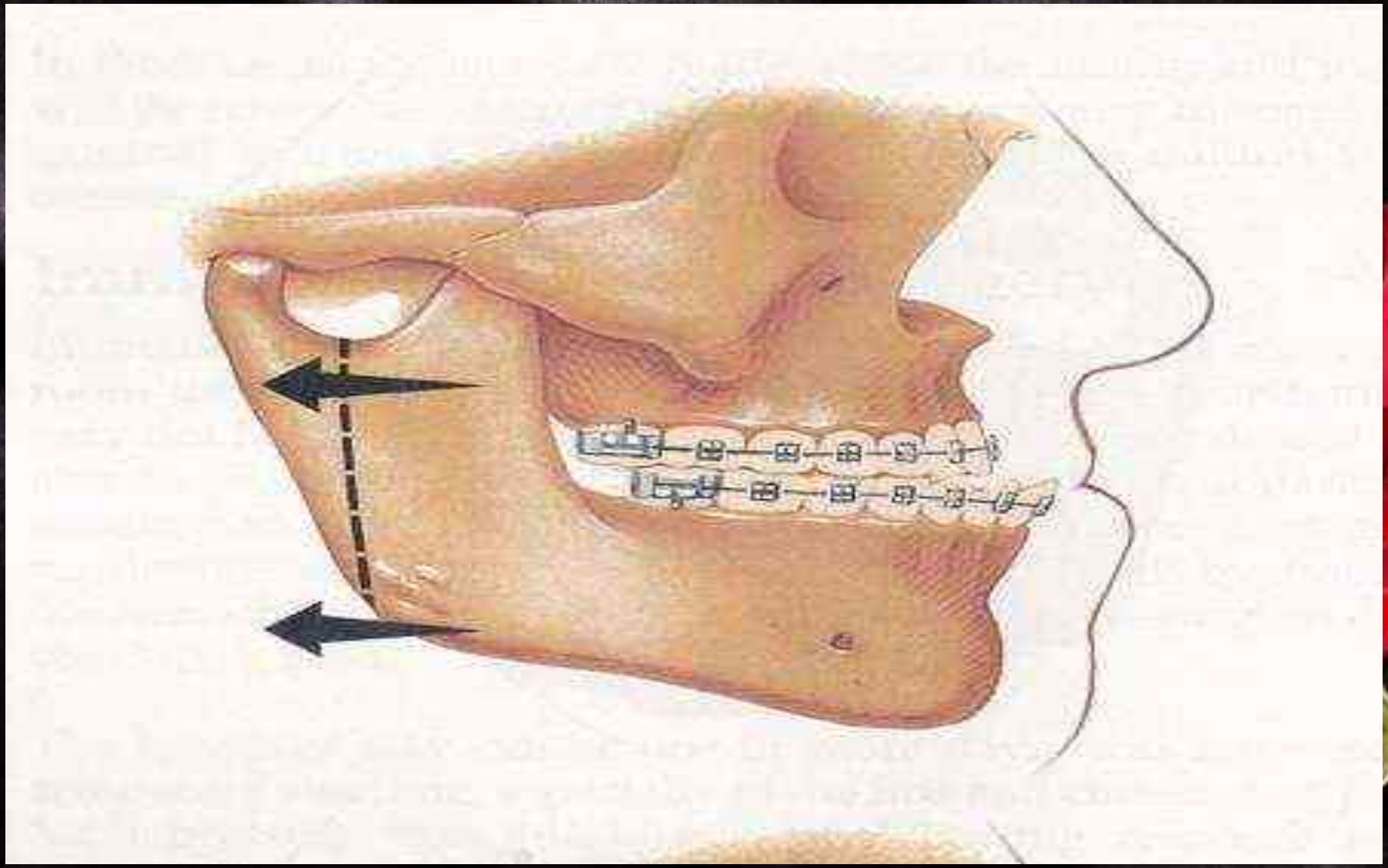



A

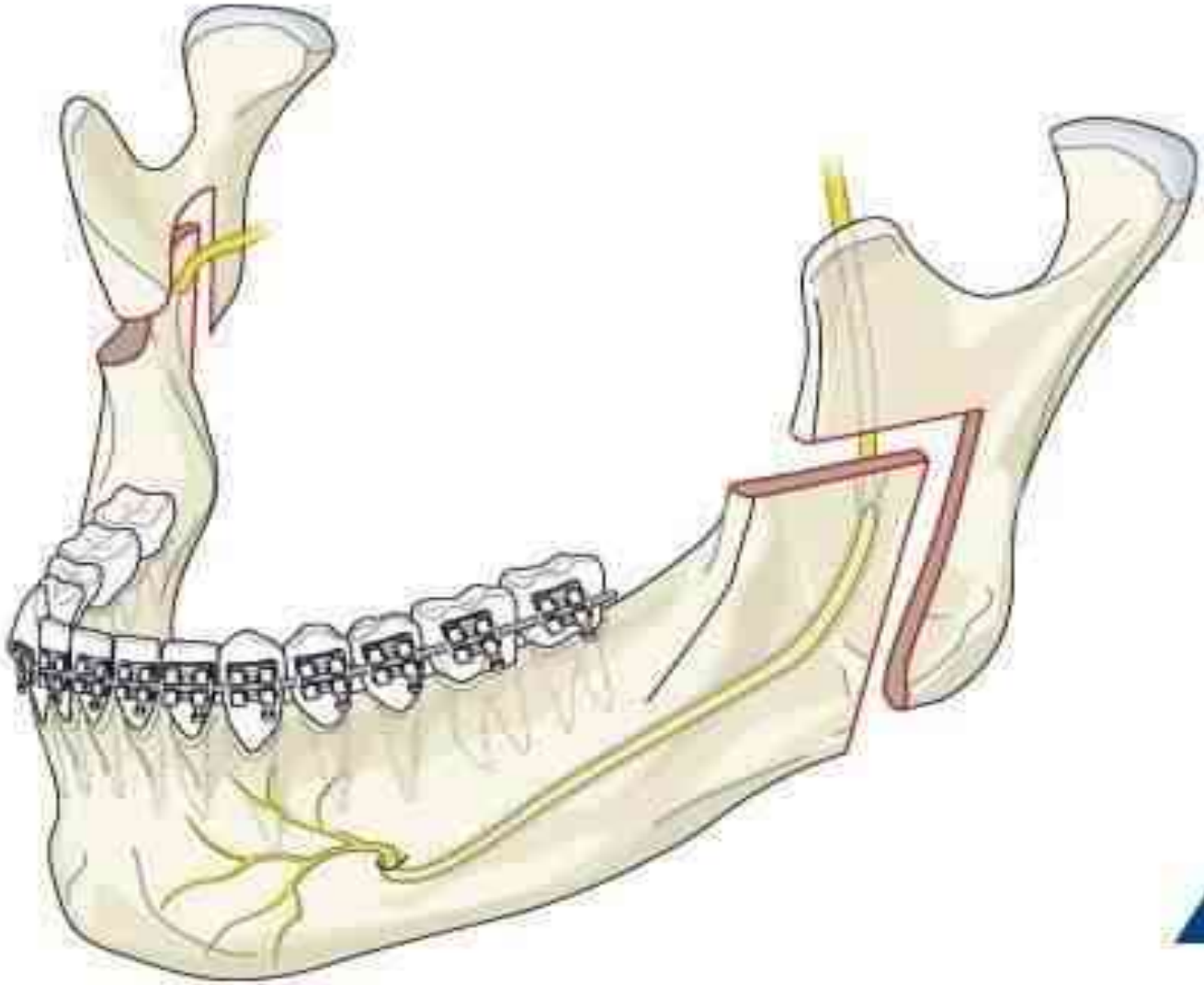

B


C

Subcondylar osteotomy



Inverted L osteotomy



SSRO

(Sagittal Split Ramus Osteotomy)

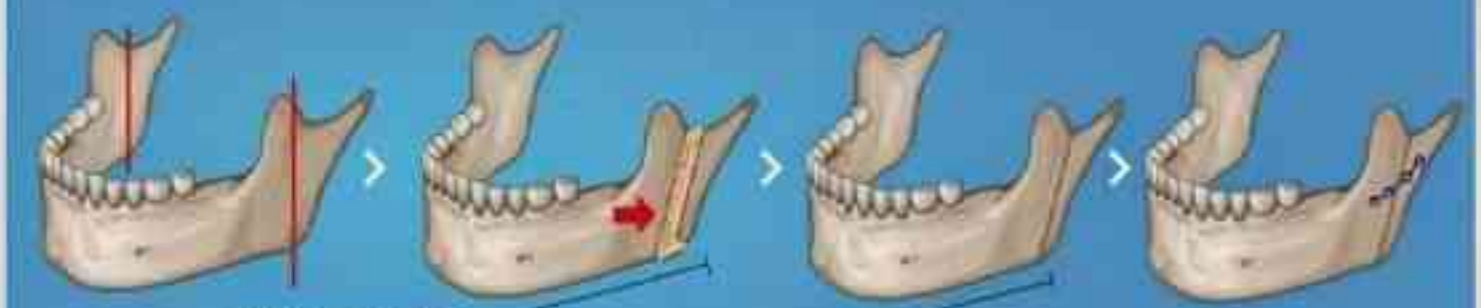
Osteotomy is made on the lower jaw

The bone fracture is moved backward, and protruding parts are trimmed.

Bone fracture is fixed to prevent it from moving.

IVRO

(Intraoral Vertical Ramus Osteotomy)



Osteotomy is made on the lower jaw

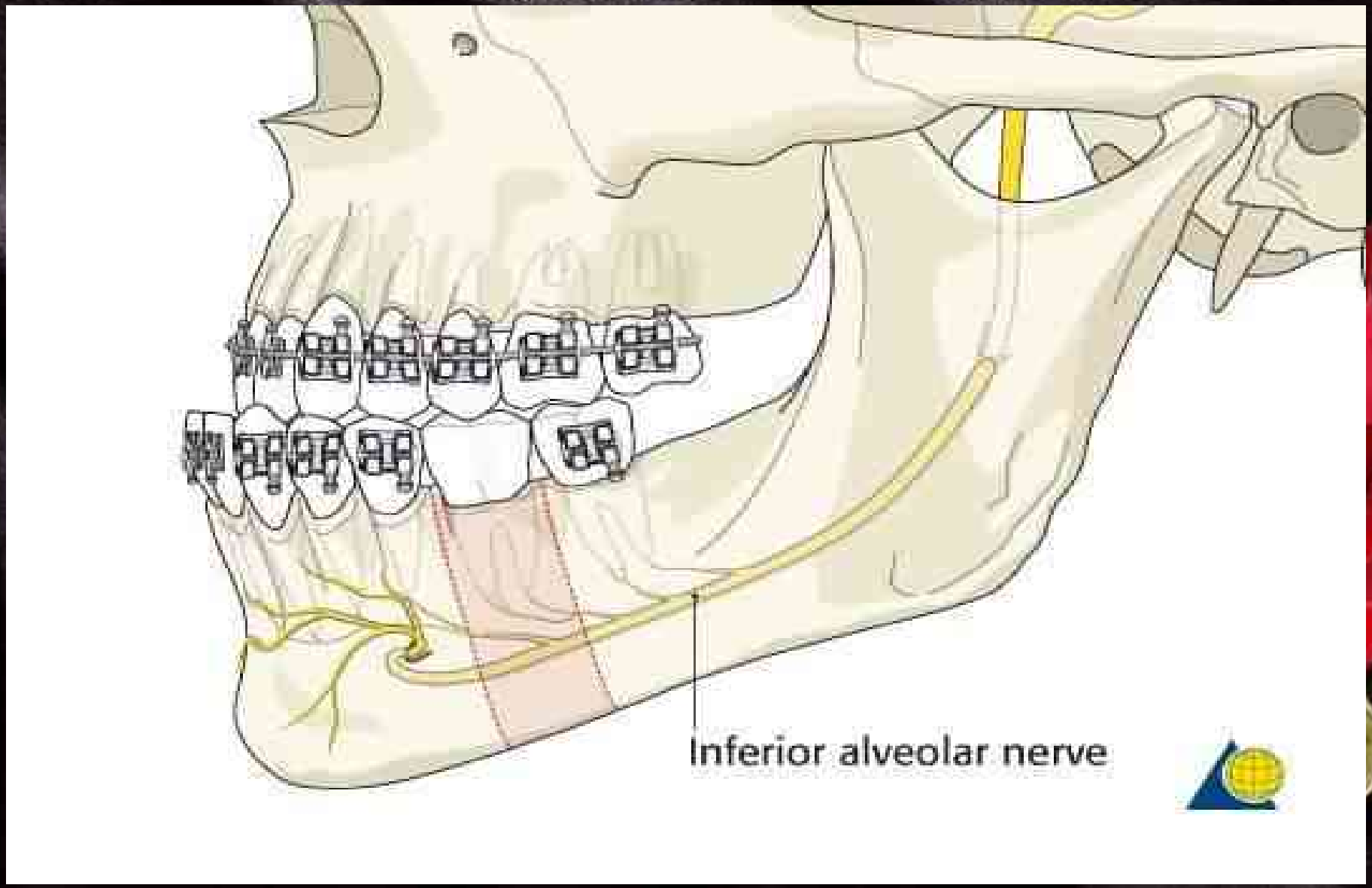
The bone fracture is moved backward, and protruding parts are trimmed.

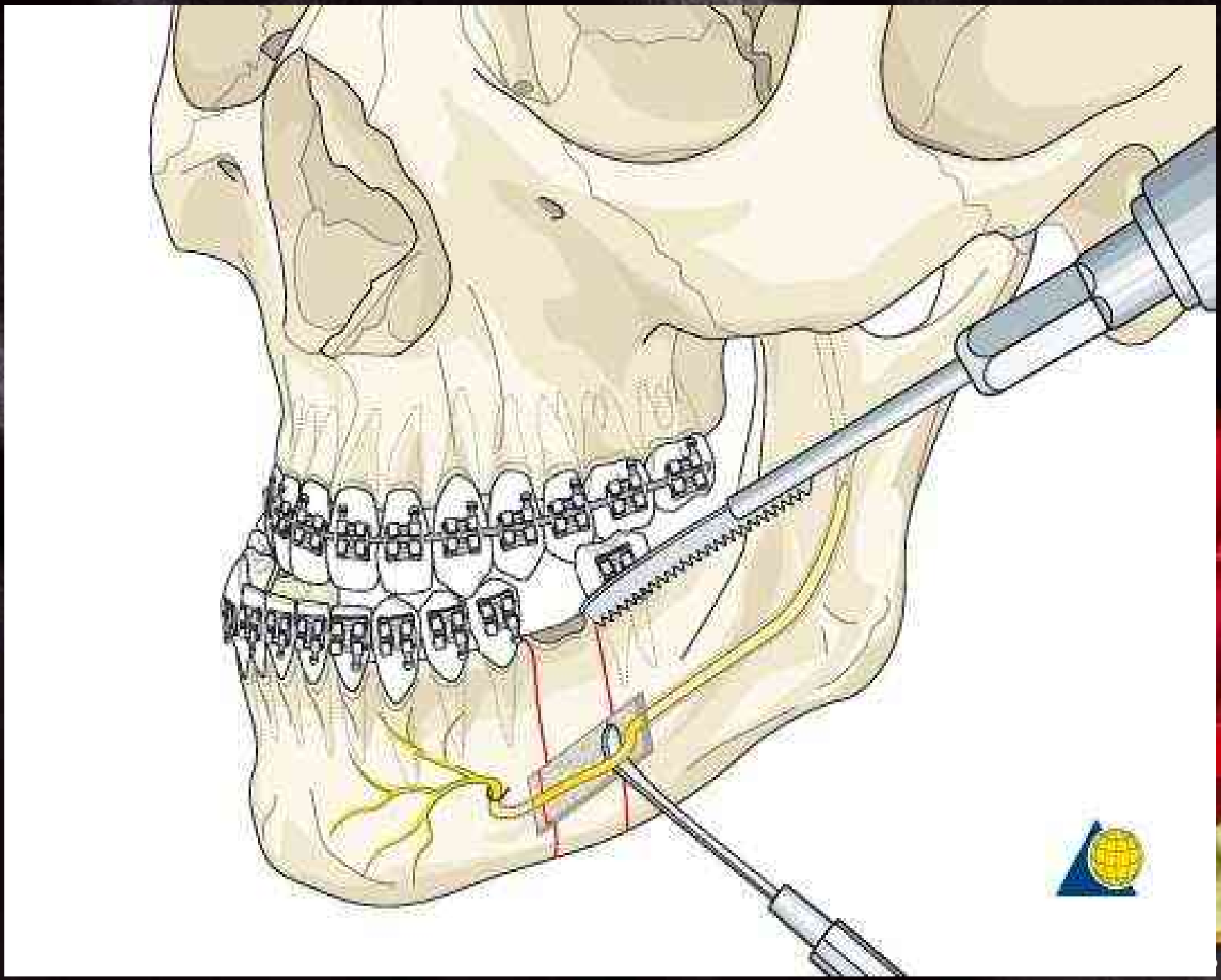
Bone fracture is fixed to prevent it from moving.

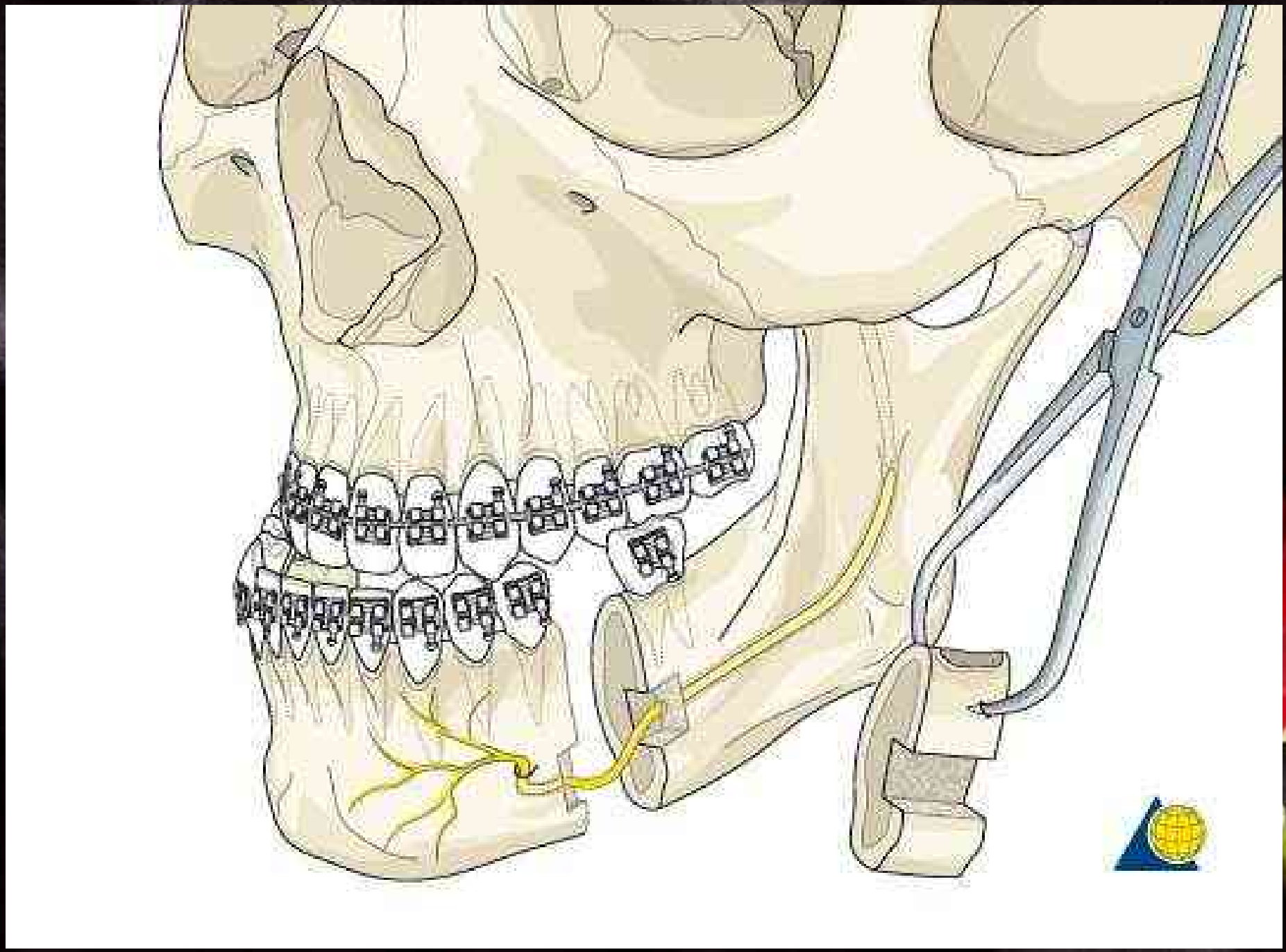
Body osteotomy

- Mandibular body ostectomy for correction of mandibular prognathism is often avoided due to complications such as inferior alveolar nerve injury and the development of other more reliable surgical procedures such as mandibular sagittal split ramus osteotomy (SSRO) .
- However, this procedure still seems to be most effective in some cases, especially those with a large mandibular body.

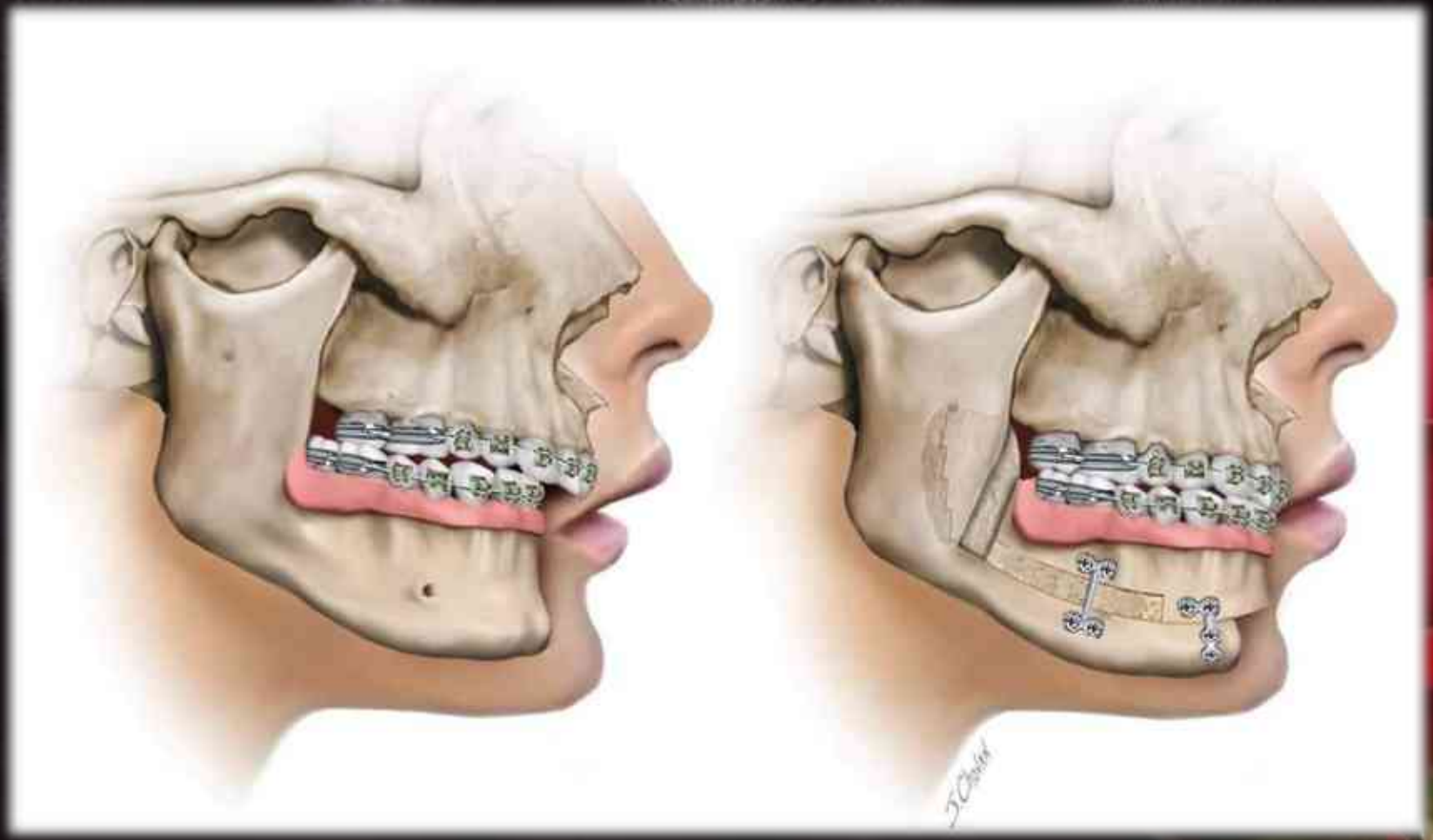
Body osteotomy





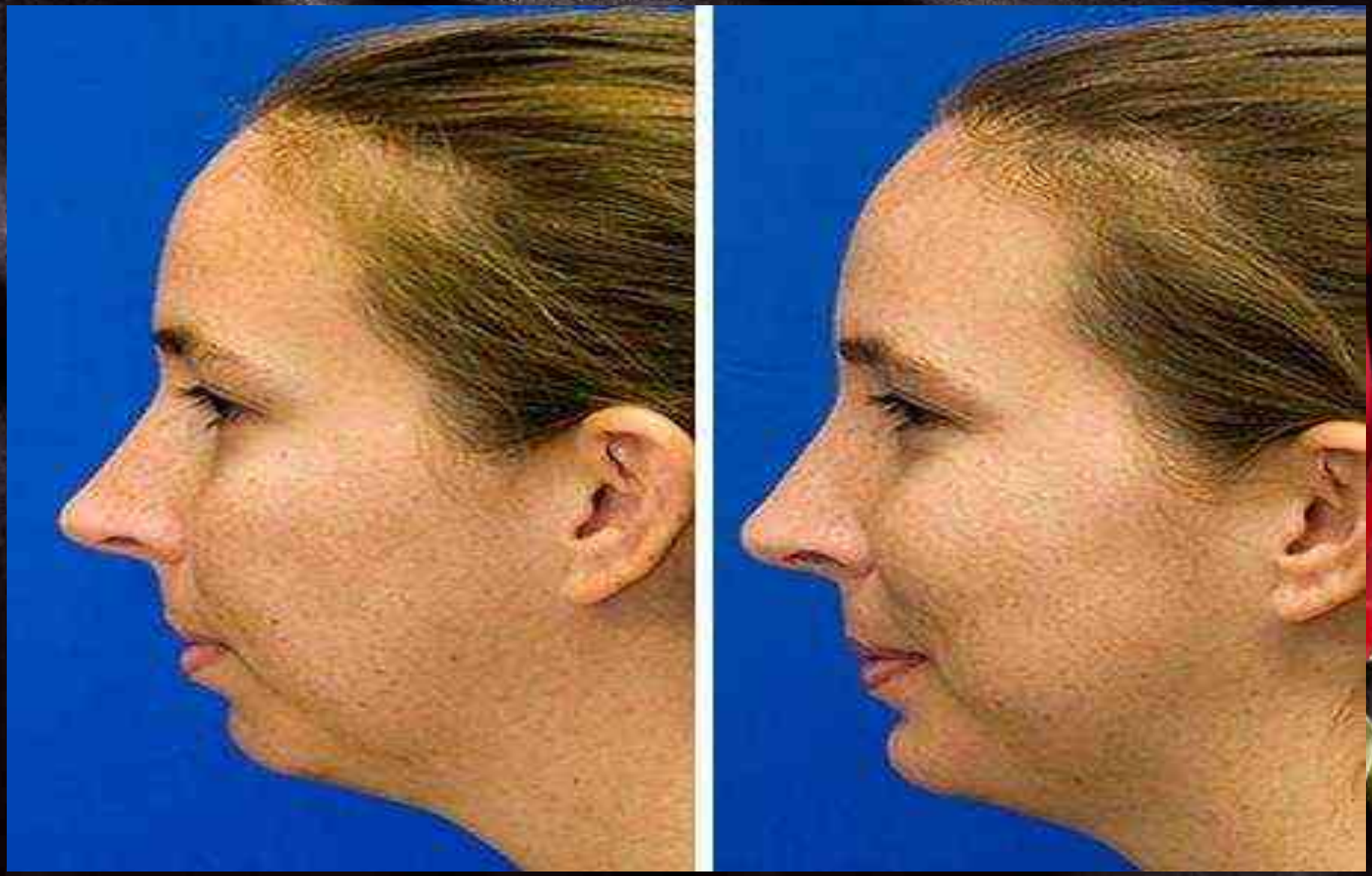


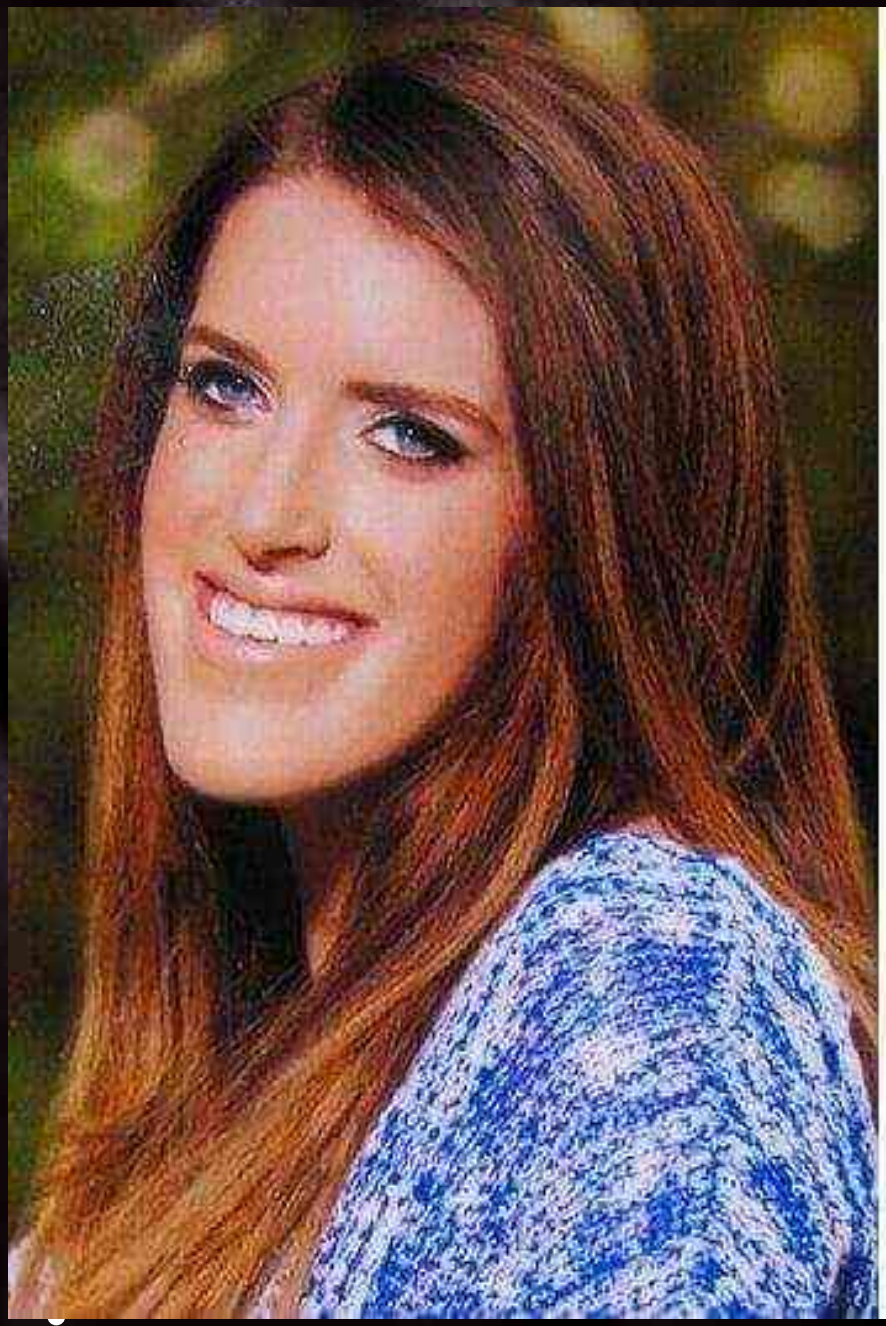
Total subapical osteotomy



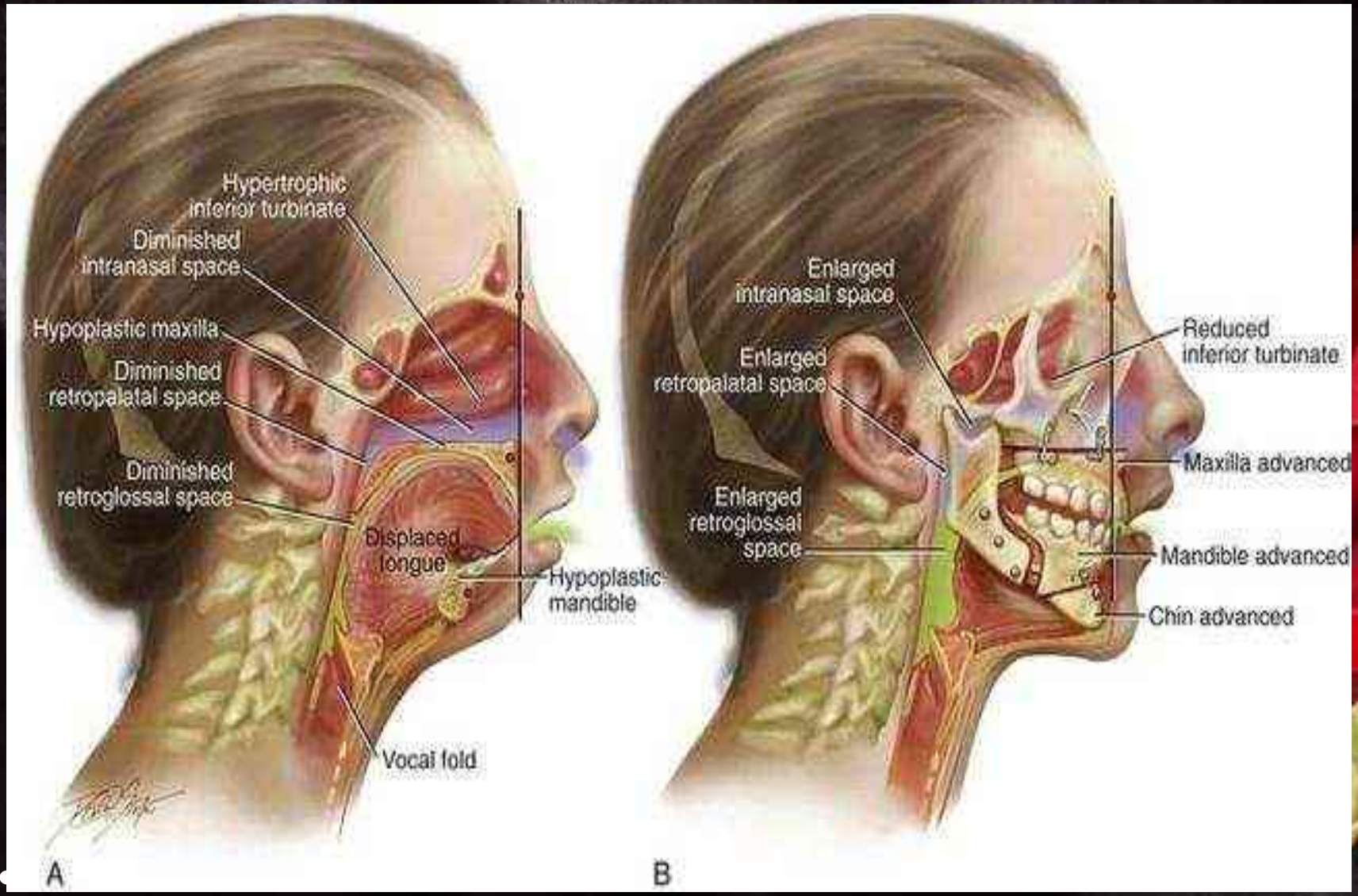
Anterior subapical osteotomy

Genioplasty

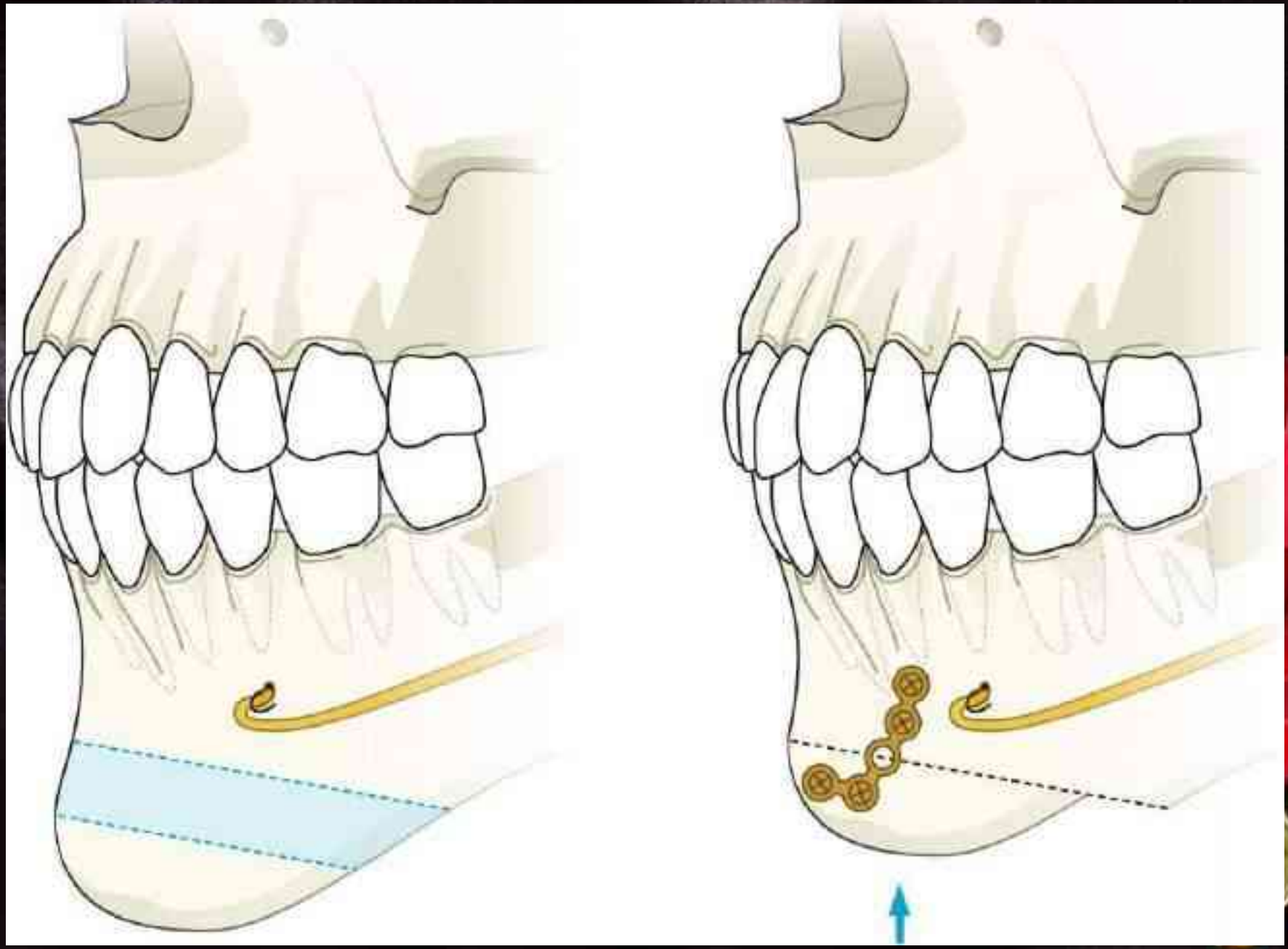


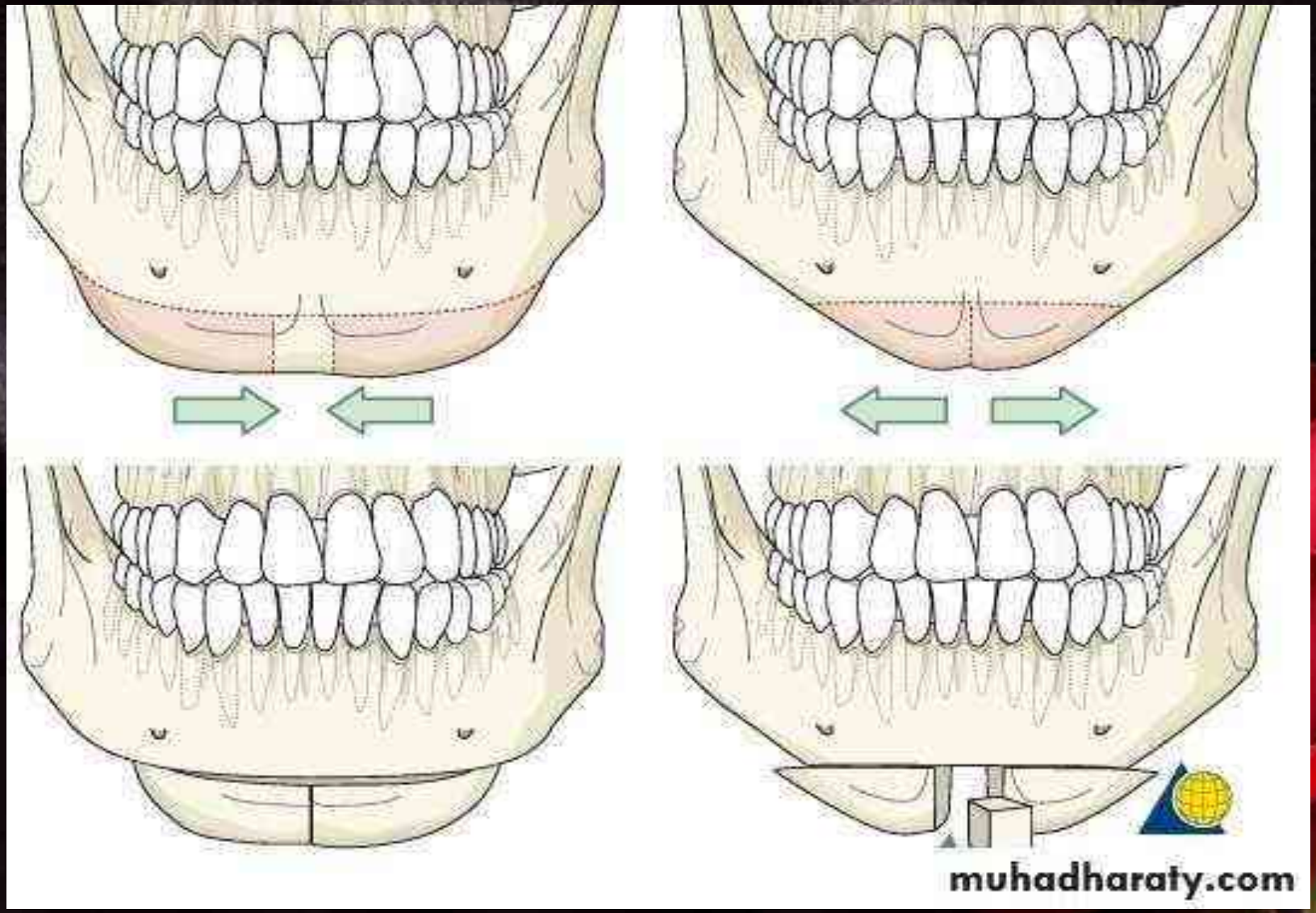


Saggital split osteotomy

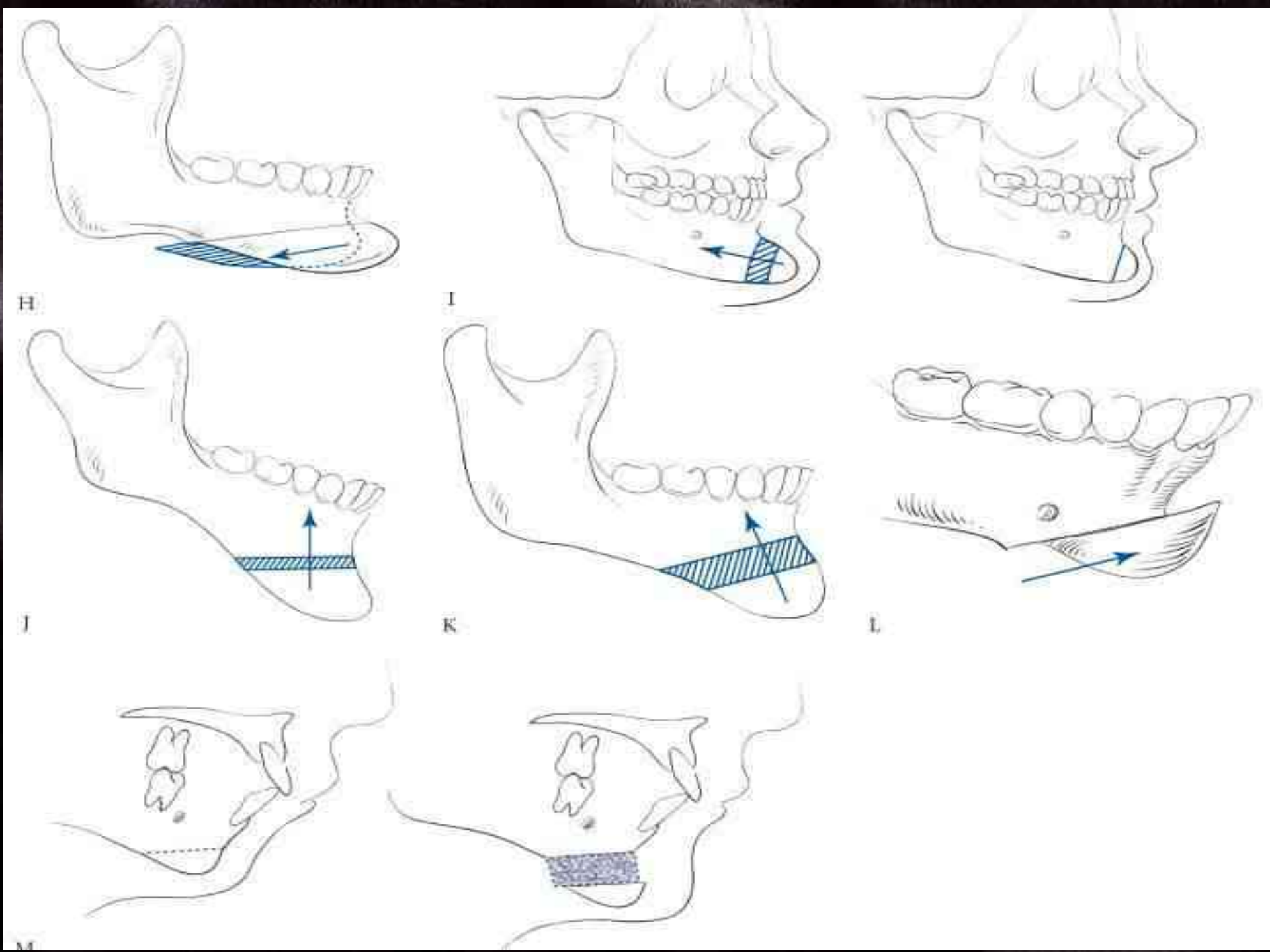


Mandibular deficiency




muhadharaty.com


Dolphin


H
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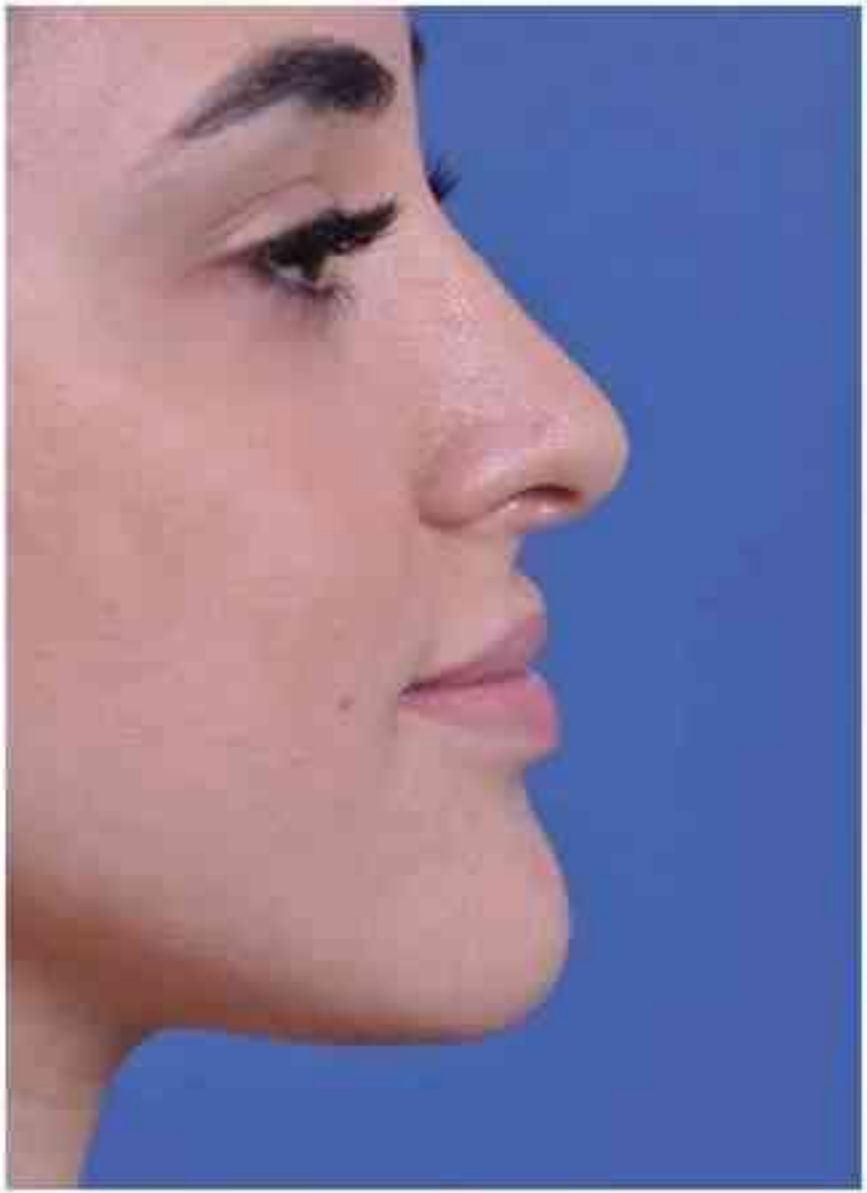
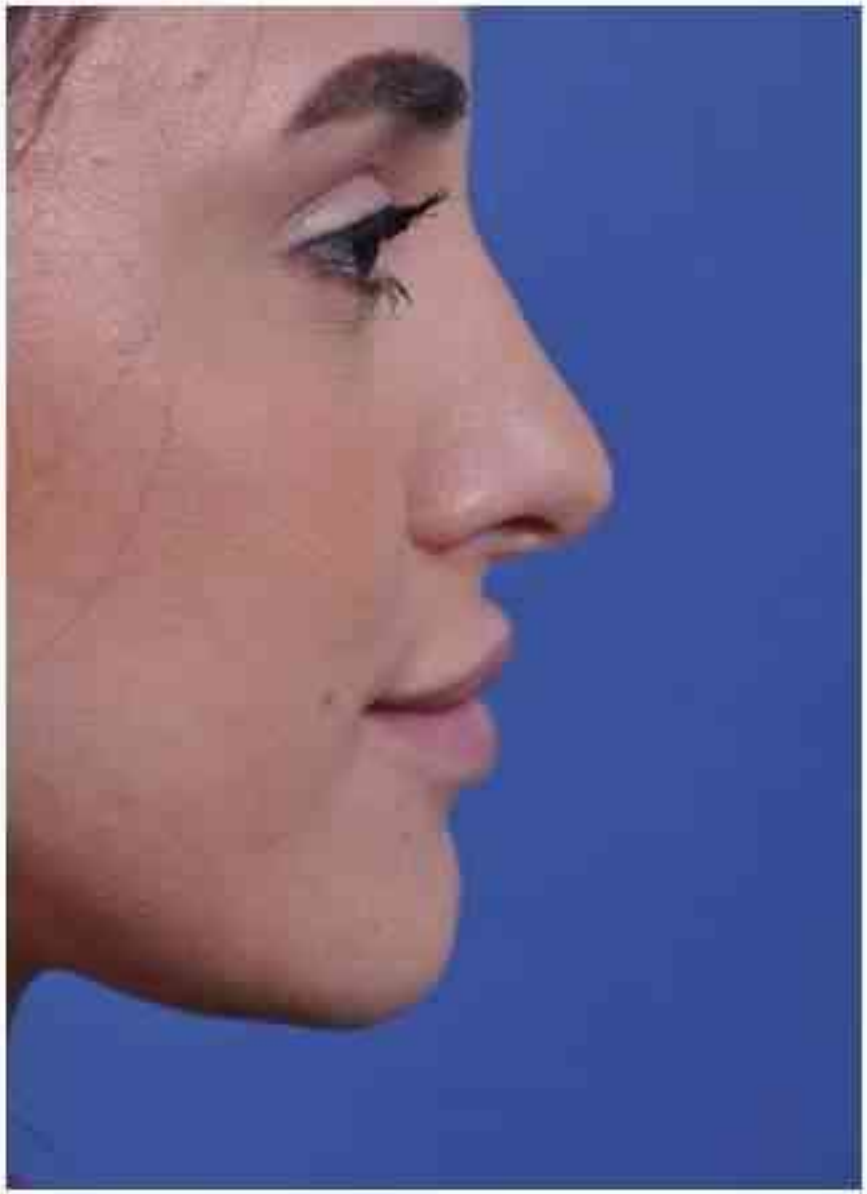
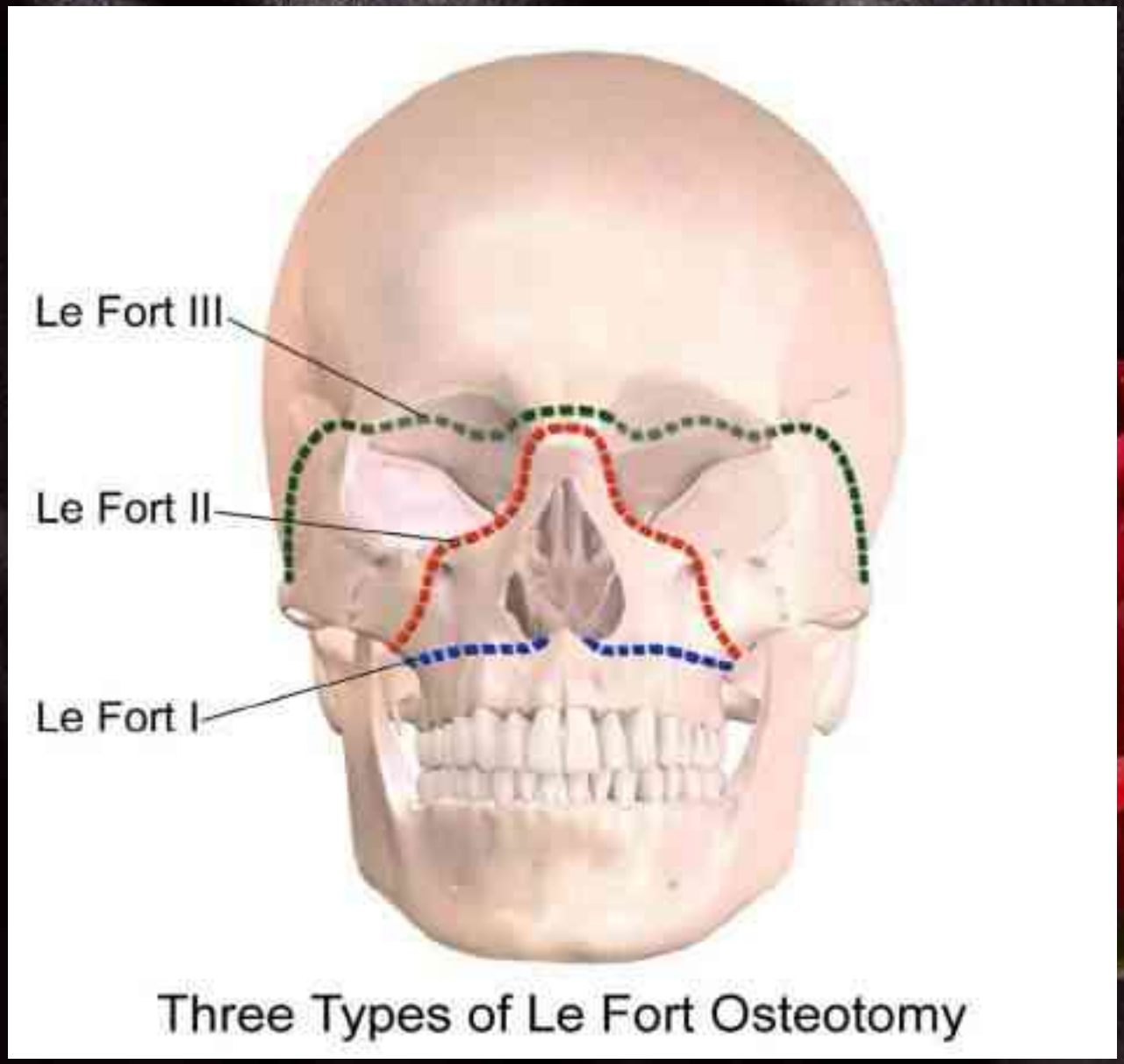




Maxillary surgical procedures

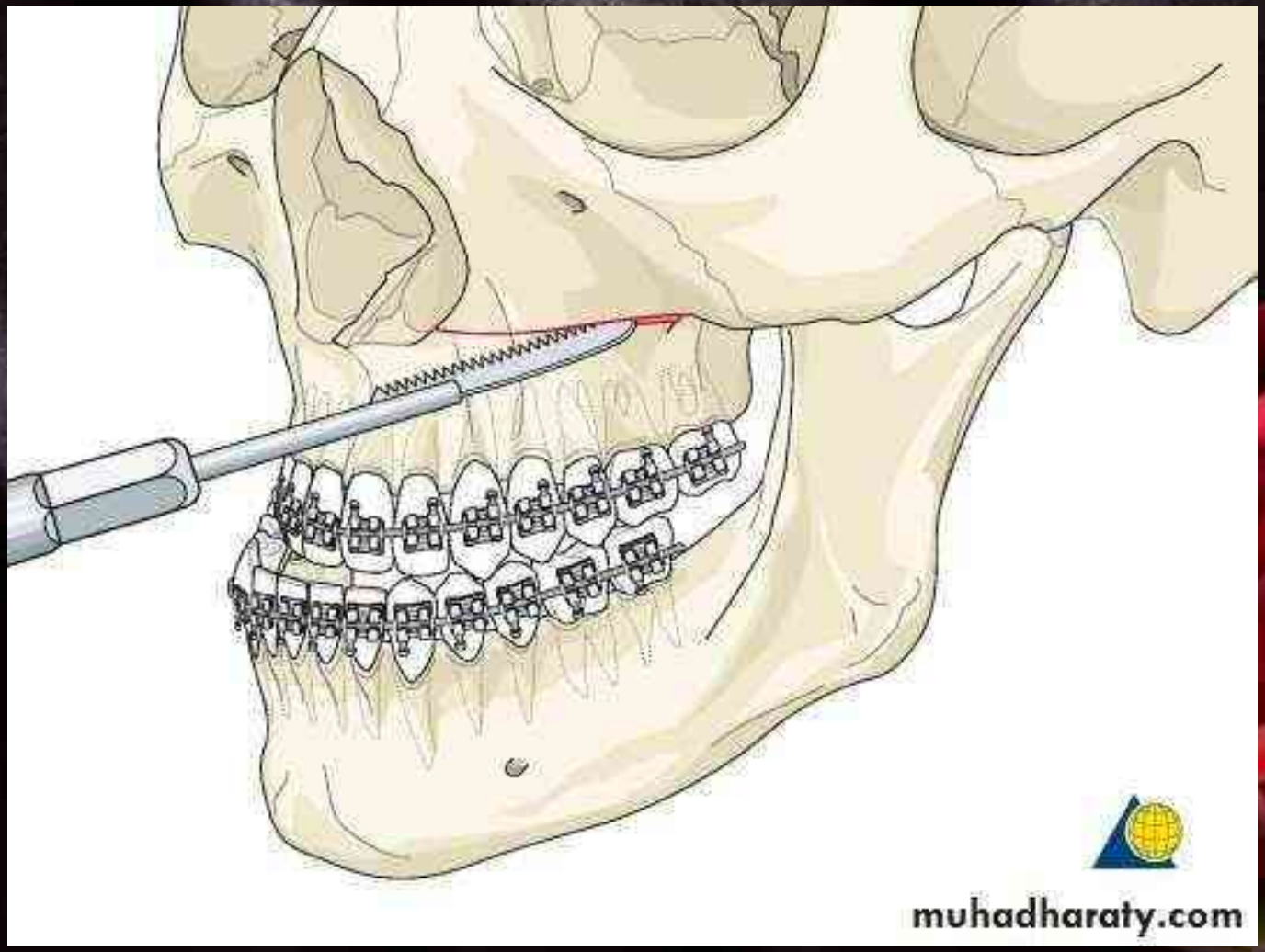
- Lefort I osteotomy
- Lefort II osteotomy
- Lefort III osteotomy
- Anterior segmental maxillary osteotomy (wassmund osteotomy)

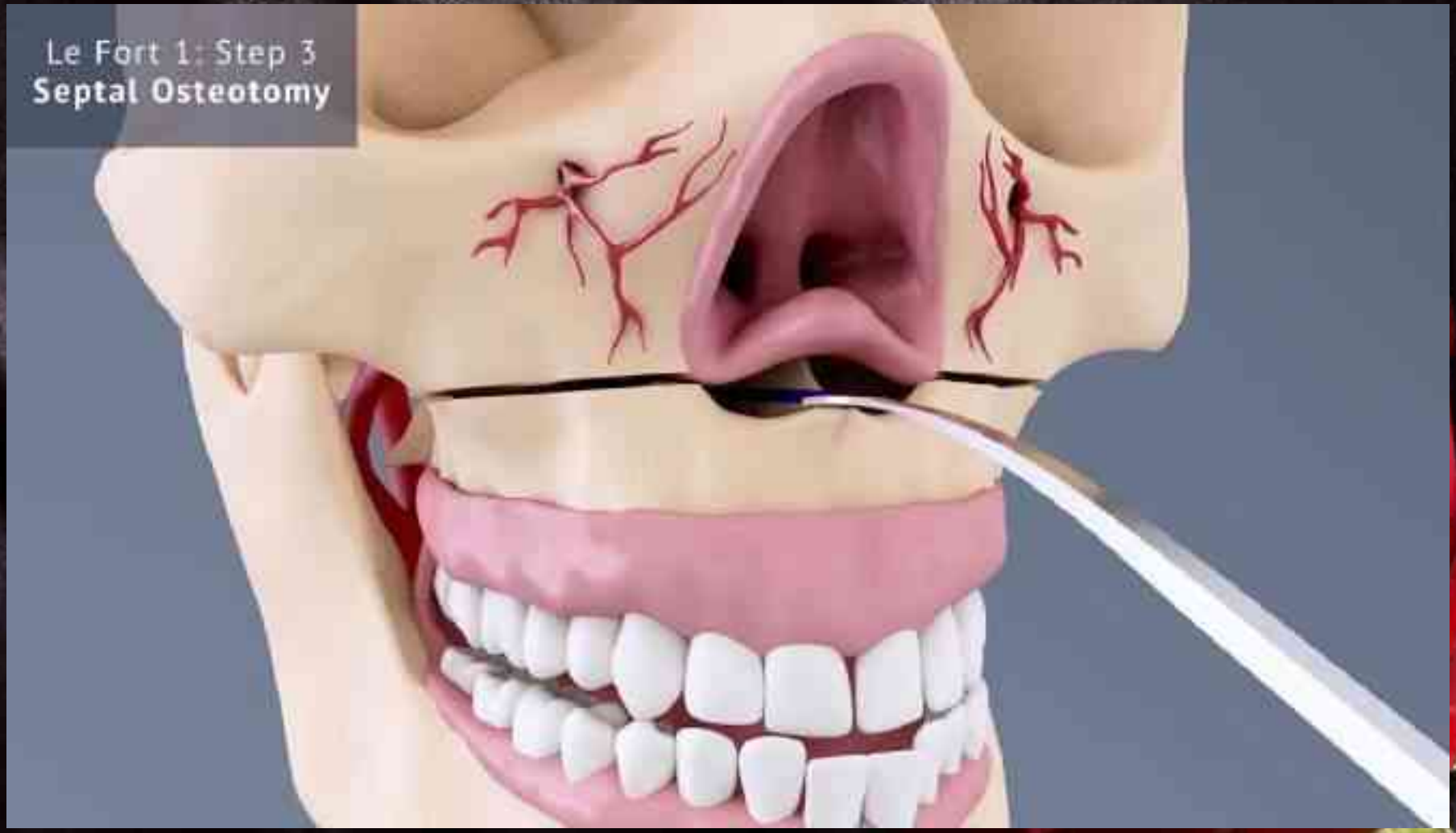
Lefort osteotomy

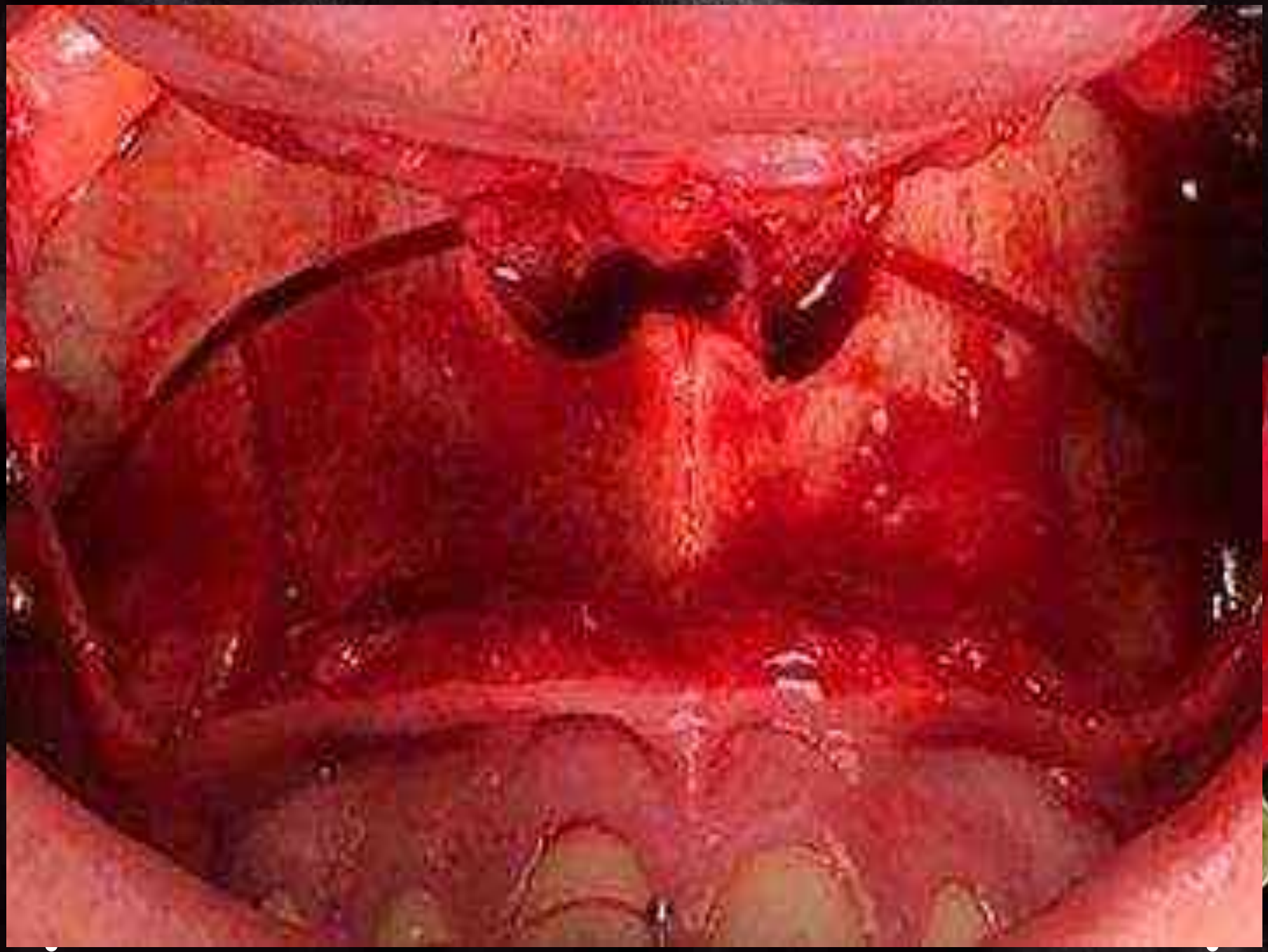


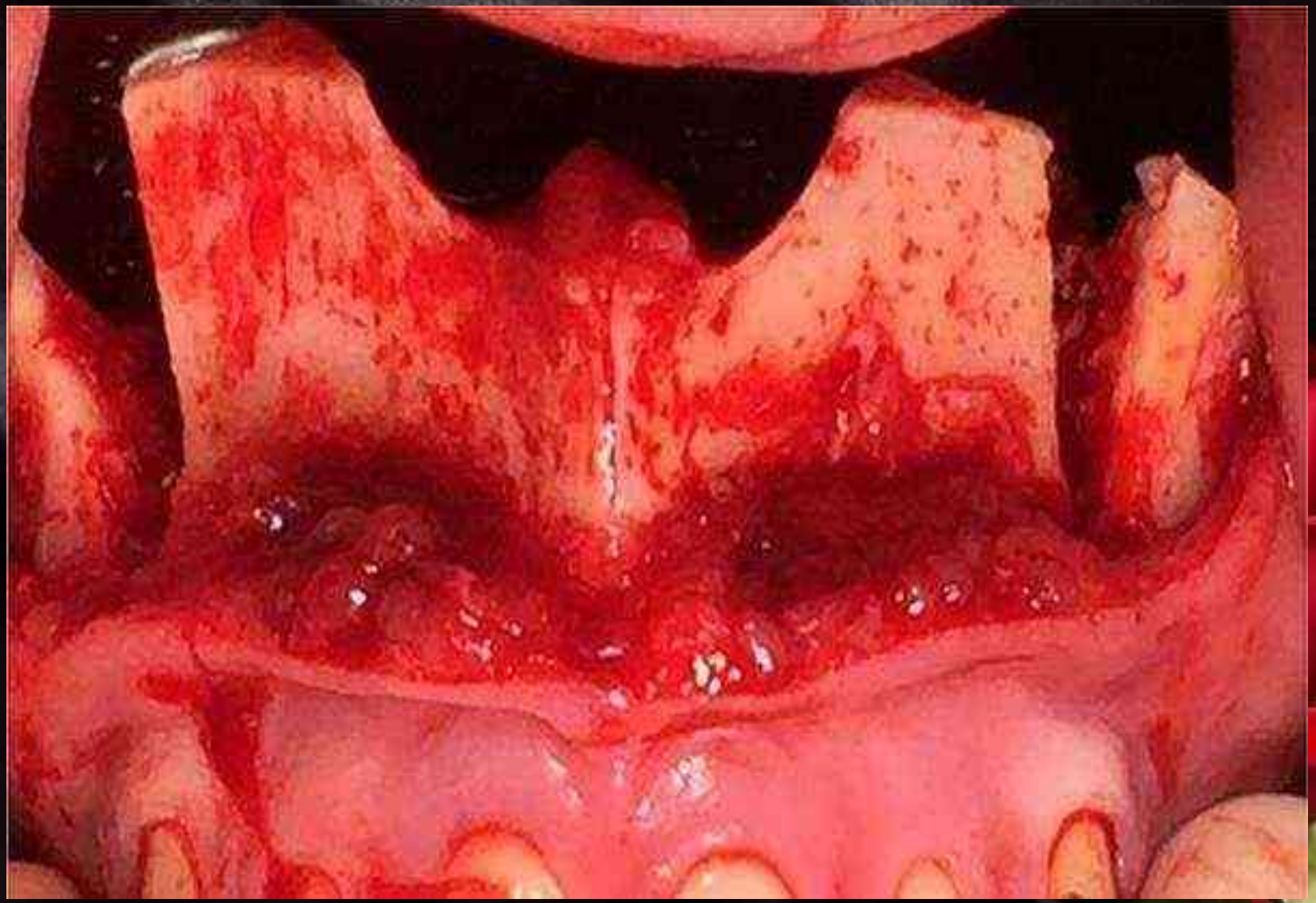
Three Types of Le Fort Osteotomy

Lefort I osteotomy




Le Fort 1: Step 3
Septal Osteotomy





Vertical maxillary excess

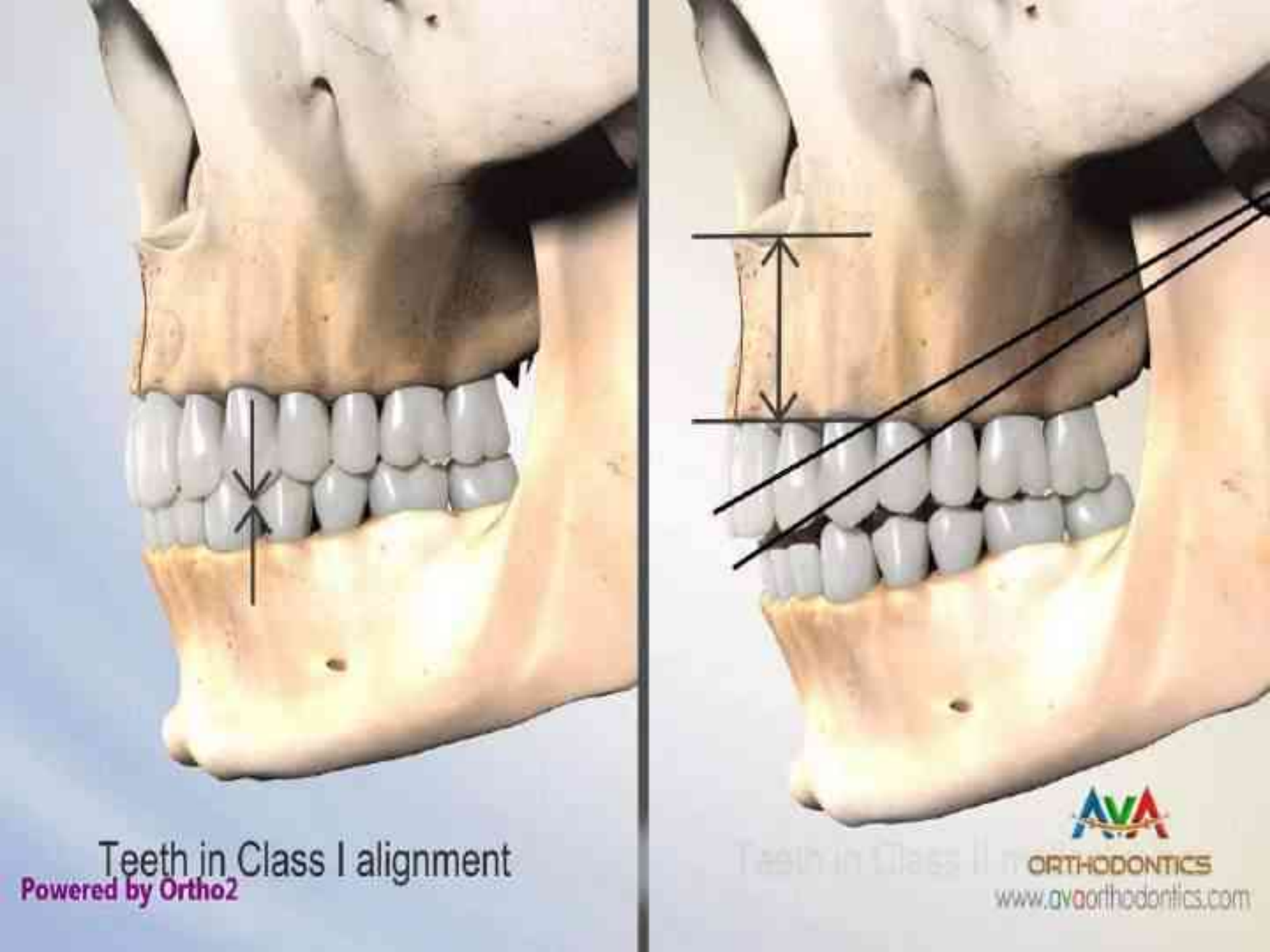
- Vertical Maxillary Excess

- Rest position of a patient with vertical maxillary excess demonstrating " incompetent lips "

- Smile view of a patient with vertical maxillary excess


B


C


Teeth in Class I alignment
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ORTHODONTICS
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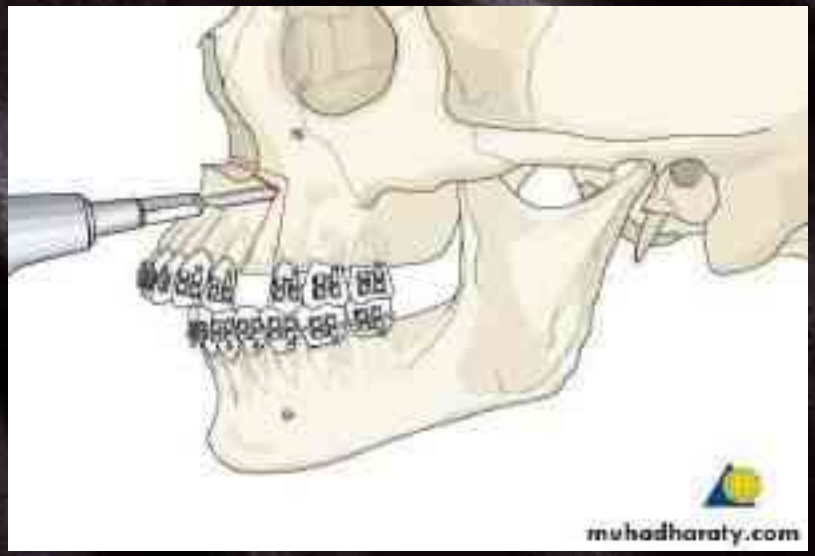
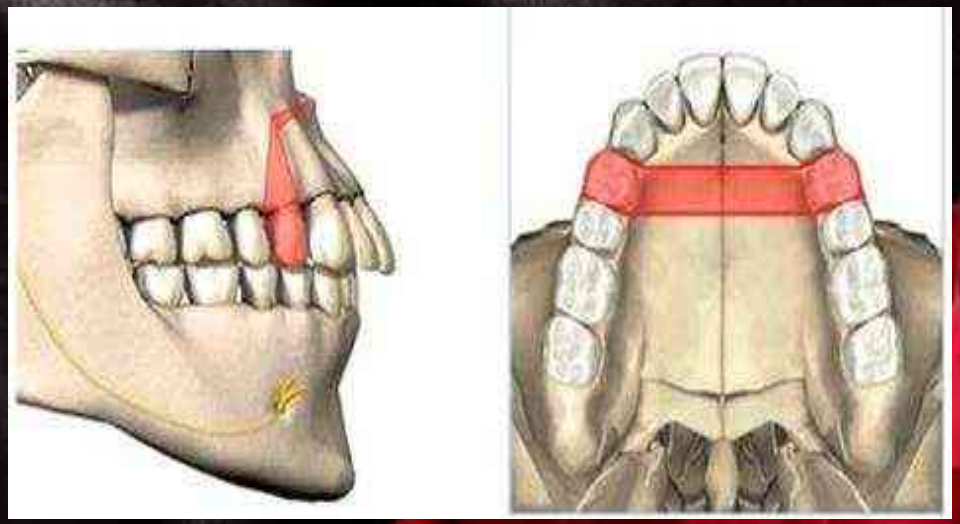
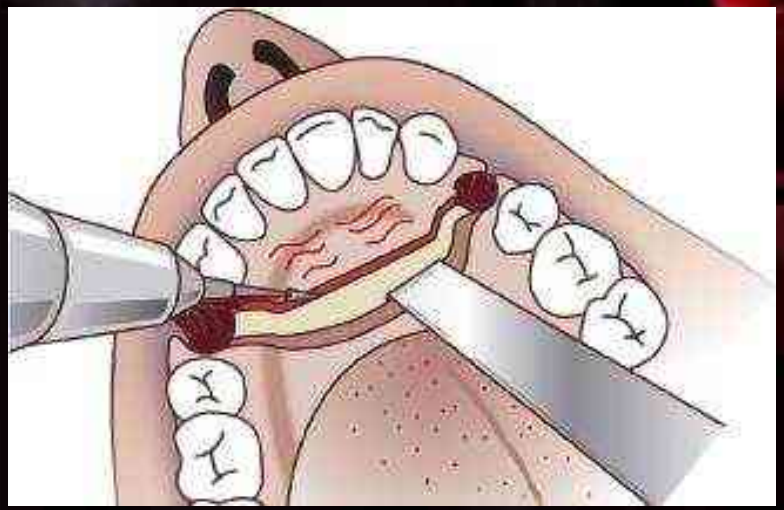
Anterior segmental maxillary osteotomy

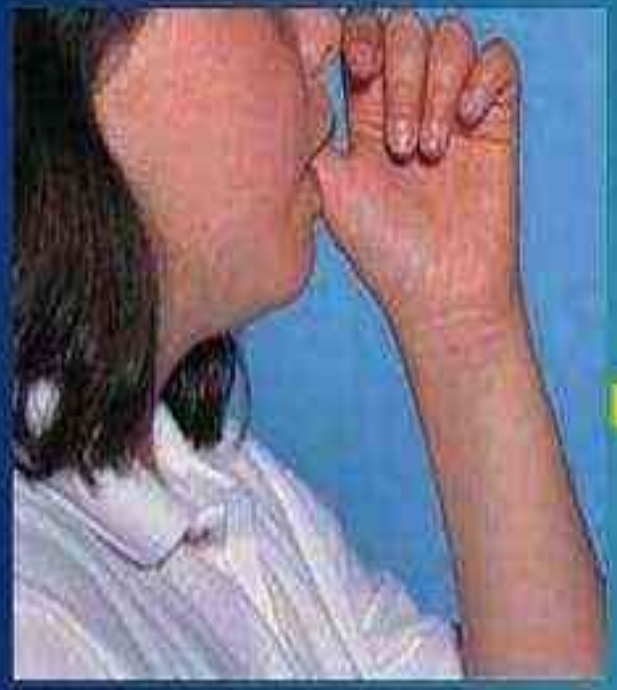
(wassmund osteotomy)





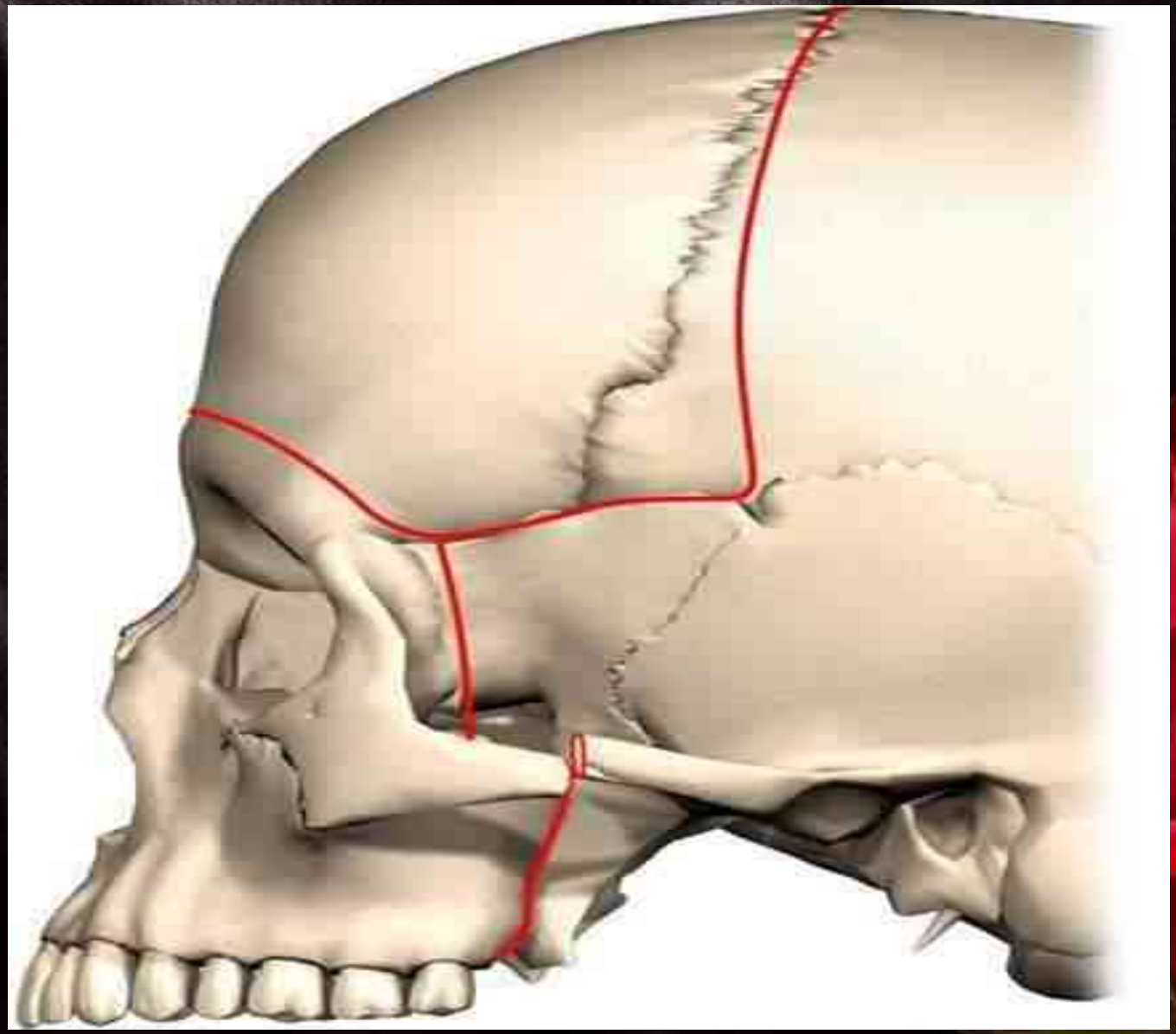


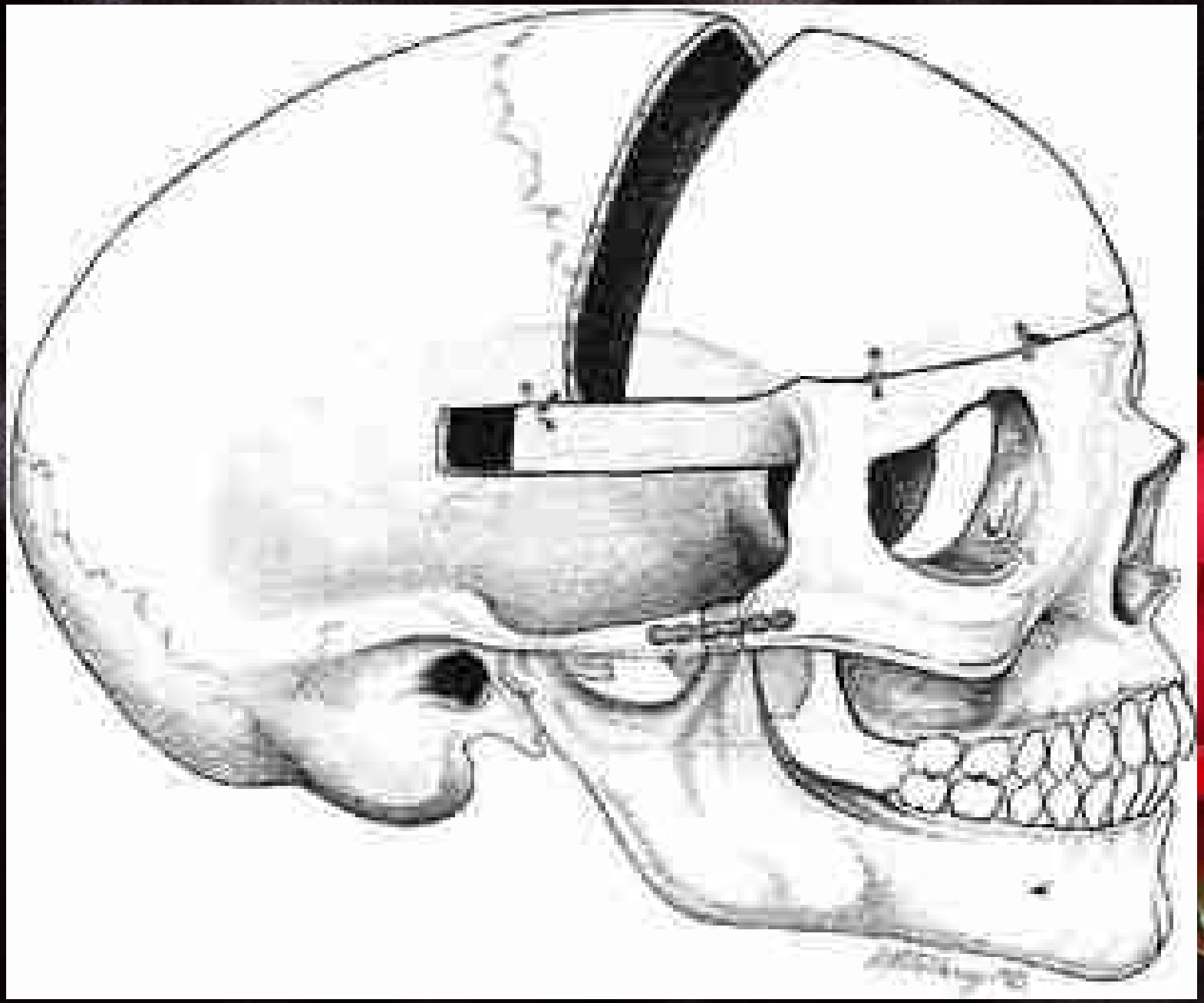
Anterior open bite

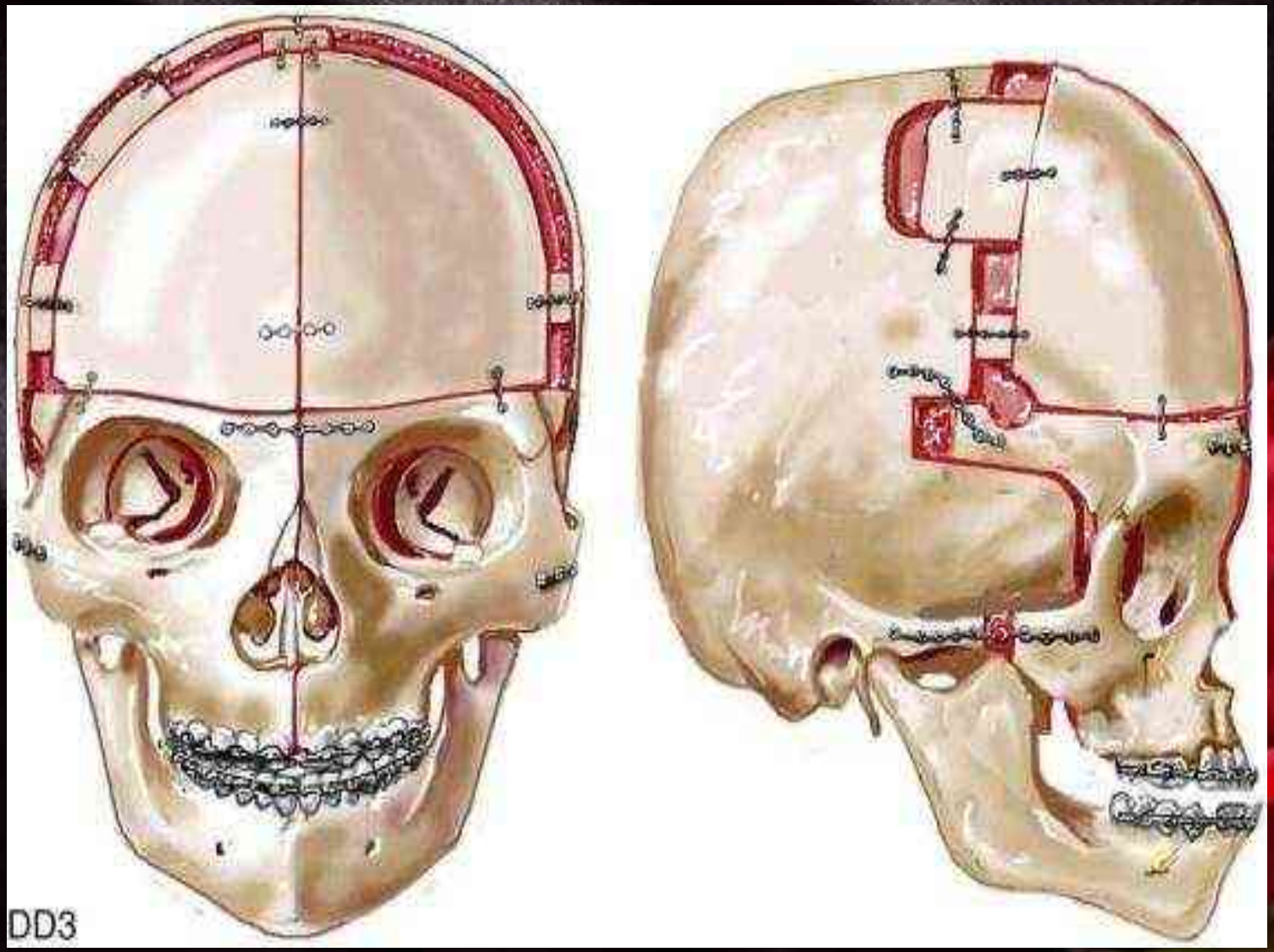


Note the anterior open bite and the unilateral posterior crossbite

Maxillary and midface deficiency





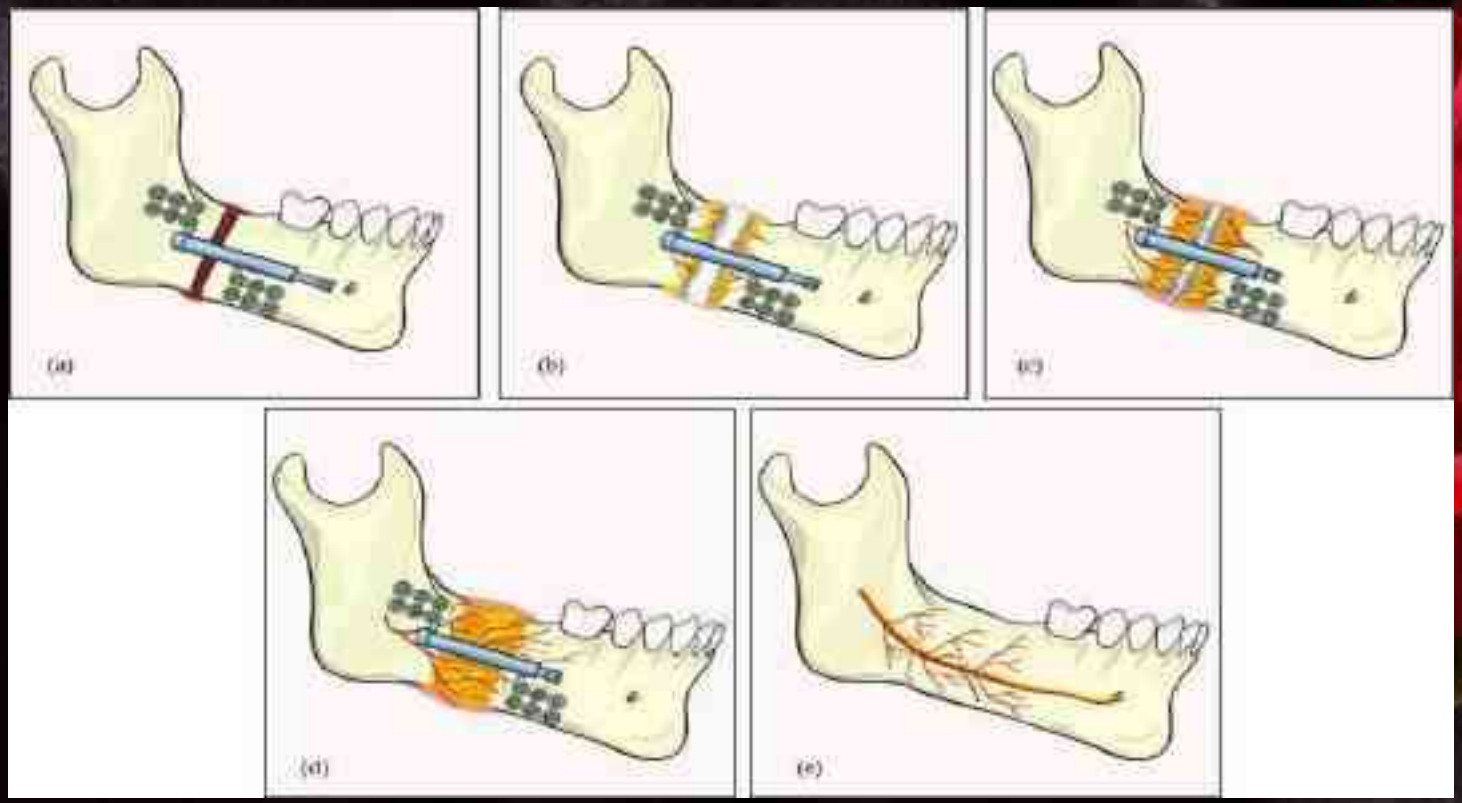

DD3

Distractor osteogenesis

DEFINITION

A biological process of new bone formation between two bone surfaces , which are gradually separated by incremental traction .

Treating craniofacial deformities (HFMS, Crouzon, post trauma ,cleft palate…ect)



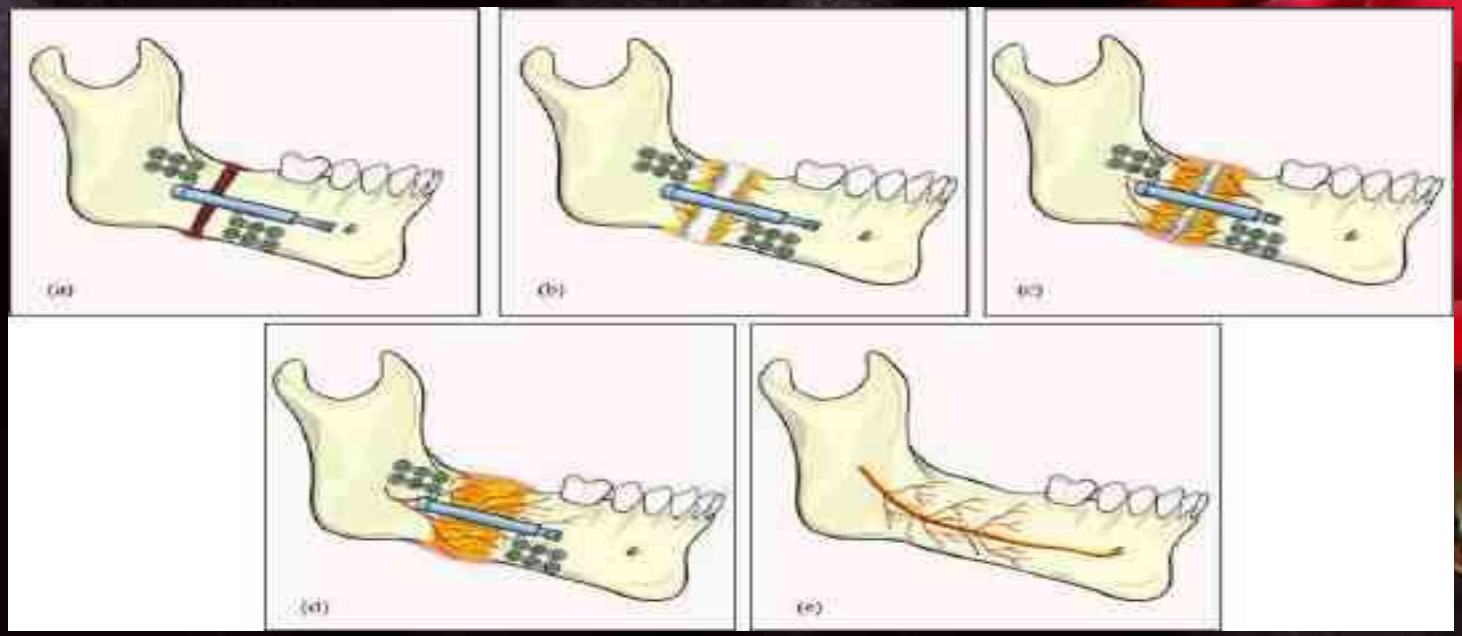
Types of distractors

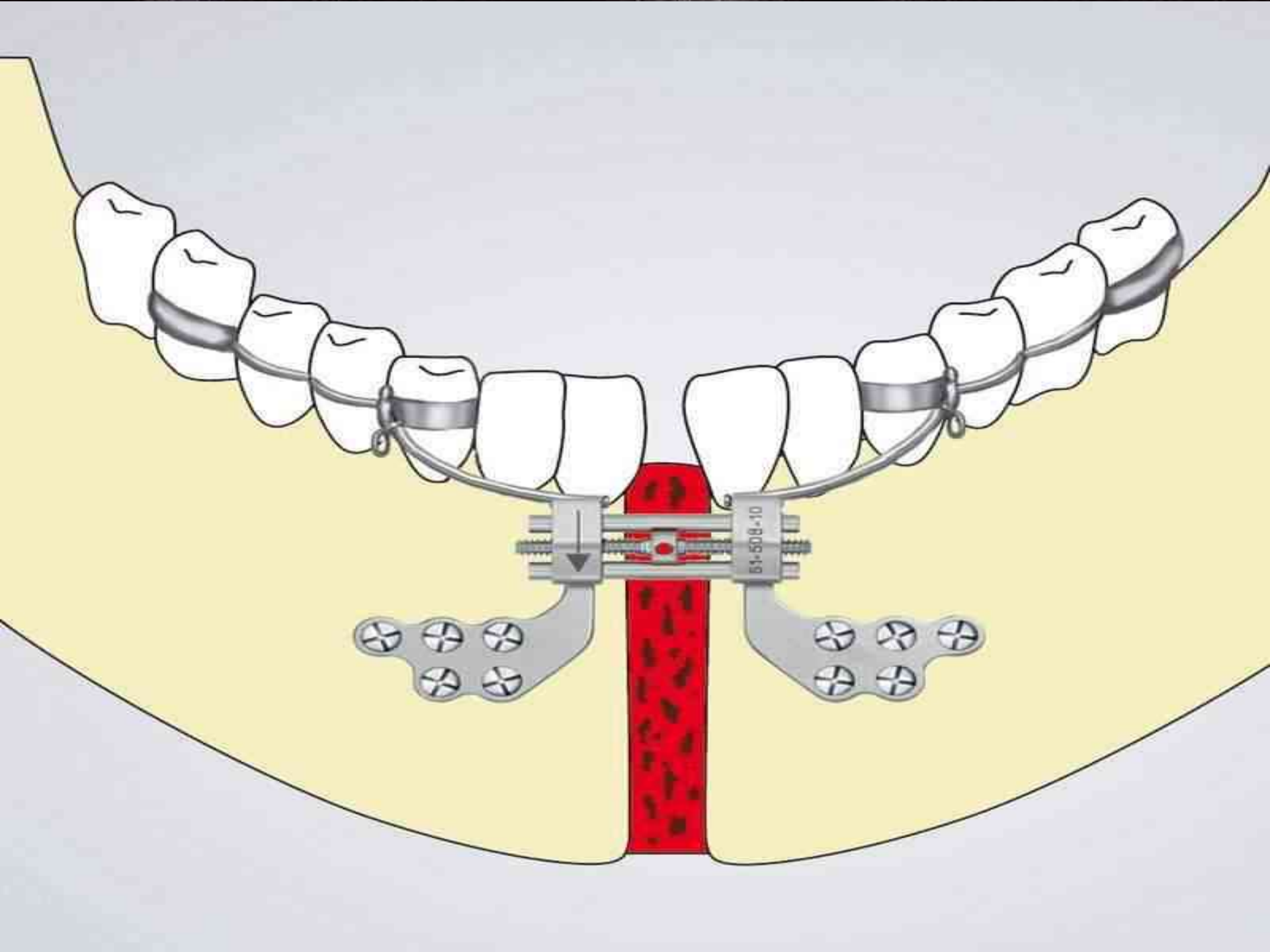
Intraoral distractor

Extra oral distractor

phases of distractors

- **Osteotomy :** surgical separation of a bone in to segments.
- **Latency period** :period of time between the osteotomy and active separation of bone begins lasts from 3-7 days
- **Distraction period**: phase of active distruction when bone ends being separated .. Rate of separation should be (1 mm) per day
- **Consolidation period** :period during which maturation and ossification of the callus take place … time 3-8 weeks according to the patient age

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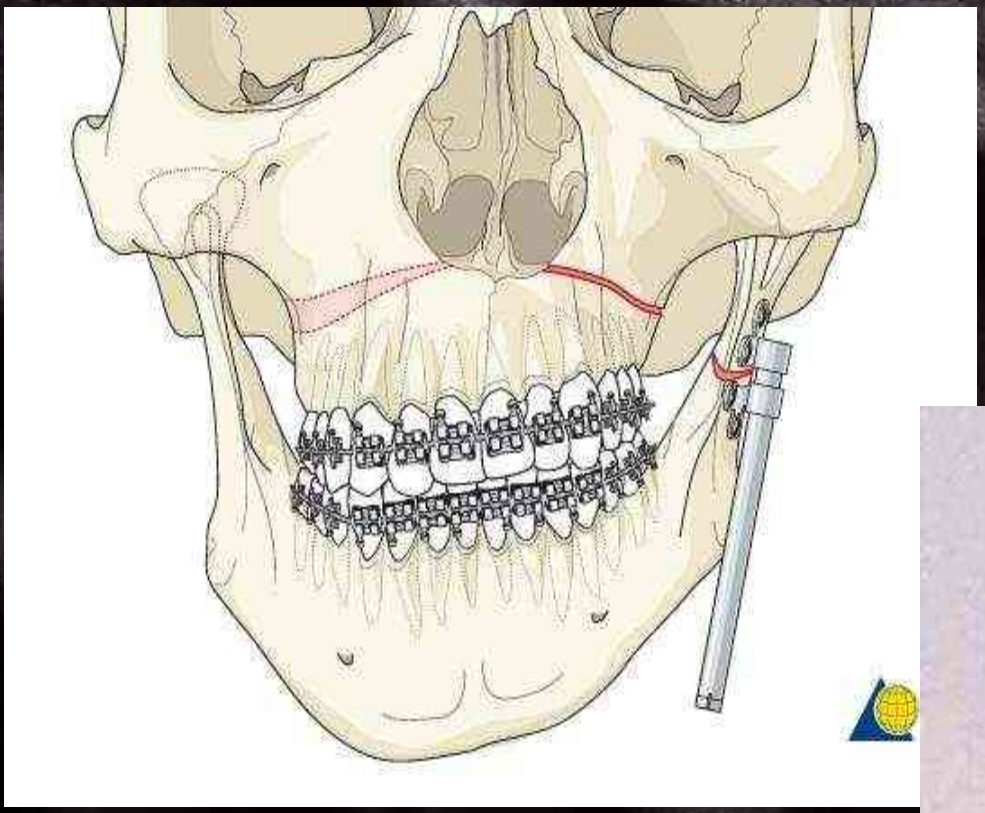
Hemifacial microsomia




A Sugar

-

Pierr robin syndrom

lveolar distraction

INDICATION

i.Sever atrophied edentulous ridge

ii.Segmental deficiencies for implant placement or functionally & esthetically for crown bridge placement

iii.Narrow alveolar ridge (horz. Distraction)

iv.Gradual vertical movement of ankylosed tooth or osteointegrated implant with surrounding bone

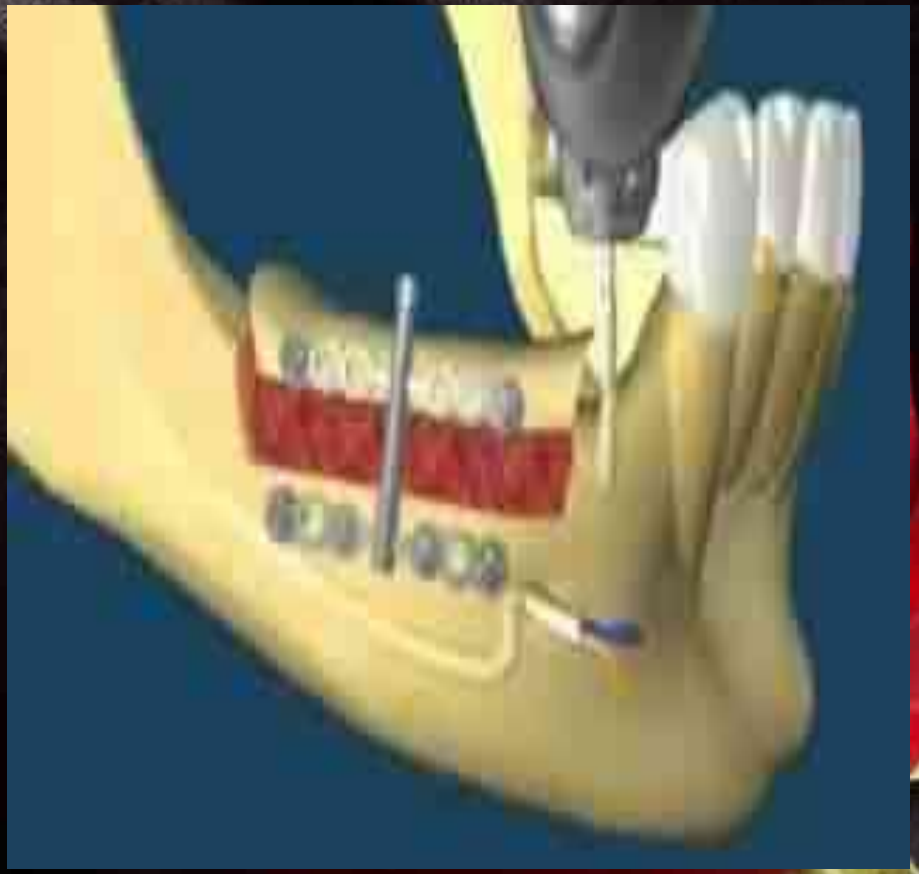
ADVANTAGES

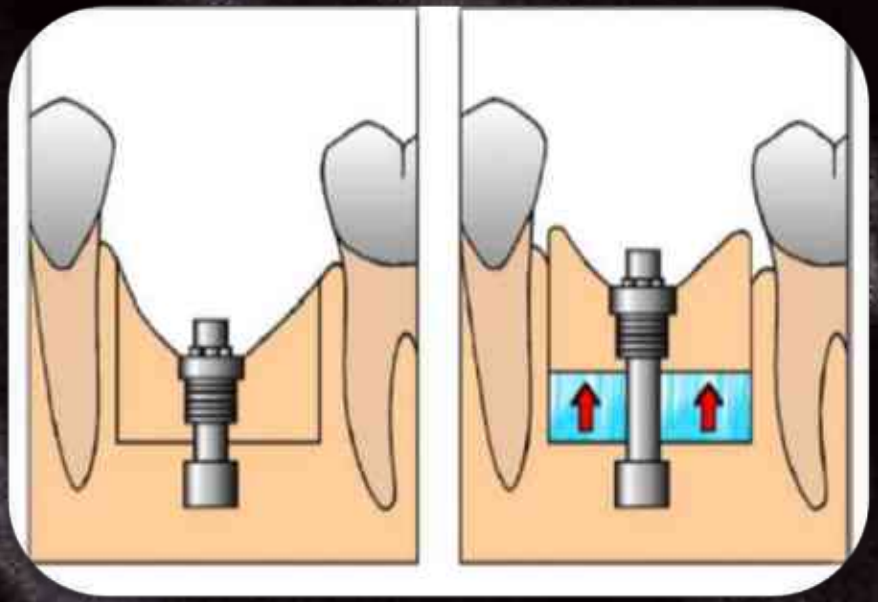
I.No bone graft needed with hard & soft tissue obtained

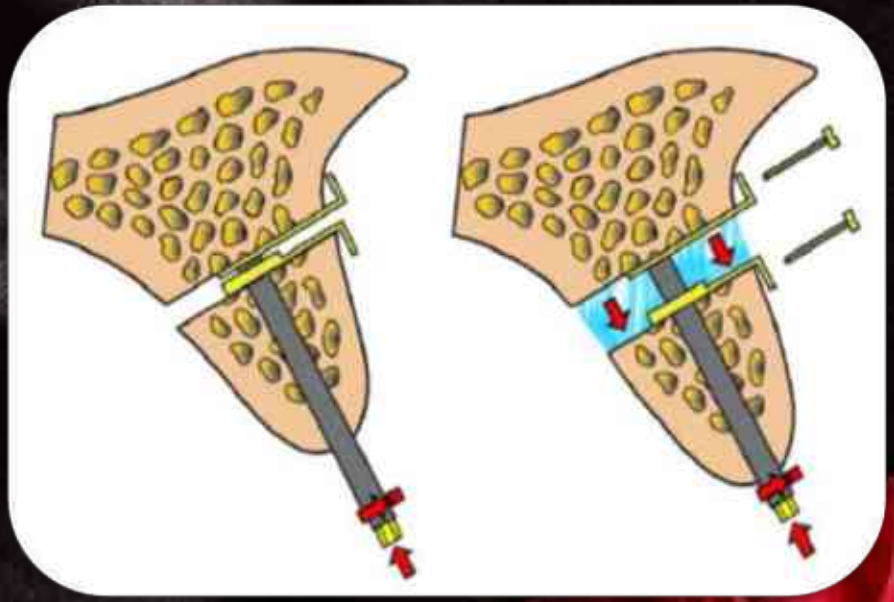
II.Less possiblities of bone exposure & graft resorption

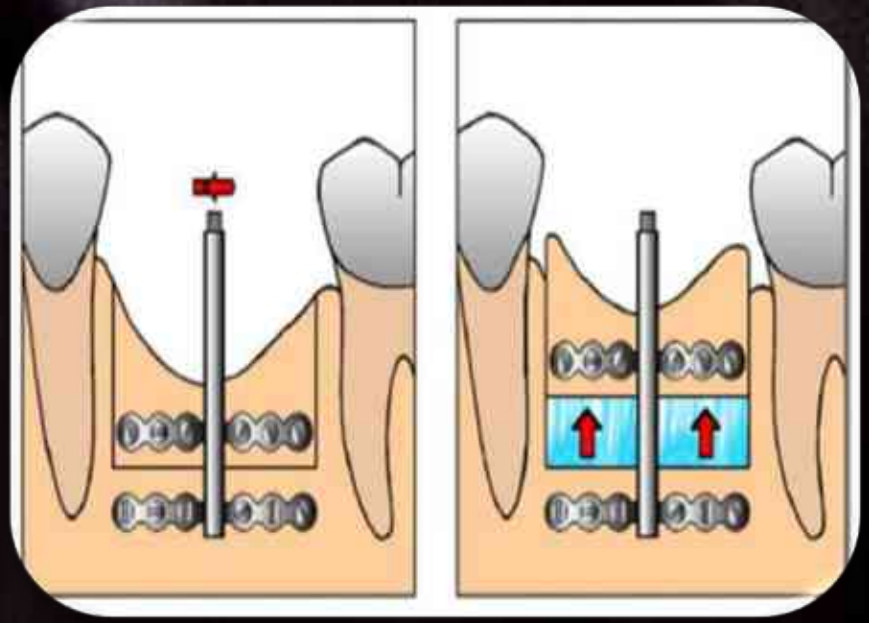
III.More esthetic

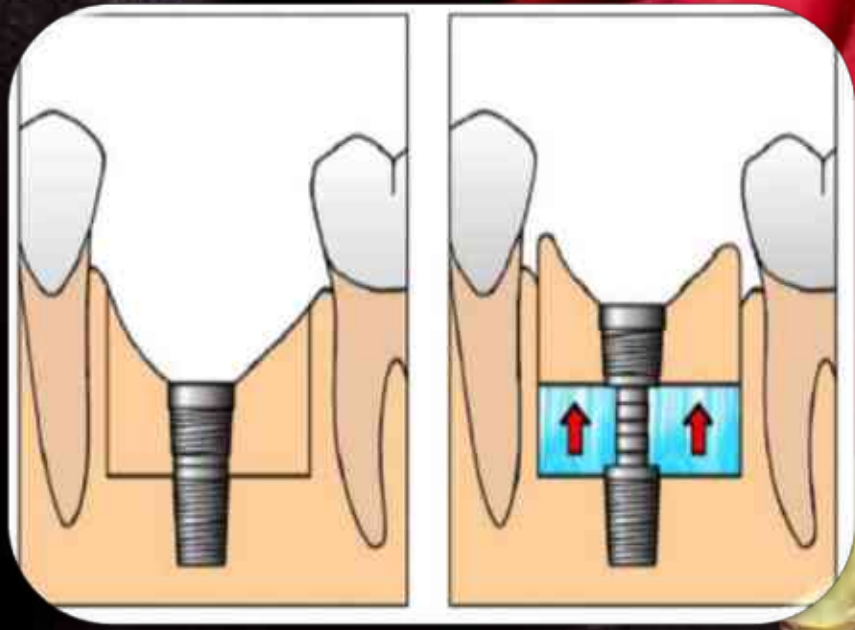
IV.Allows the use of complementary regeneration techniques when outcome not satisfactory











Thank you for listening … .

ANB represent the relation ship between :

- a. occlusal plane and cranial base
- B. mandible to cranial base
- C. Maxilla and cranial base
- D. Maxilla and mandible
- E. Nose to mandible

The nasolabial angle in the male is characterized by which of the following :

- A. It is 75 degrees.
- B. It is 105 degrees.
- C. It is more acute in class iii malocclusion.
- D. It is more acute in class ii malocclusion.
- E. There is no difference between males and females

In a patient in whom SNA is 82 and SNB is 96indicates he would require:

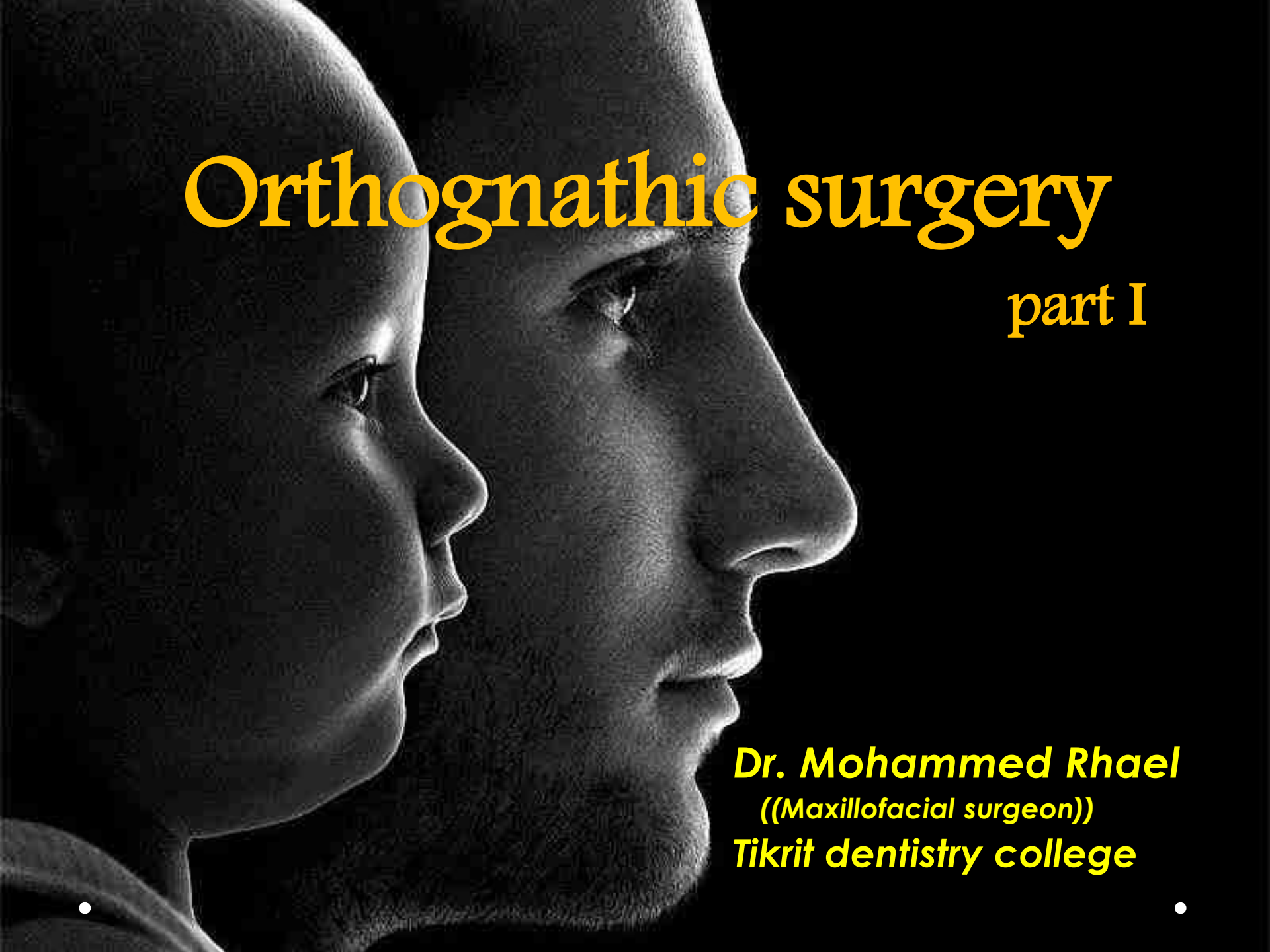
- A. mandibular prognathism
- B. Mandibular retrognathism
- C.maxillary retrognathism
- D.anterior open bite
- E.maxillary prognathism

Goals of orthognathic surgery includes:

- A. Improve periodontal stability and periodontal prognosis.
- B. Shorten orthodontic treatment time and improve orthodontic results.
- C. To correct jaw relationships prior to major restorative procedures
- D. All of the above

Which of the following can not be assessed by lateral cephalography

- A. Mandibular lateral asyemmtry
- B. Vertical facial deficiency
- C. Increased posterior height
- D. Decreased anterior height
- E. Non of the above



Orthognathic surgery

part I

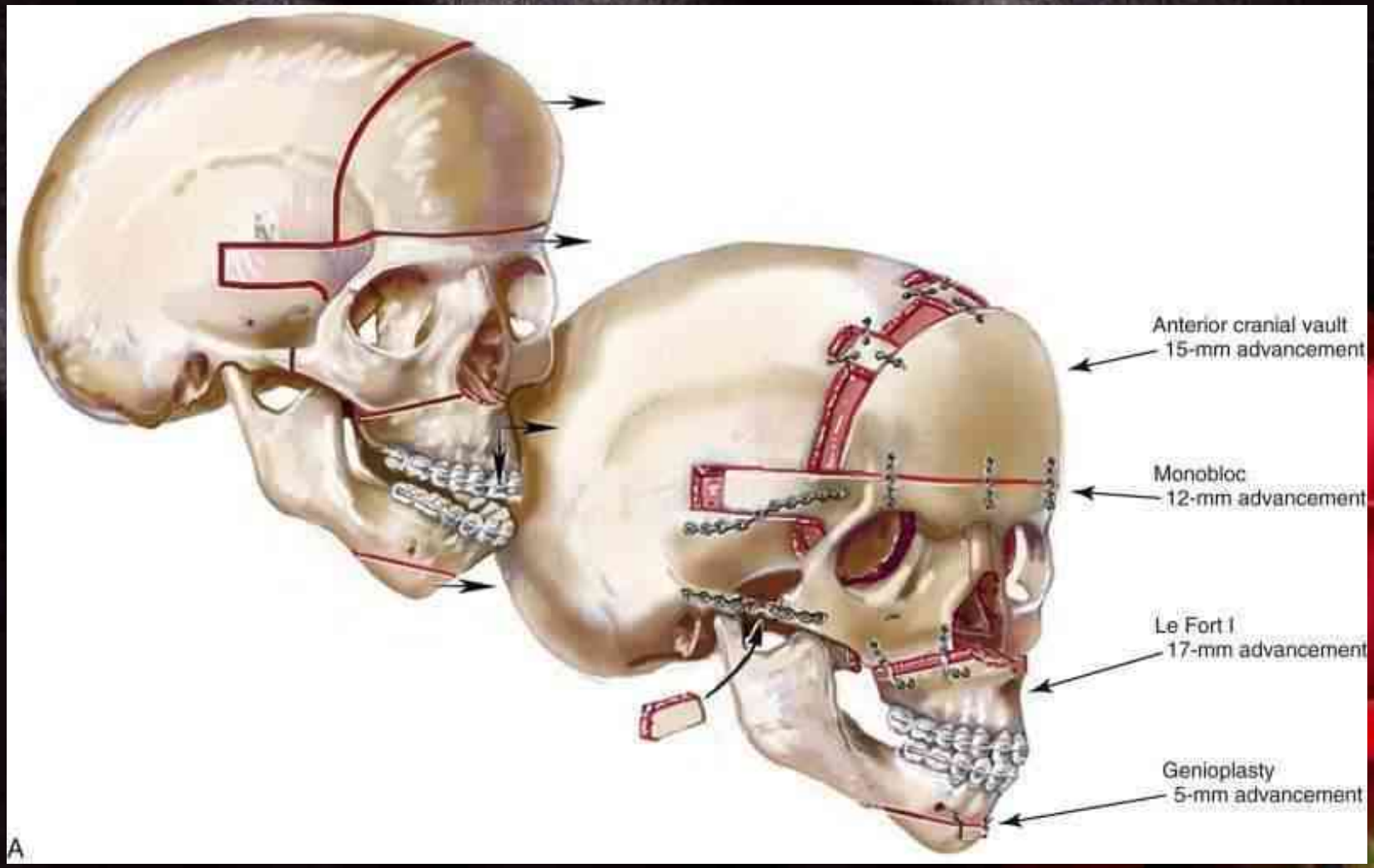
Dr. Mohammed Rhael

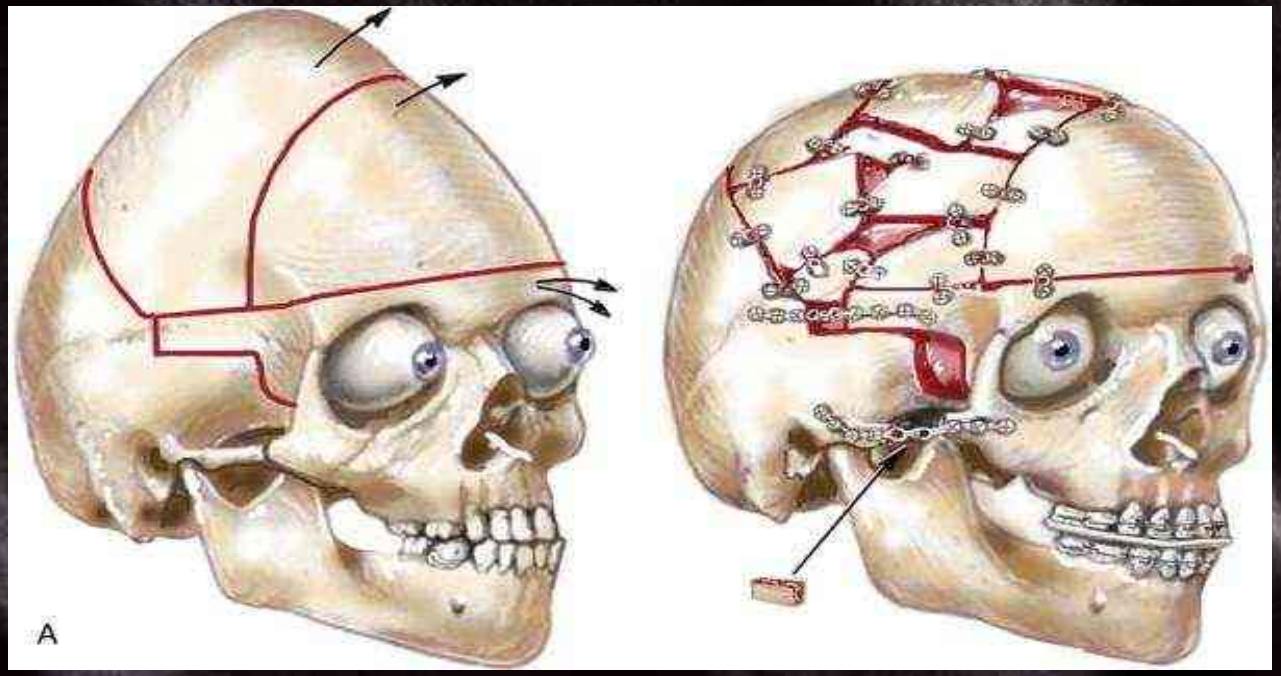
((Maxillofacial surgeon))

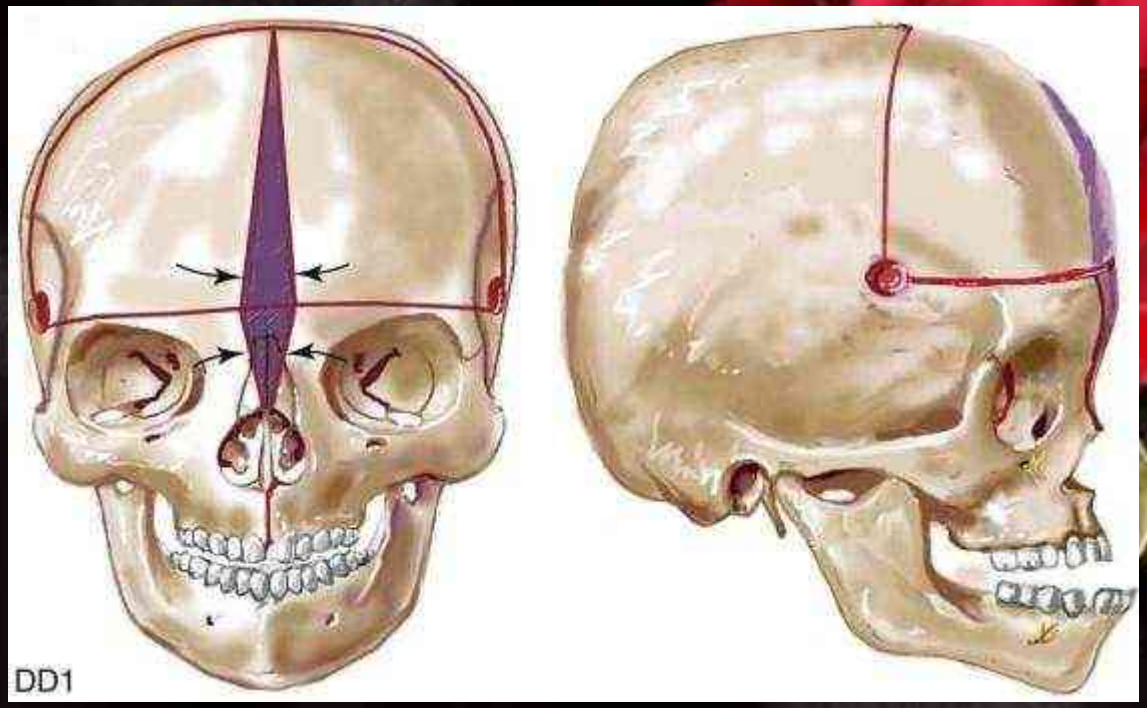
Tikrit dentistry college

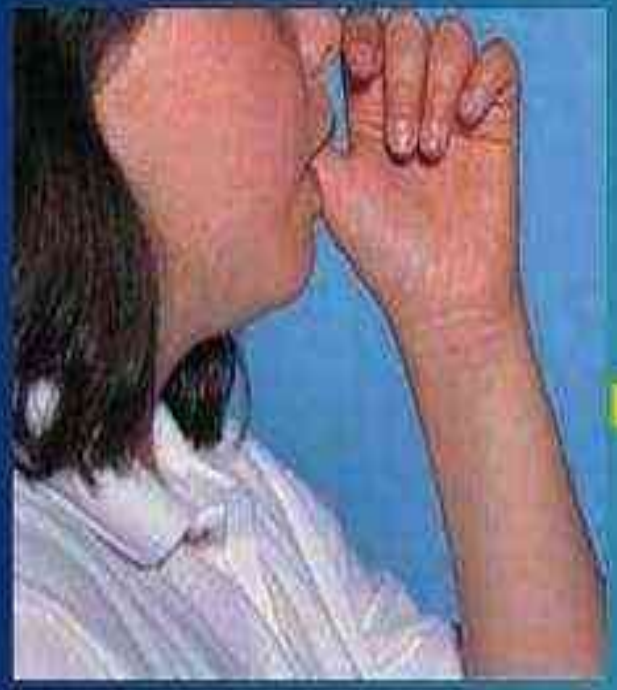
Orthognathic surgery

- is the art and science of diagnosis, and treatment of facial disproportion.
- These disproportion may be congenital or aquired


Anterior cranial vault
15-mm advancement
Monobloc
12-mm advancement
Le Fort I
17-mm advancement
Genioplasty
5-mm advancement
A


A

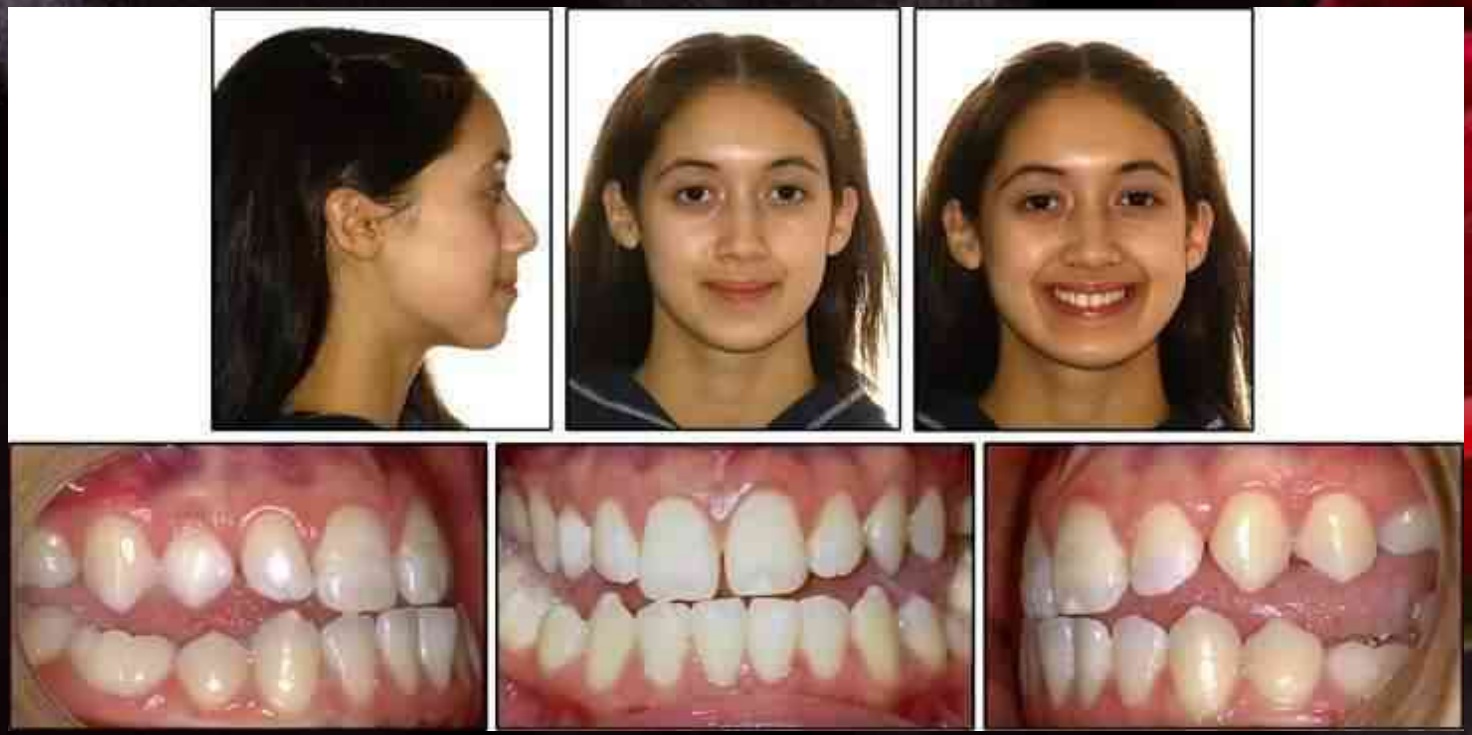

DD1



Note the anterior open bite and the unilateral posterior crossbite

Basic Therapeutic Goals for Orthognathic Surgery

- Function: obtain normal mastication, speech, ocular function and respiratory function.



Basic Therapeutic Goals for Orthognathic Surgery

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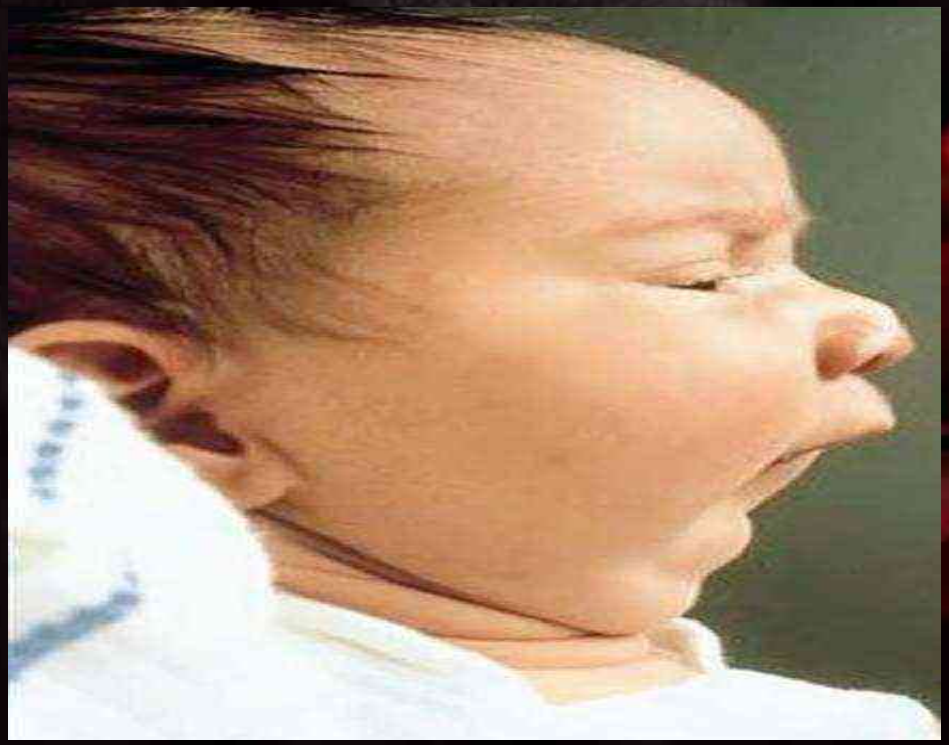
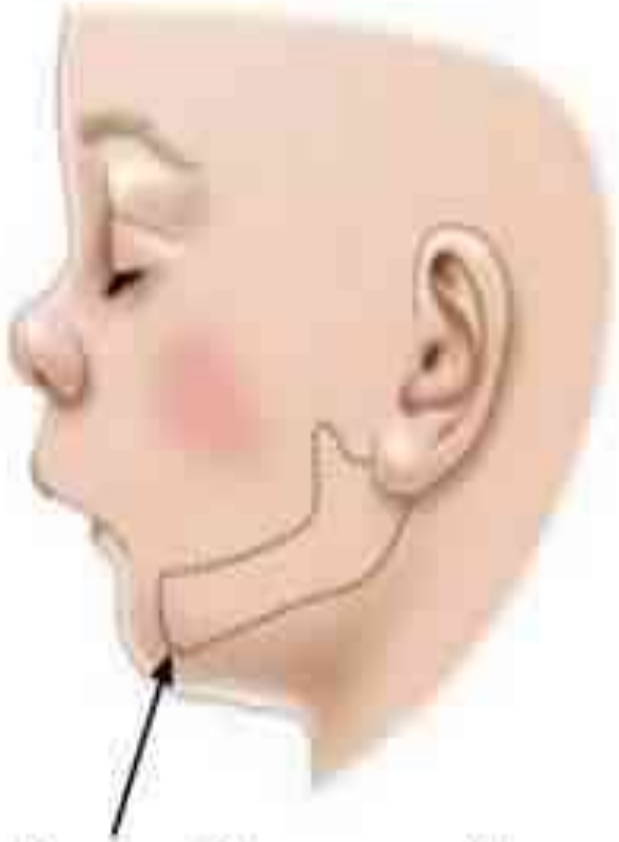
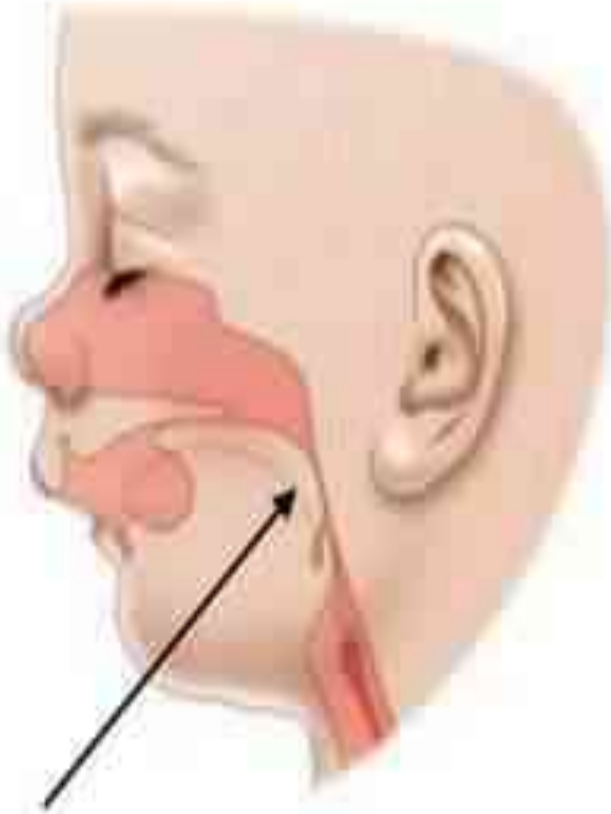




Micrognathia - a small jaw with a receding chin



Tongue that is large compared to the jaw, resulting in airway obstruction

Patient Evaluation

- History
- Clinical examination
- Investigations
- Initial diagnosis
- Treatment plane
- Presurgical orthodontic
- Orthognathic surgery
- Post –surgical orthodontic

Chief Complaints

- **Understanding what patient concern, motivation, expectation. That provide insight to psychological health of the patient**
- **Patient who maintain unrealistic expectations are best not treated**

History

The purpose of history is to identify the patient's orofacial problems and their causes.

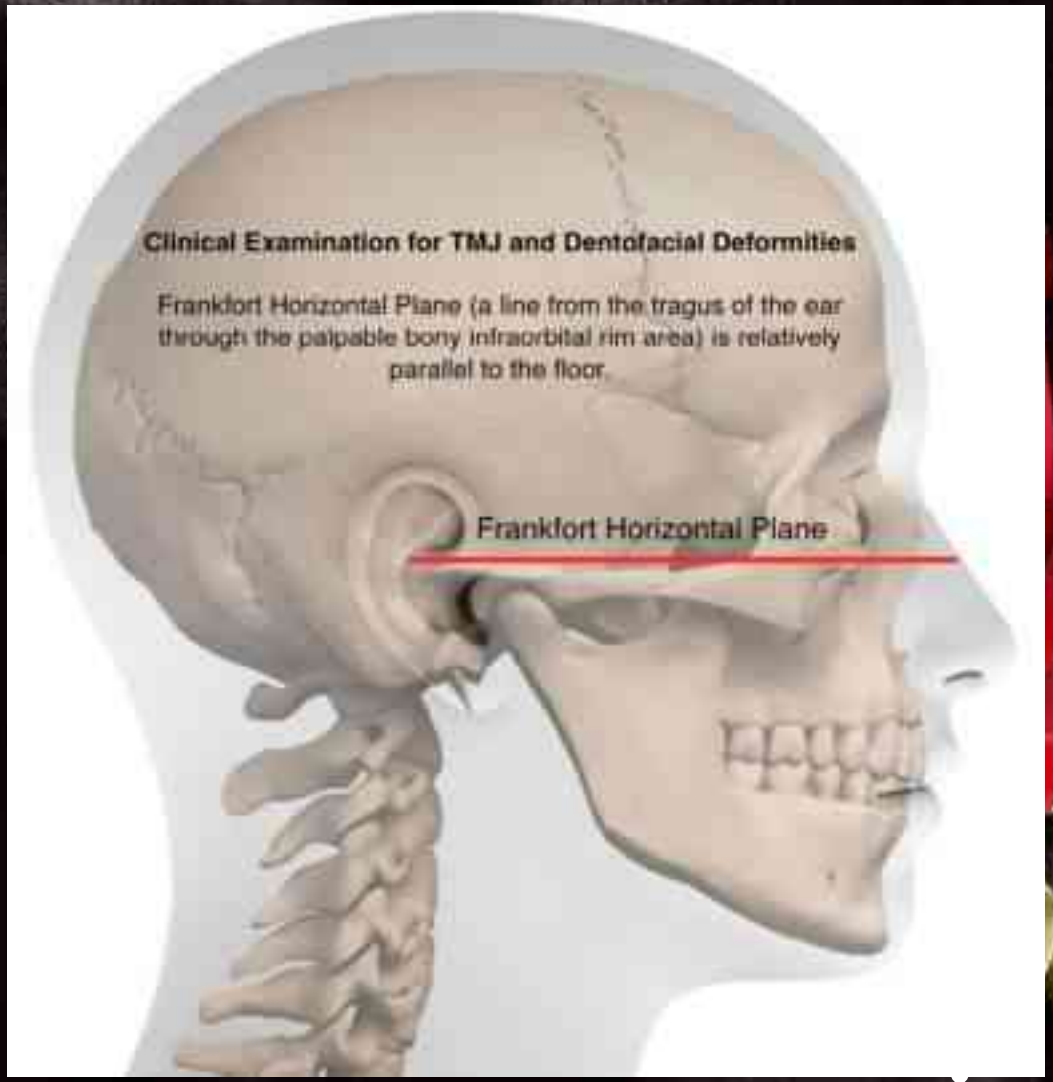
- Congenital deformity
- Trauma

Medical history: bleeding disorder, autoimmune disease, any pathological condition.

Dental history: previous restorative, orthodontic, periodontal, facial pain treatment.

Clinical evaluation

- Patient seated comfortably
- Frankfort line parallel to the floor
- Teeth in centric occlusion and lips relaxed



Frontal Assessment

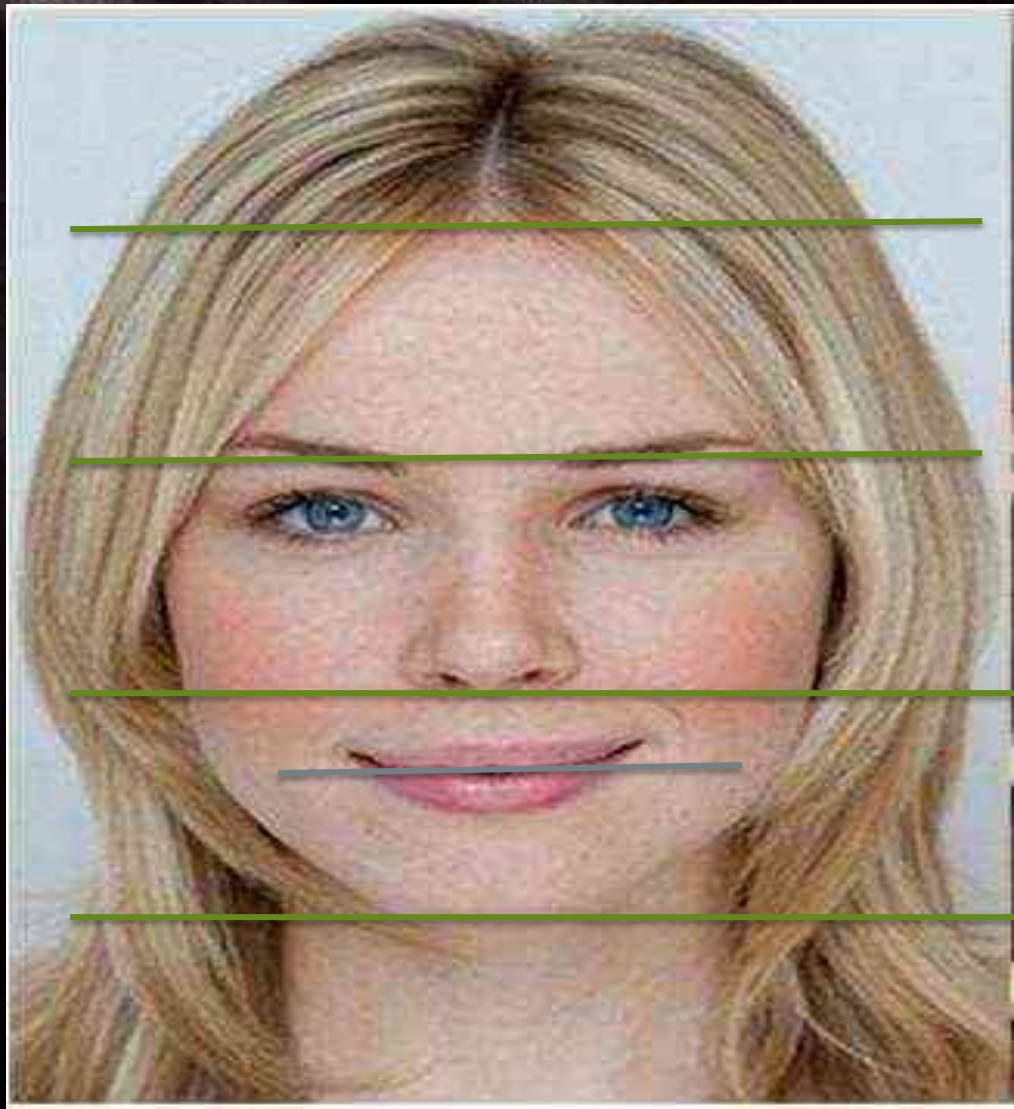
Facial proportion

The full face is divided into three equal parts

Upper part from hair line to the glabella (or eyebrow)

Middle part from glabella to the base of the nose

The lower part from the base of the nose to the chin which is subdivided into two parts, the upper lip forms one-third of it and the lower lip and the chin two-thirds of it



Incisal lengths (incisal edge positions

- ***Is the most important determinant in smile creation because it serves as a reference point to decide the proper tooth proportion and gingival levels.***

- ***Degree of tooth display:***

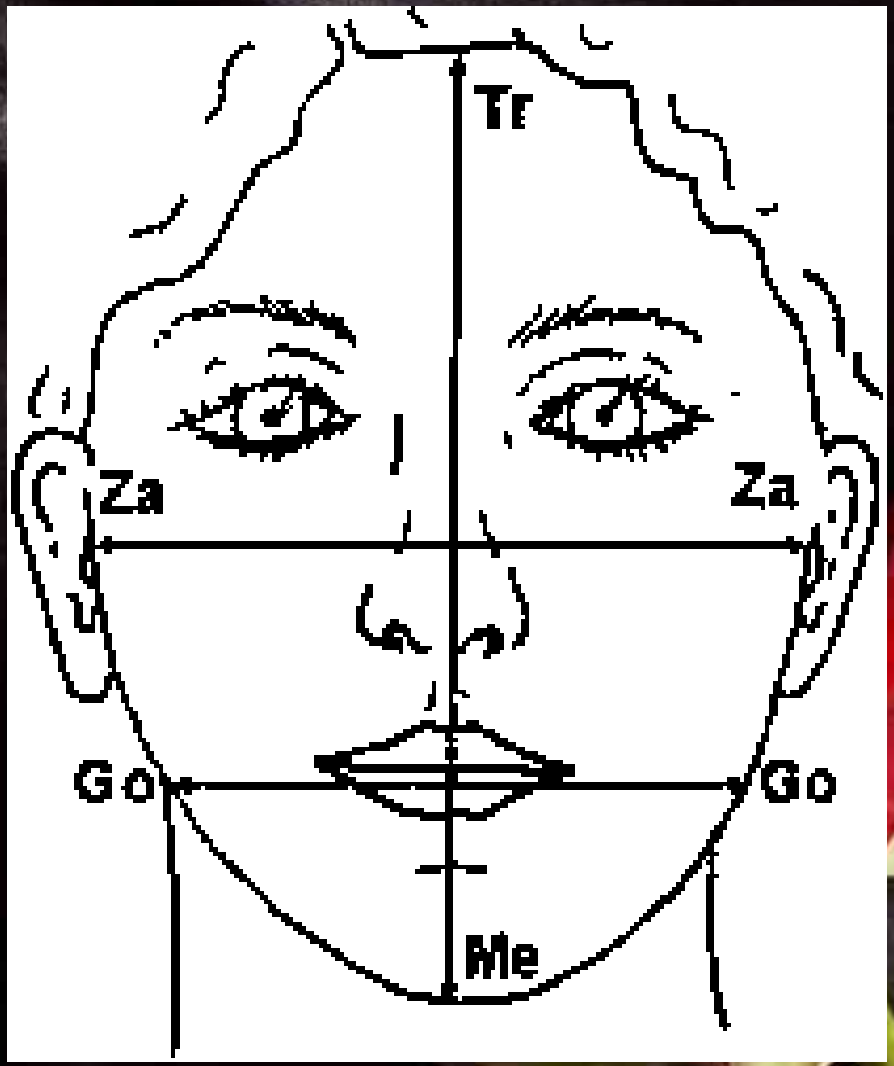
a. ***2 mm of incisor edge show at rest***

b. ***about 2 mm of gingiva show When smiling***

vertical evaluation

- Symmetry :

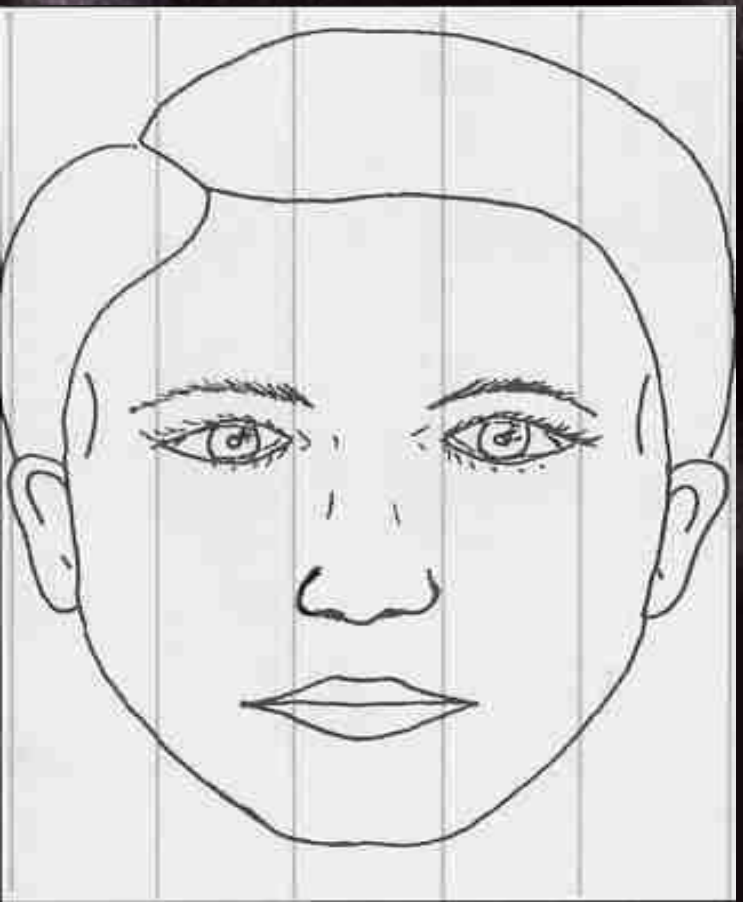
1. **Bizygomatic:** between zygion points the most lateral point of the zygomatic arch.
2. **Bigonial** : width of lower third



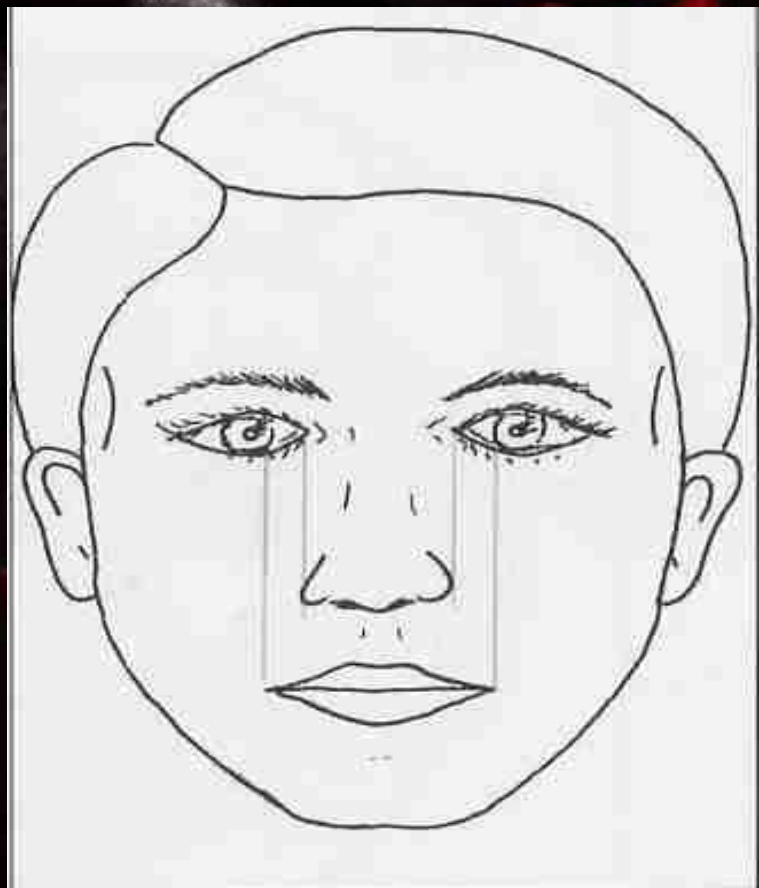
- High to width proportion are 1,3 : 1 for female and 1,35 : 1 for males
- Bigonial width should be 30% less than bizygomatic width

transverse evaluation

1. Role of fifth

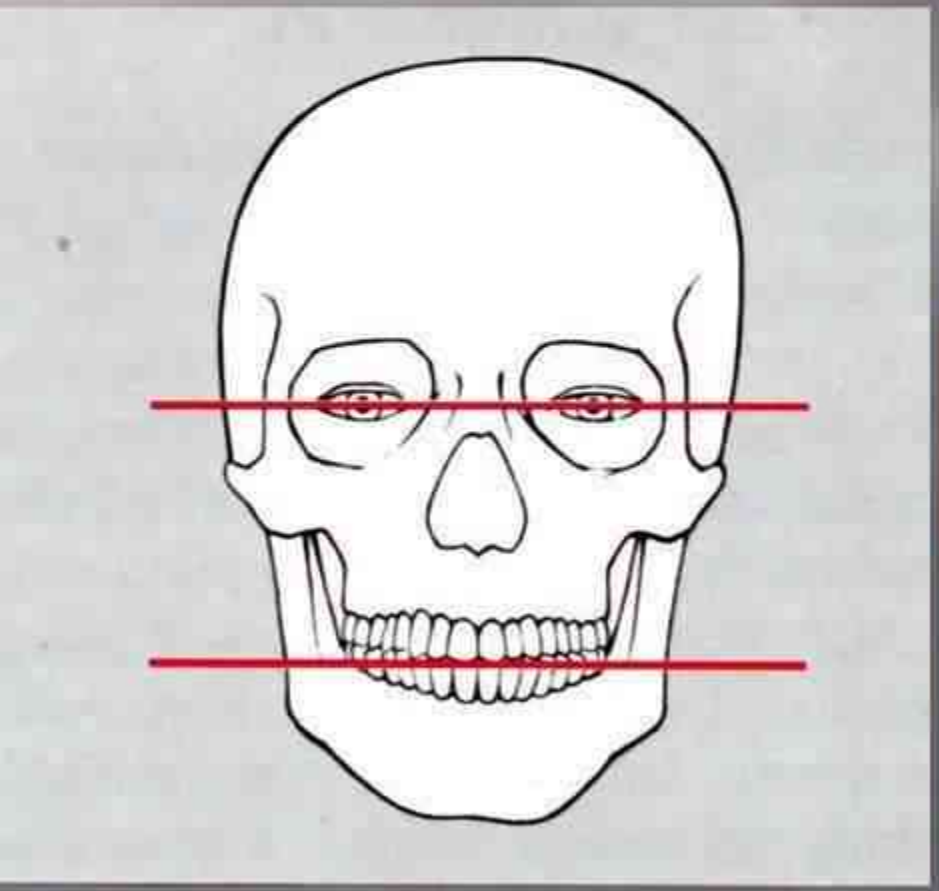


2.intercanthal
interpapilary distance

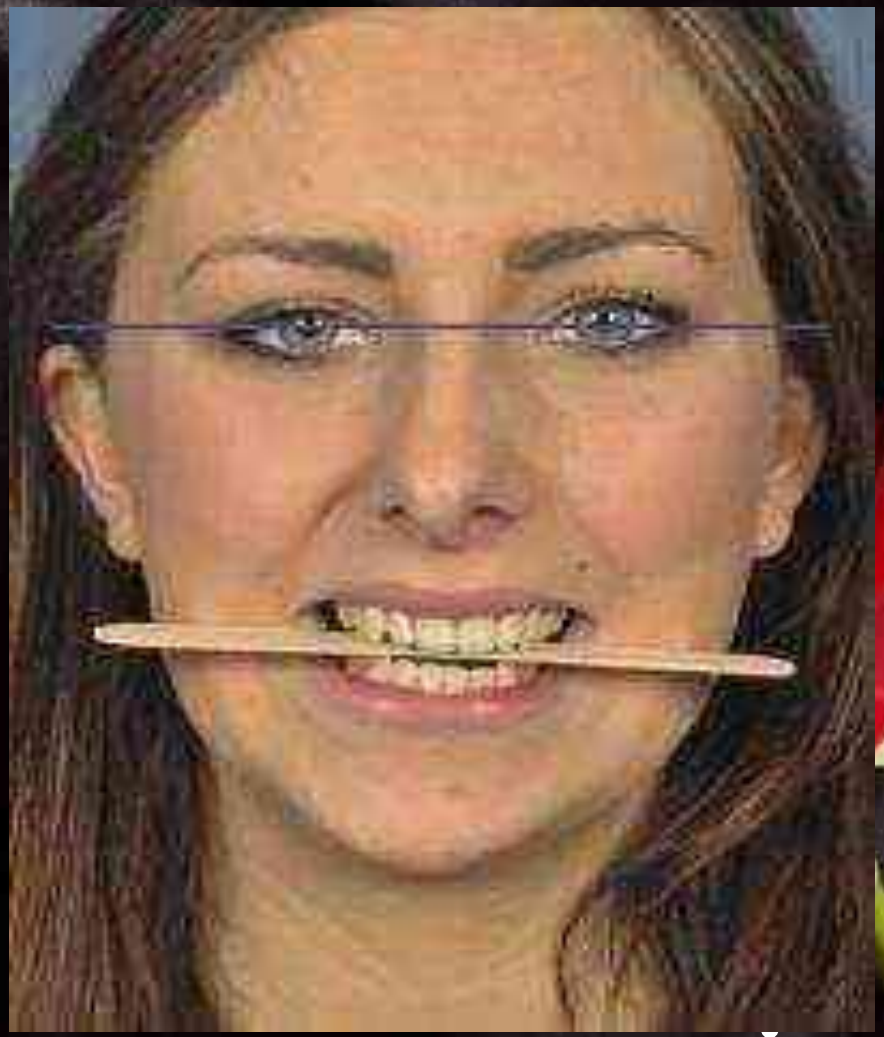


Anterior occlusal plane :

Parallel to interpupillary line .



Cant occlusion



Upper third evaluation

- Shape and symmetry: the temporal areas, frontal areas, eyebrows, and supraorbital rims

- abnormality in this area often associated with craniofacial syndromes, these areas usually with normal limits in individuals with dentofacial deformaties.

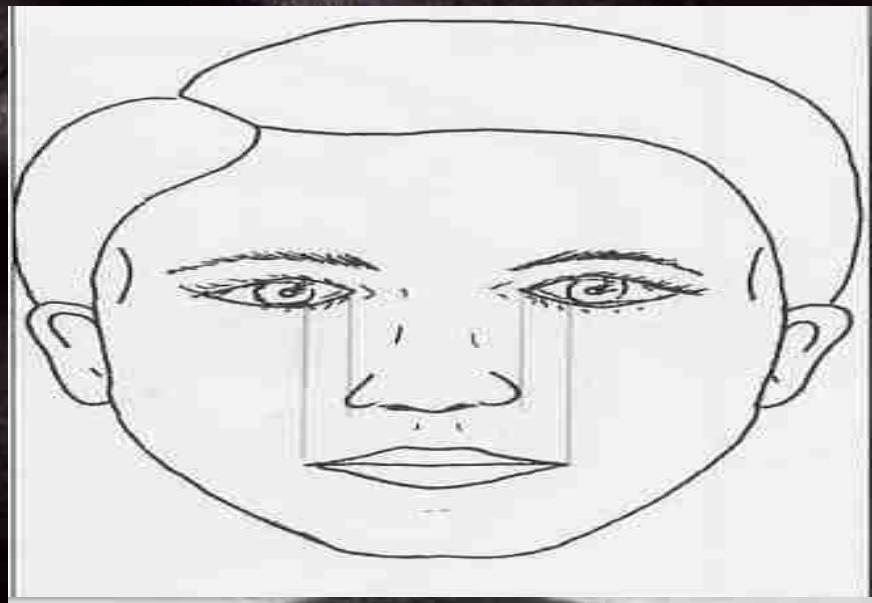
Middle third evaluation

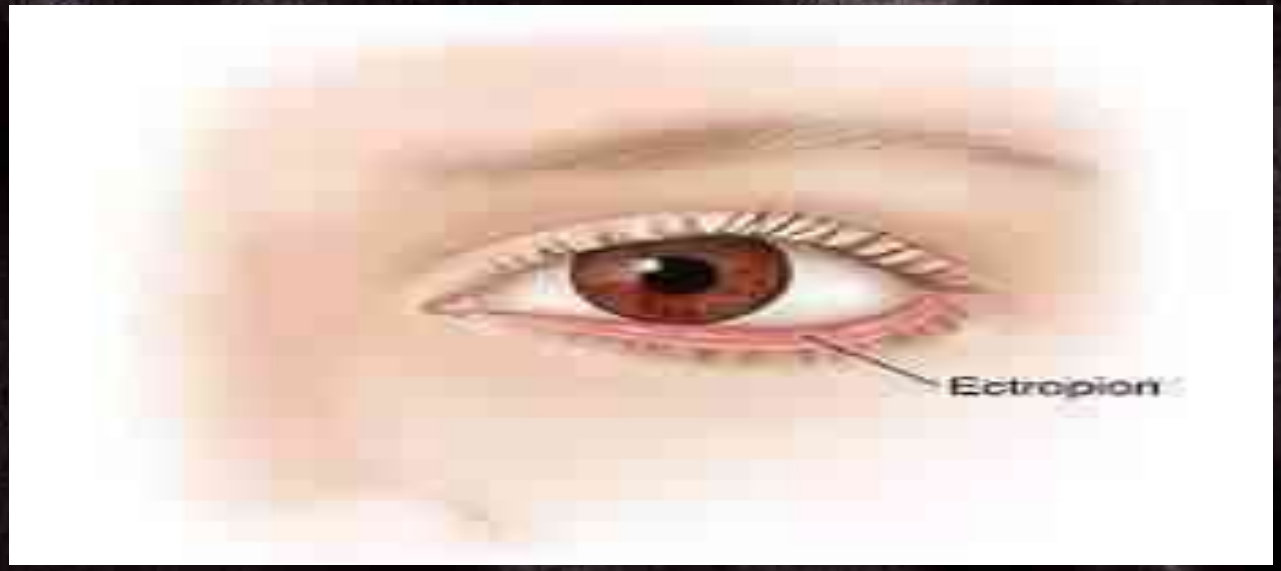
. *Eyes and orbits:* intercathal and inertpupillary distance.

- The vertical symmetry of inner and outer canthi of both eyes,(a true horizontal line will bisect the inner and outer canthi).

- The eyelids examination

(ptosis, entropion , ectropion)




Ectropion

ENTROPION

Inward rolling and rotation of lid margin toward the globe

Lower third evaluation

.Balance: the upper lip 1/3 of lower lip.

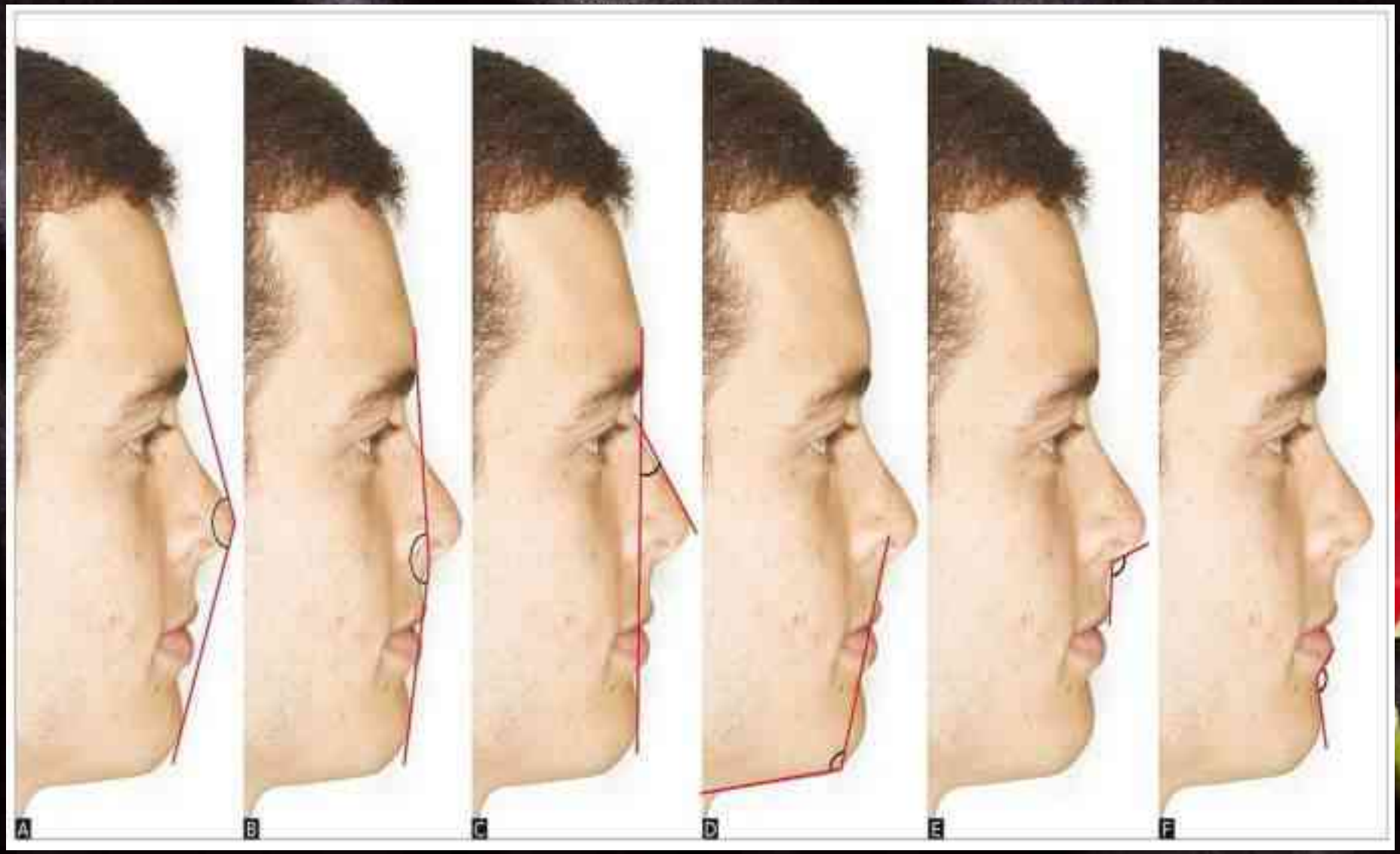
.Lips:

symmetry of the lips at rest and at smiling ,

asymmetry exists in

1. Intrinsic lip deformity (patients with cleft) .
2. Facial nerve dysfunction.
3. An underlying dental-skeletal asymmetry.

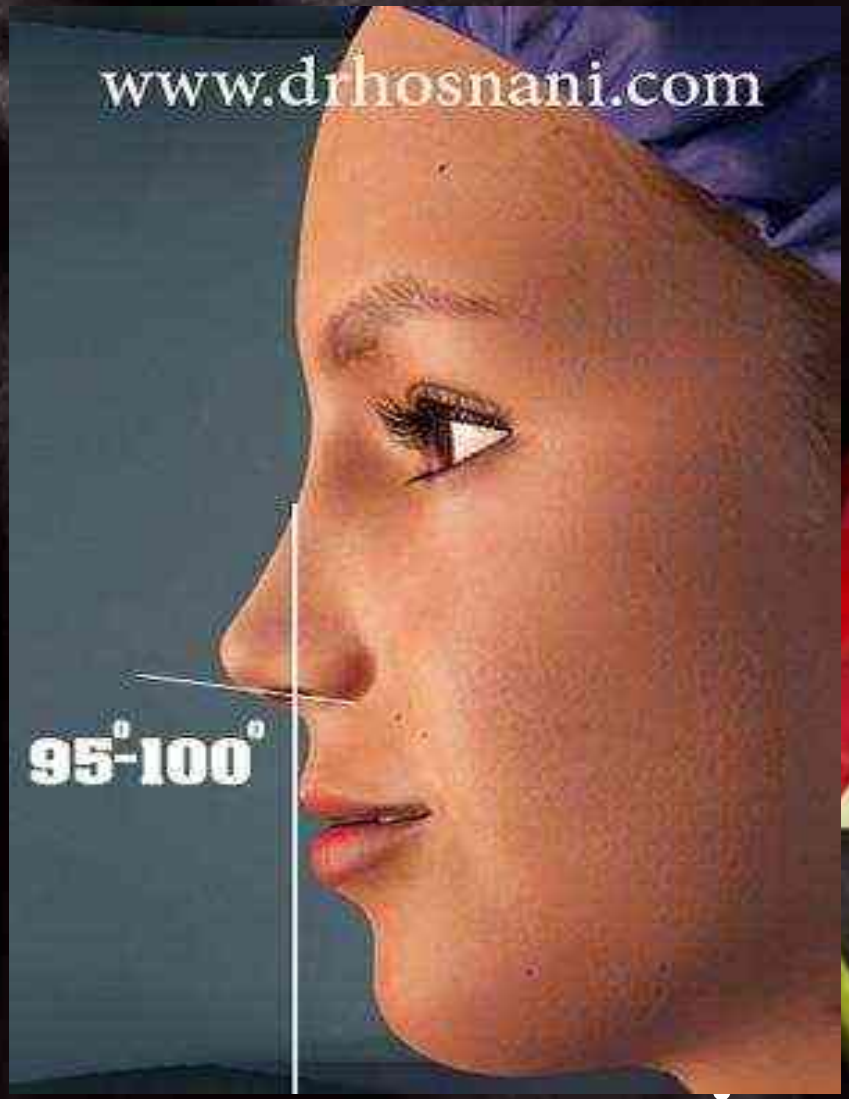
Profile assessment



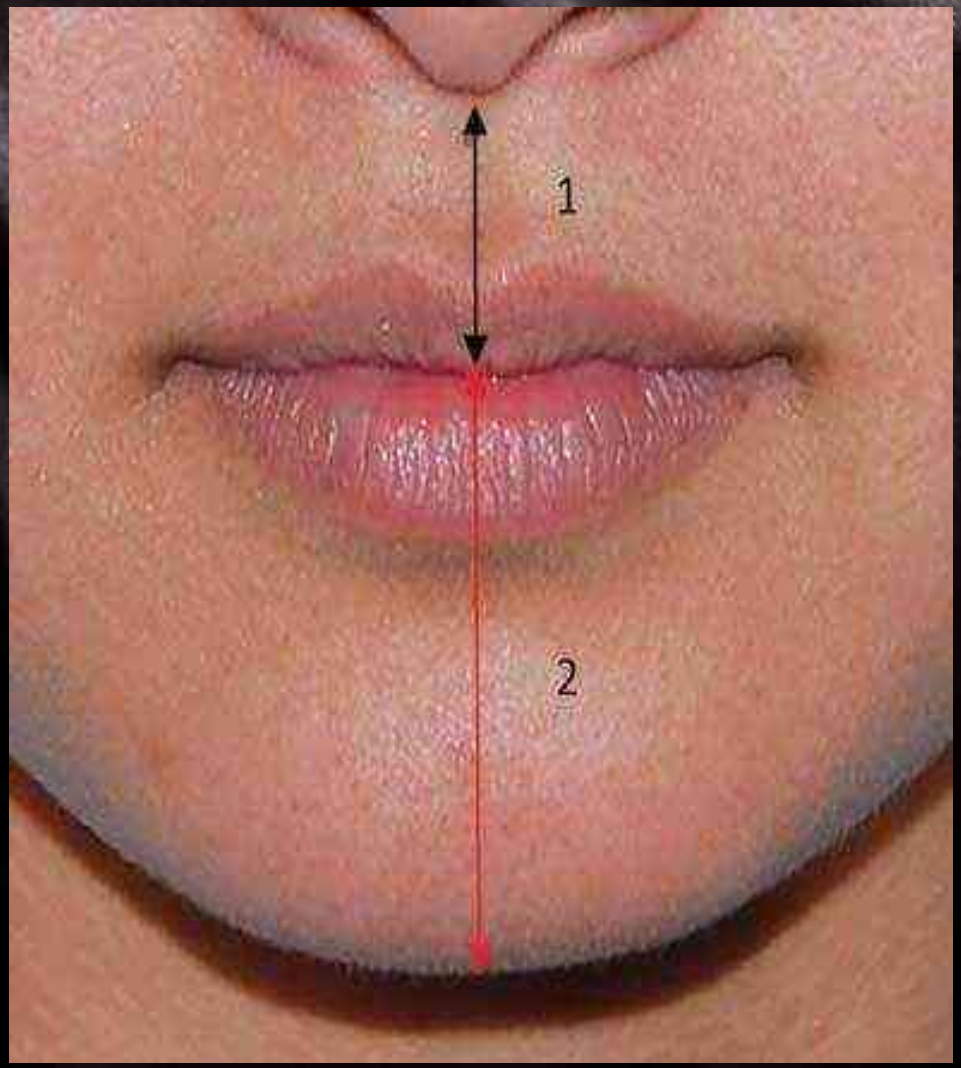
Profil view

Nasolabial angle

- should be 90 -+ 10 degree
- It guid the upper lip support by the maxillary incisors
- Influenced by decrease in vertical maxillary dimention
- Increased in C II
- Decreased in CIII

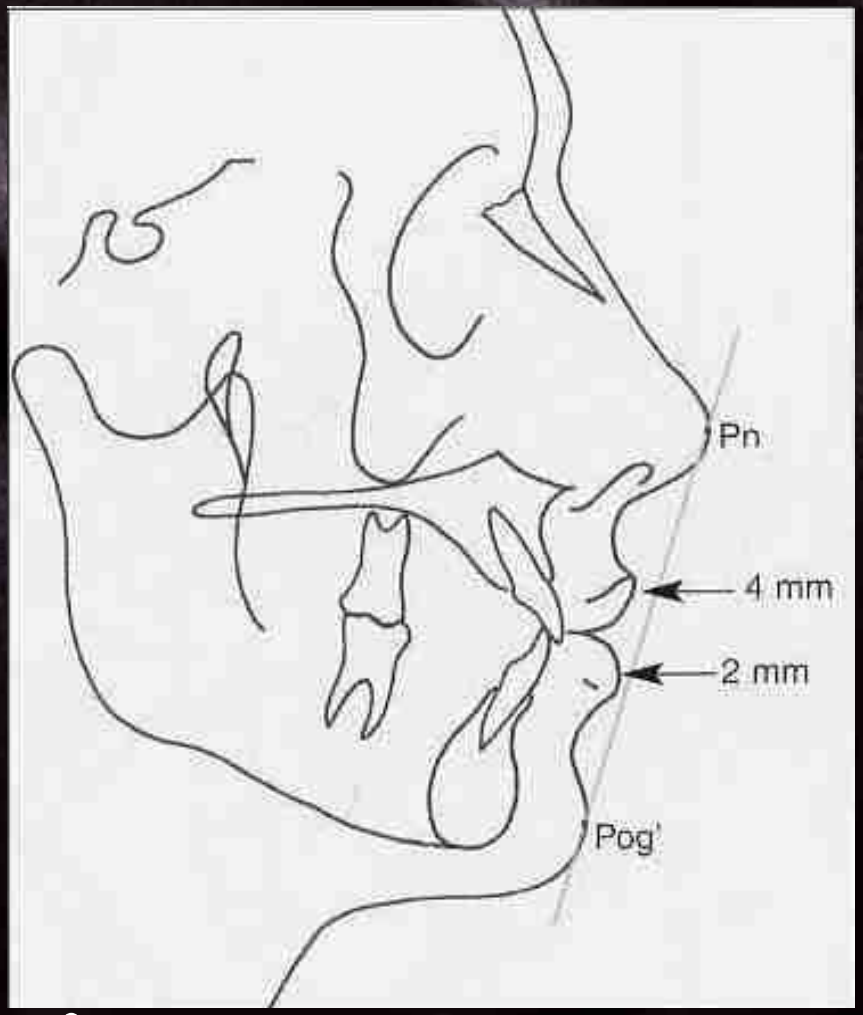


Upper lip length

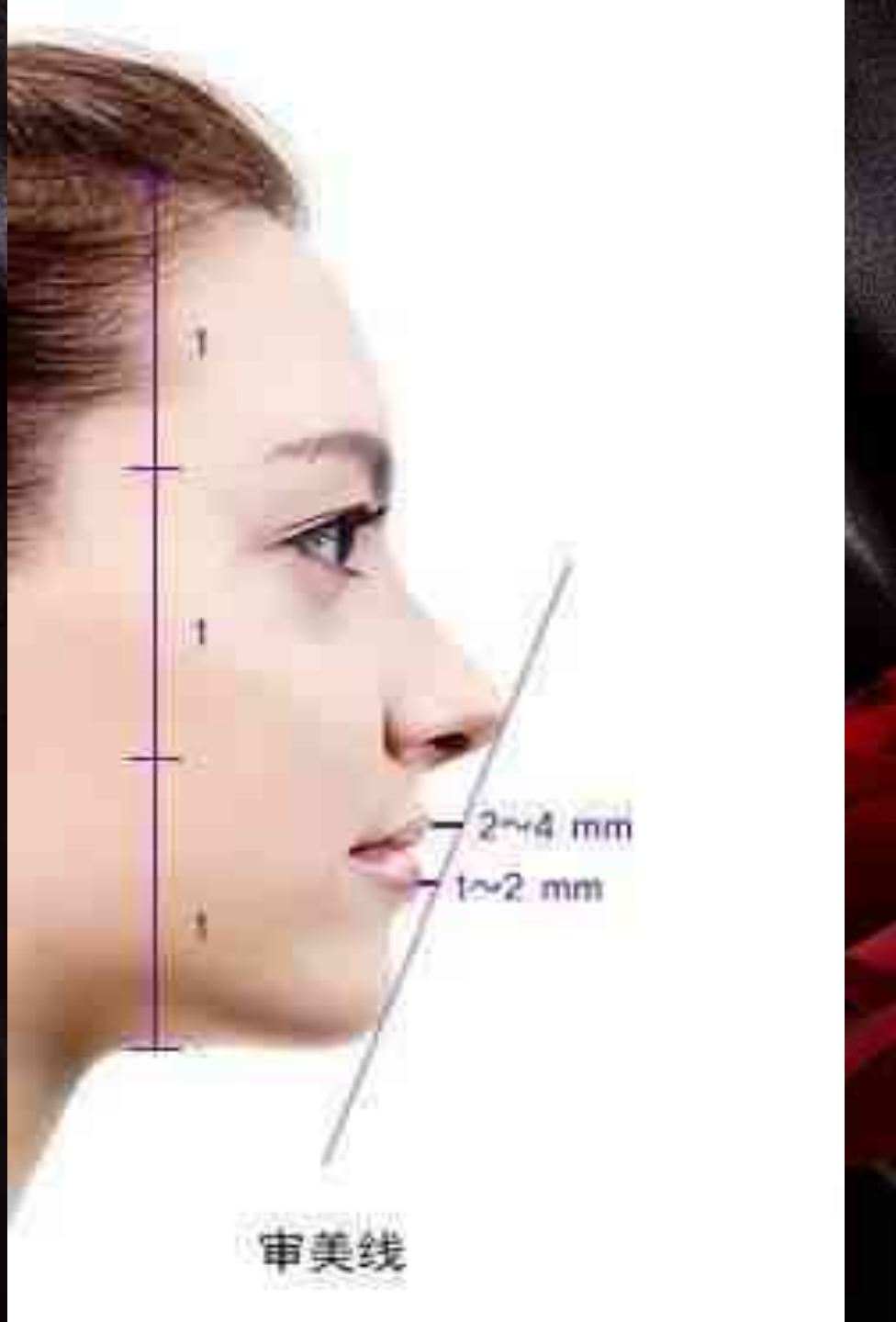


- Measured from subnasale to lower lip
- 22 -+2 mm for male and 20 -+2 for female
- It increase with age

Ricketts line

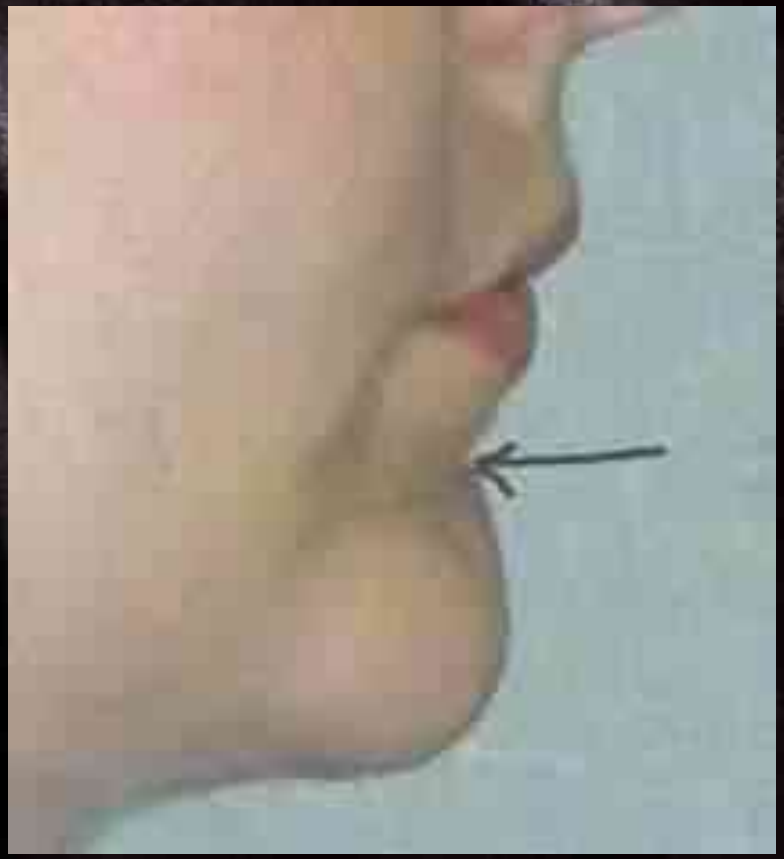


- Line drawen from nasal tip to soft tissue pogonion
- Upper lip are 4mm and lower lip 2 mm behind it
- Allow assessment of anteroposterior relationships of the lips

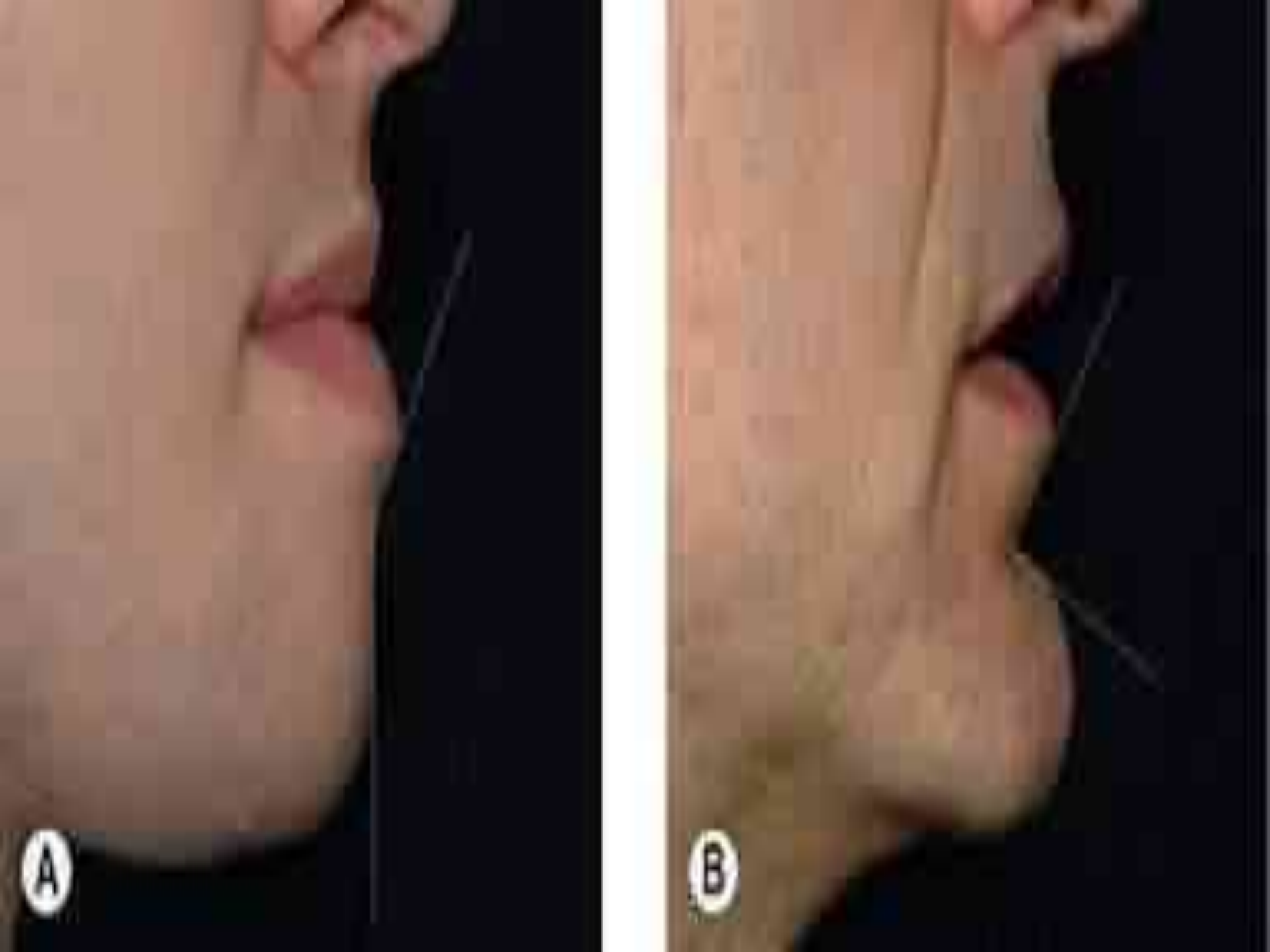


审美线

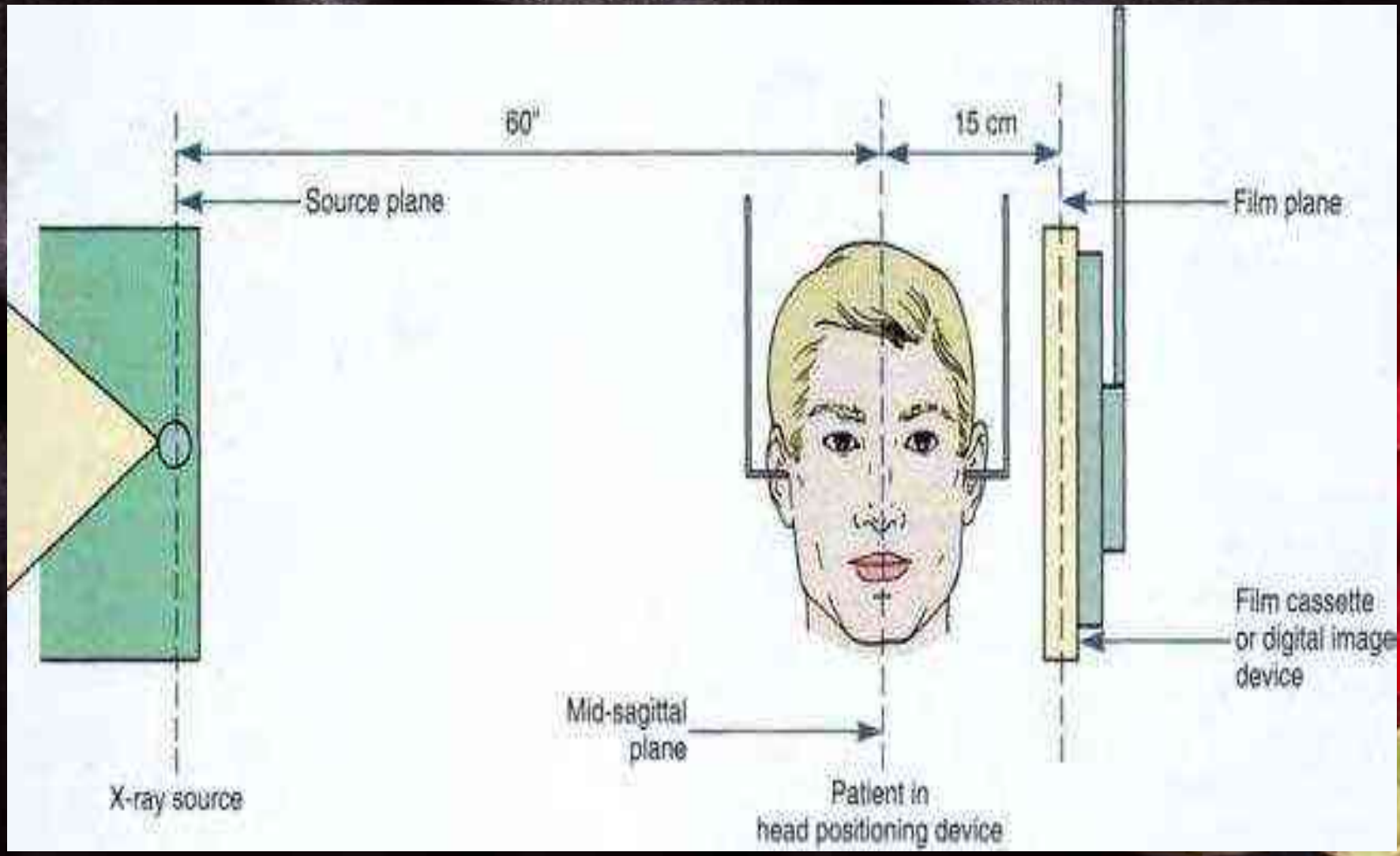
Labiomental angle



- 120 -+ 10 degree


A
B

Lateral cephalometric analysis

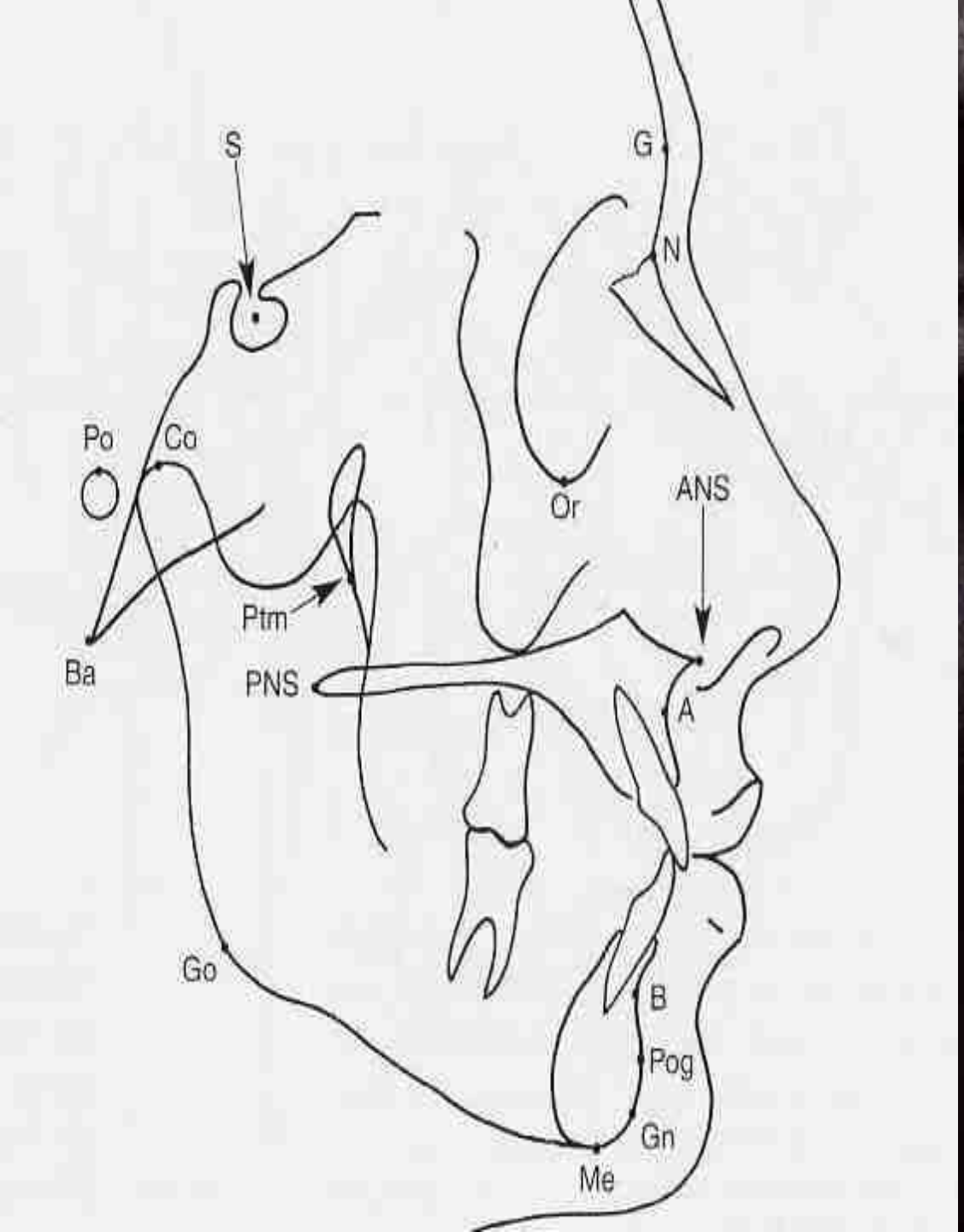


Benefit of cephalograph in orthognathic surgery

Cephalometric analysis helpful in establishing the relation of:

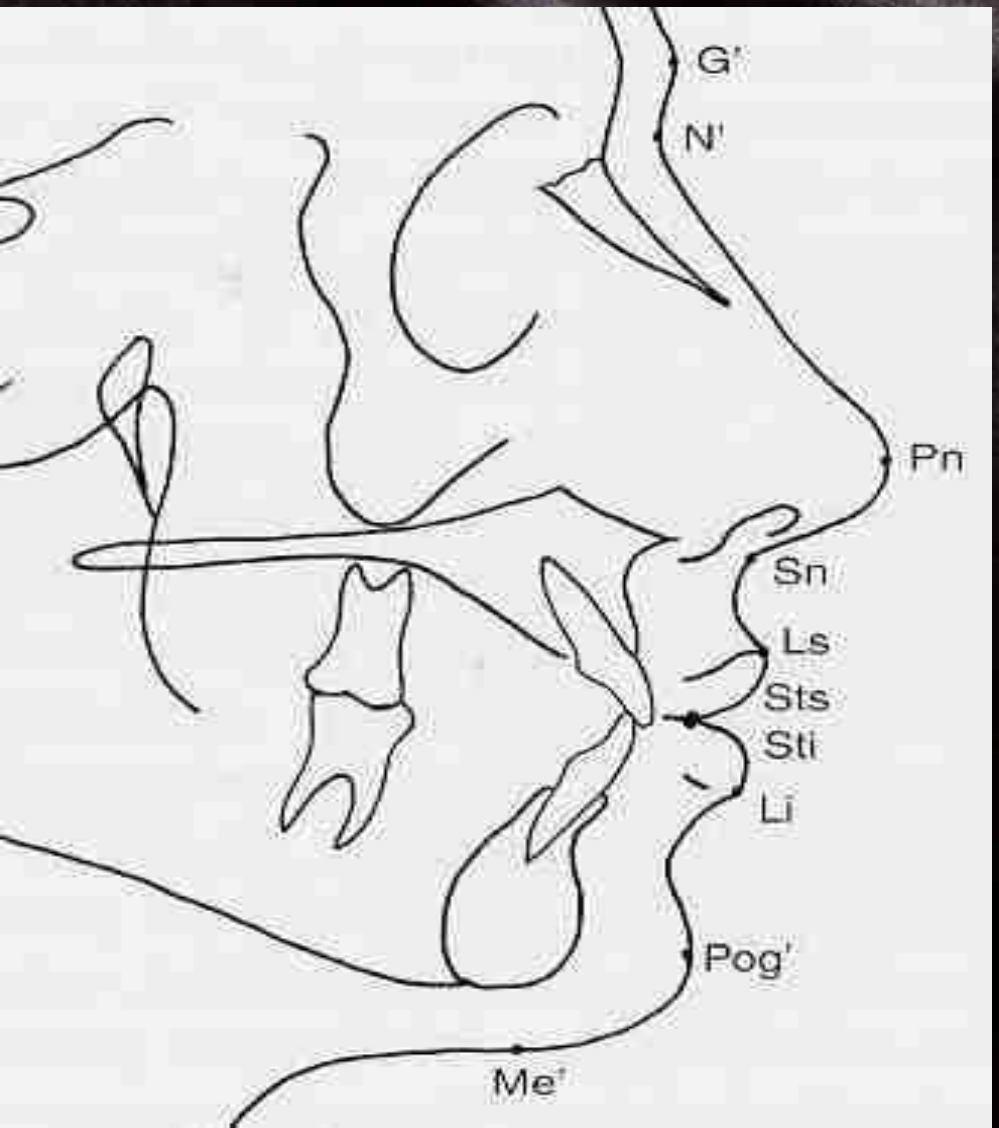
- The maxilla and mandible to the base of skull.
- The maxilla to mandible.
- The maxillary teeth to maxilla.
- The mandibular teeth to mandible.
- The upper incisors to lower incisors.

skeletal analysis



- S sella. G glabella
- N nasion .
- ANS.
- PNS.
- Point A.
- Point B.
- Me menton.
- Pg pogonion.
- Go gonion.
- Ar articulare.
- Co condylion.
- Or orbitale.
- Po porion.

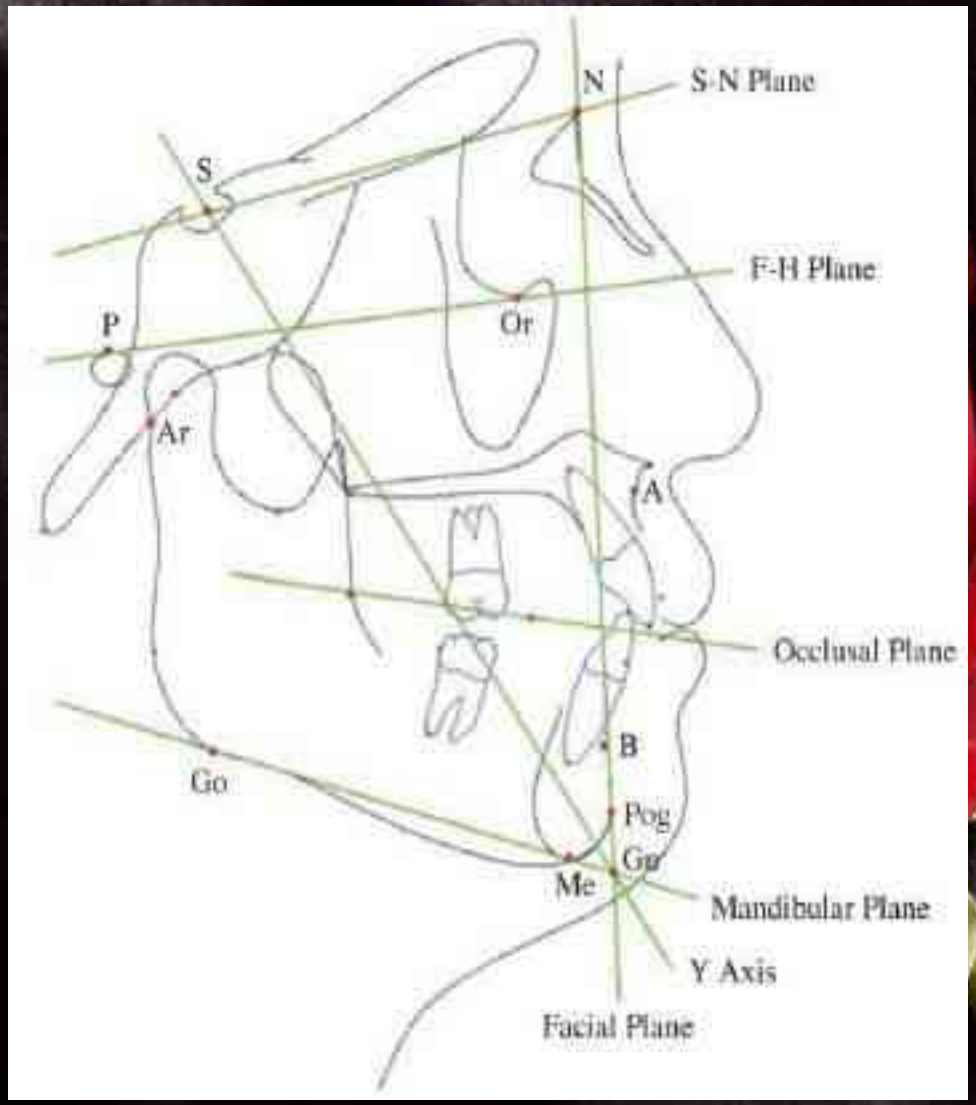
Soft tissue analysis



- Soft tissue glabella(G).
- Soft tissue nasion (N).
- Pronasale (Pn).
- Subnasale (Sn).
- Labrale superior (Ls).
- Labrale inferior (Li).
- Stomion superius(Sts).
- Stomion inferior(Sti).
- Soft tissue pogonion(Pog).
- Soft tissue menton(Me).

Skeletal planes

- Frankfort plane
- Anterior cranial base (SN)
- Occlusal plane
- Mandibular plane

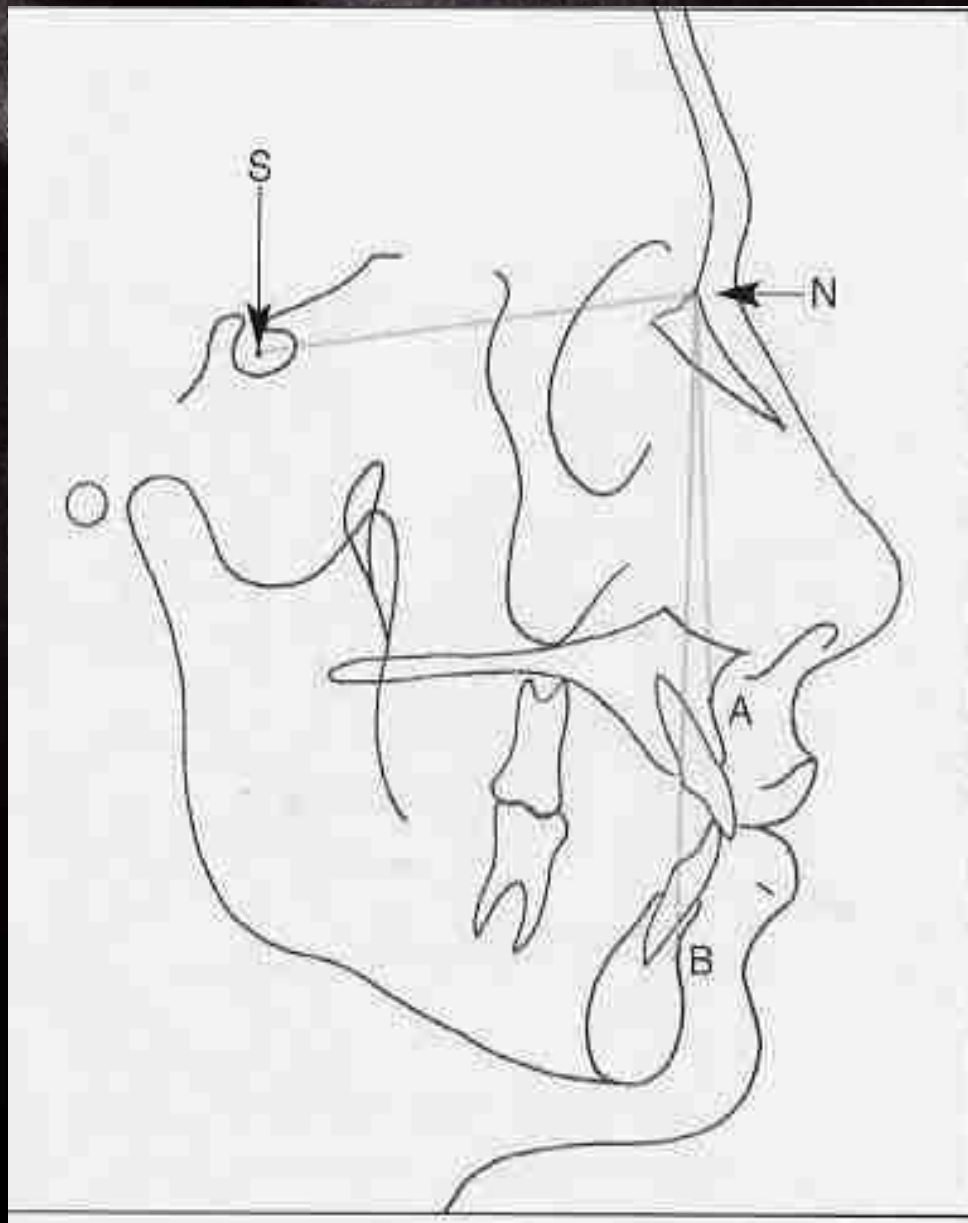


Mean angular skeletal cephalometric values

SNA	81°±3
SNB	78°±3
ANB	3°±2
SN/MxP	8°±3
SN/MP	35°±4
FPLOP	8°±4
NSAr	125°±5
SArGo	140°±6
ArGoMe	128°±7
MxP/MP	27°±4
UI/MxP	109°±6
UI/LI	130°±6
LI/MP	93°±6

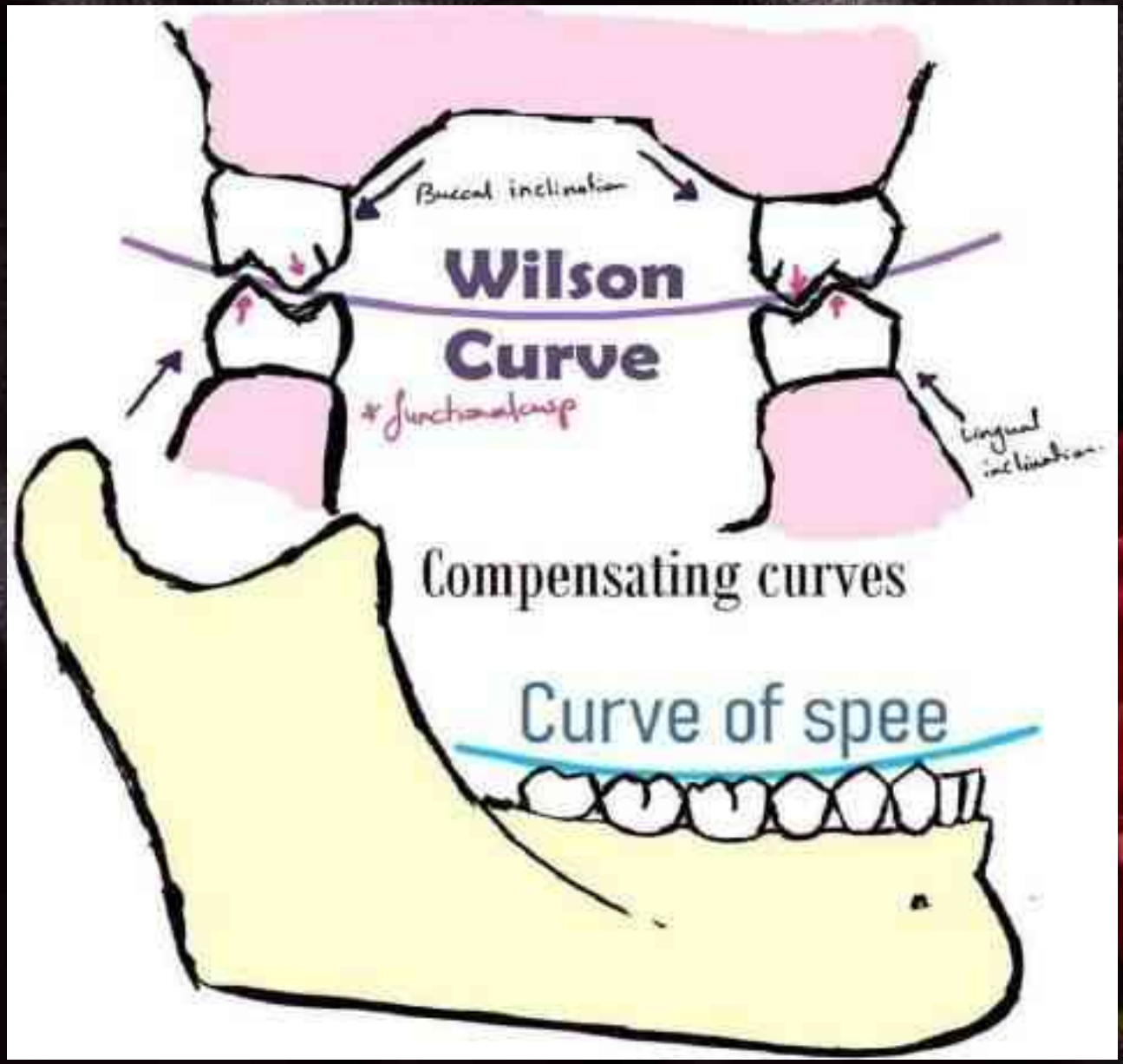
Skeletal anteroposterior relation ship

- SNA 81°± 3.
- SNB 78°± 3.
- ANB 3°± 2.



Dental models analysis

1. Tooth size analysis
2. Arch width analysis.
3. Curve of spee.
4. Curve of welson
5. Tooth arch symmetry.


Buccal inclination
Wilson
Curve
Lingual
Compensating curves
Curve of spee

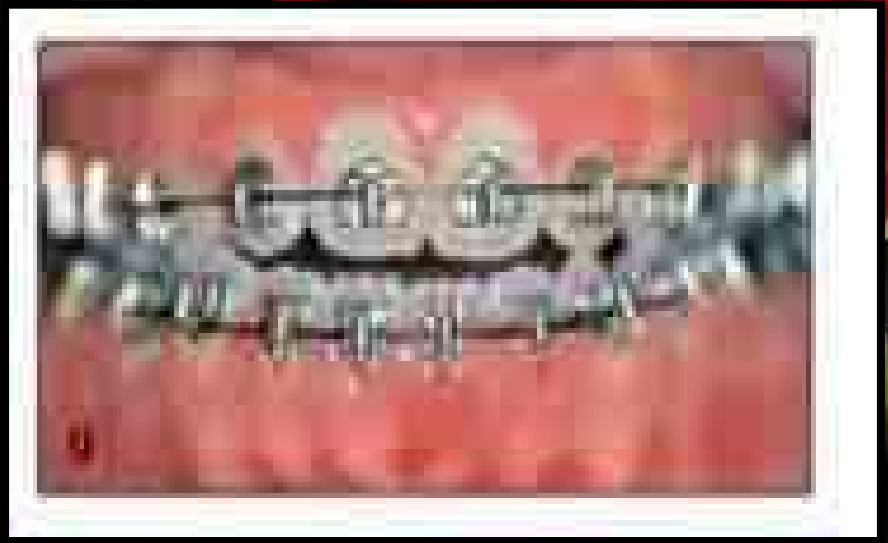
Presurgical orthodontic treatment

Relieve of crowding

Level and align arches

Decompensate

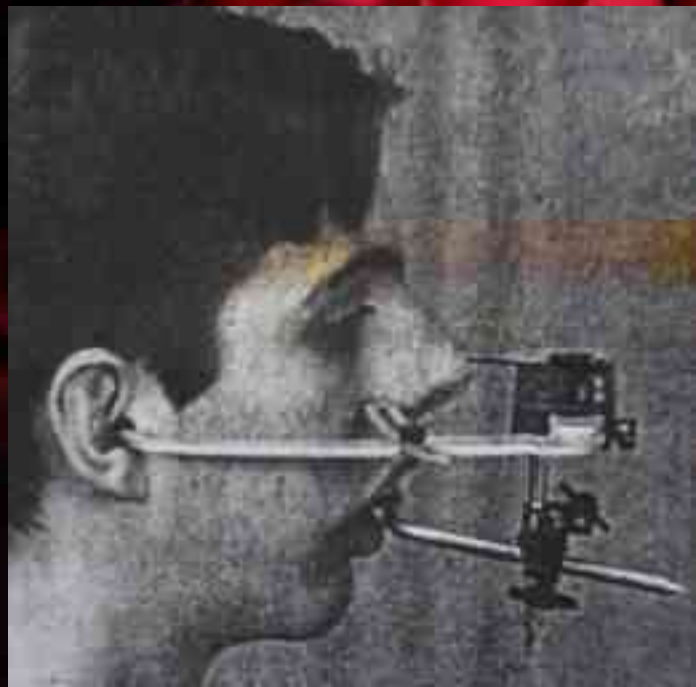
Achieve root divergence at surgical site



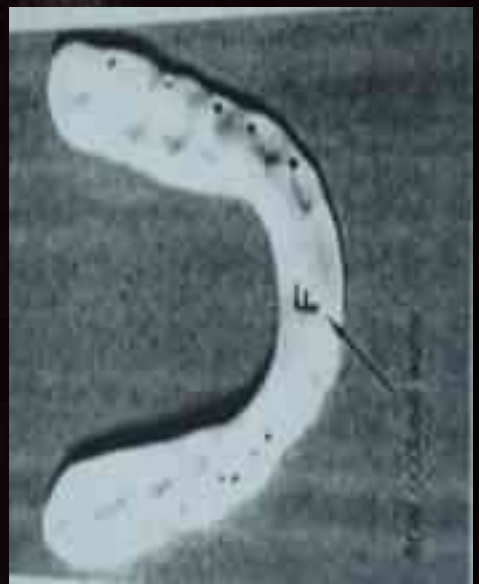

COMPENSACIÓN
CLASE 2
COMPENSACIÓN
CLASE 3

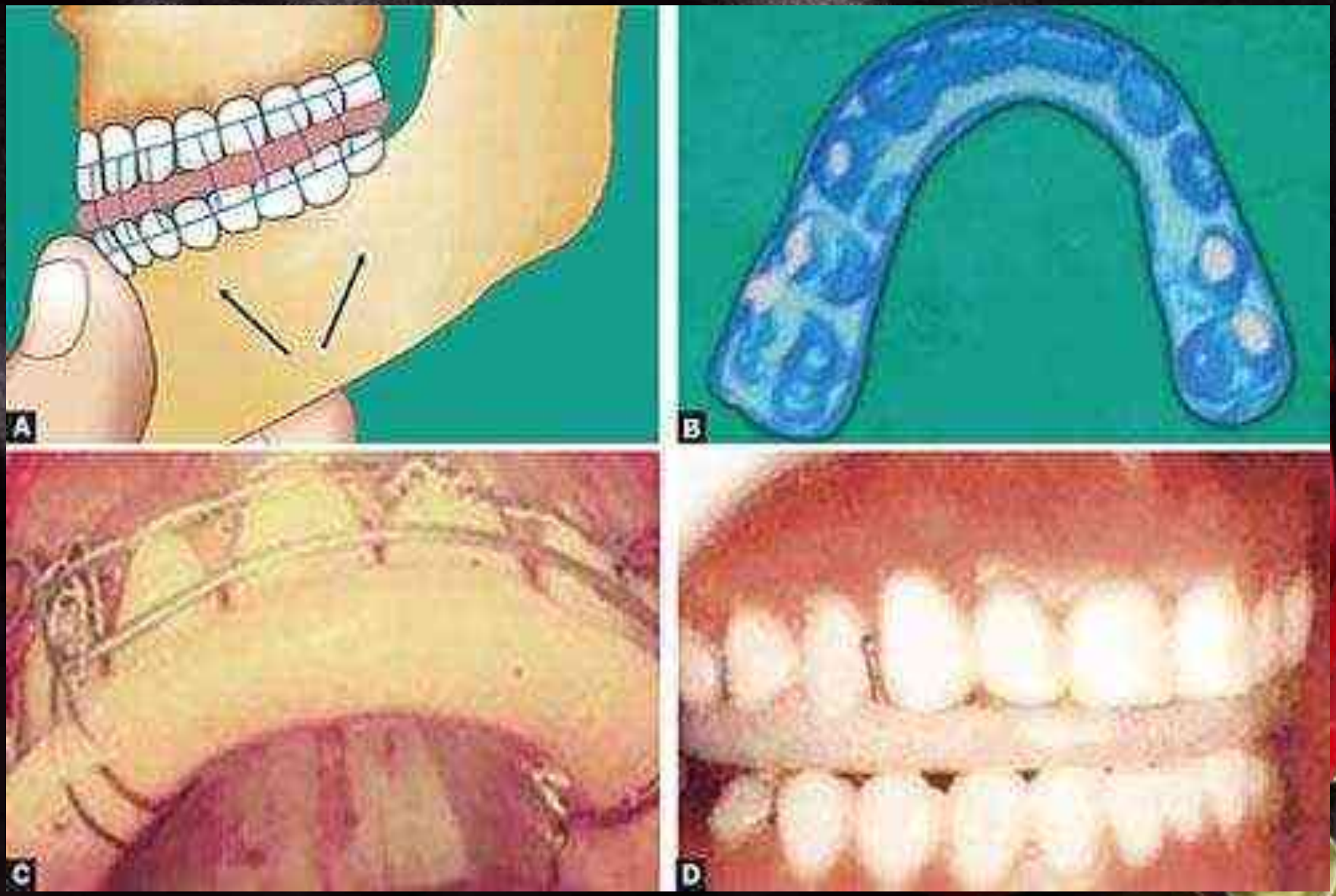
model surgery technique:

- Impressions
- Occlusal record
- Face bow registration.
- Face bow transfer to the articulator and mounting of maxillary cast.
- Mounting of mandibular cast



- Maxillary model surgery.
- Intermediate occlusal wafer.
- Mandible model surgery.
- Final occlusal wafer fabrication




A
B
C
D

Thank you for listening … .

Reconstractions in orofacial Region

Dr. Mohamed Rahil

((Maxillofacial surgeon))

Tikrit dentistry college

2015 – 2016

Definitions

➢ Graft

A skin graft is a tissue of epidermis and varying amounts of dermis that is detached from its own blood supply and placed in a new area with a new blood supply.

➢ Flap

Any tissue used for reconstruction or wound closure that retains all or part of its original blood supply after the tissue has been moved to the recipient location.

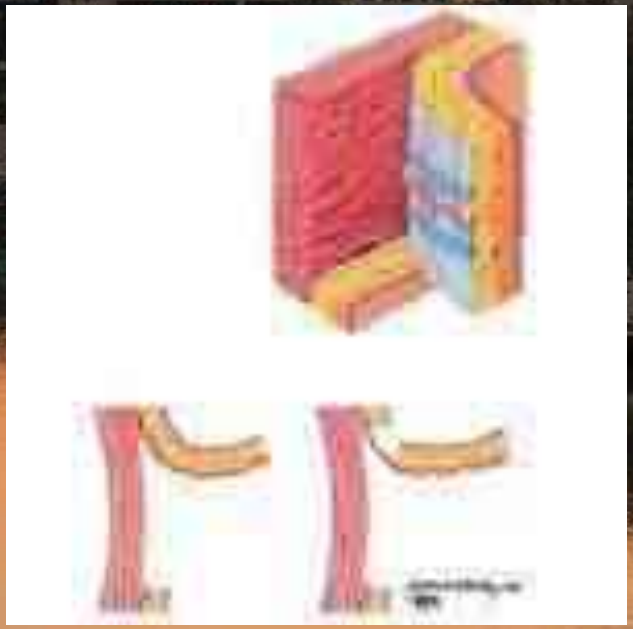
Graft vs. Flap

Graft

Does not maintain original blood supply.

Flap

Maintains original blood supply



Yousif Al-

Classification of Grafts

1. *Autografts* – A tissue transferred from one part of the body to another.
2. *Homografts/Allograft* – tissue transferred from a genetically different individual of the same species.
3. *Xenografts* – a graft transferred from an individual of one species to an individual of another species.
4. Isograft- a graft transferred between identical(monozygotic)twins,behave like autograft.

Indications for Skin Grafts

- Extensive wounds .
- Burns .
- Specific surgeries that may require skin grafts for healing to occur.
- Areas of prior infection with extensive skin loss.
- Cosmetic reasons in reconstructive surgeries.

Contraindications for skin graft

1-Avascular recipient areas :-

a)Cortical bone without periosteum

b)Cartilage without perichondrium

c)Tendon without paratenon

2-Infection

Types of Grafts

Grafts are typically described in terms of thickness or depth.

***Split Thickness*: Contains 100% of the epidermis and a portion of the dermis. Split thickness grafts are further classified as *thin* or *thick*.**

***Full Thickness*: Contains 100% of the epidermis and dermis.**

Split Thickness

Used when cosmetic appearance is not a primary issue or when the size of the wound is too large to use a full thickness graft.

1. Chronic Ulcers
2. Temporary coverage
3. Correction of pigmentation disorders
4. Burns

Cutting split thickness by humpy knife


30-Oct-07 21:34

Full Thickness

Indications for full thickness skin grafts include:

1. If adjacent tissue has premalignant or malignant lesions and prevent the use of a flap.
2. Specific locations that lend themselves well to FTSGs include the nasal tip, helical rim, forehead, eyelids, medial canthus, concha, and digits.

Graft Contraction

a)Primary contraction: due to contraction of elastic fibers of skin, the graft contract immediately after harvesting.

b)Secondery contraction: occure due to myofibroblast in the graft bed, contraction of bed followed by permanent contraction of the graft. depend on 2 factor(thickness of graft,graft bed)started after 2weeks-six to nine months.

Note: 2nd contraction can be prevented by applying pressure,static and dynamic splinting.

Unsuitable sites for grafting

- Bone.
- Tendon.
- Infected Wound.
- Highly irradiated.

Flaps

free flap

Pedicle flap

Retains all or part of its original blood supply

Indications

1.avascular beds.

2.Exposed joints or implants.

3.full thickness defect of cheeck,ear,eyelid and nose.

4.For cosmetic reasons e.g. local flap over face.

Disadvantages

Bulky and may need multiple operations to reach final results.

Carry hair in non hairy area.

Leave scars over donor area.

Classifications:

According to nature of blood supply (circulation):

1. Random flap
2. Axial flap

According to their component:

1. Cutaneous flaps
2. Muscle flaps
3. Fascial flaps
4. Compound(composite)
   - Musculocutaneous flaps
   - Ossoecutaneous flaps
   - Fasciocutaneous flaps
   - Osteomyocutaneous flaps

According to the relation to the defect(contaguity):

1. **Local flaps:**
   These are composed of tissue adjacent to the defect.

2. **Regional flaps:**
   These are composed of tissue from the same region of the body as the defect

3. **Distant flaps:**
   Flaps are from a distant part of the body to which they remain attached

According to movement of the flaps(contour):

1. Flaps that rotate around a pivot point:

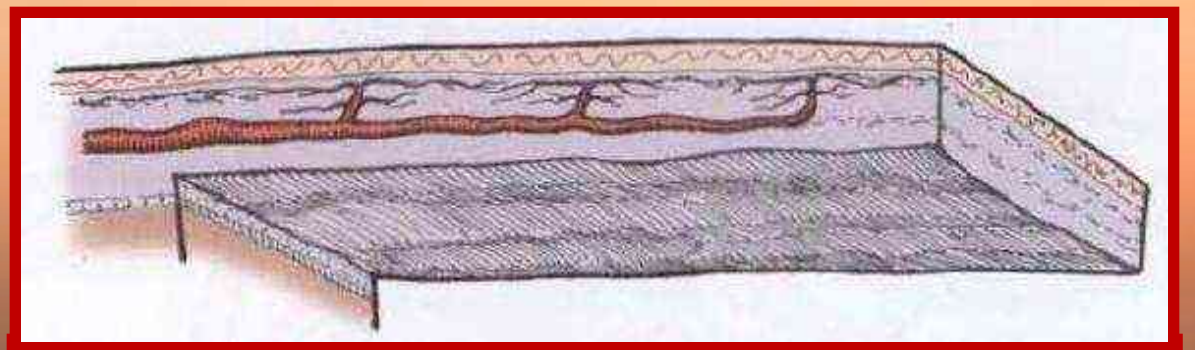
   Rotation
   Transposition
   Interpolation

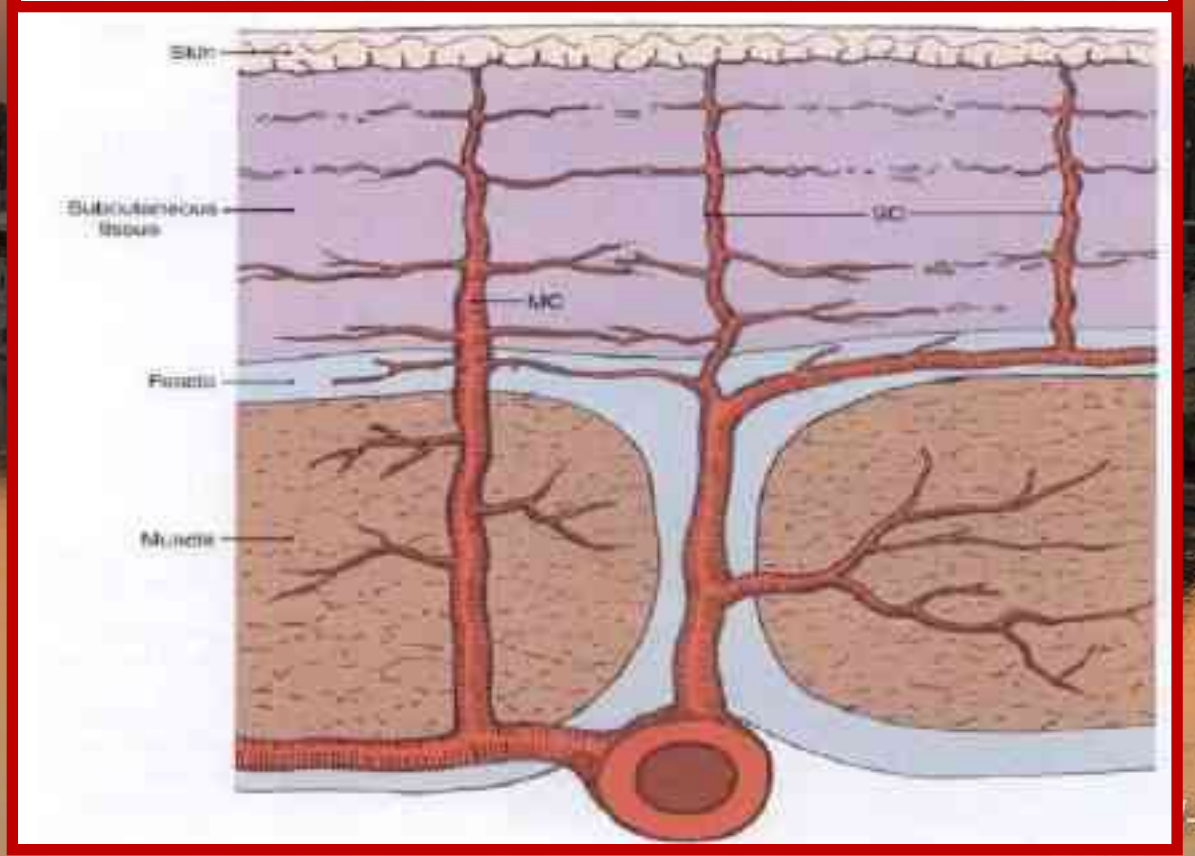
2. Advancement flaps:

   Single pedicled advancement
   Bipedicled advancement

SKIN FLAPS:

- Consist of skin and subcutaneous tissue.

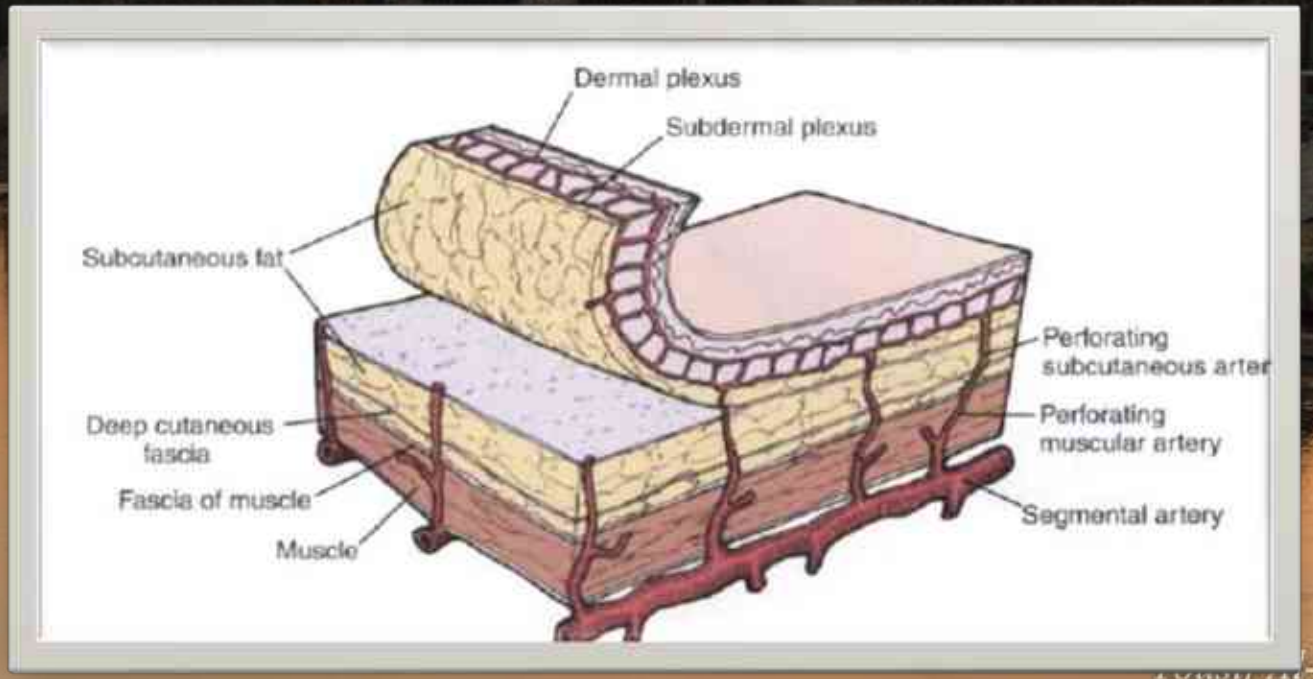




According to vascular supply it classified to:

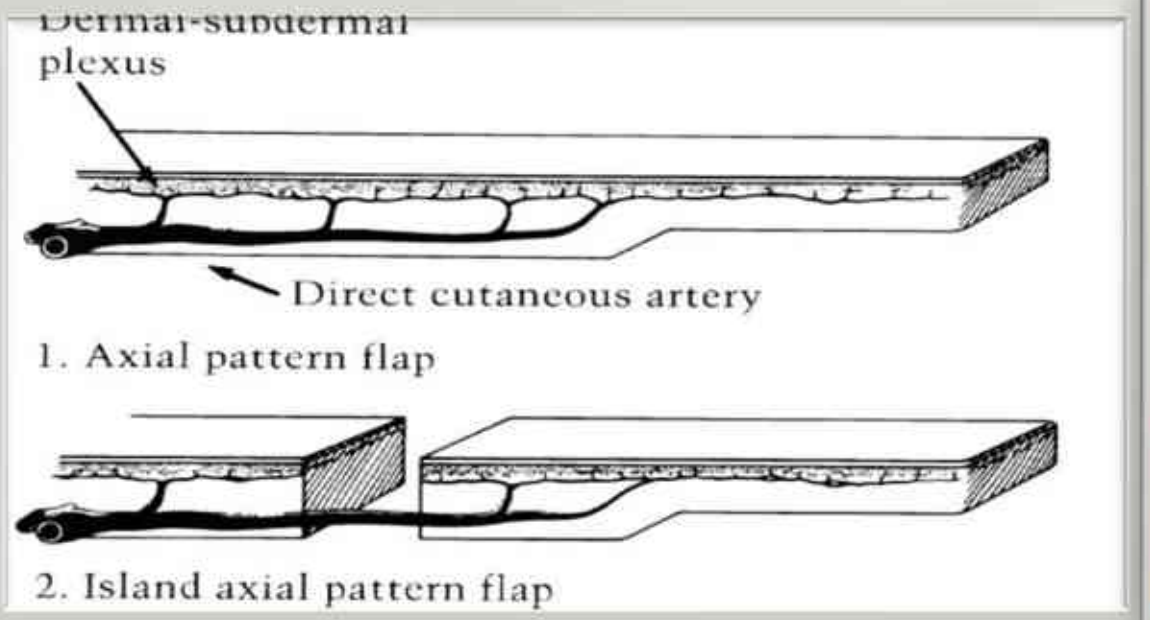
1- Random pattern (Cutaneous flap):

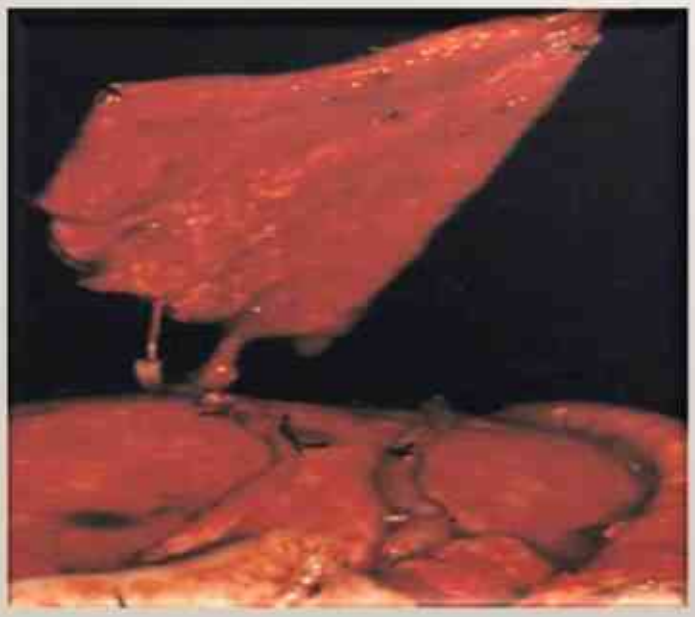
- Has no specific arterial -venous system running along it.
- It depend on subcutaneous, dermal and subdermal plexus
- Their length depend on the width.
- Length: width ratio is 1:1 except in head and neck region the ratio is 4:1.



2- Axial pattern (island) flaps:

- The vascular system run along the length of the flap



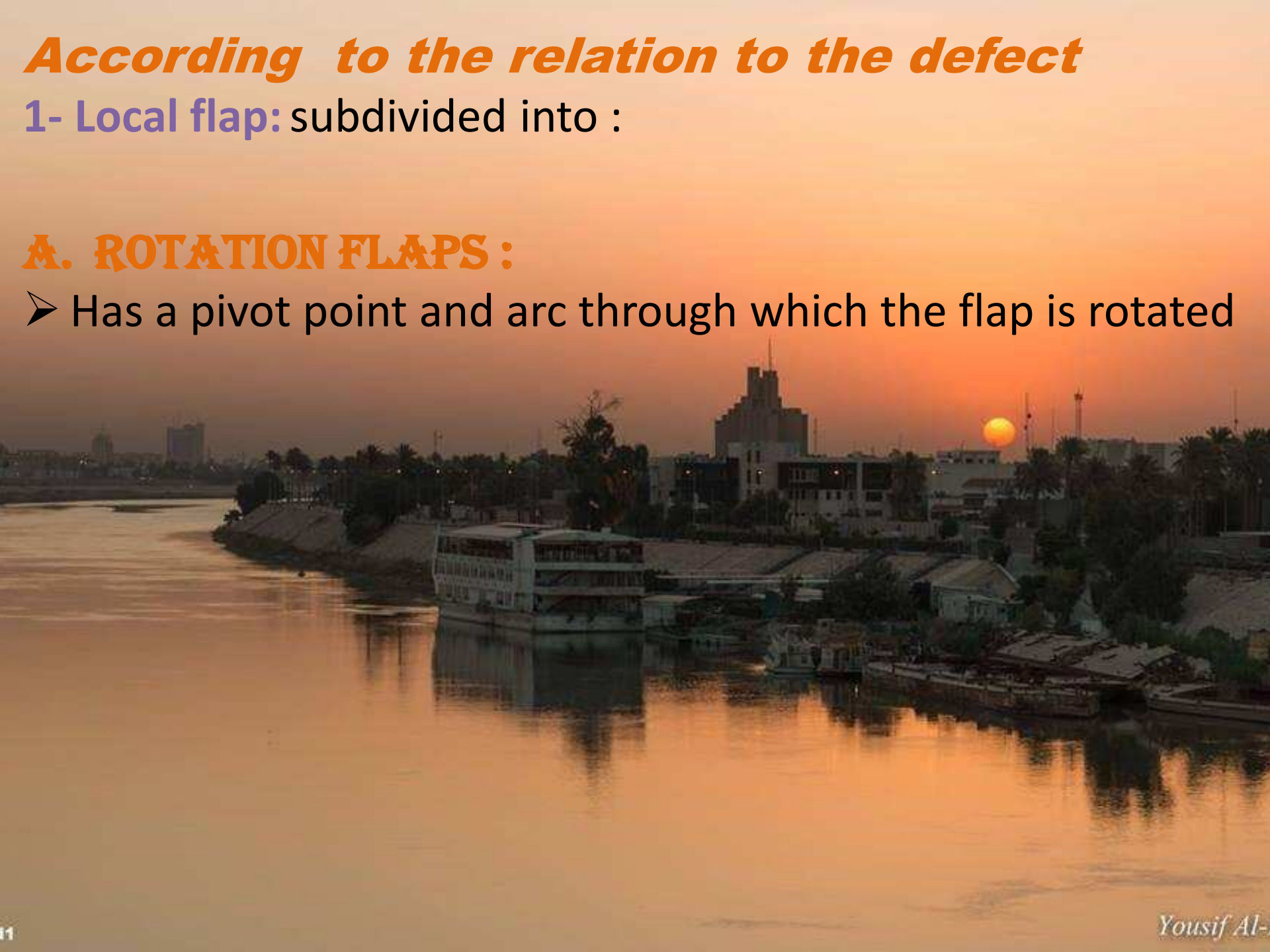


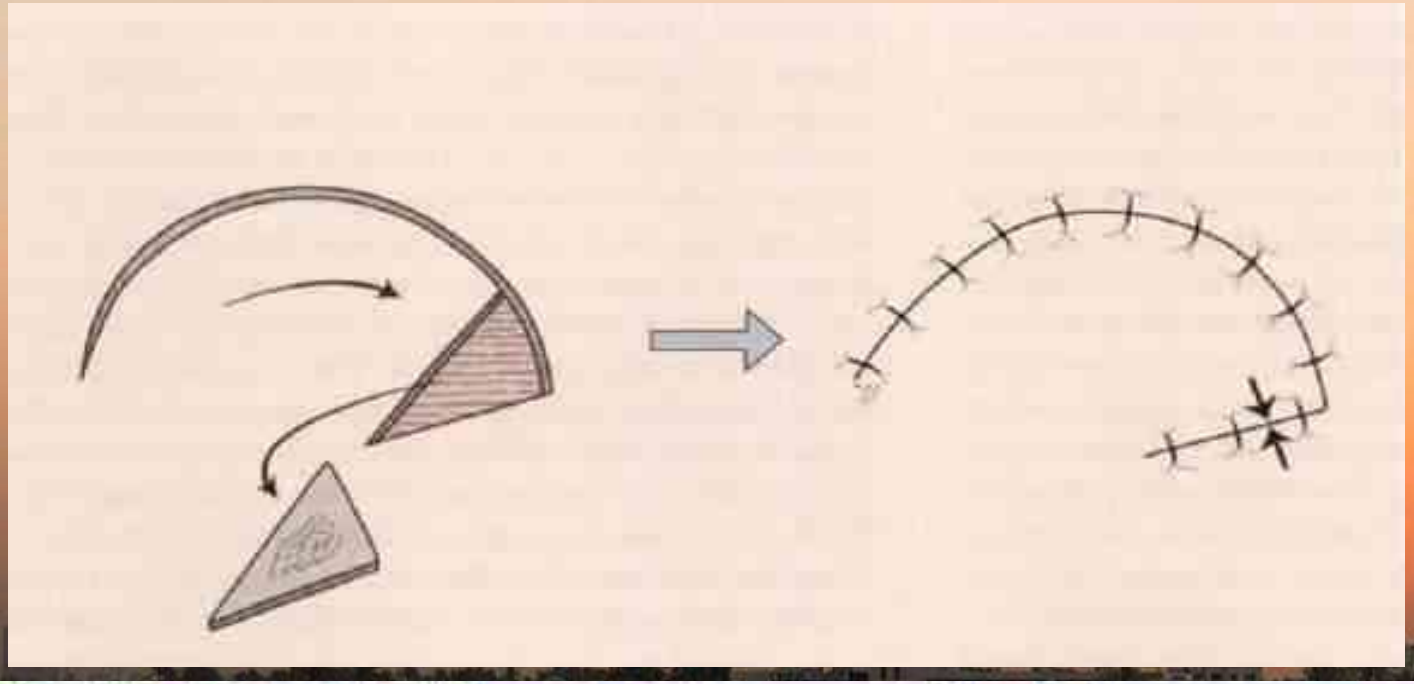
According to the relation to the defect

1- Local flap: subdivided into :

A. ROTATION FLAPS :

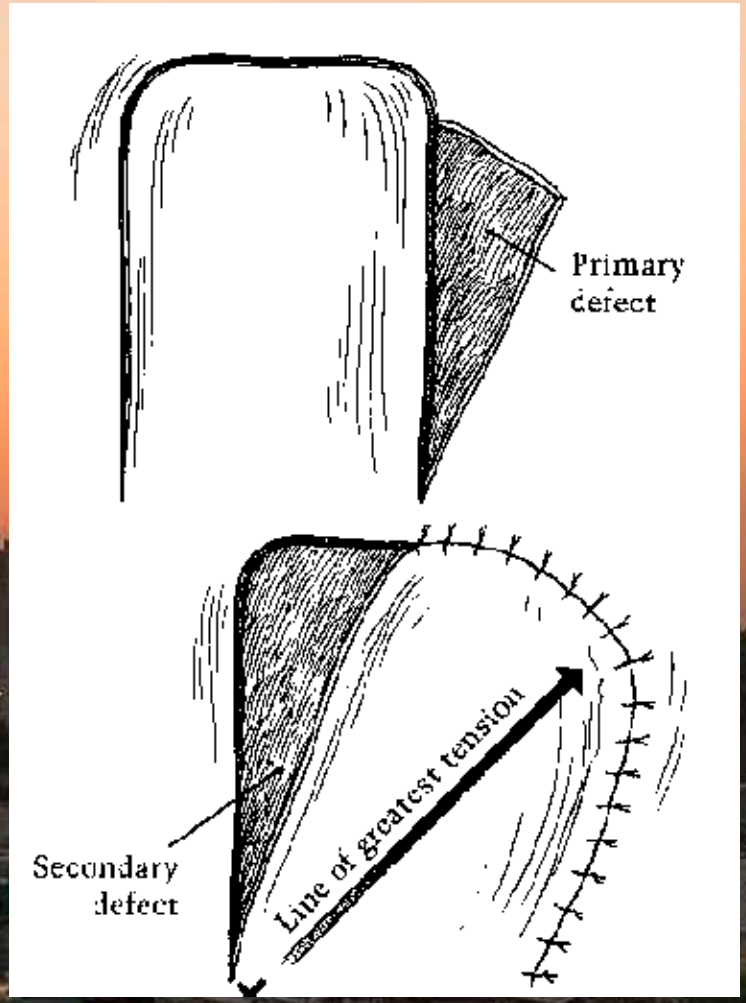
- Has a pivot point and arc through which the flap is rotated

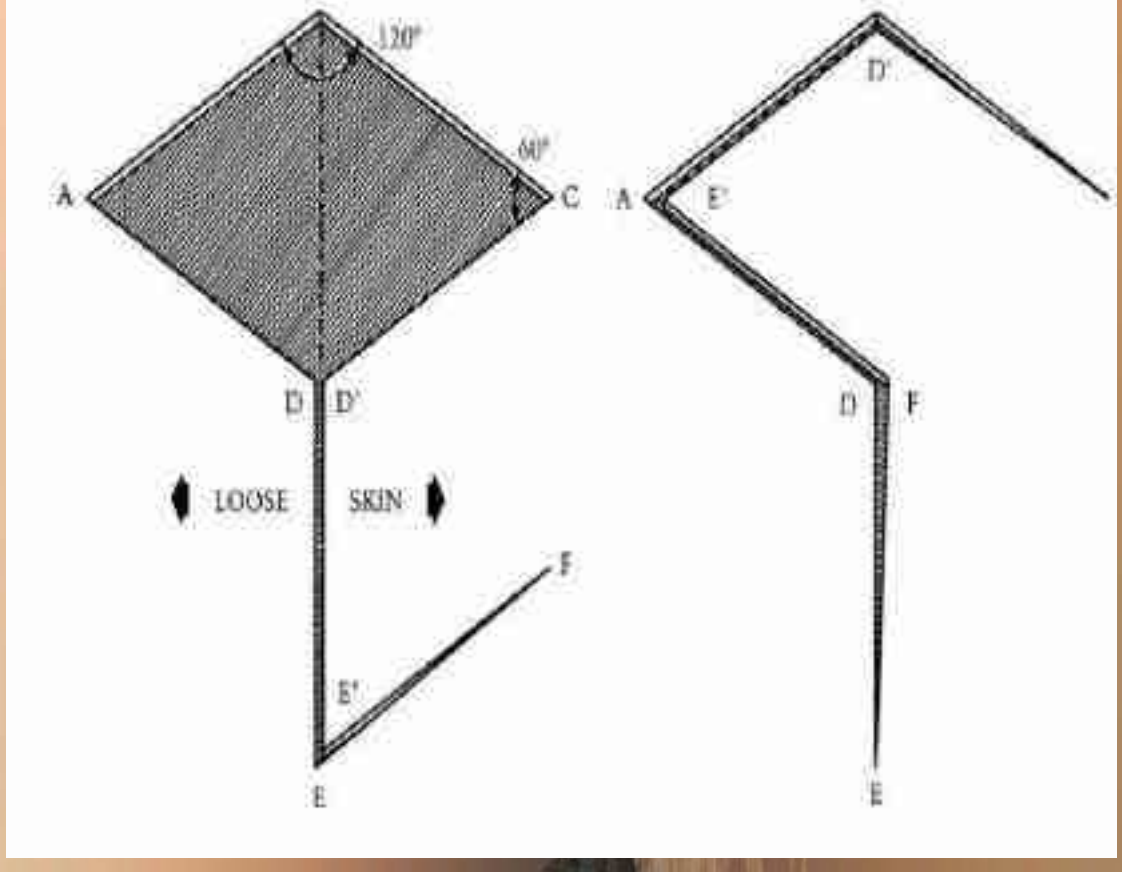


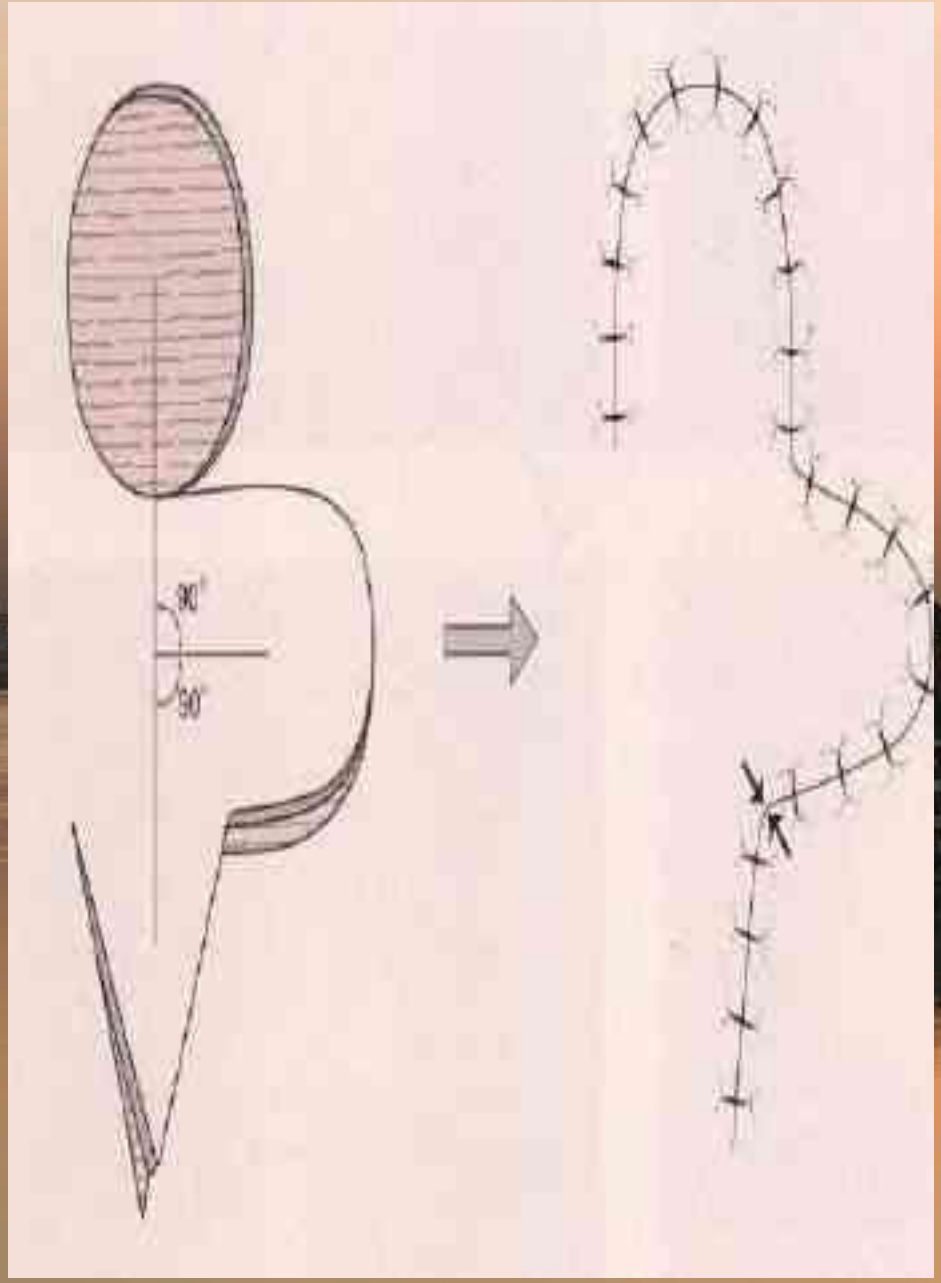


B. TRANSPOSITION FLAPS:

- It is a Rectangular flap
- e.g.: rhomboid (limberg) flap , bilobed flap




120°
60°
A
C
D
D'
LOOSE
SKIN
F
E'
E
D'
A
E'
D
F
E


90°
30°

❑ *Advancement flap:*

- Moved in straight line from the donor site to recipient site without lateral or rotational movement
- It include the following:

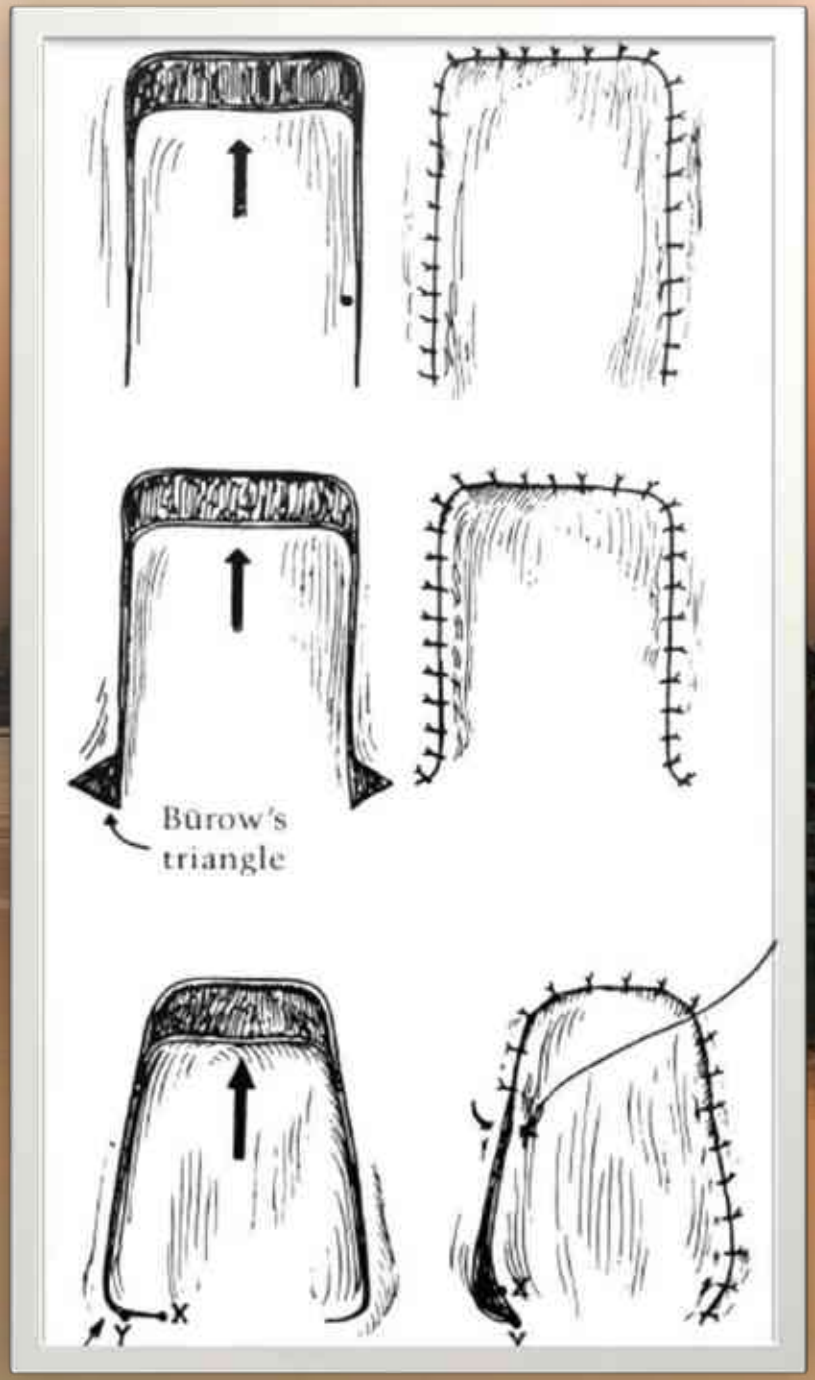
A. single pedicle advancement:

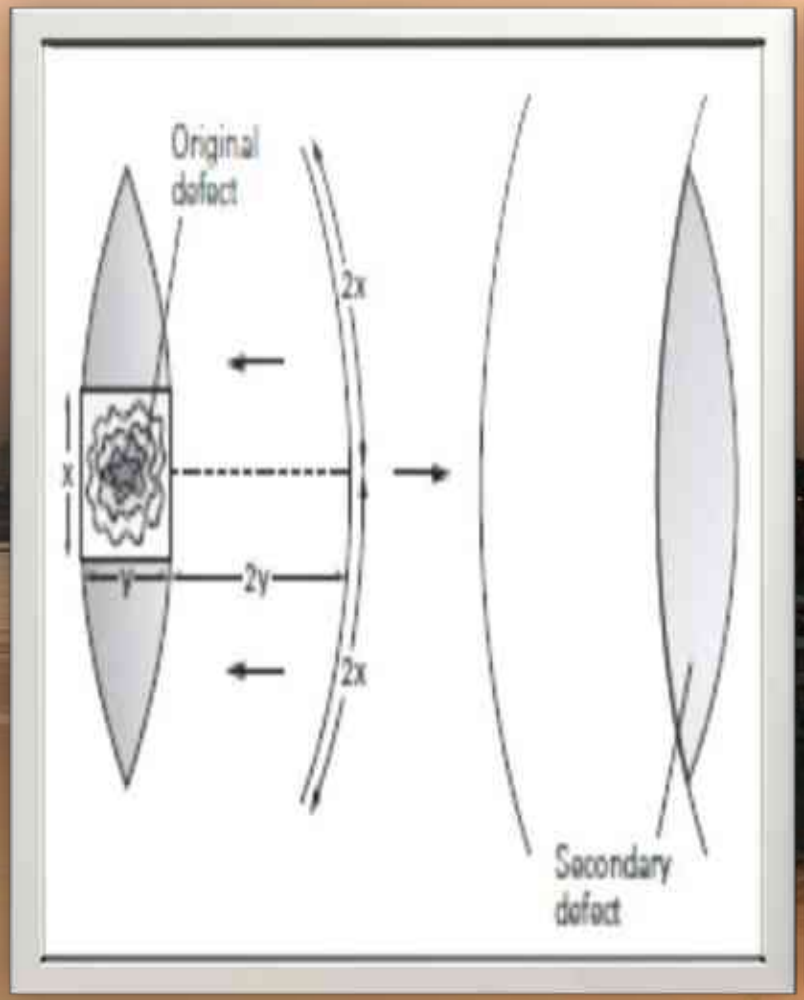
Moved forward by skin elasticity or excision of burrow triangle or by pantographic expansion

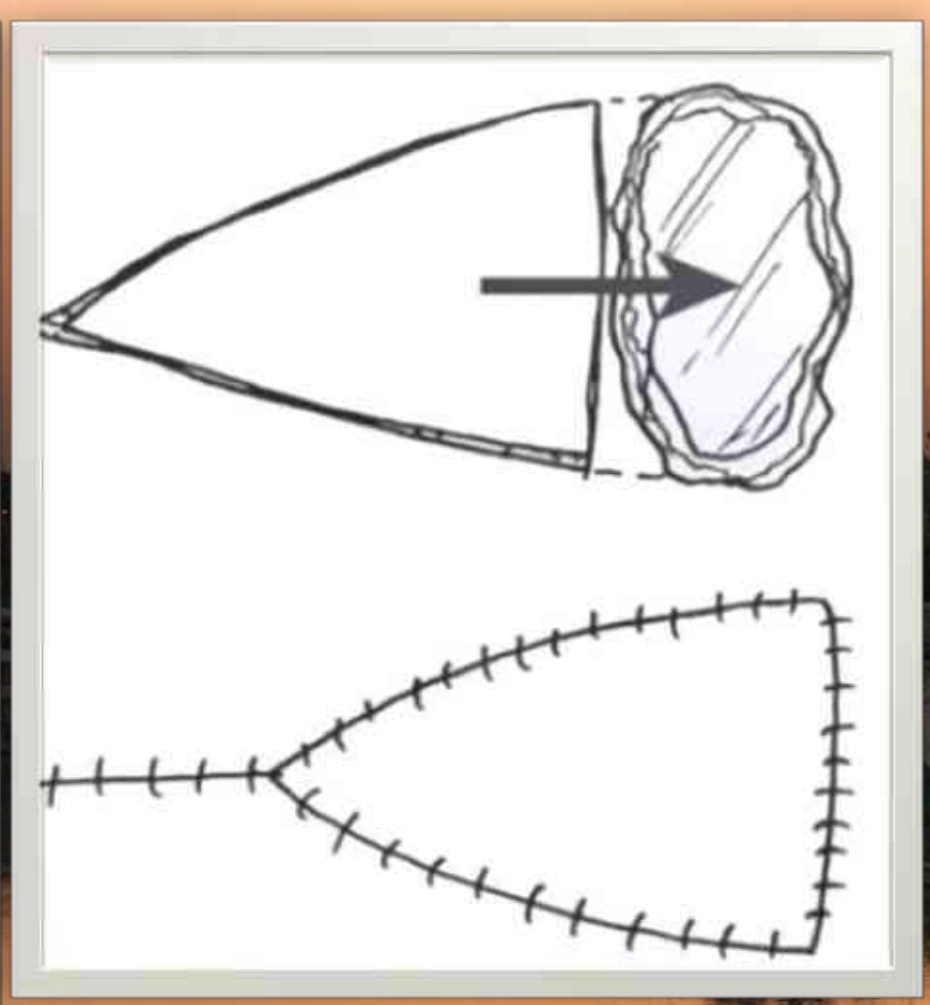
B. bipedicle advancement :

The incision is made parallel to the defect and the flap is undermined and advanced

Secondary defect is closed by skin graft


Bürow's
triangle
X
Y
X
Y

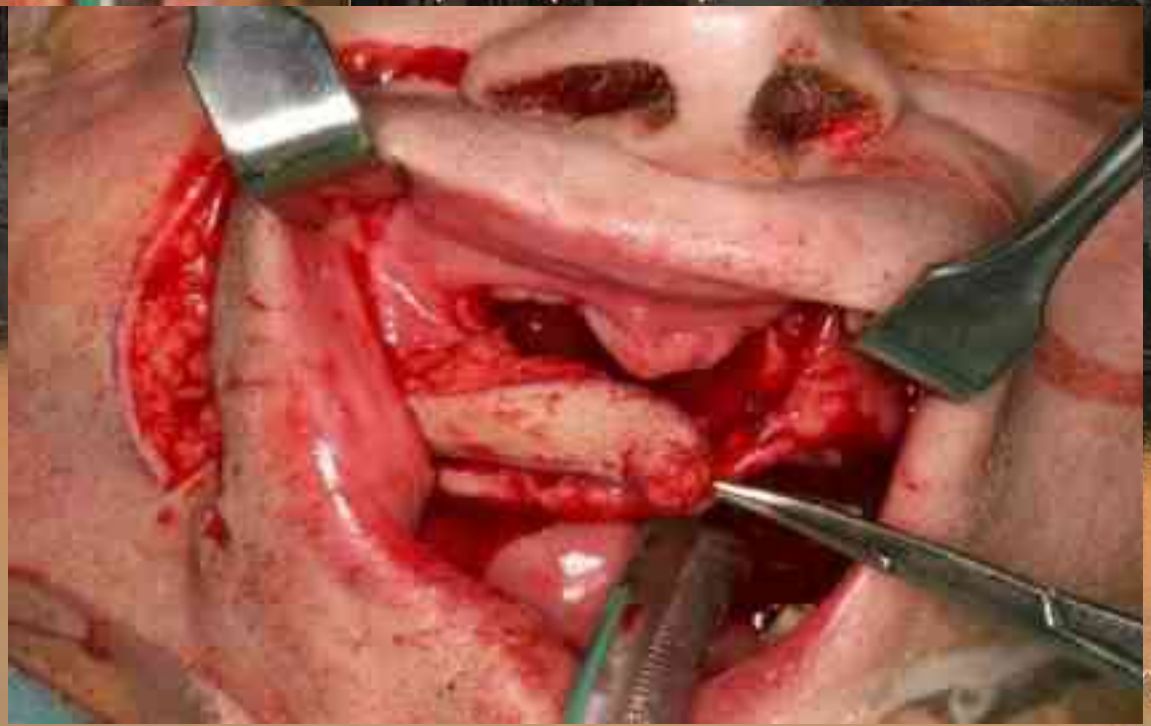

Original defect
2x
x
y
2y
2x
Secondary defect

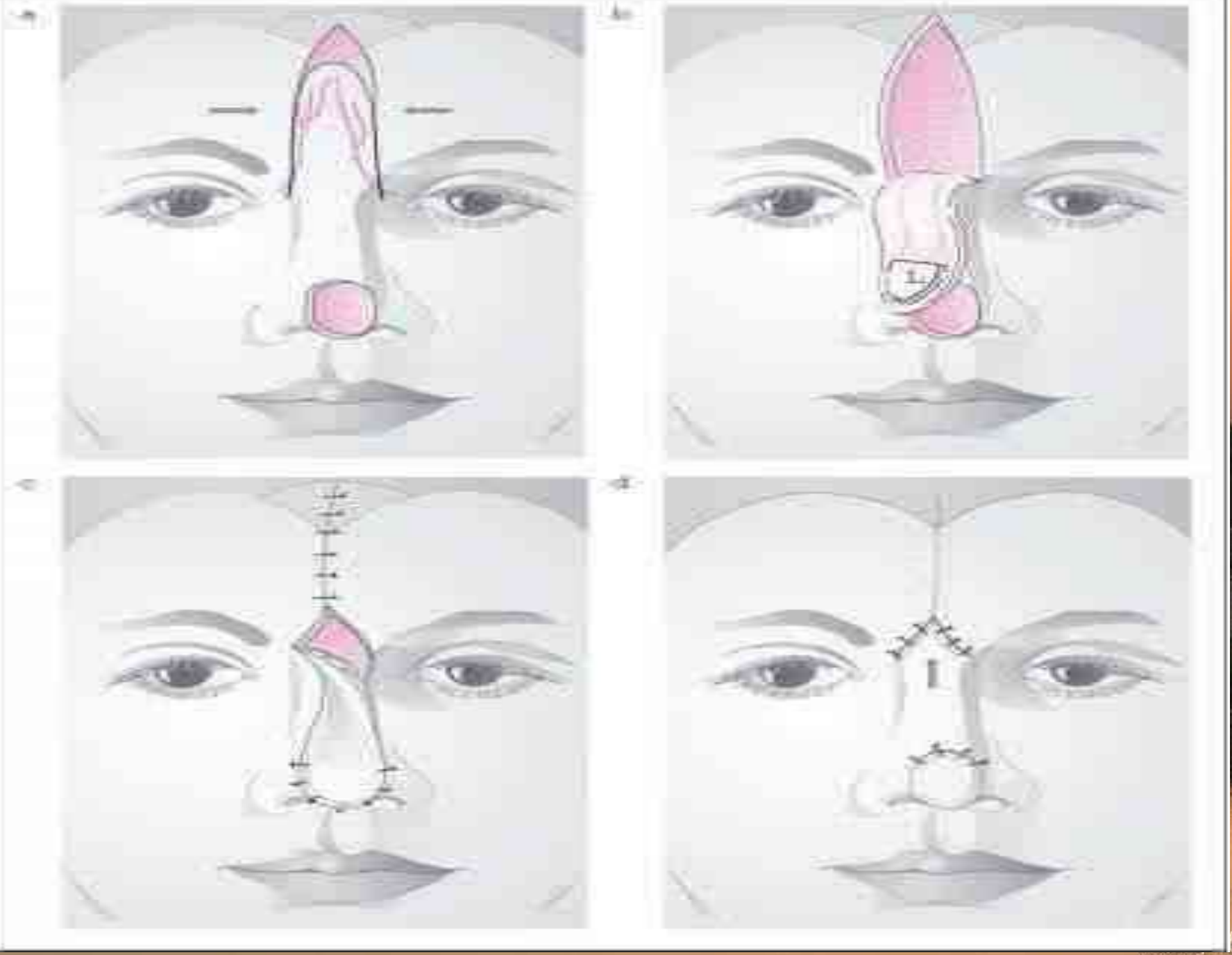


Regional flaps

Donar site situated at the same region of the defect

e.g.; nasolabial flap, forehead flap

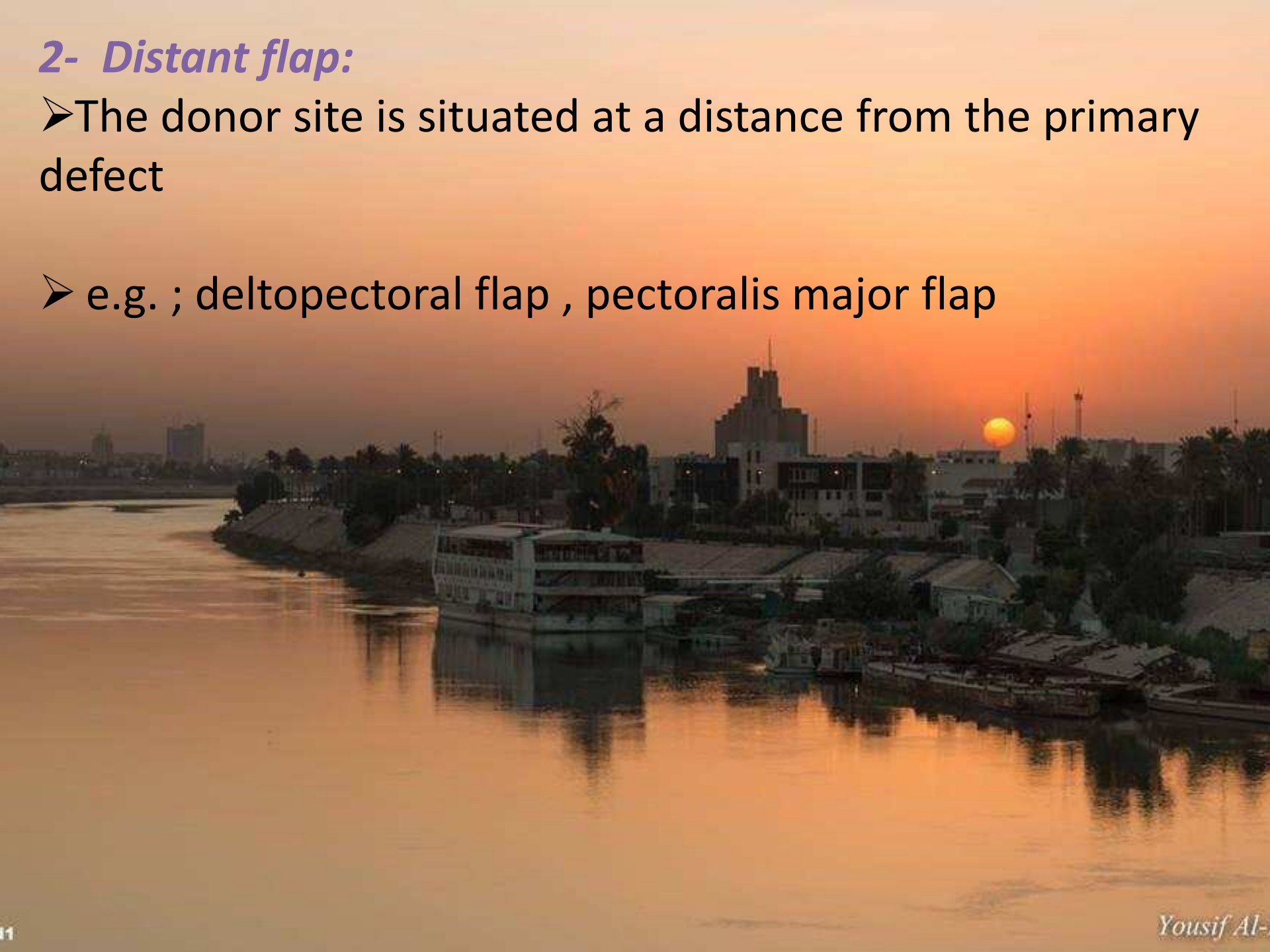


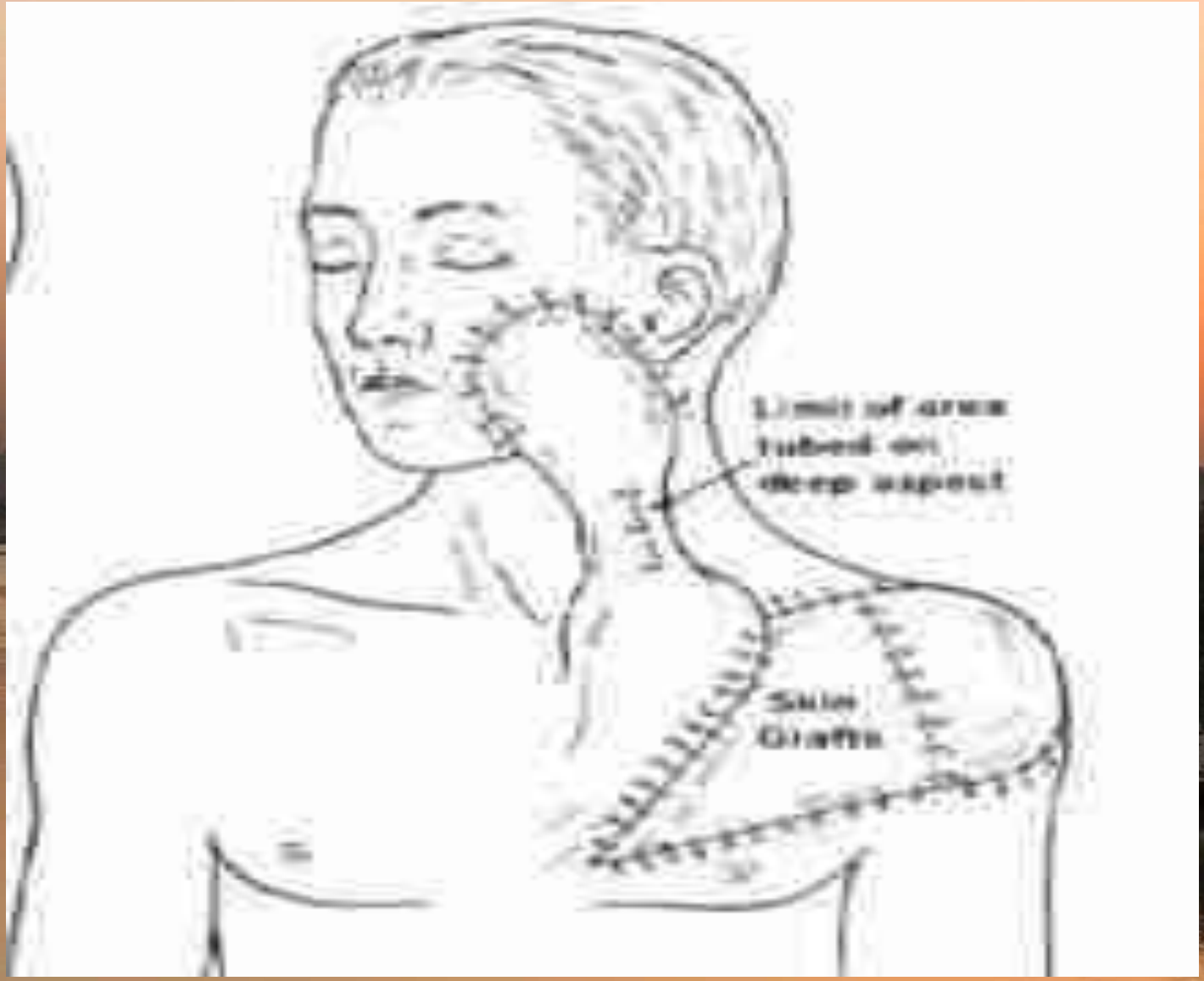


2- Distant flap:

- The donor site is situated at a distance from the primary defect

- e.g. ; deltopectoral flap , pectoralis major flap




Limit of area
lubed on
deep aspect
Skin
Grafts

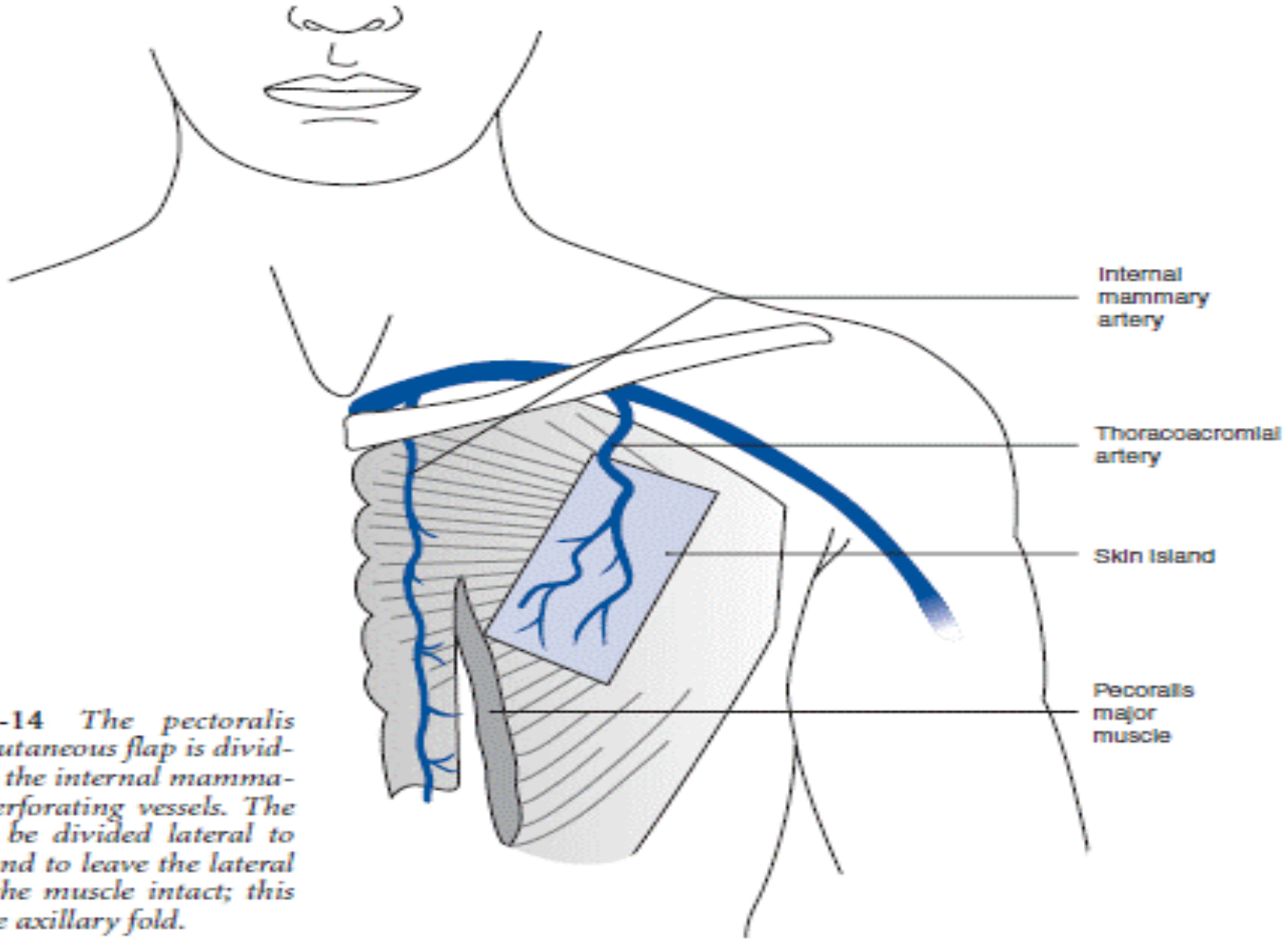
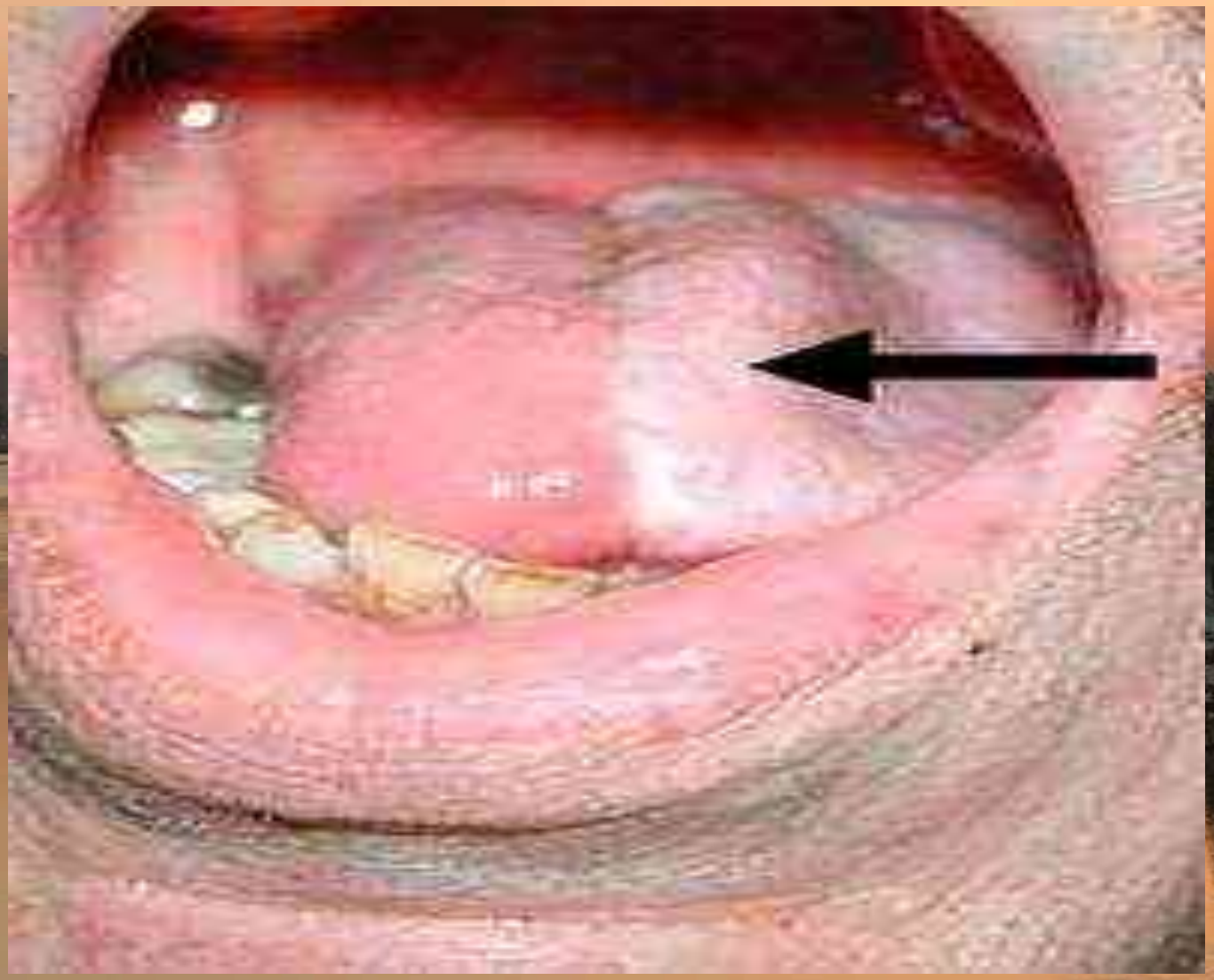


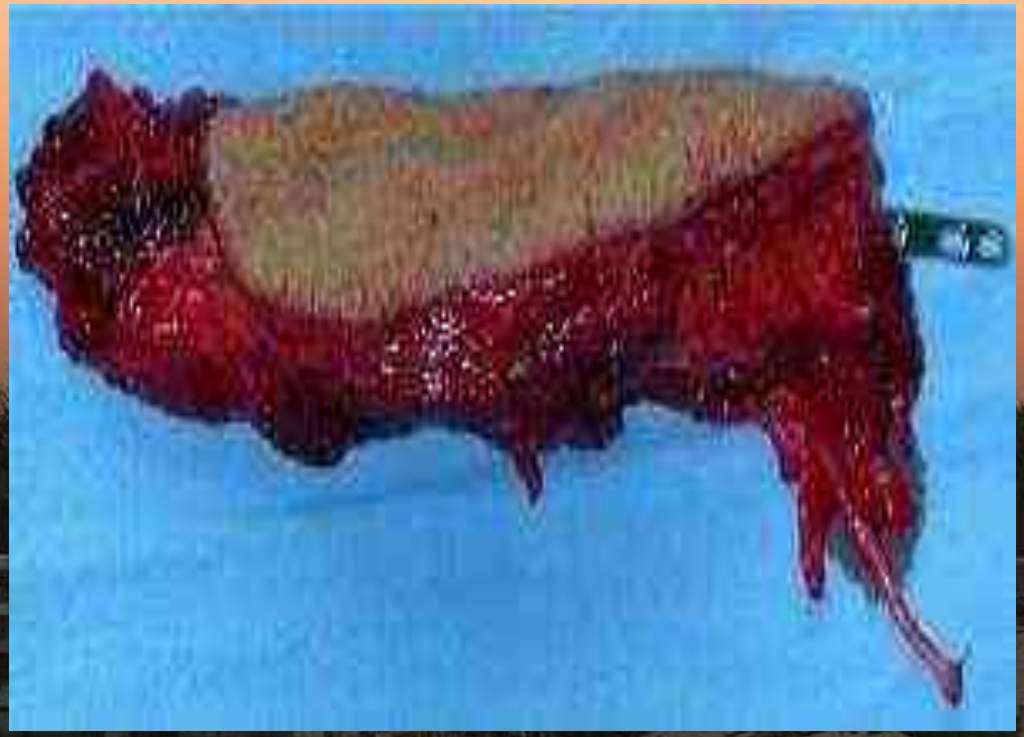
FIGURE **38-14** *The pectoralis major myocutaneous flap is divided lateral to the internal mammary artery perforating vessels. The muscle can be divided lateral to the skin island to leave the lateral portion of the muscle intact; this preserves the axillary fold.*

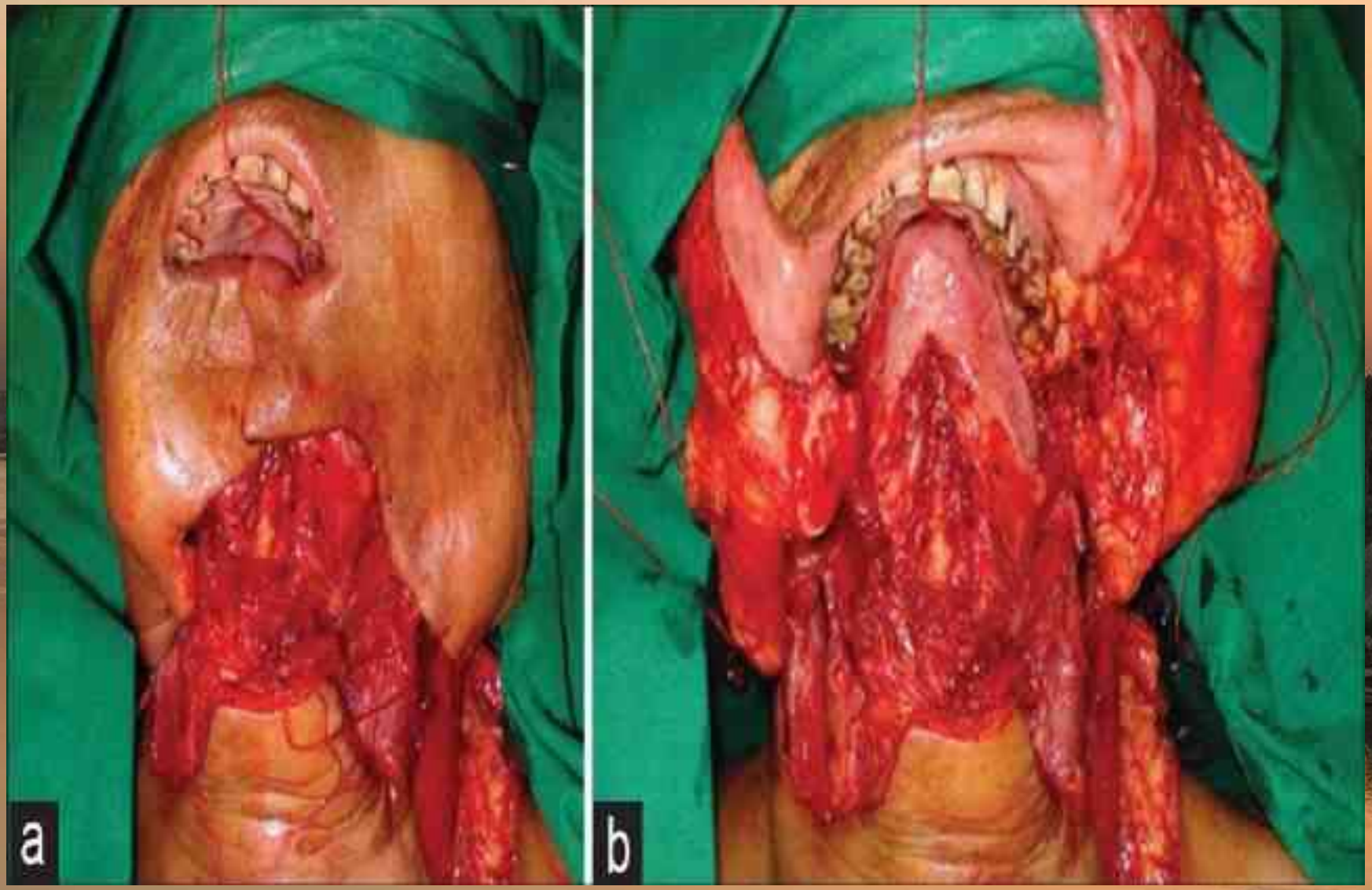
Free flap (microvascular free tissue transfer)

"transplantation" of tissue with completely detachment from its blood supply at the original location ("donor site") and then anstamosed with the blood vessels in the ("recipient site")

e.g. : fibula flap , radial forearm flap






a
b

THANK YOU FOR LISTENING

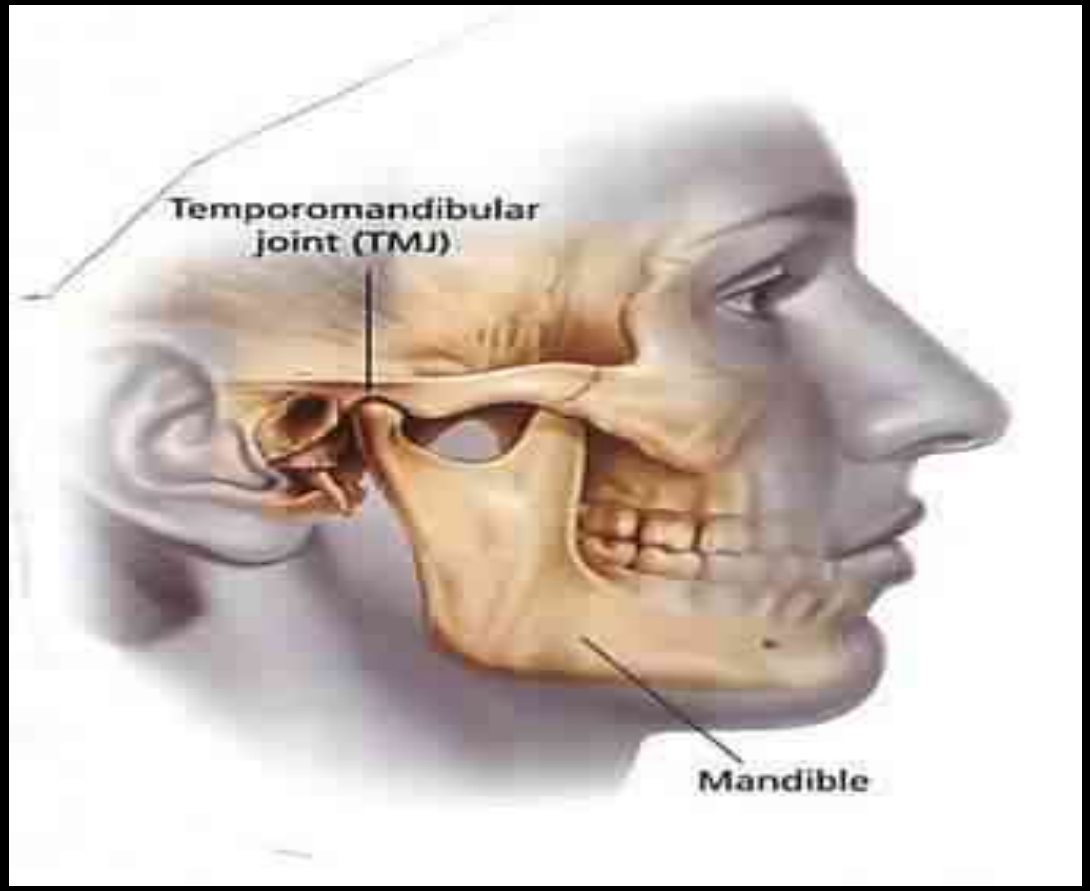
Temporomandibular Joint Disorders

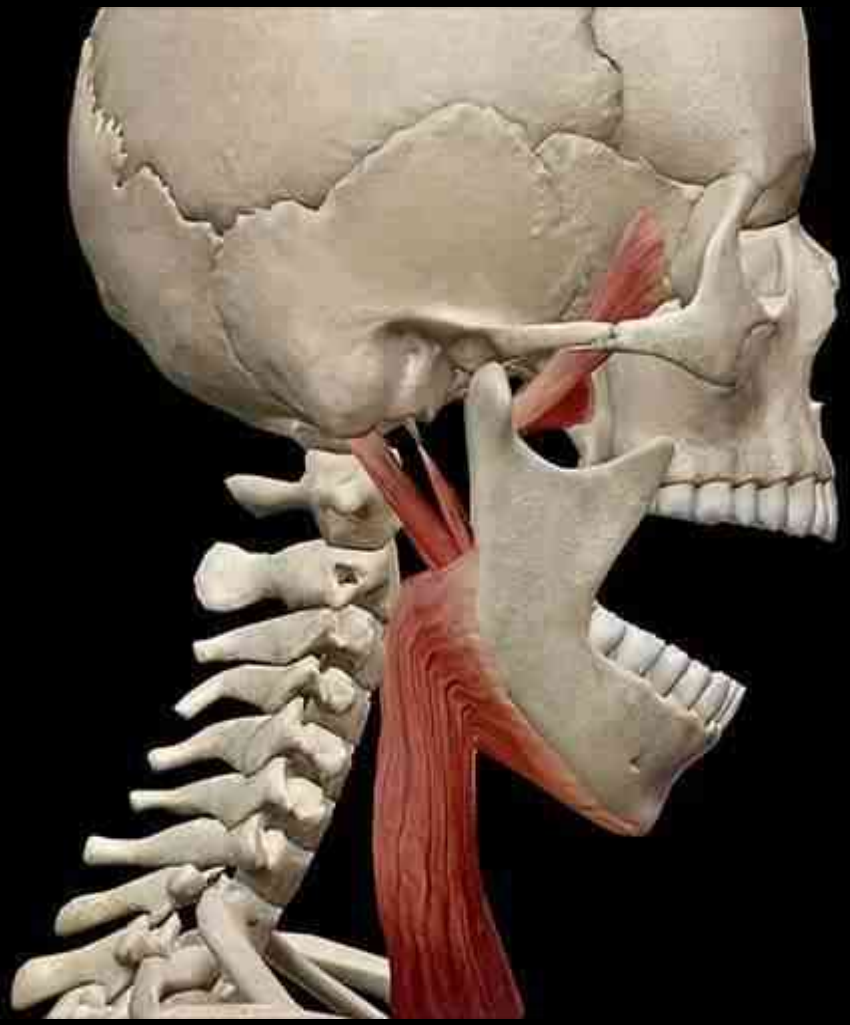
Dr.Mohammed Rhael Ali

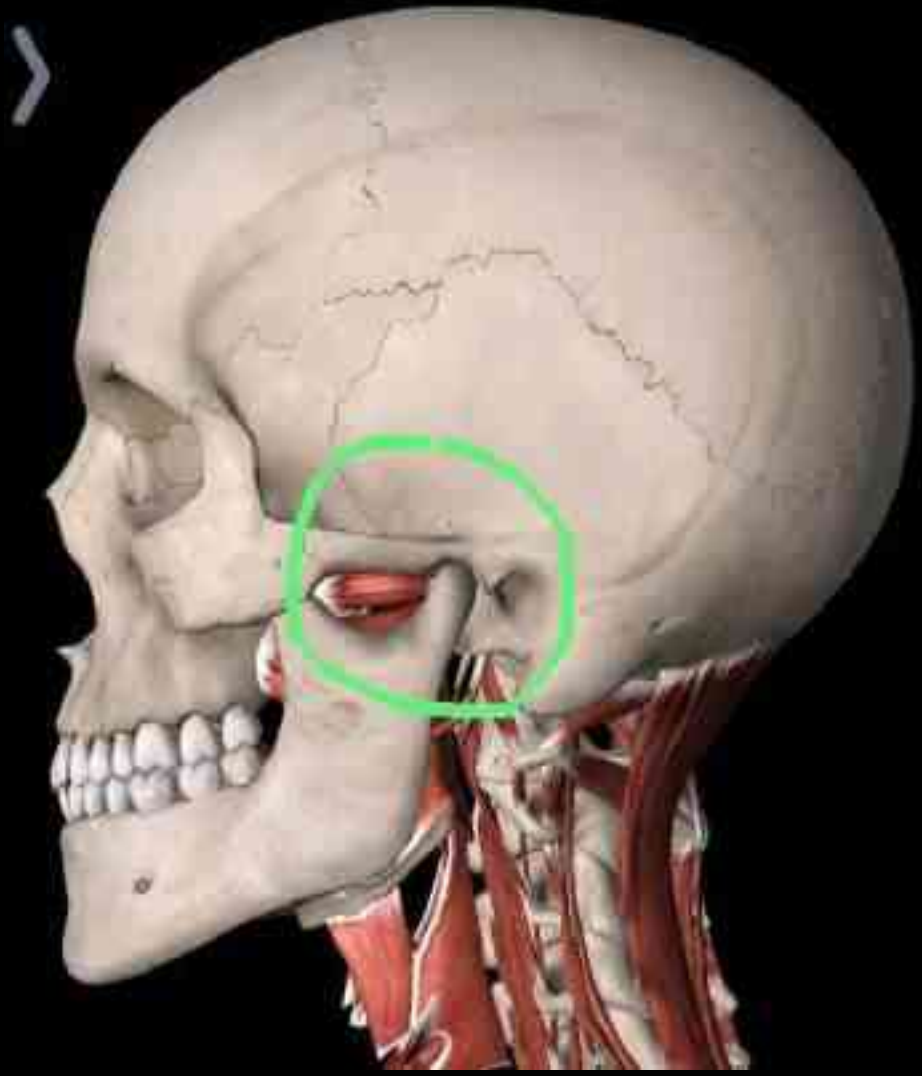
(Maxillofacial surgeon)

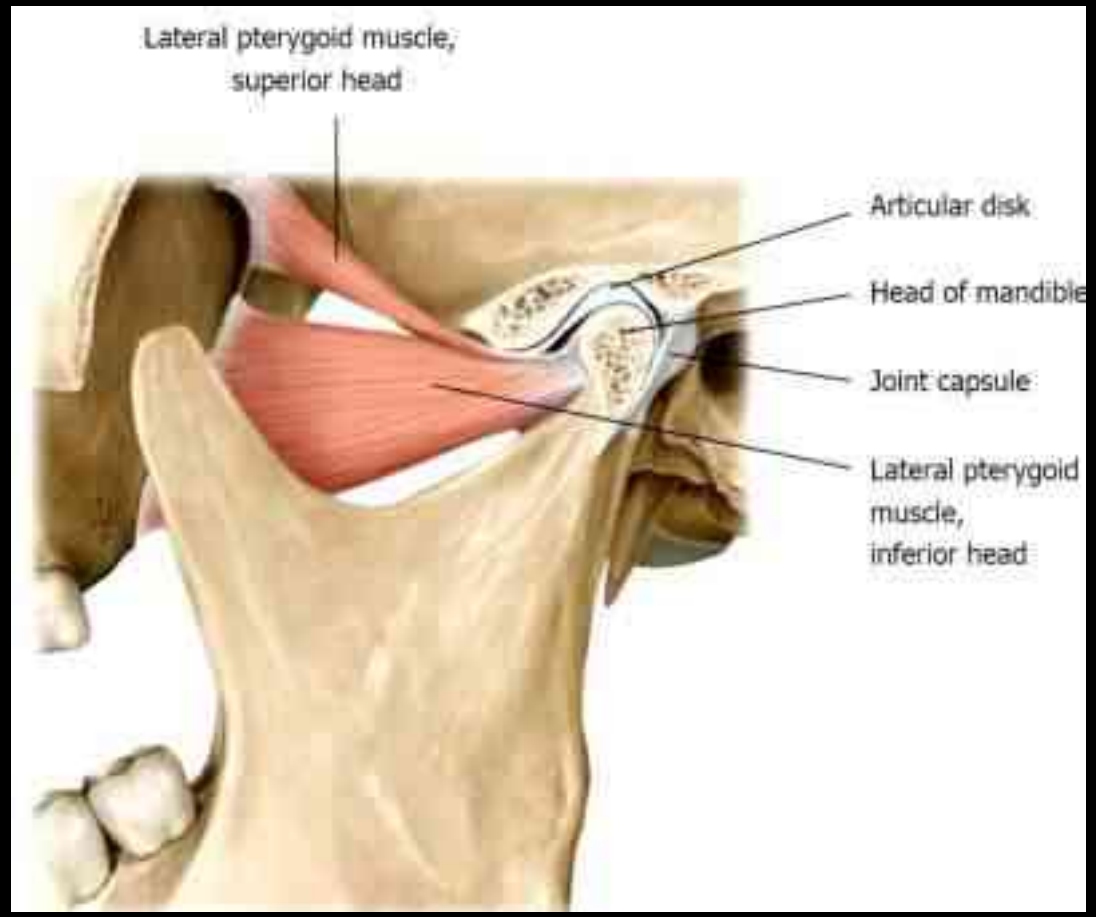
Tikrit dentistry college

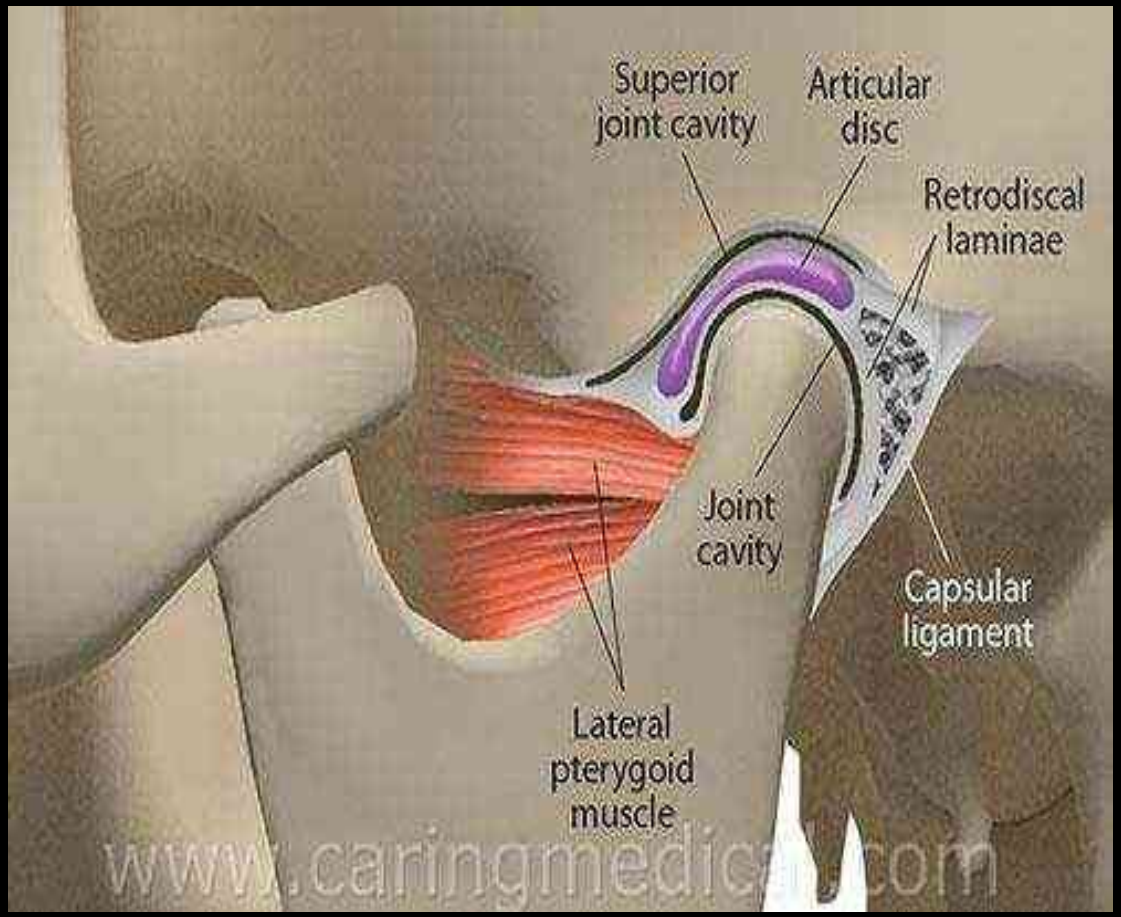
The temporomandibular joint (TMJ) is complex articulation between condylar head of the mandible and glenoid fossa of the temporal bone.

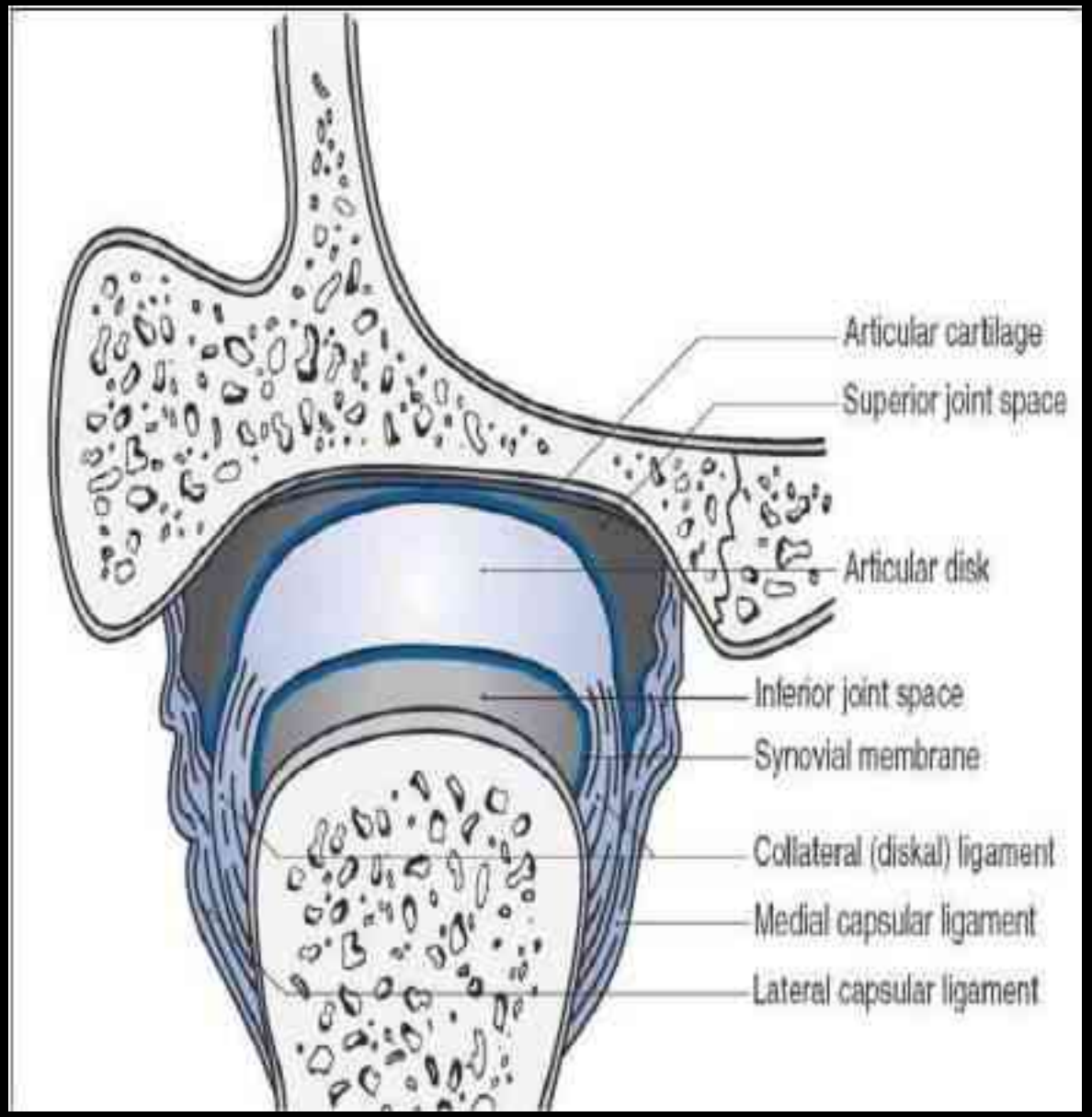


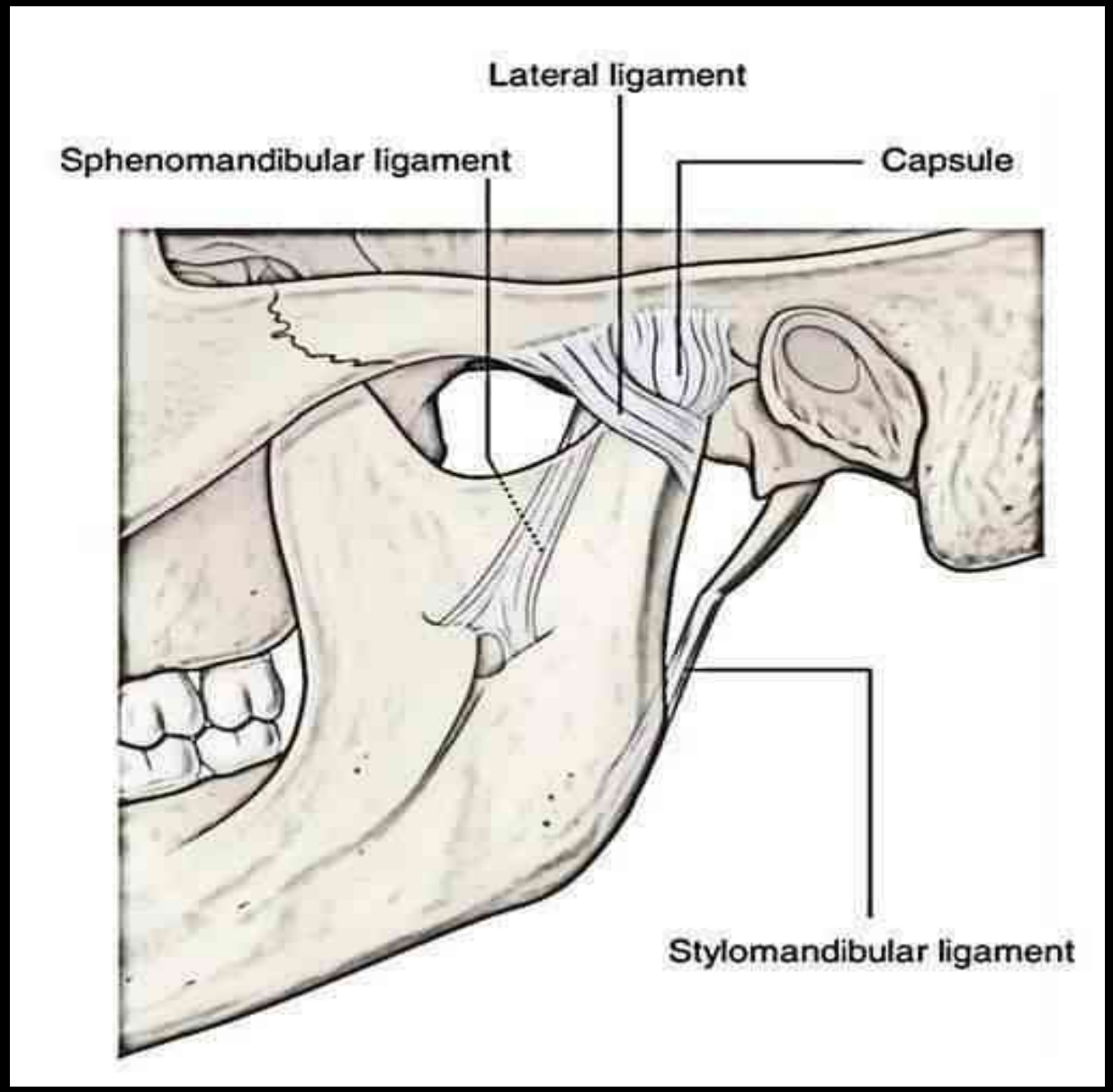





Lateral pterygoid muscle, superior head
Articular disk
Head of mandible
Joint capsule
Lateral pterygoid muscle, inferior head

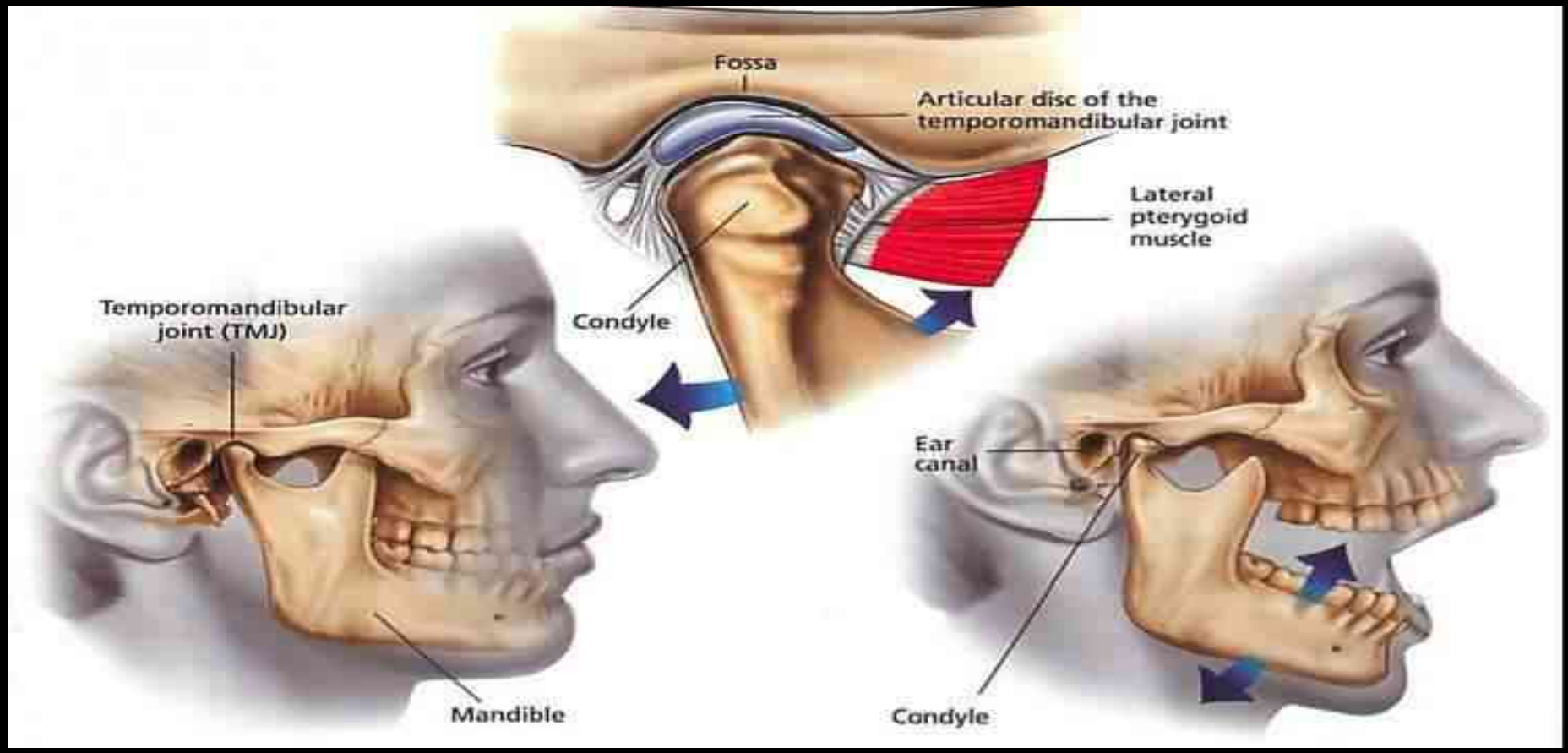

Superior joint cavity
Articular disc
Retrodiscal laminae
Joint cavity
Capsular ligament
Lateral pterygoid muscle
www.caringmedic


Articular cartilage
Superior joint space
Articular disk
Inferior joint space
Synovial membrane
Collateral (diskal) ligament
Medial capsular ligament
Lateral capsular ligament


Lateral ligament
Sphenomandibular ligament
Capsule
Stylomandibular ligament

TMJ disorders

- Temporomandibular joint and muscle disorders, commonly called “TMJ”,disorder are a group of conditions that cause pain and dysfunction in the jaw joint and the muscles that control jaw movement.

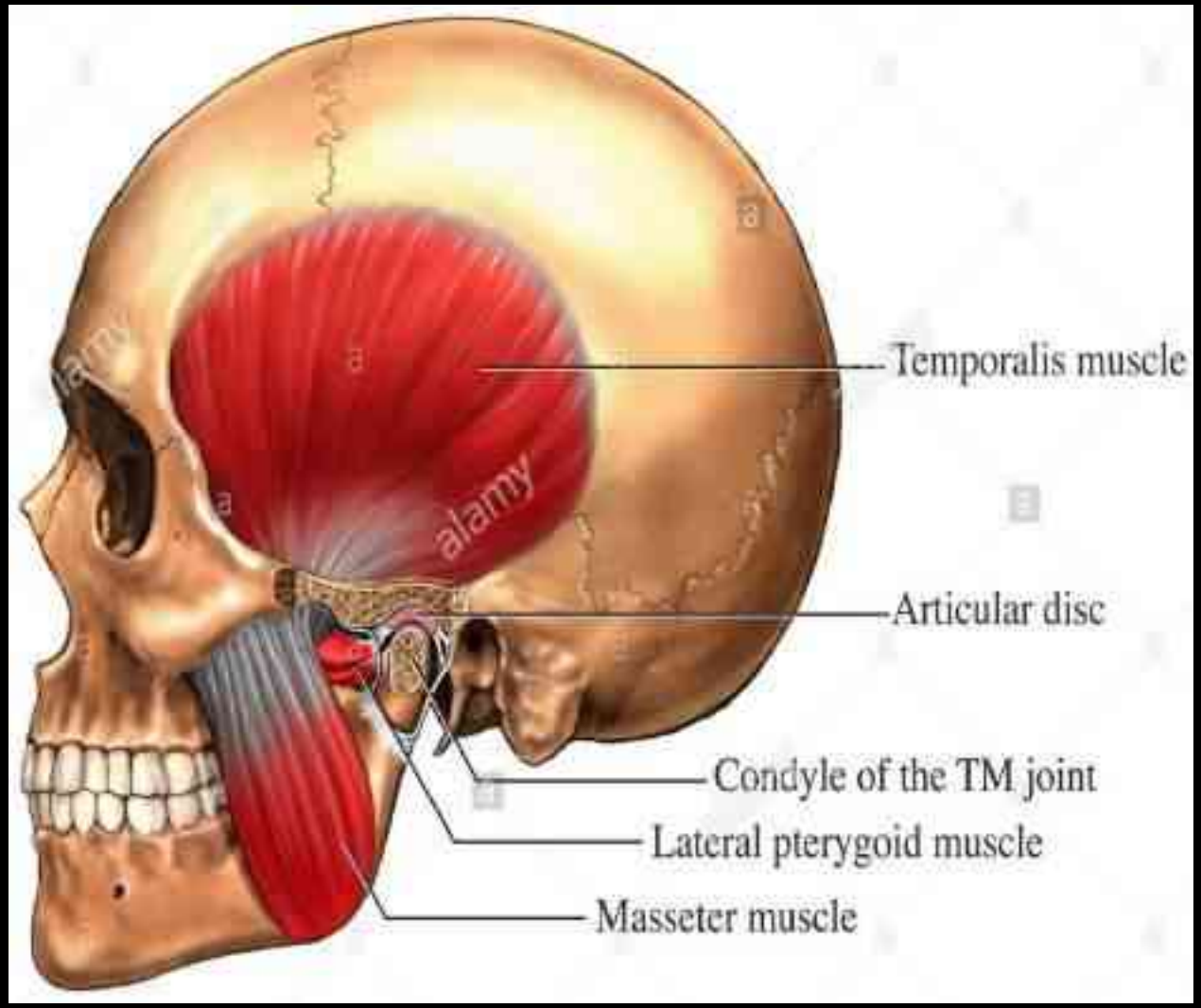


TMJ disorders

- **Myofascial pain** involves discomfort or pain in the
  - muscles that control jaw function.
- **Internal derangement** of the joint involves a displaced disc, dislocated jaw, or injury to the condyle.
- **Arthritis** refers to a group of degenerative/ inflammatory joint disorders that can affect the temporomandibular joint.

ETIOLOGY

1. TRAUMA
2. BAD BITE- CLENCHING, GRINDING
3. HORMONAL
4. GENETIC




Headaches/Migraines
Eye Pain
Ear Pain
or Tinnitus
Jaw Pain
Dental Damage
Neck
& Shoulder Pain

Signs and Symptoms

Head Pain, Headache
1. Forehead
2. Temples
3. "Migraine" type
4. Sinus type
5. Shooting pain up back of head
6. Hair and/or scalp painful to touch

Eyes
1. Pain behind eyes
2. Bloodshot eyes
3. May bulge out
4. Sensitive to light

Mouth
1. Discomfort
2. Limited opening of mouth
3. Inability to open smoothly
4. Jaw often deviates to the affected side upon opening
5. Locks shut or open
6. Can't find bite

Teeth
1. Clenching, grinding at night
2. Localized or generalized soreness of teeth
3. Thermal sensitivity
4. Abfractions in the gingival thirds
5. Localized or generalized wear facets

Ear Problems
1. Hissing
2. Decreased hearing
3. Ear pain, ear ache (no infection)
4. Clogged, "itchy" ears
5. Vertigo, dizziness
6. Tinnitus

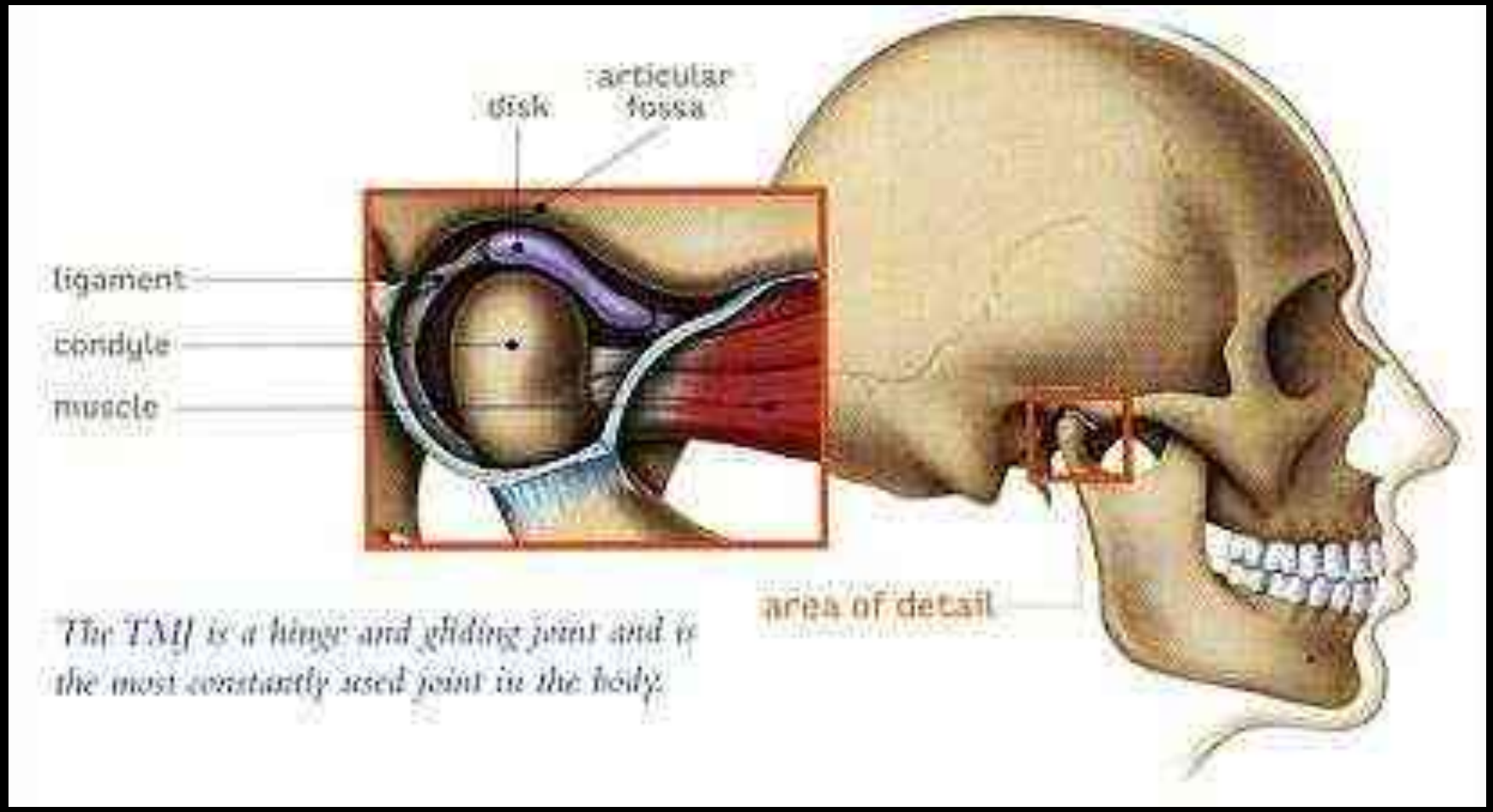
Jaw Problems
1. Clicking, popping jaw joints
2. Grating sounds
3. Pain in cheek muscles
4. Uncontrollable jaw and/or tongue movements

Ear Problems
1. Lack of mobility, stiffness
2. Neck pain
3. Tired sore muscles
4. Shoulder aches and backaches
5. Arm and finger numbness and/or pain

Throat
1. Swallowing difficulties
2. Laryngitis
3. Sore throat (with no infection)
4. Voice irregularities
5. Frequent coughing or constant clearing of throat
6. Constant feeling of foreign object in throat

Evaluation:

this evaluation include a thorough history, physical examination of the masticatory system and some types of routine TMJ radiography

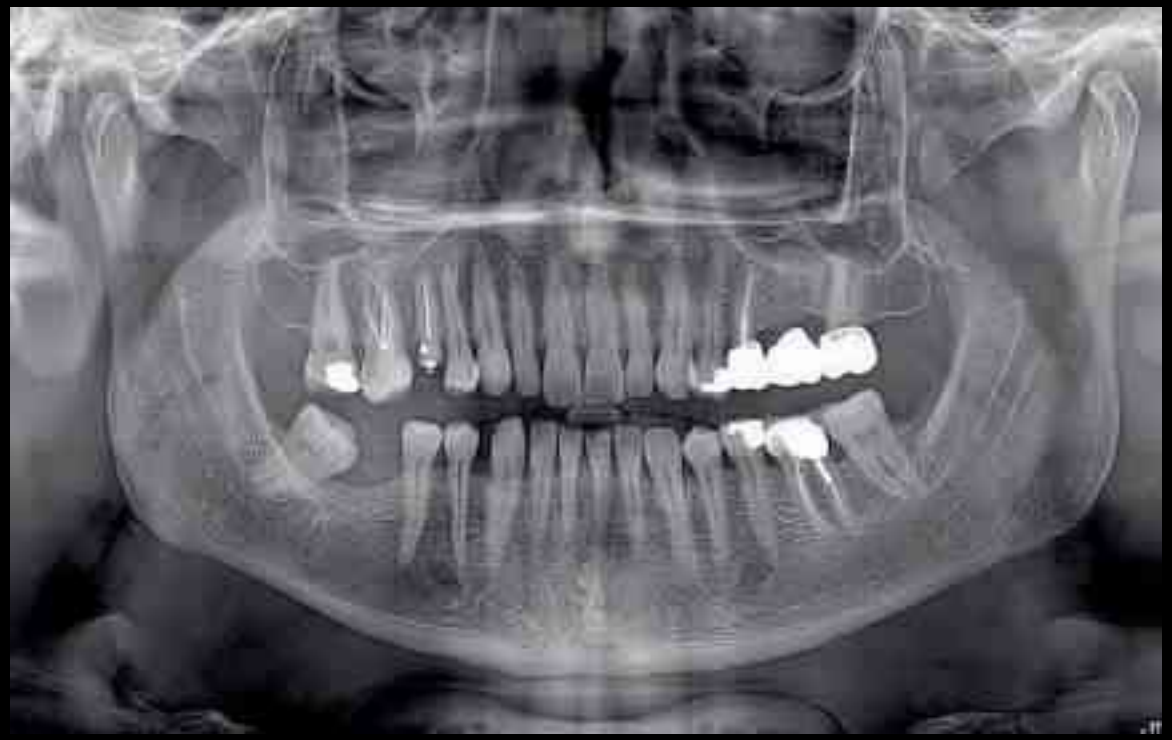


- Radiographical evaluation:

the use of radiographs ,should be based on the patient's signs and symptoms instead of routinely ordering standard set of radiographs.

panoramic radiograph :

this is one of the best overall radiographs for screening evaluation of TMJ this allow to see both joints on the same films which provide a good assessment of the bony anatomy of the condyle and glenoid fossa and other areas such as the coronoid process



Tomograms:

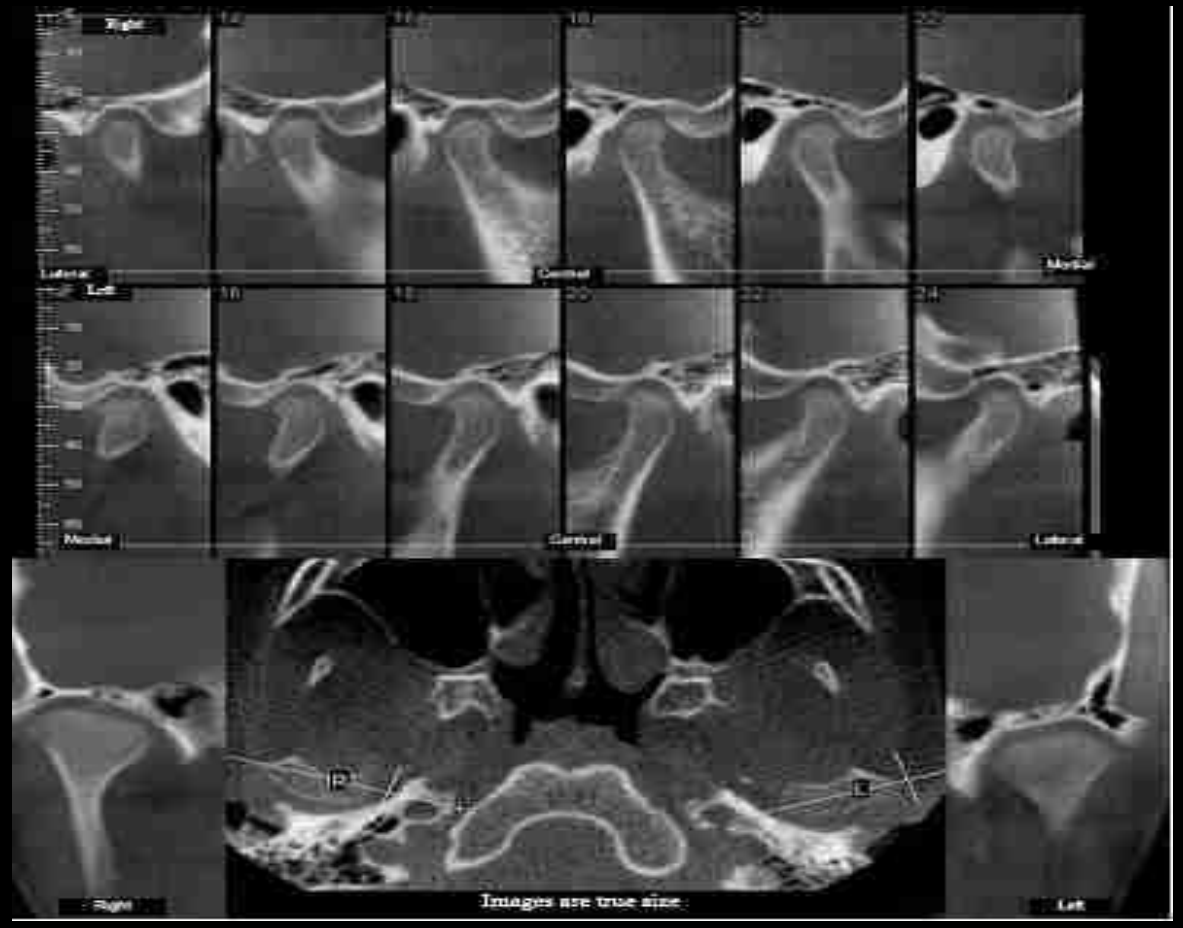
this technique allows radiographical sectioning of the joint at deferent levels of the condyle and fossa complex which provides individual views visualizing the joint in slices from the medial to the lateral pole. these views eliminate bony super impostion, and overlap and provides a relatively clear picture of the bony anatomy of the joint.

- TMJ arthrography :
- this involves the injection of contrast material into the inferior or superior spaces of the joint after which the joint is radiographed and this well allows evaluation of the position and morphology of the articular disk and to demonstrates the presence of perforations and adhesions of the disk or its attachments.

Computed tomography:

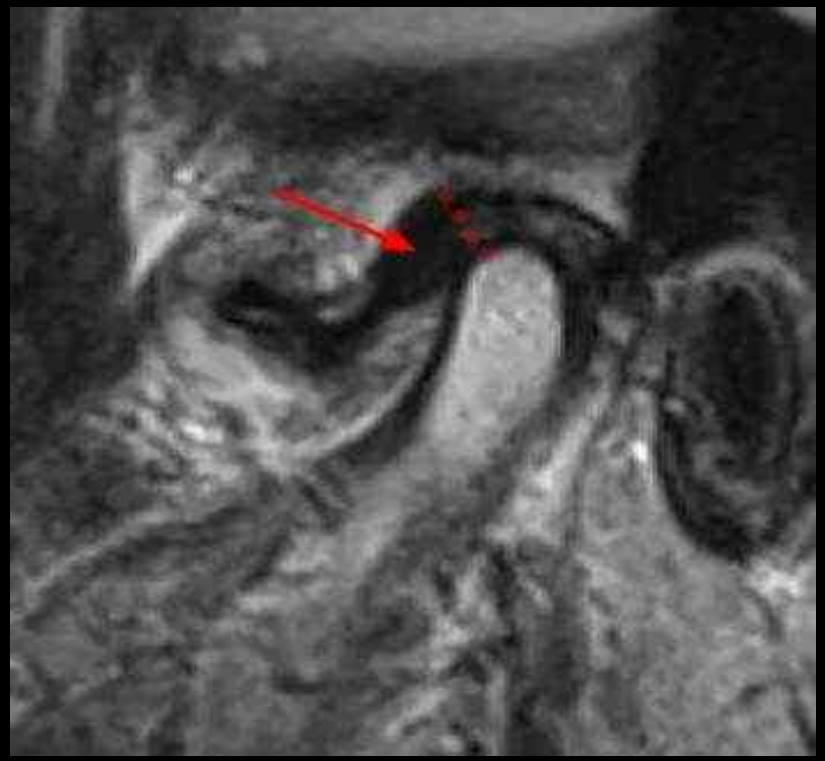
provides evaluation of a variety of hard and soft tissue pathology in the joint which can be done from a single radiation exposure.

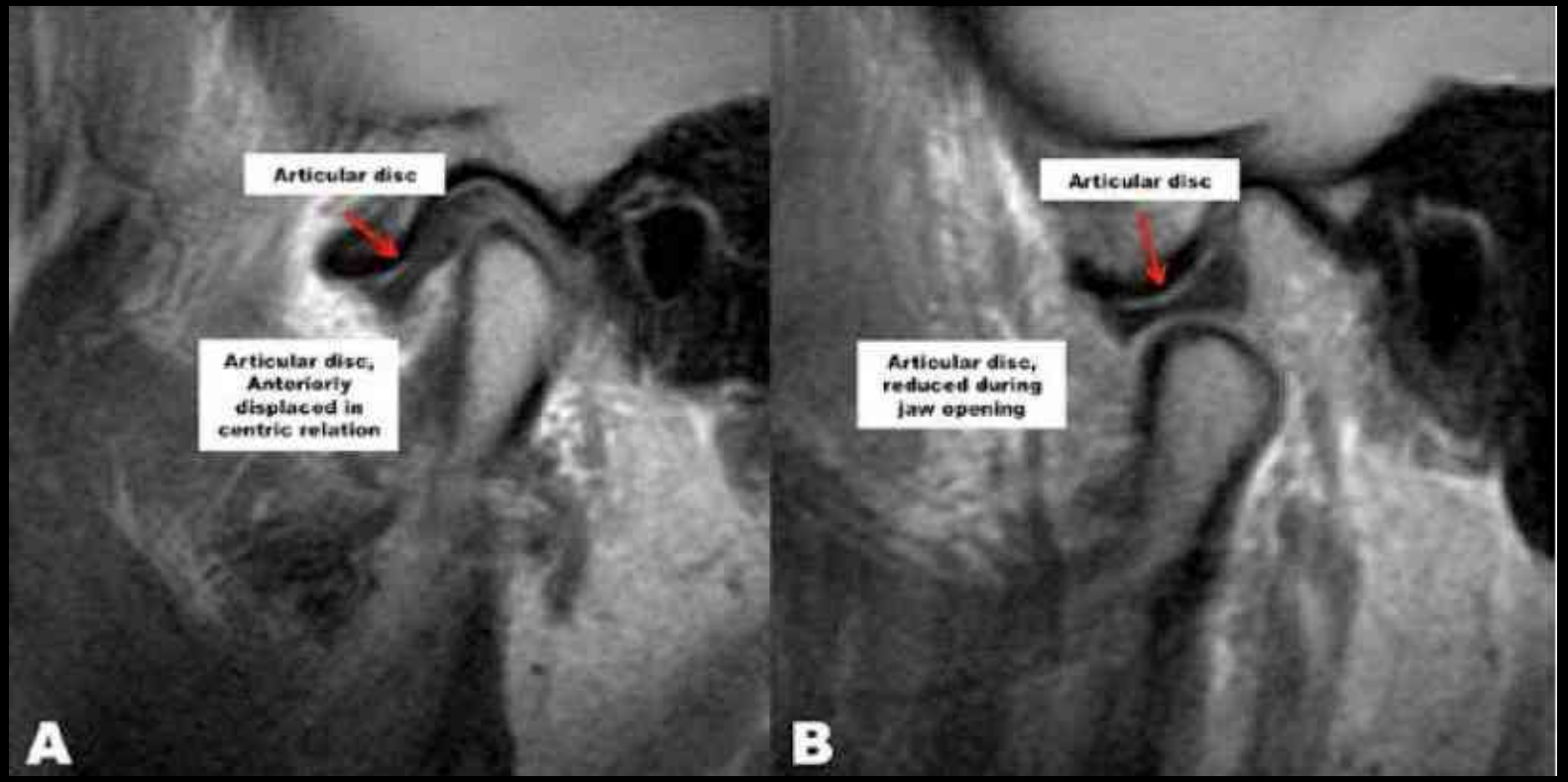
+ CT images provide the most accurate radiographic assessment of the bony components of the joint



magnetic resonance imaging:

which is most effective diagnostic imaging technique to evaluate TMJ soft tissue (intra-articular soft tissue) and for disk morphology and position with the fact that this technique does not use ionizing radiation is a significant advantages




Articular disc
Articular disc, Anteriorly displaced in centric relation
A
Articular disc
Articular disc, reduced during jaw opening
B

TMJ disorders

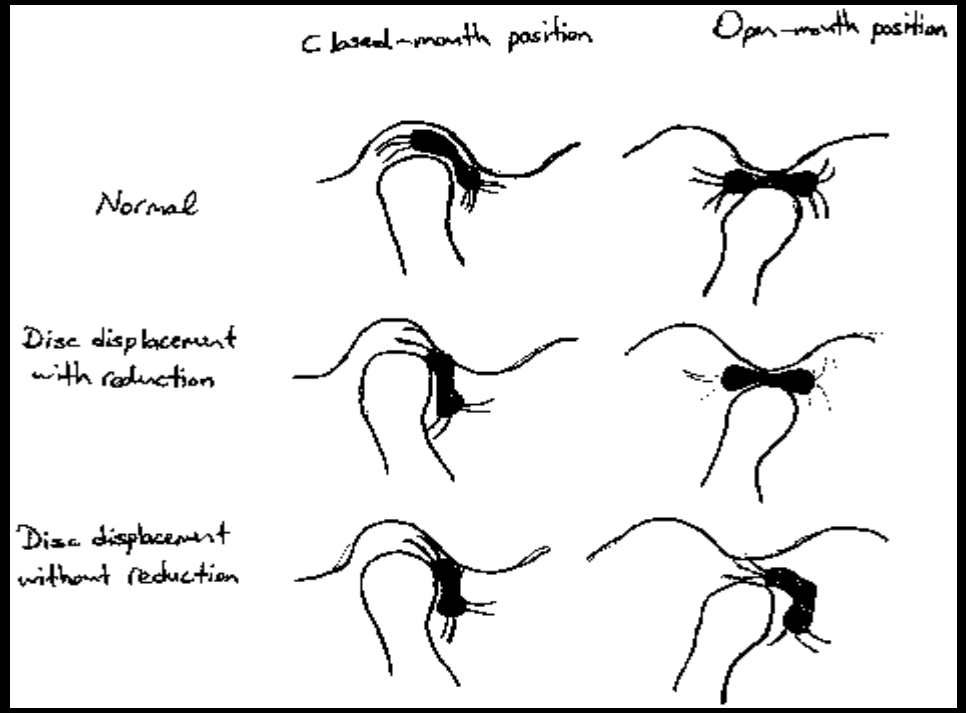
MYOFASCIAL PAIN DYSFUNCTION SYNDROM

Clinicl features :

Muscels of mastication: Myofascial pain(tenderness or dull aches around TMJ including ear.

INTERNAL DERRANGMANT

- Internal derangement of the temporomandibular joint (TMJ) may be defined as a disruption within the internal aspects of the TMJ in which there is a displacement of the disc from its normal functional relationship with the mandibular condyle and the articular portion of the temporal bone.



Stage One

Early reducing disk displacement

Stage two

Late reducing disk displacement

Stage three

Non reducing disk displacement : acute /subacute

Stage four

Non reducing disk displacement : chronic

Stage five

Non reducing disk displacement : chronic with osteoarthritis

TREATMENT OF INTERNAL TMJ DERANGEMENT

Analgesics as needed

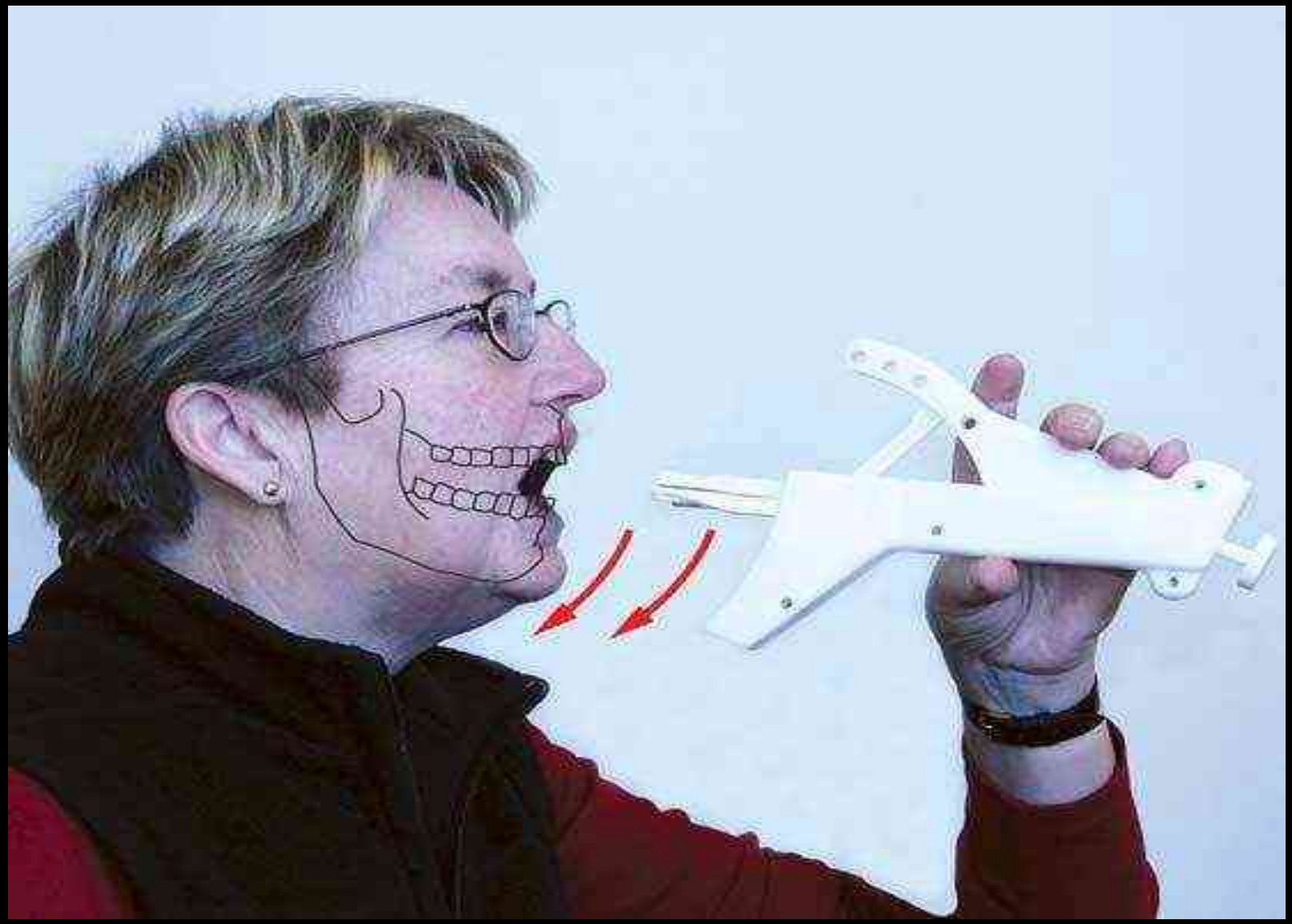
Sometimes nonsurgical treatments such as exercising devices (eg, passive jaw motion devices) or anterior repositioning appliances

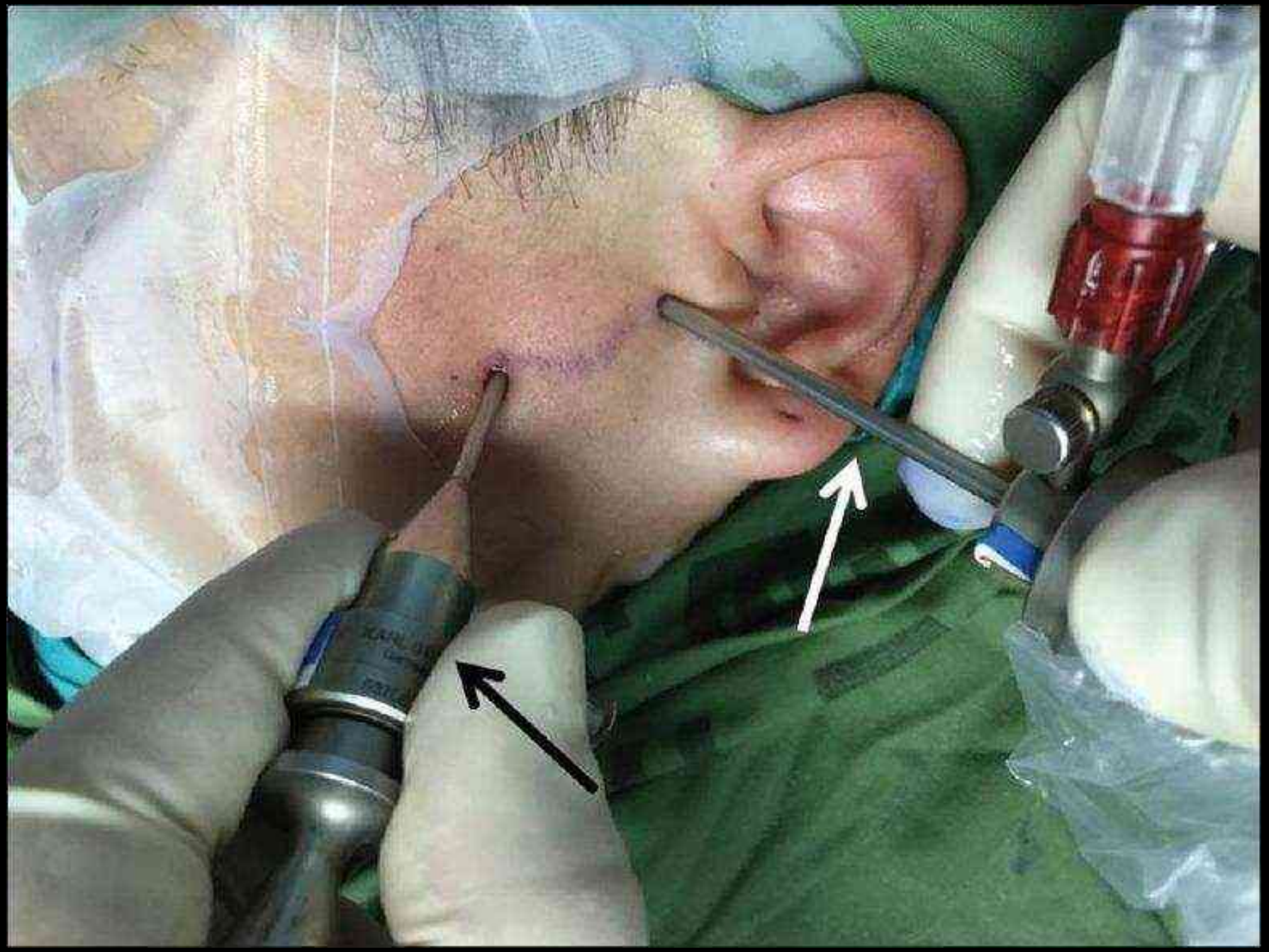
Botox injection

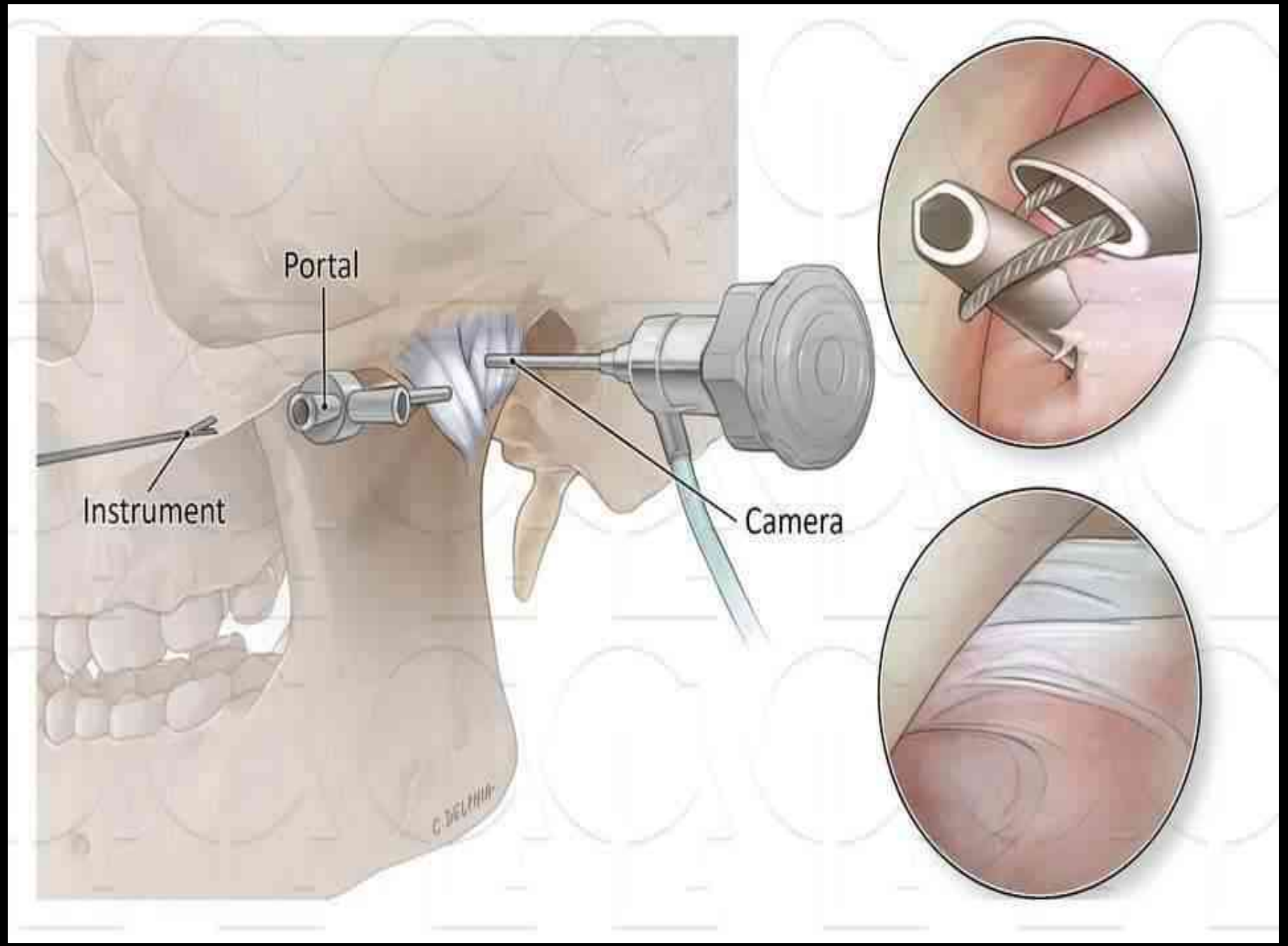
Arthrocentensis

Surgery if conservative treatment fails

Sometimes corticosteroid injection for capsulitis





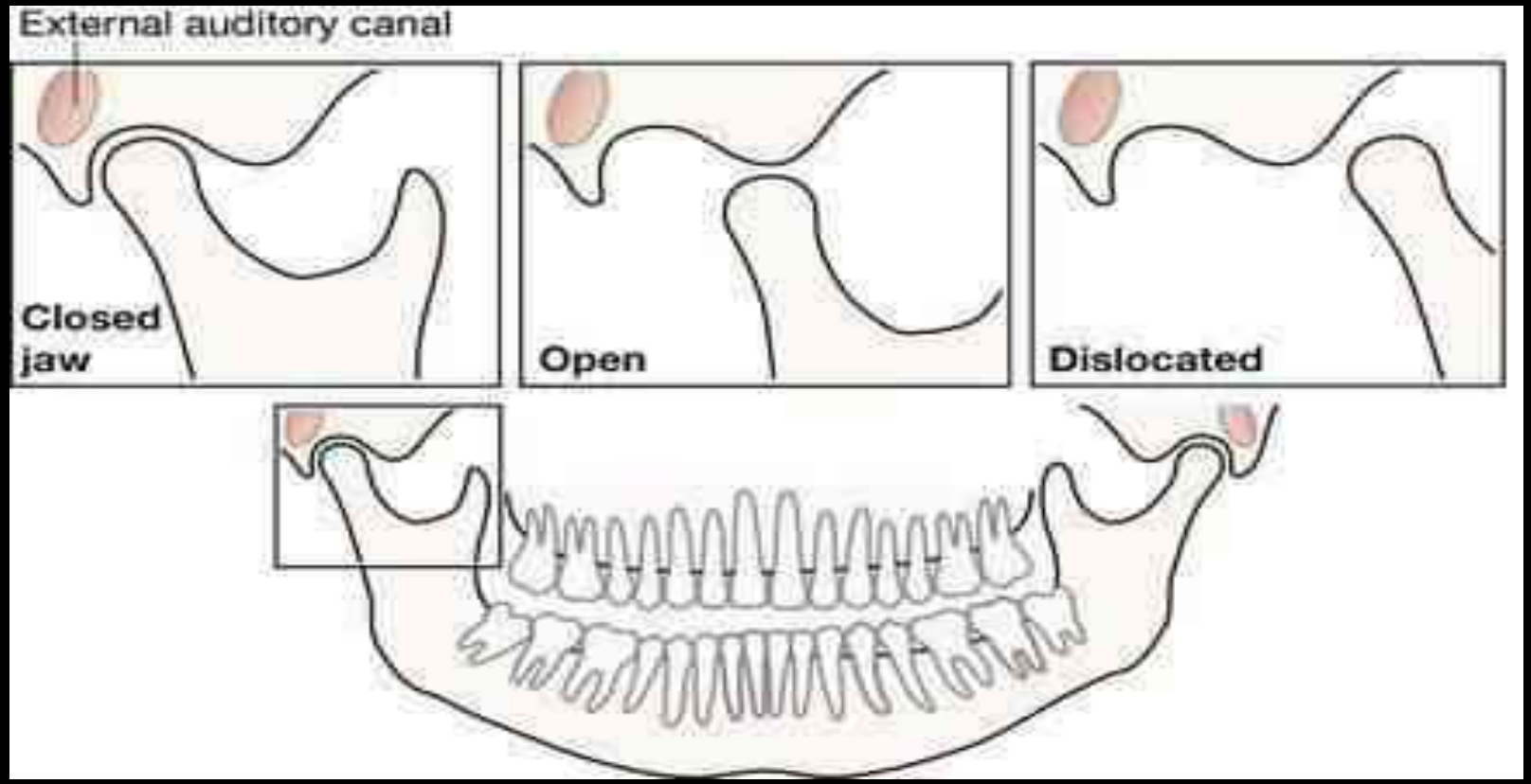

Portal
Instrument
Camera

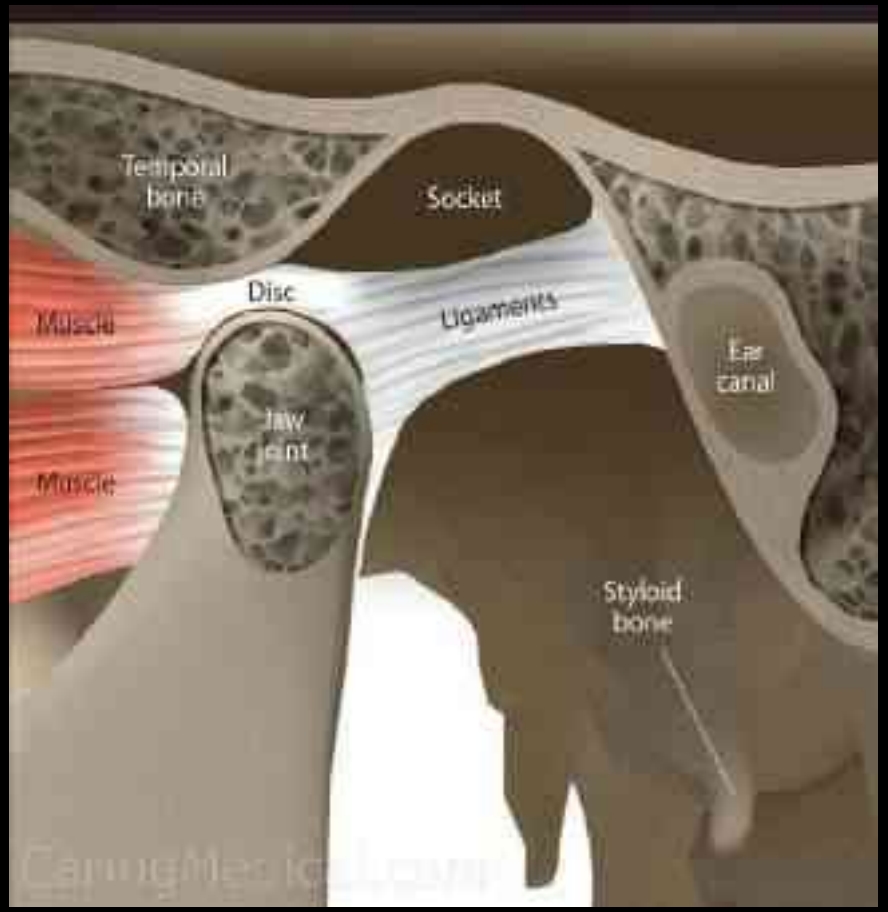
Surgery

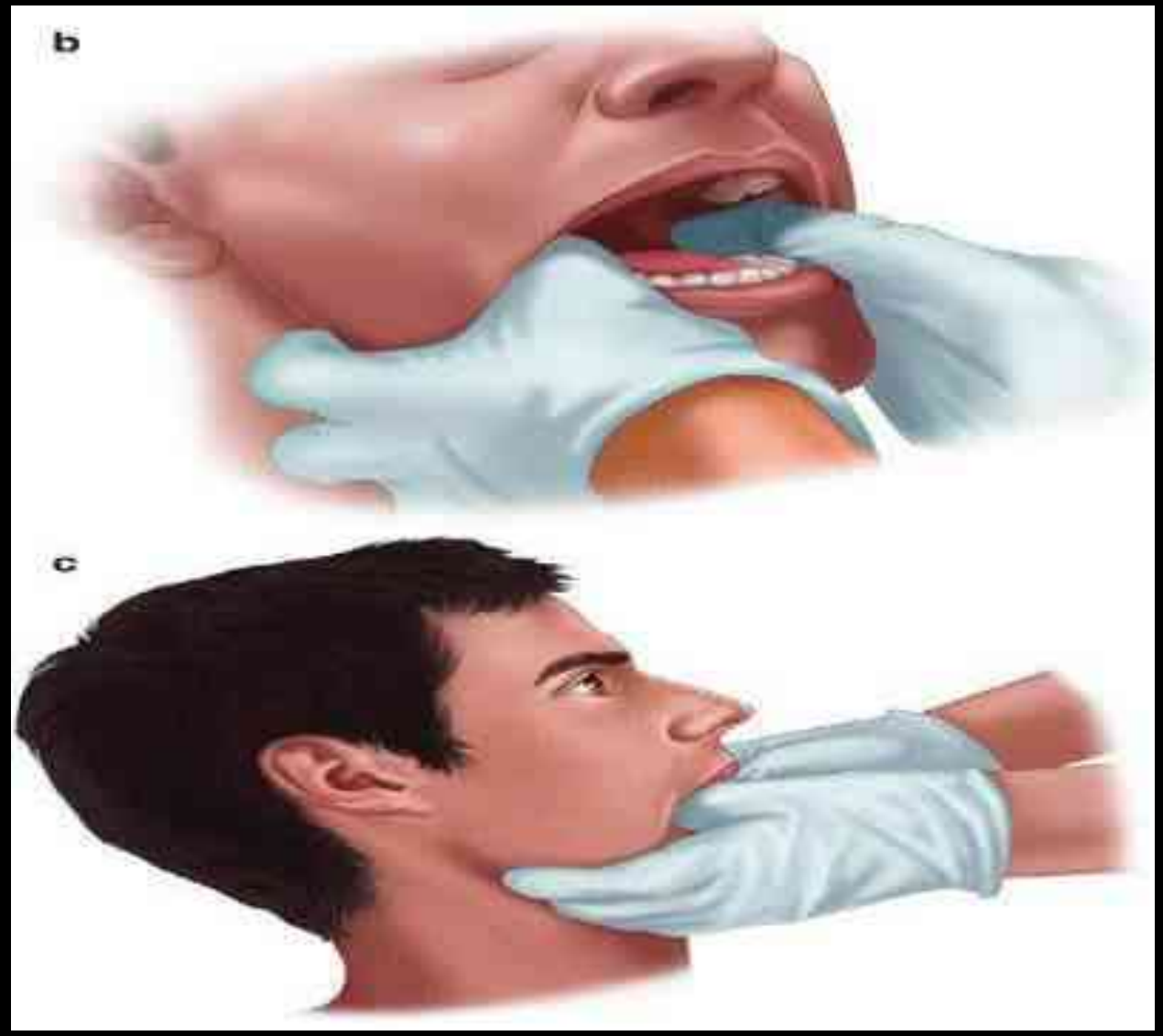
1. Disc repositioning(discopexy)
2.Disc repositioning & discoplasty.
3. Disc repositioning & arthroplasty for condyle or fossa.
4. Disc repair.
5. Discectomy
6. Discectomy with replacement by:
Temporalis muscle/fascia flap
Ear cartilage
Dermal graft
Abdominal dermis/fat graft
Tissue engineer
7. Modified mandibular Condylotomy: intraoral vertical subsigmoid osteotomy with condylar sagging for 4 mm

Dislocation:

dislocation of the condyle head upwards and forwards into the temporal fossa occurs when the masticatory muscles contract at a time when the mouth is open to its greatest extent or when blow is delivered to the point of the chin. reduction is accomplished by downward pressure with the padded thumbs on the lower molars together with an upwards and backwards force applied to the underside of the chin with fingers in some times will be necessary to vestor to anasthesia to produce the muscular relaxation necessary for success. chronic dislocation is seen almost always in edentulous patients




Temporal bone
Socket
Disc
Muscle
Ligaments
Ear canal
Jaw joint
Muscle
Styloid bone

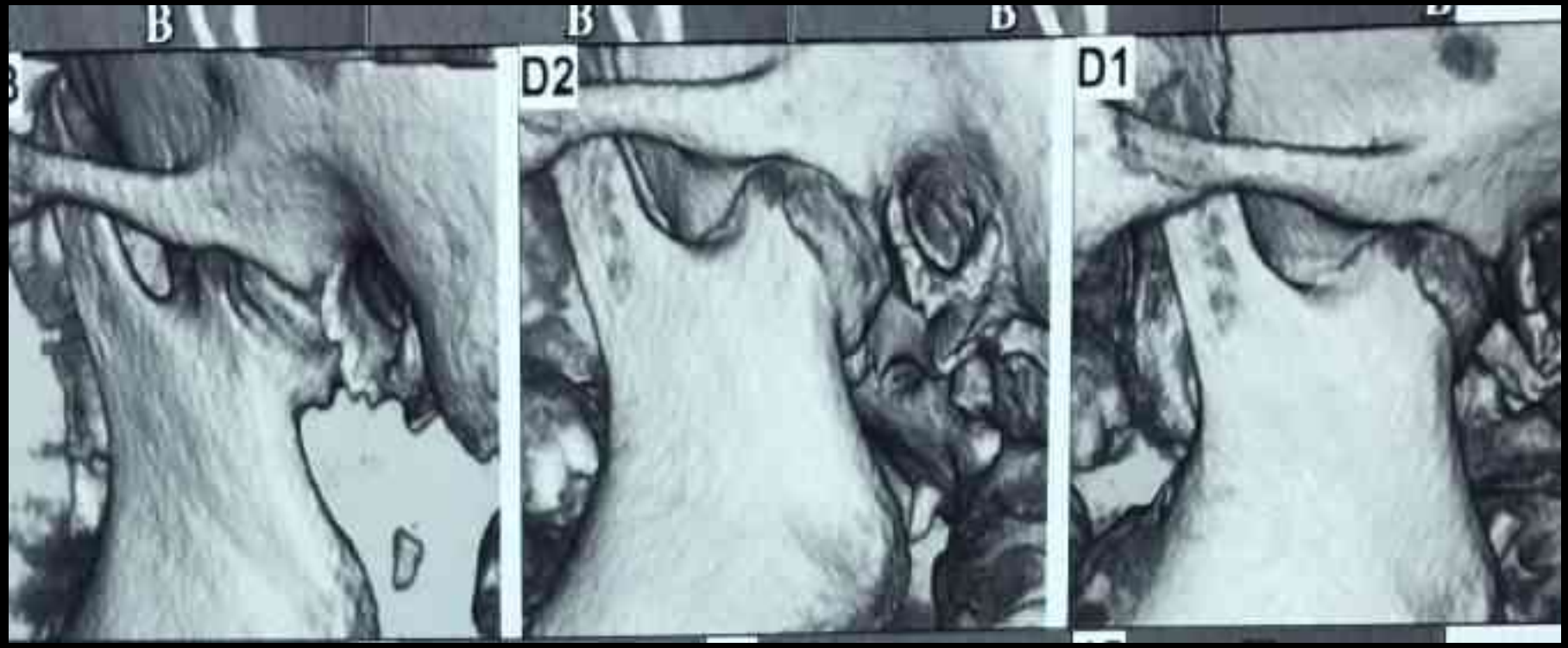

b
c

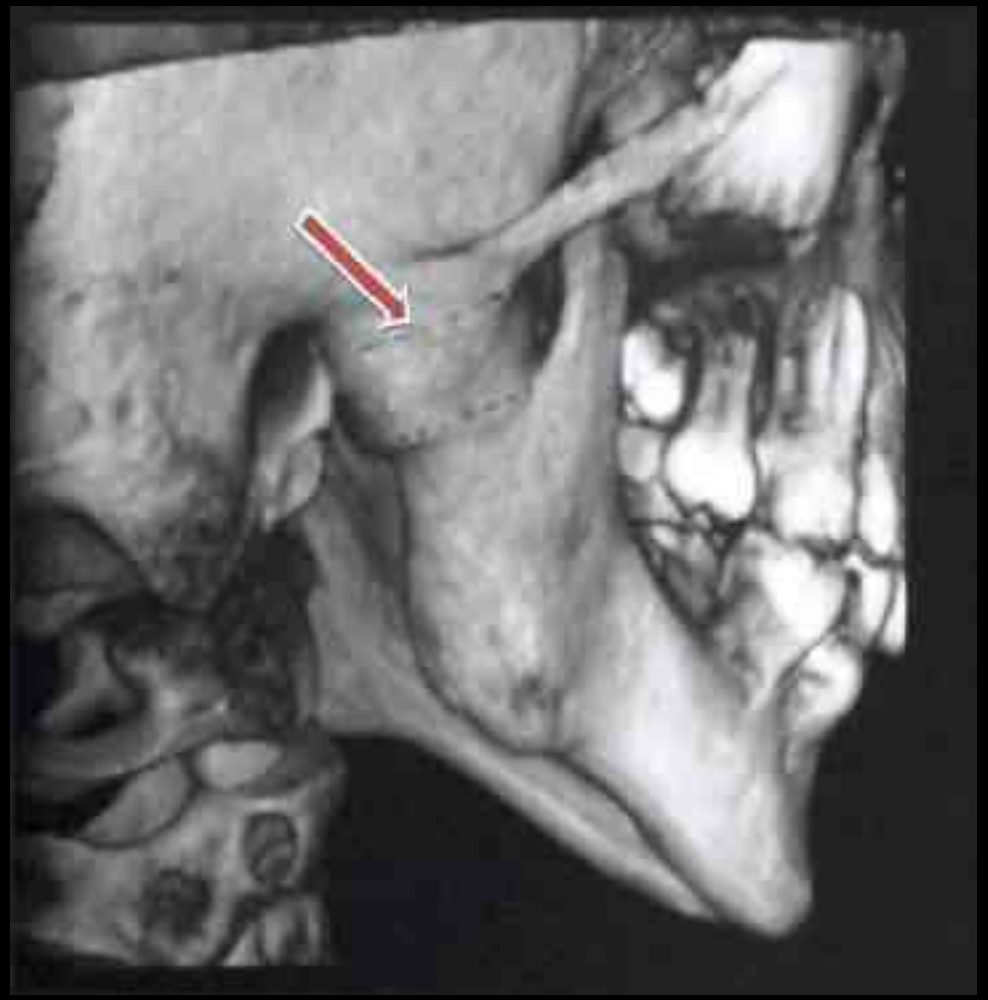
https://www.youtube.com/watch?v=S5h4glzW_Og

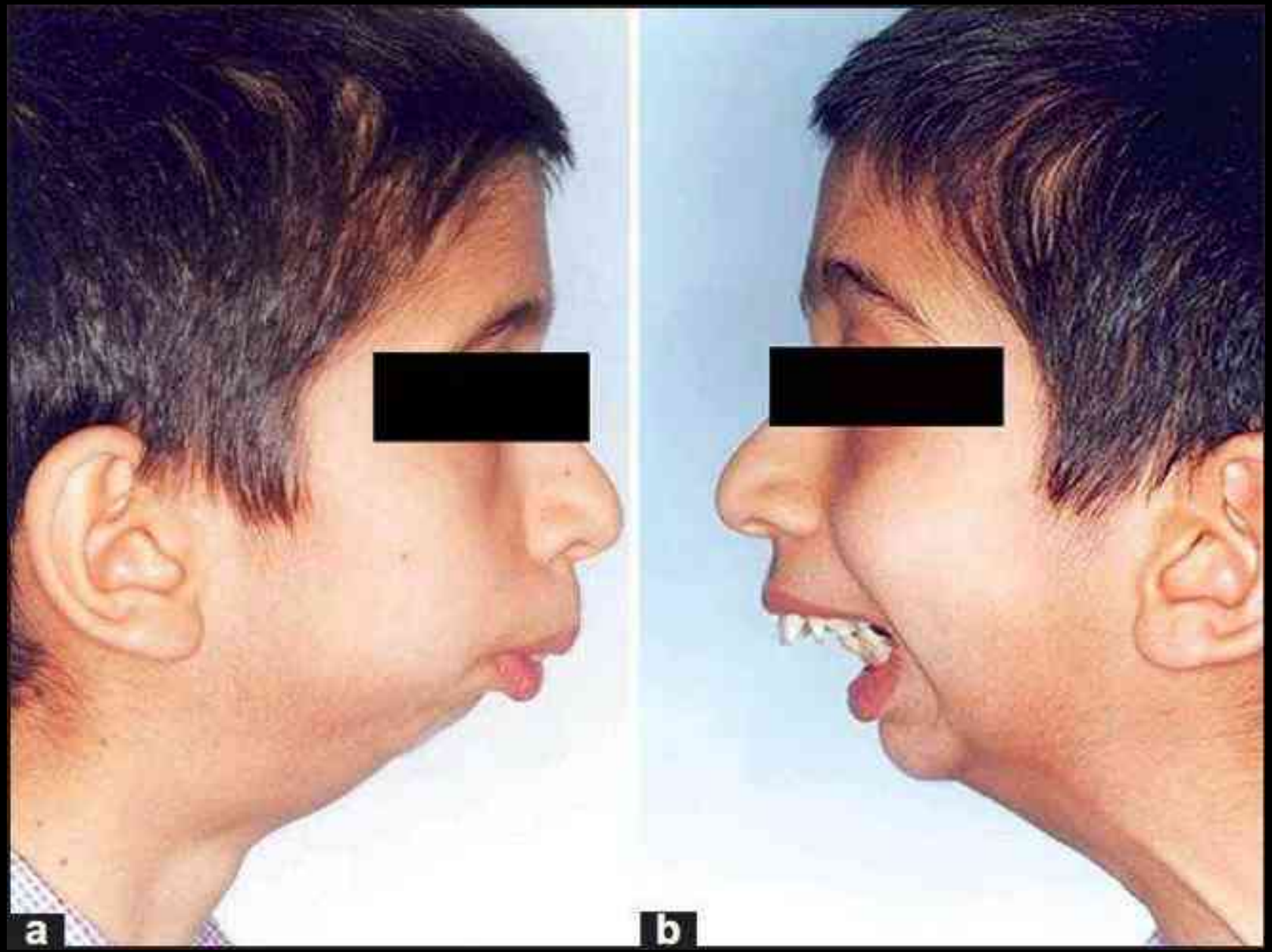
https://www.youtube.com/watch?v=Dd3aT9c_08M

Ankyloses of the TMJ:

ankyloses can be a sequel to an intra-capsular fracture of the condyle Intra capsular ankyloses results from a fusion of the condyle, disk, and fossa complex as a result of the formation of fibrous tissue, bone fusion, or a combination of the two .The most common cause of ankyloses involves macro trauma, most frequently associated with condylar fractures.






a
b

- Operations is the treatment to free an ankyloses. the bony or fibrous attachment is divided and the abnormal tissue removed. three manoeuvers are employed to try to prevent reattachment:
  1. The part of the mandible adjacent to the joint may be widely excised
  2. soft tissue such as muscle or dermis may be interposed between the bone ends
  3. allograft material can be inserted in the gap or over one of the bone ends.

JOINT REPLACEMENT

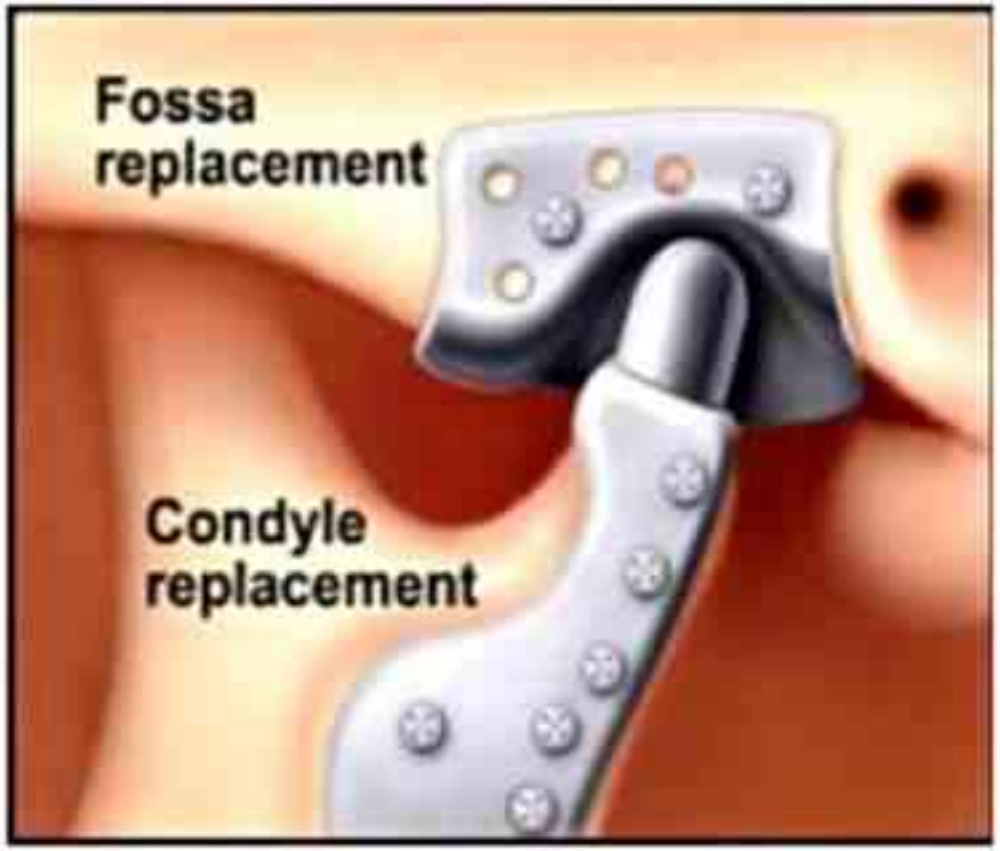
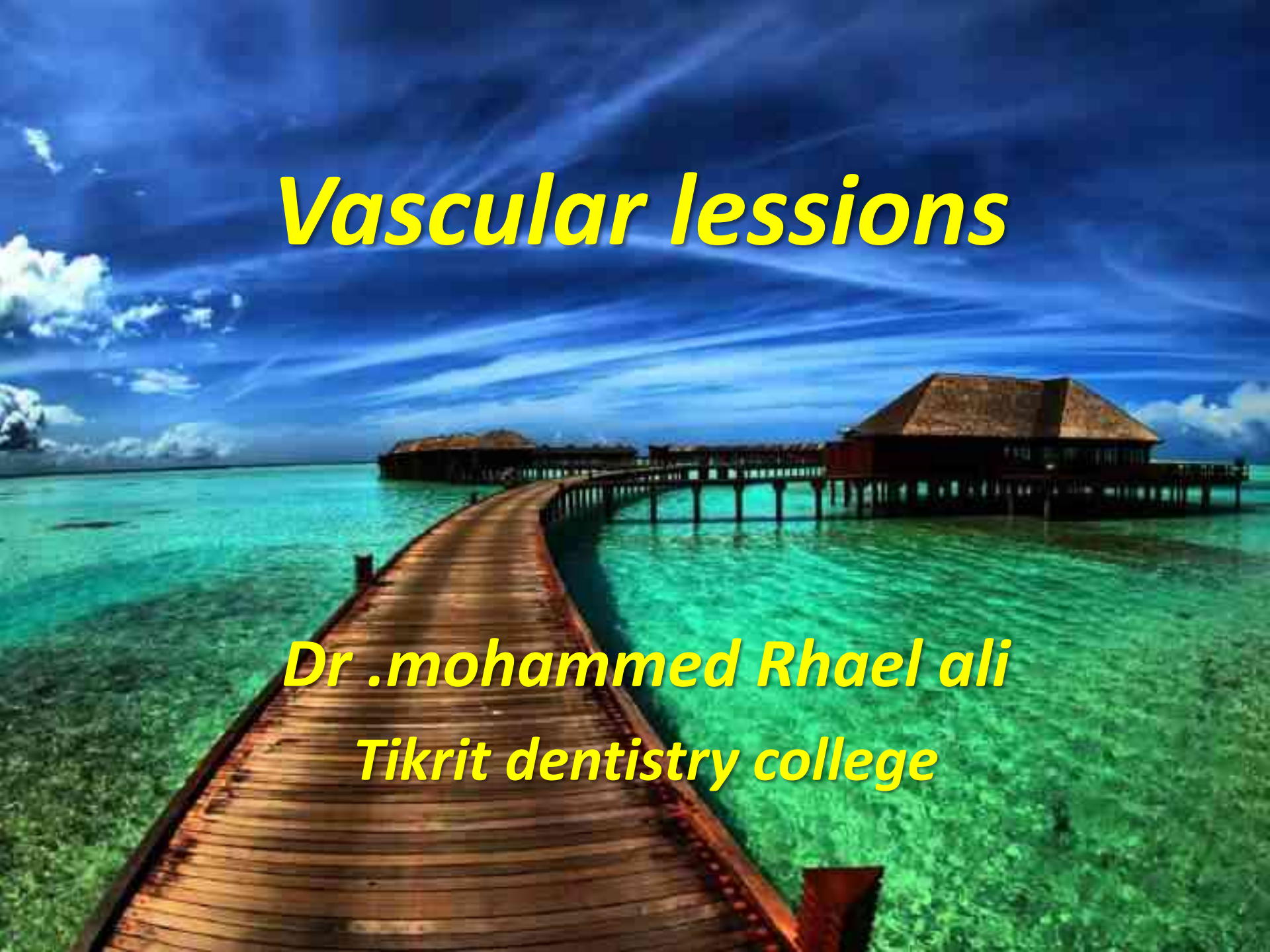


FIGURE 6. Temporomandibular joint replacement. *Source*: Mayo Foundation for Medical Education and Research.[61]


Thanks
FOR LISTENING


Vascular lessions
Dr .mohammed Rhael ali
Tikrit dentistry college

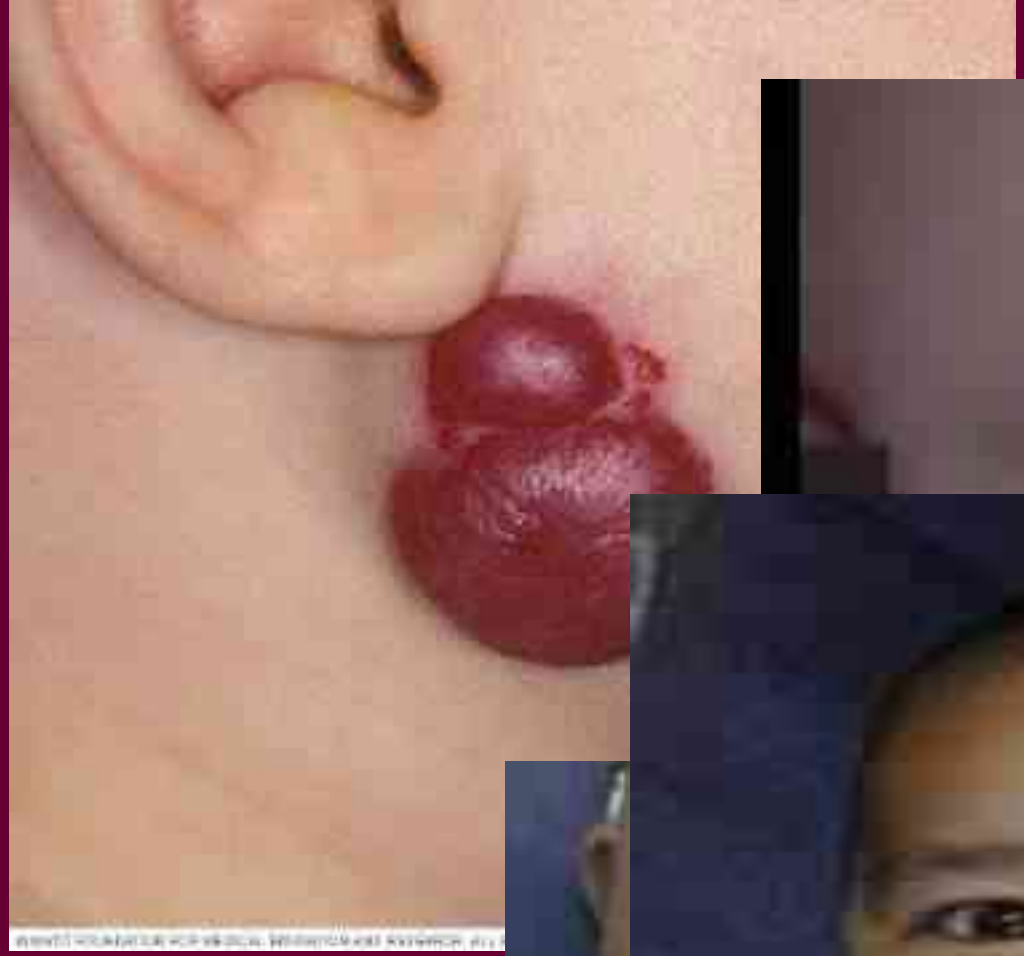
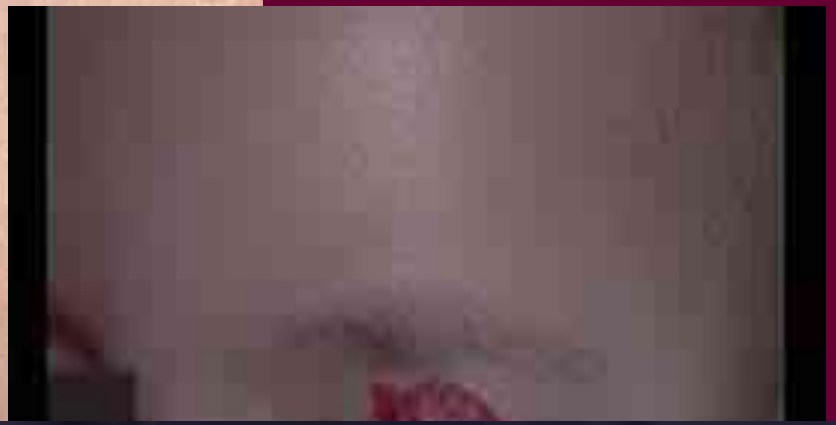
Vascular lesions

- *vascular tumors : hemangiomas which demonstrating endothelial hyperplasia.*

- *Vascular Malformations : lesions with normal endothelial turnover.*

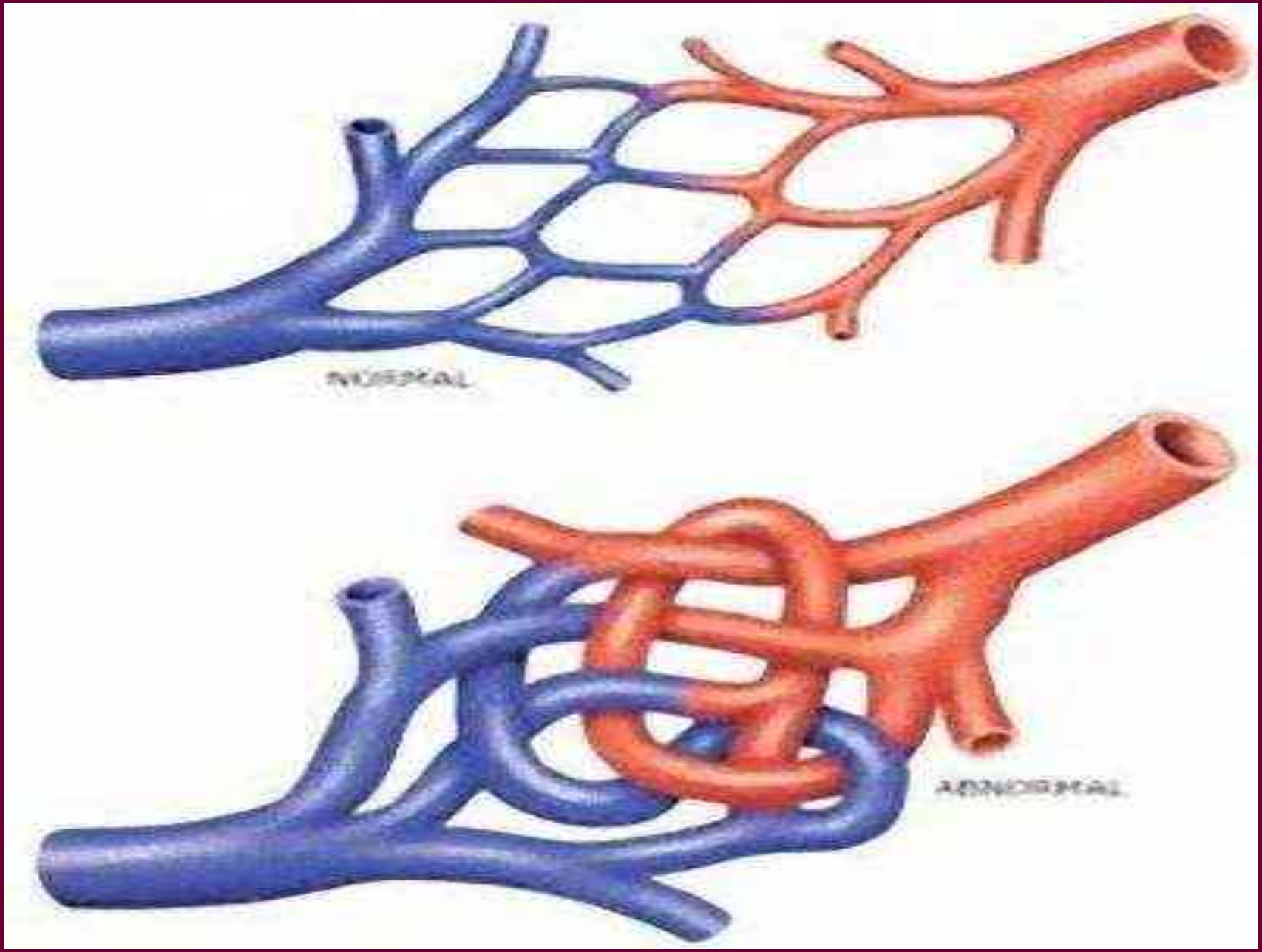
Hemangiomas

- *The word "hemangioma" comes from the Greek haema-, "blood"; angeio , "vessel"; -oma , "tumor".*
- *A hemangioma is a benign and usually self-involuting tumor of the endothelial cells that line blood vessels, and is characterised by increased number of normal or abnormal vessels filled with blood.*
- *Exhibits rapid early growth until 6-8 months of age, followed by regression by 5-9 years of age.*


Vascular Malformations

- *Vascular malformations are present at birth and unlike hemangiomas, do not go through a "rapid proliferative phase"*
- *not "involute".*
- *They grow constantly with the patient growth*
- *Approximately 31% of these malformations are found in the head and neck region.*
- *Abnormal development of either arterial or the venous side of vascular network during this phase of development*
- *Trauma, infection, and hormonal fluctuation (pregnancy or puberty) may stimulate increased growth of the vascular malformation.*
- *The mechanism of growth is not increased endothelial proliferation - which is within a normal range in these lesions, "but alteration in the flow dynamics within and around the lesion".*
- *This results in recruitment of "collateral vessels" and dilatation of involved vessels.*


NORMAL
ABNORMAL

Vascular Malformations

Classified in to :

1. low flow :

- Capillary malformation
- Venous malformation
- Lymphatic malformation

2. High flow :

- Arterial malformation , Arteriovenous Malformations

Capillary Malformations (portwine stain)

- *appear as reddish-pink macules over facial dermatomes may be smooth initially but become more " pebble – like" as the patient grows.*


© CrutchfieldDermatology.com

Venous Malformations

- *Venous malformations are bluish, soft and easily compressible,*
- *auscultation reveals no bruits.*
  The clinical absence of "pulsations or a thrill" generally indicates a low flow Venous vascular malformation

- ***Thrill : Feeling of the mass by finger***
- ***Bruit . Auscalt the mass by stethoscope***

Lymphatic Malformations

- *Low- flow lesions*
- *Within the oral cavity the LMs are more commonly found on the anterior 2/3 of tongue, followed by palate,gingiva, and oral mucosa.*
- *Predilection for head and neck and the axilla, where embryonic lymph sacs are located*

Lymphatic Malformations

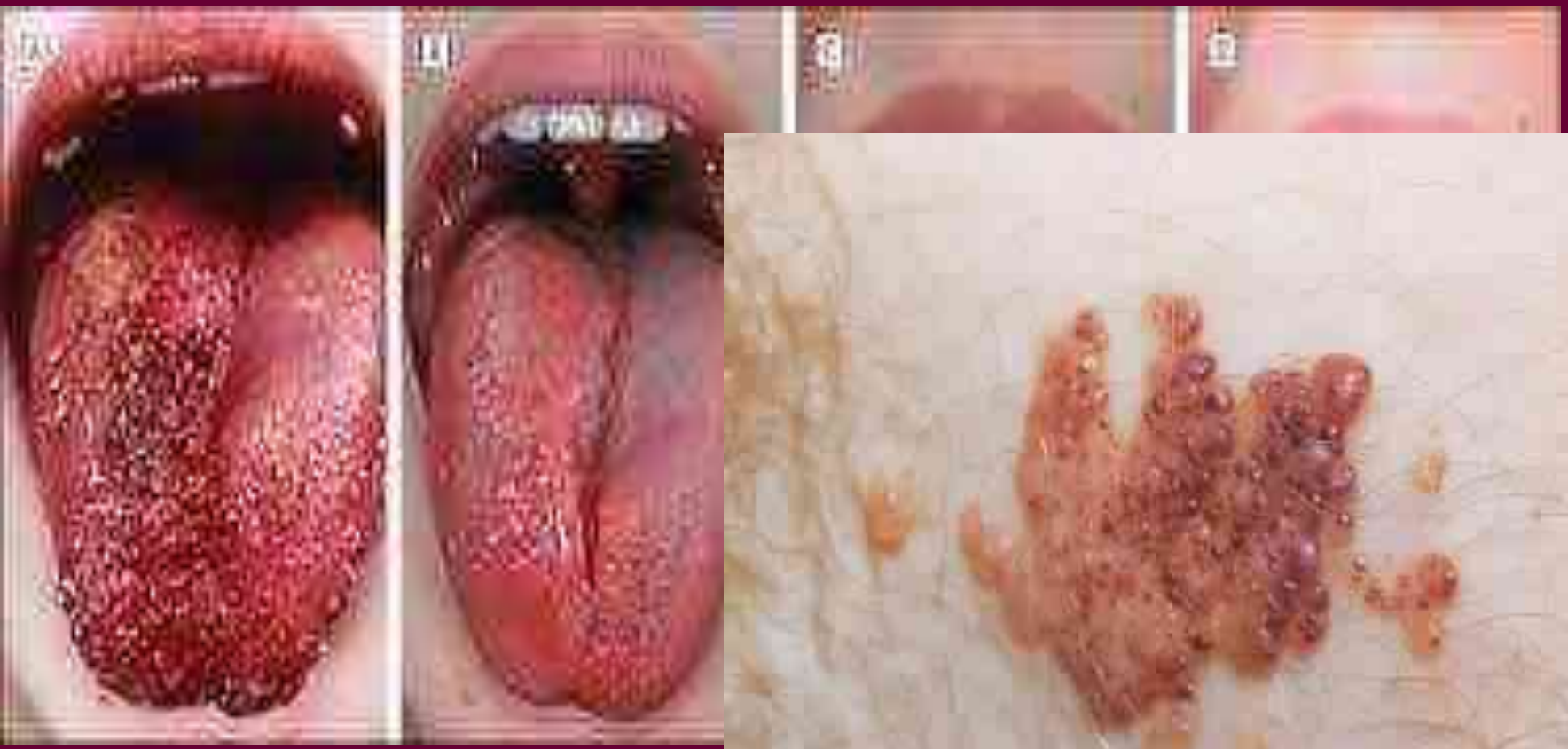
- ***MICROCYSTIC LM (Lymphangioma)***

- *In the oral cavity appear as multiple translucent non-compressible cysts or vesicles*

- ***Macrocystic LMs (cystic hygroma)***

- *usually presents as multiple cysts of >2 cm and are commonly found in the neck, and in the cervical area just below the angle of the mandible. They clinically appear as localized painless non-pulsatile swelling with no bruit or thrill, having a rubbery compressible consistency, and covered by normal appearing skin unless hemorrhage or communication with venous malformations produce a blue discolouration. Positive to transillumination .*

MICROCYSTIC LM (Lymphangioma)

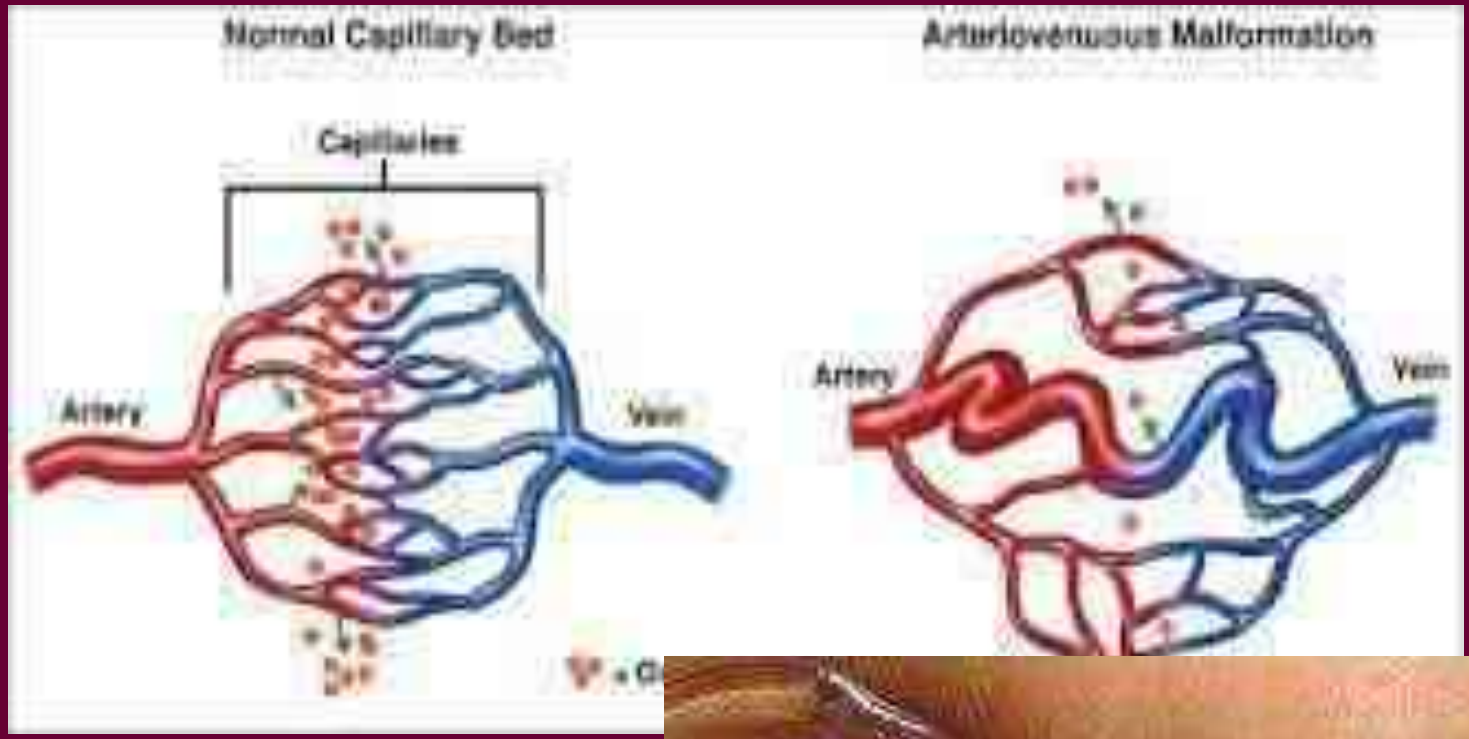


Macrocystic LMs

Transillumination of cystic hygroma

Arterial / Arteriovenous Malformations

- *"High-flow lesions*
- *create a direct communication between the arterial and venous systems,*
- *AVM is present at birth, but become clinically apparent only during the 4-5th decade of life and is often misdiagnosed due to delay in clinical presentation.*
- *The most common site for AVM is the brain, followed by the head, neck, limbs, trunk, and viscera.*
- *They appear as purple-blue raised painful macule, are pulsatile with thrill and bruit, warm to touch*
- *do not empty fully on compression, and refill quickly on reliving digital pressure.*
- *They are associated with embolism, pain, bleeding, ulceration, and congestive cardiac failure due to increased cardiac load.*
- *Often a patient presents with severe bleeding as the first sign that a high flow-lesion is present. They may also complain of recurrent gingival bleeding and loose or depressible teeth.*


Normal Capillary Bed
Capillaries
Artery
Vein
Arteriovenuous Malformation
Artery
Vein

➢ *DIAGNOSIS of vascular lesions :*

- *History*
- *Clinical examination*
- *MRI*
- *Doppler Ultrasound*
- *CT*
- *Arteriography*

Treatment of vascular lesions

Hemangioma :

- *Self limited ,usually disappear after 12 y age*
- *Treatment indicated when the lesion interfer with development (obstructive vision,recurrent bleeding ,ulcerations,interfere with vocal cords function.*
- ***Treatment options :***
- *Steroid (systemic or intralesional injection)*
- *Interferone*
- *Laser*
- *Surgical excision*

Treatment of vascular lesions

Cappillary malformatios:

- ***Laser***

venous malformations

1.Injection of sclerosing agents (absolute alcohol,sodium tetradecyle sulphate(std), and bleomycin.

2. Surgical excision

Arterio-venous malformations

- ***pre-opertative embolization or ligation of feeding artery followed by surgical resection***

Treatment of vascular lesions

Lymphatic malformations:

1.Aggressive surgical debulking may be necessary in vary large lesions.

2. Infections such as upper respiratory infections often cause dramatic and painful swelling of the lesion and should treated aggressively by antibiotic and drainge to avoid obstructions of airway

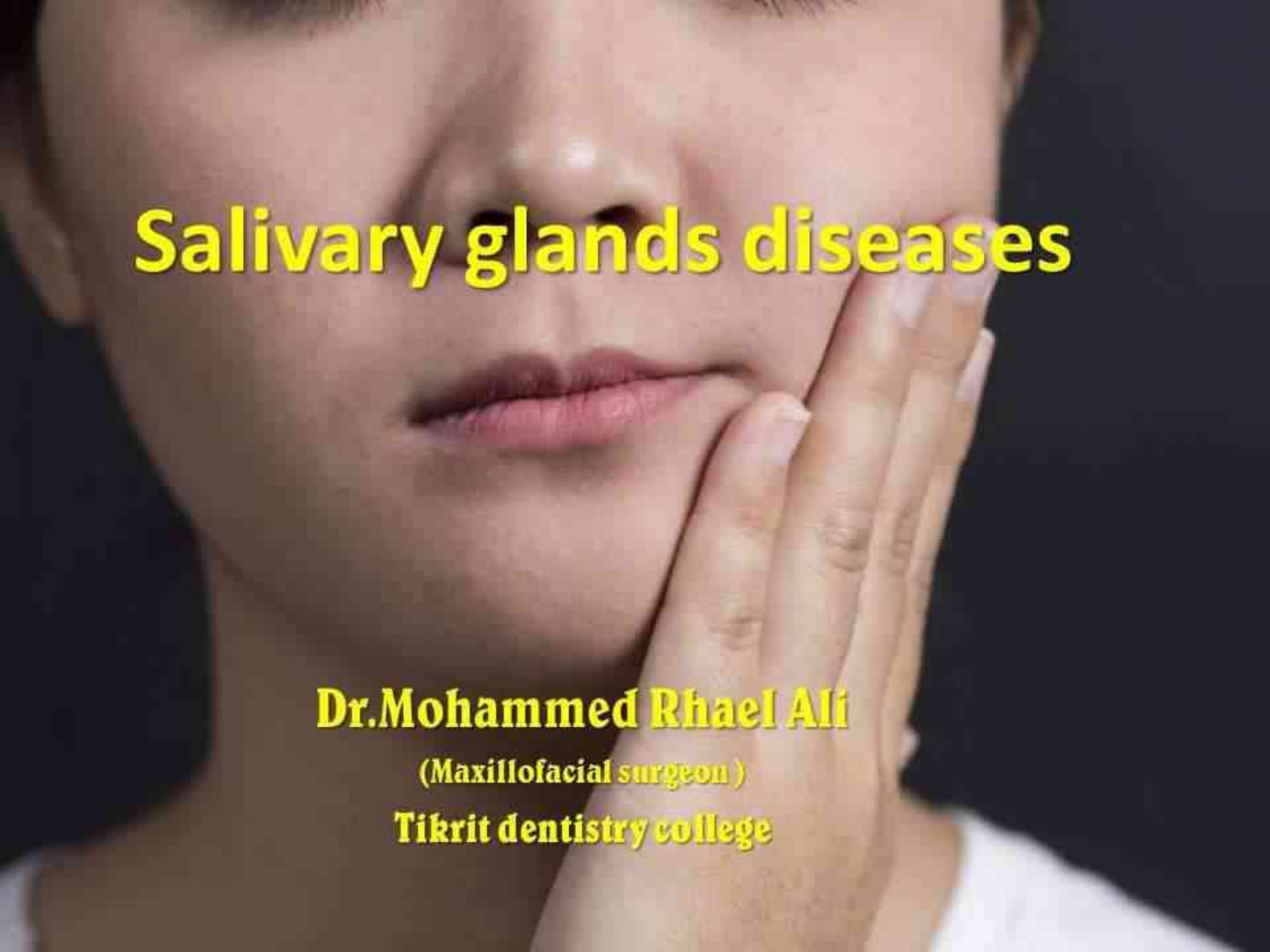
3. Injection of sclerosing agents or OK423

4. Surgical excision

Neurogenic tumors

- ***NEUROFIBROMAS. -It may occur as solitary cutaneous lesions (neorfibroma) , in which case one finds no café-au-lait spots and no family history of the disease. -Multiple cutaneous lesions w/café- au-lait spots, dominantly inherited, referred as neurofibromatosis that starts to be manifested since childhood***


Thank you for listening



Salivary glands diseases

Dr.Mohammed Rhael Ali

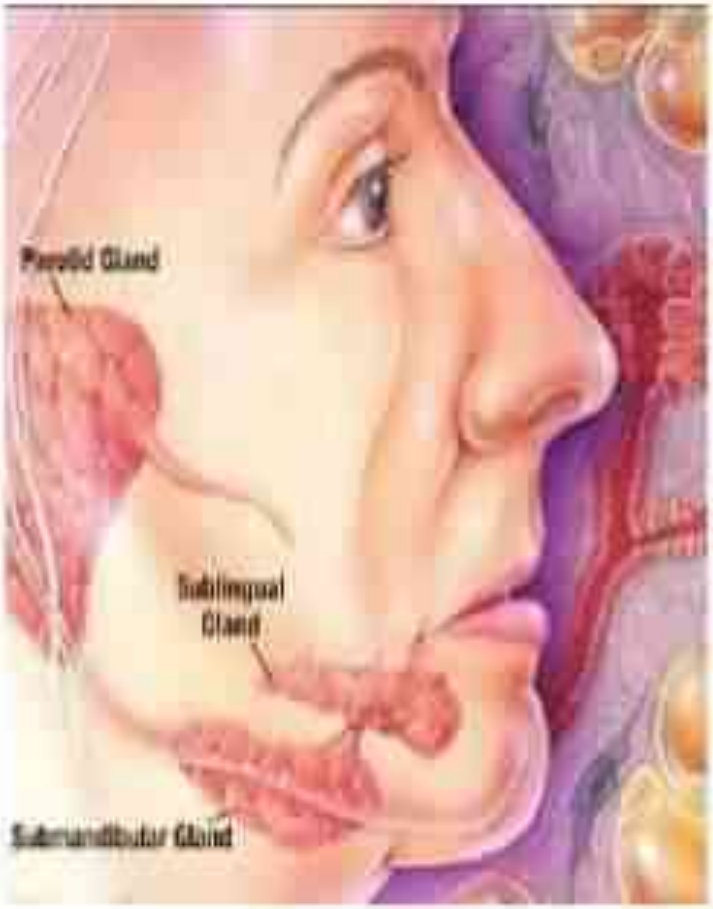
(Maxillofacial surgeon)

Tikrit dentistry college

CLASSIFICATION OF SALIVARY GLANDS

Major

- Parotid
- Submandibular
- Sublingual

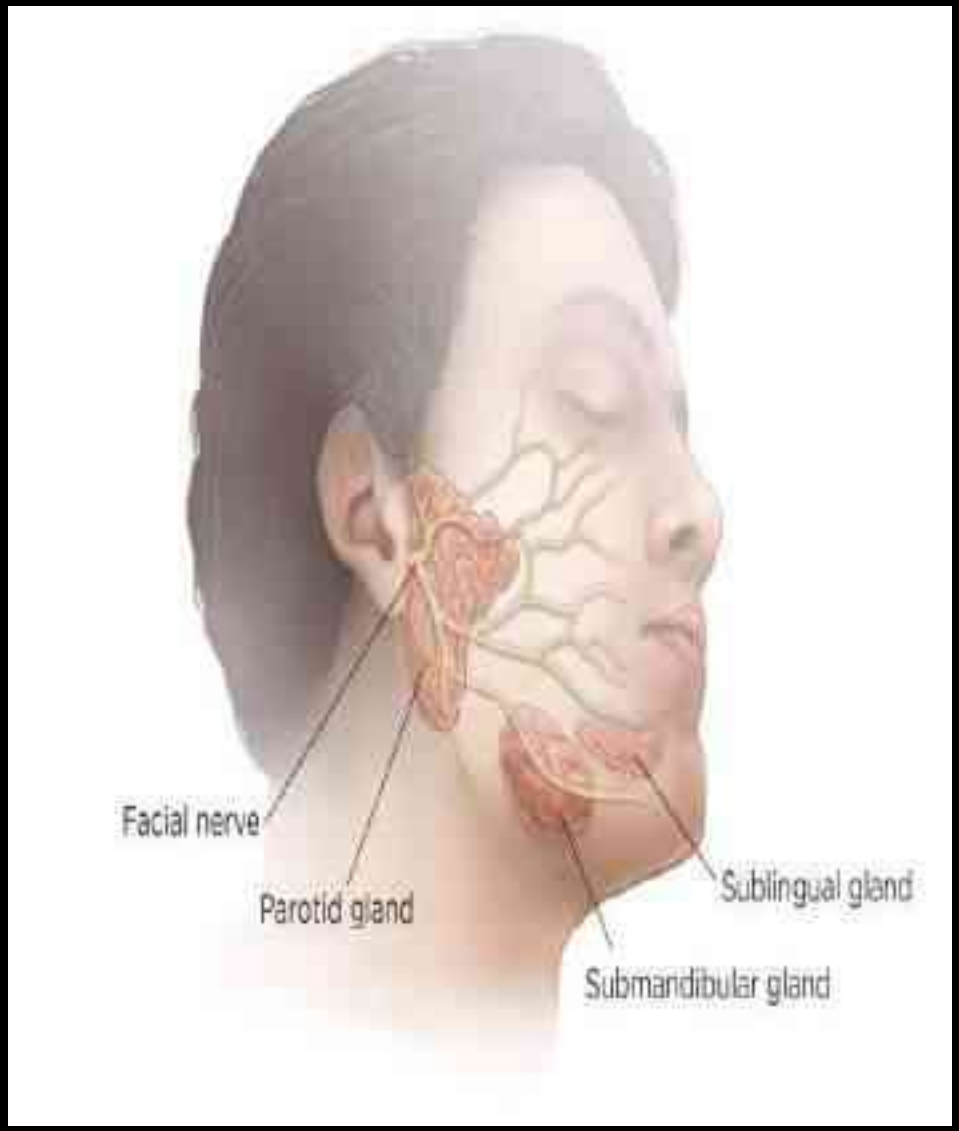


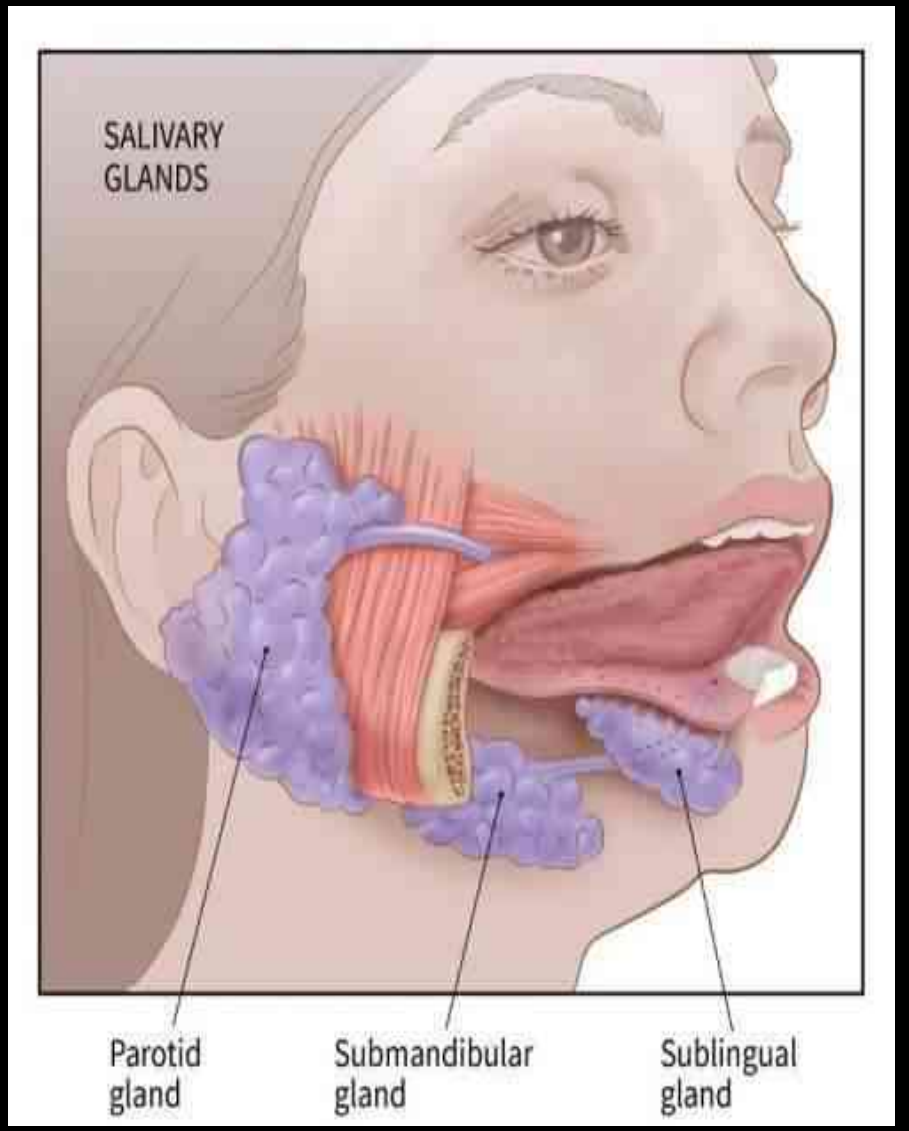
Orban's oral histology and embryology 10th ed

Minor

- Labial / buccal
- Anterior
- Palatine
- Glossopalatine
- Von – ebner's

Major salivay glands





PAROTID GLAND

Parotid gland:

-Largest salivary gland

-20-25% of total saliva.

-Pyramidal in shape.

-Weighs around 20-30g.

-Superficial portion of gland is located subcutaneously, in front of the external ear & deeper portion lies behind ramus of mandible.

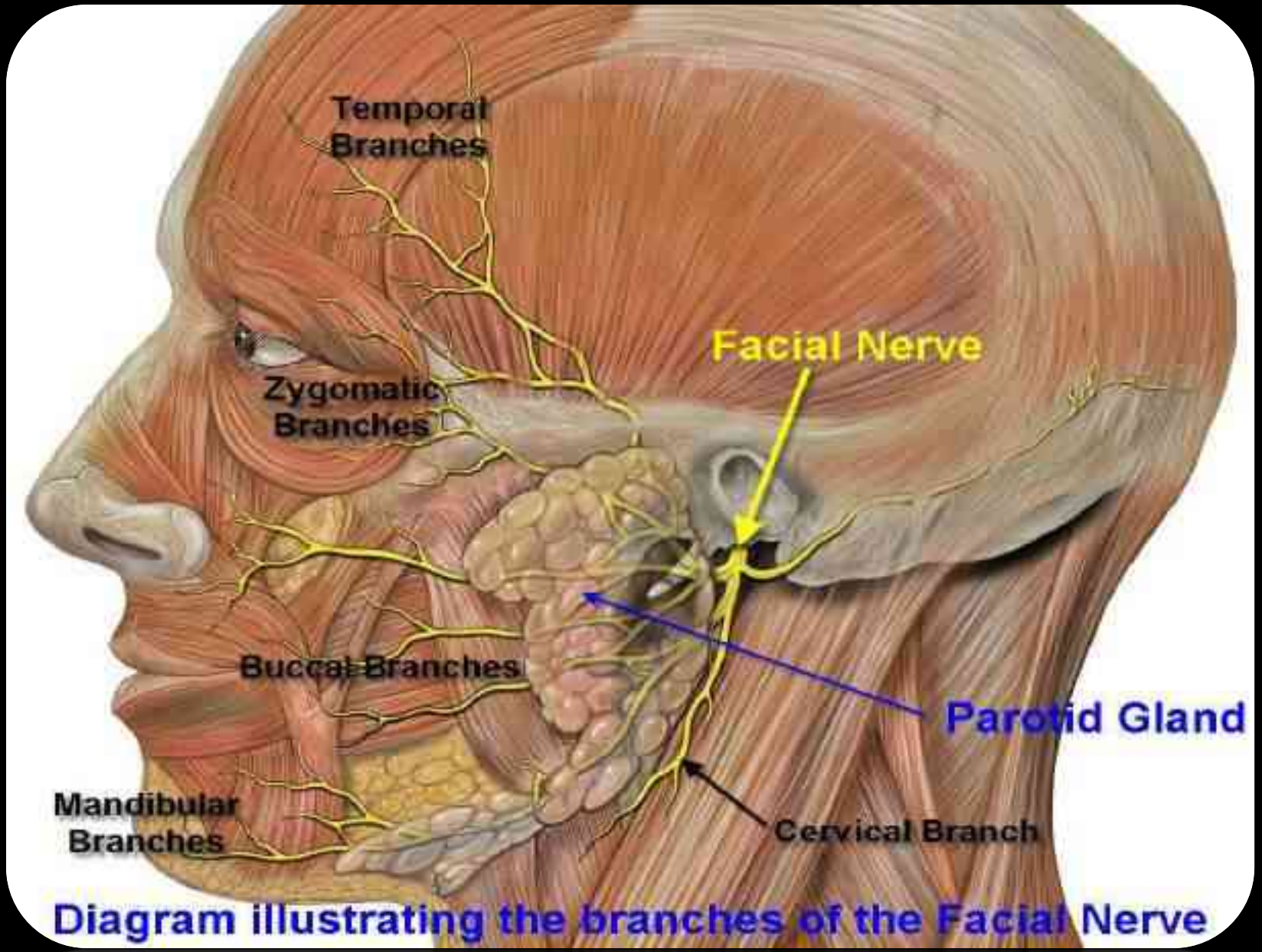
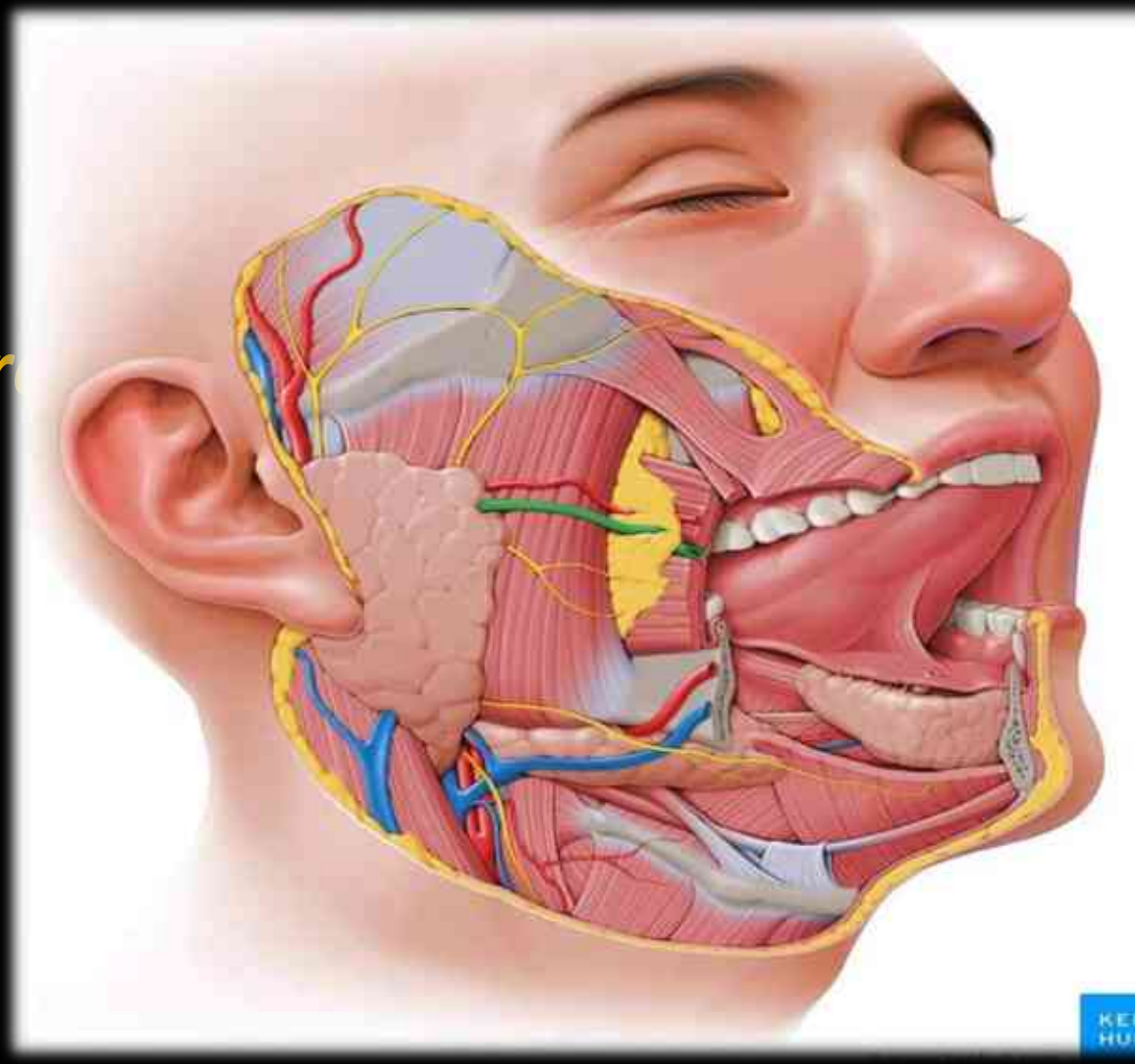


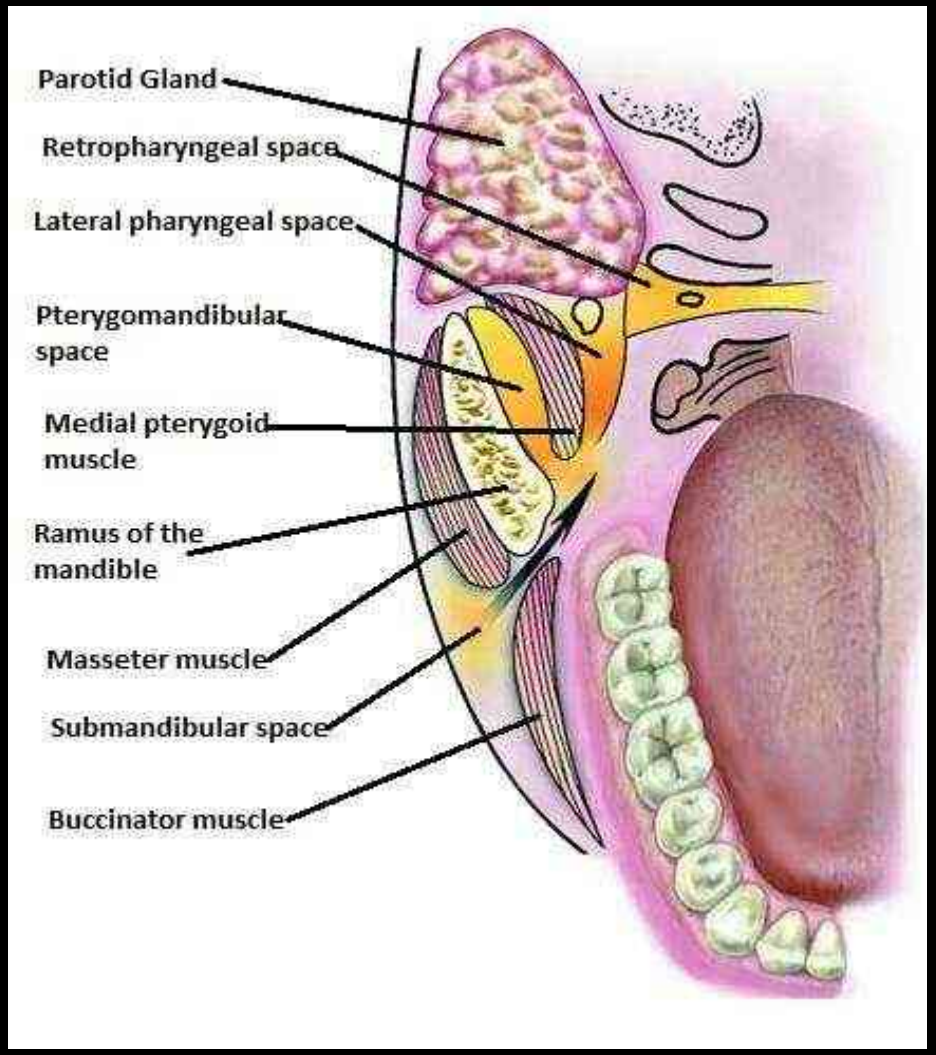
Diagram illustrating the branches of the Facial Nerve

Parotid

- Position
- Duct
- Associated stractur
- innervation

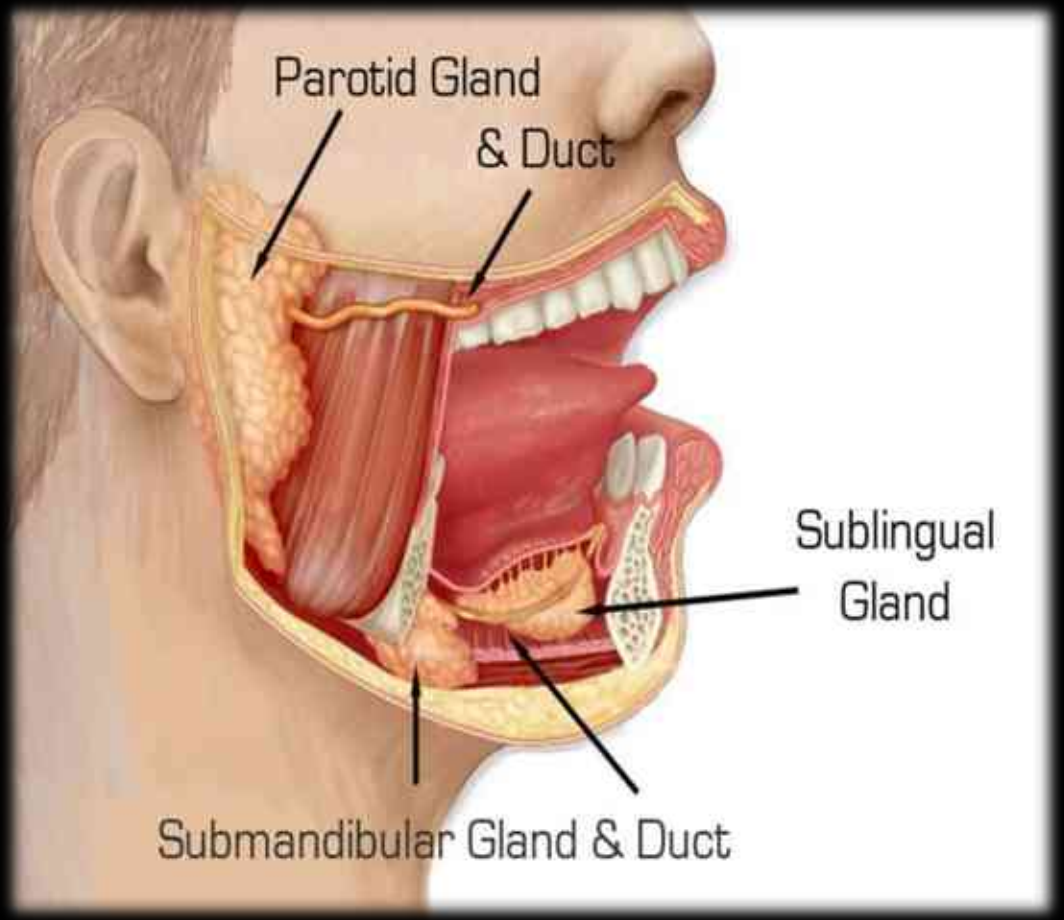


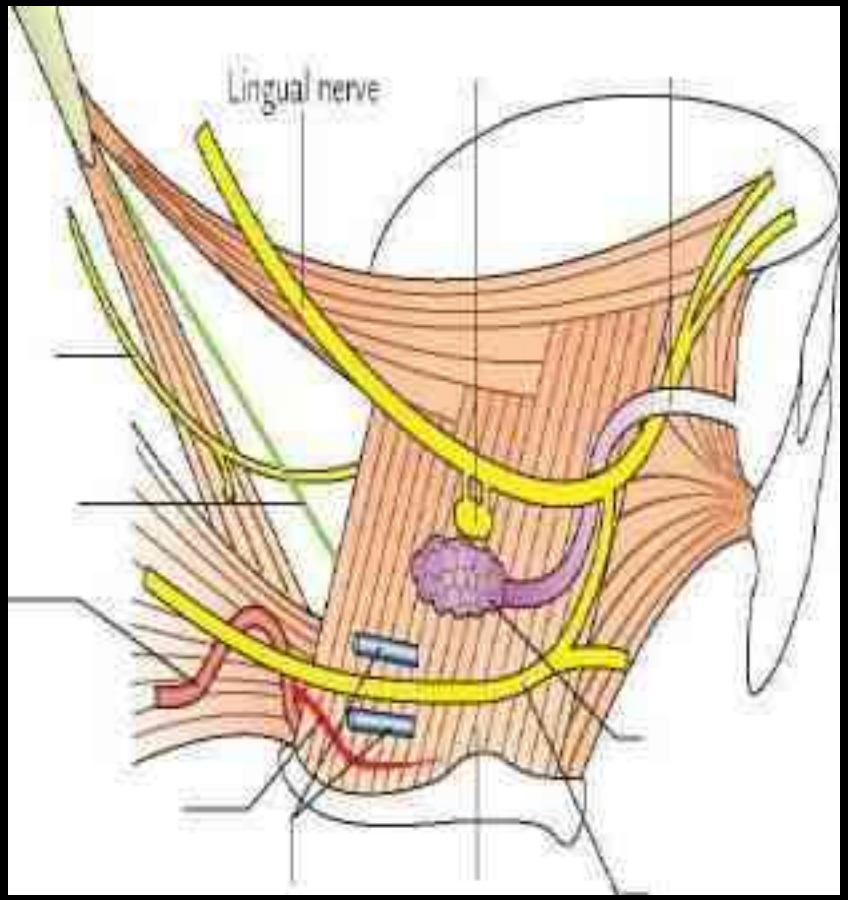
- ***Clinical considerations***

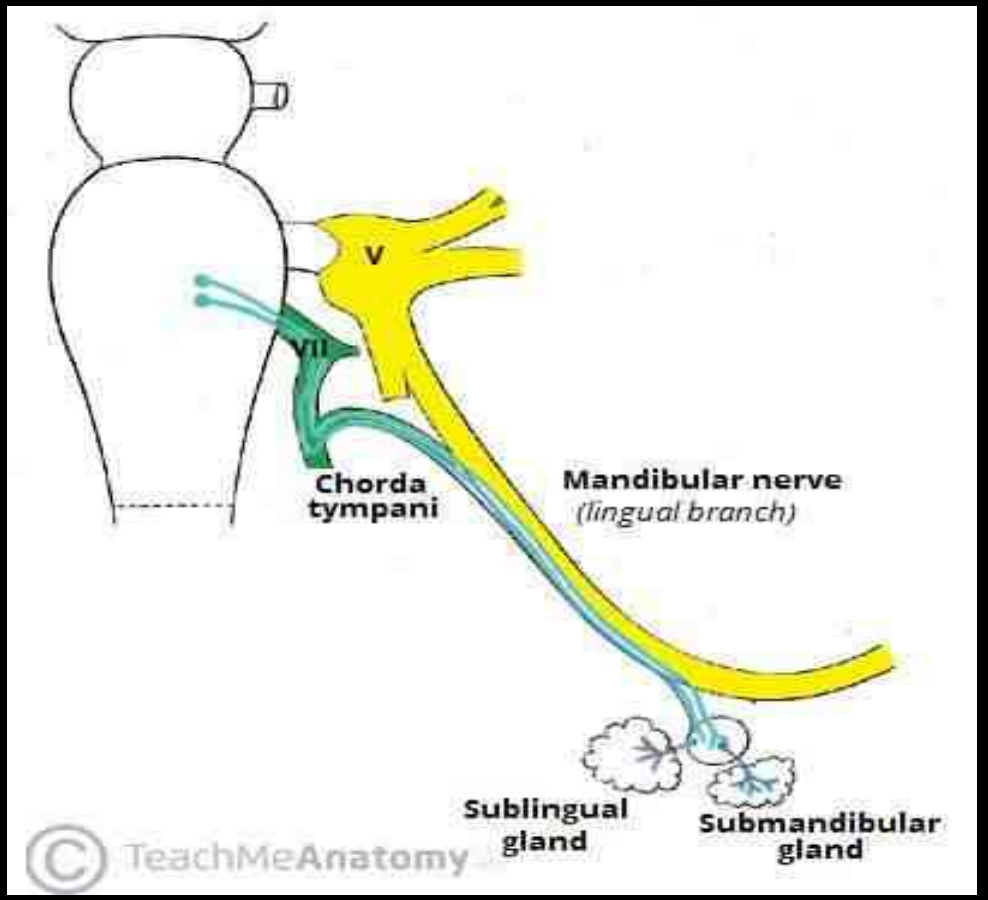


Submandibular gland

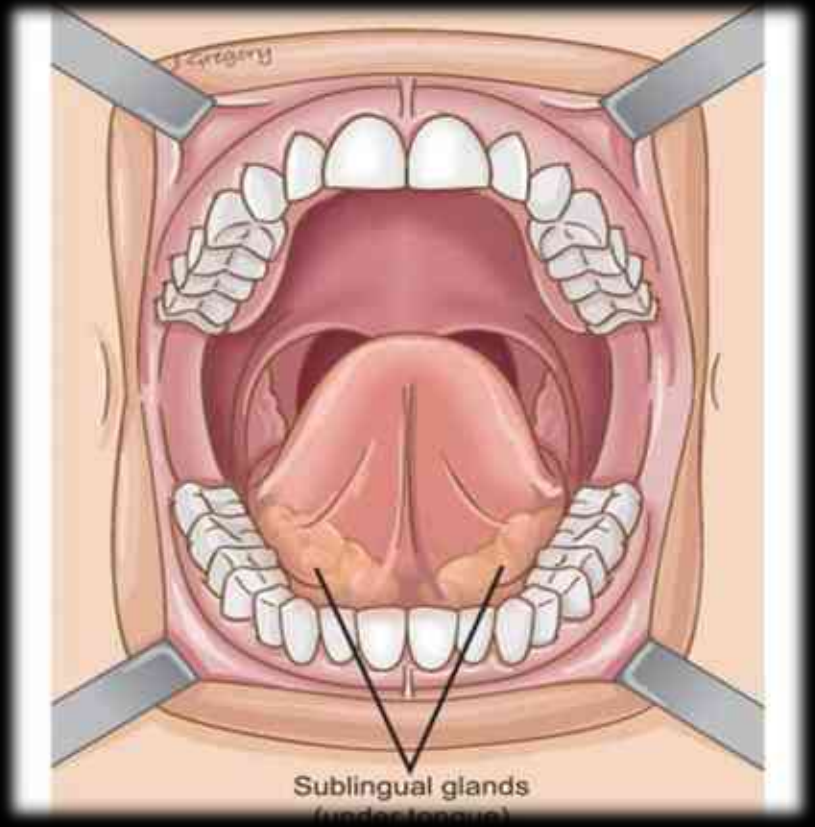
- ***Position***
- ***Duct***
- ***Associated structures***

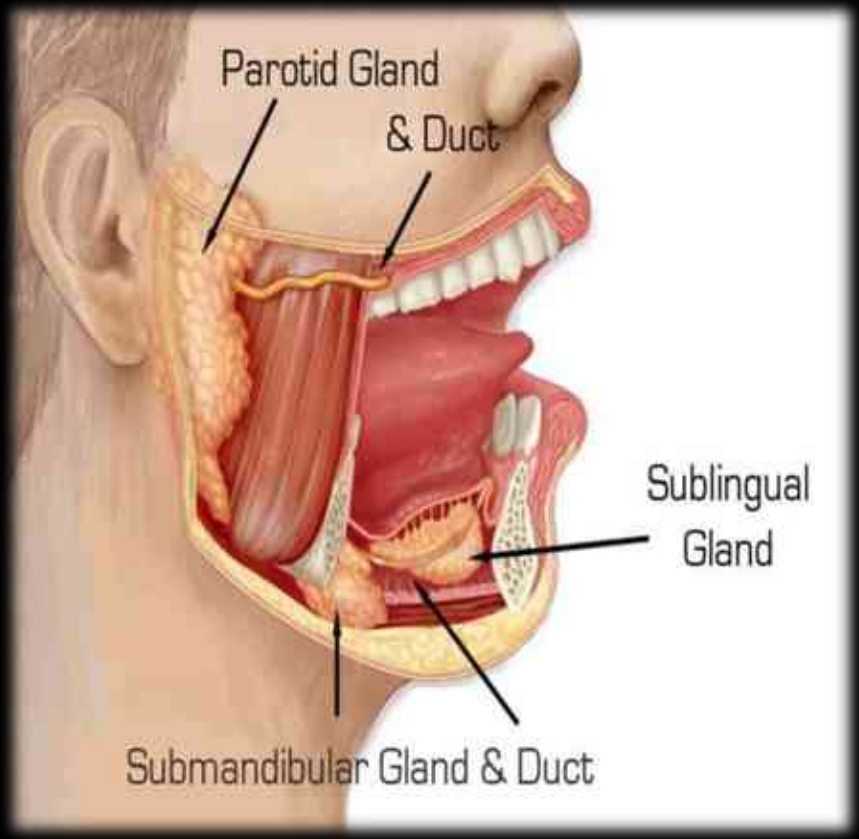


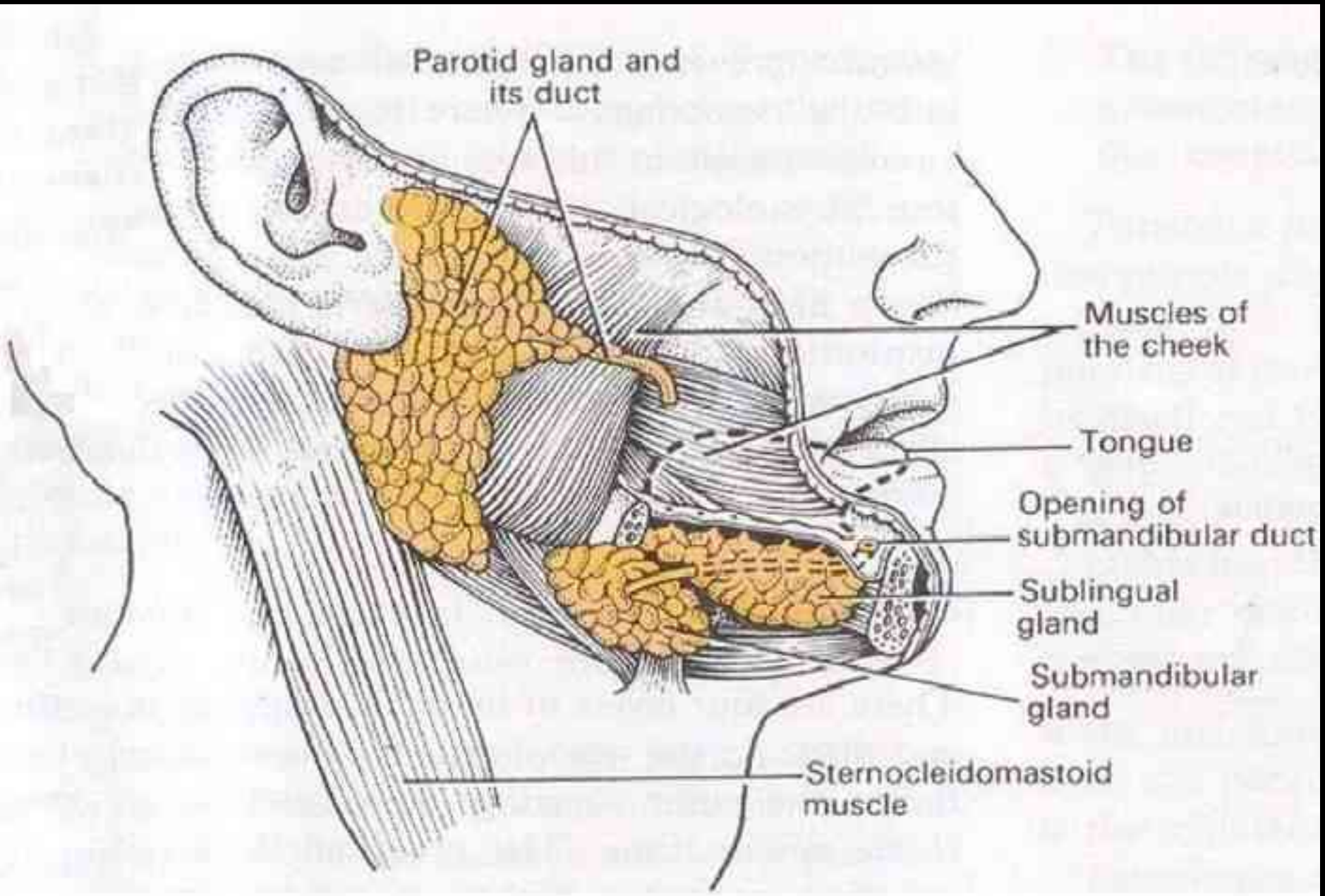

Lingual nerve


V
VII
Chorda tympani
Mandibular nerve
(lingual branch)
Sublingual gland
Submandibular gland
© TeachMeAnatomy

Sublingual glands

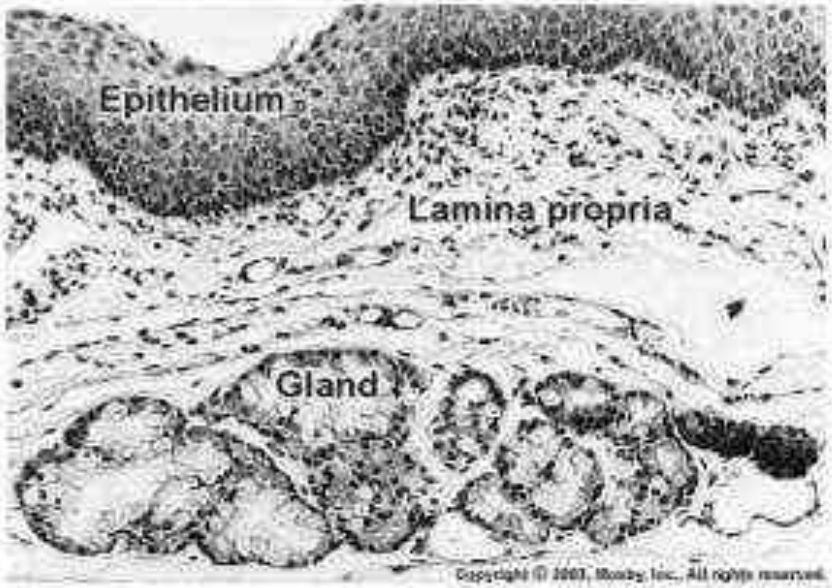





Parotid gland and its duct
Muscles of the cheek
Tongue
Opening of submandibular duct
Sublingual gland
Submandibular gland
Sternocleidomastoid muscle

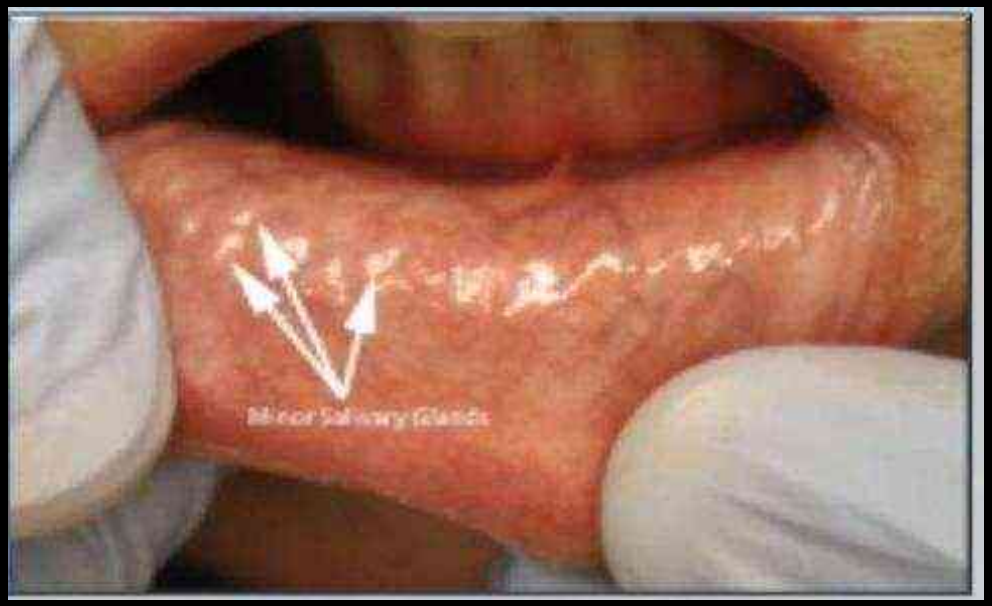
Minor salivary glands

- Minor salivary glands are found throughout the oral cavity, except in the anterior part of the hard palate & the gingiva.
- These glands consist of aggregates of secretory end pieces & ducts, organized into small lobule like structure located in the submucosa or between muscle fibers of the tongue.
- The minor gland saliva typically rich in mucins



Minor salivary gland

- *About 800 in number*
- *Contribute 10% of total salivary volums*



More apron to trauma

mucocele

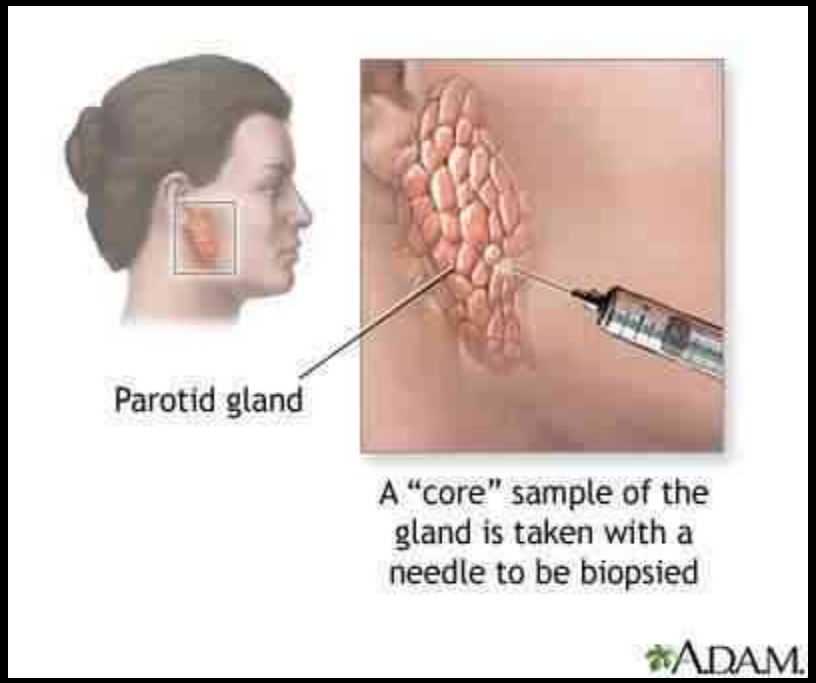
Diagnosis of salivary gland lesions

- *1.History*
- *2.Clinical examination*
- *3.Investigations*
- *A. conventional radiograph*
- *B.sialography ;*
  - *Normal (leafless tree)*
  - *Sjogren (branchless fruit laden tree)*
  - *Tumors (ball in hand appearance)*

- *C.Radionuclide <injection of technitium99 and imaging by gamma camera ,Indicated in obstructive sialadenitis when Sialography contraindicated*
- *D. Ultrasound*
- *E. Ct , MRI*
- *F. Sialoendoscopy*

biopsy

- *FNA*
- *Core needle aspiration*
- *excisional biopsy*



Classifications of salivary gland disease

- *1. developmental*

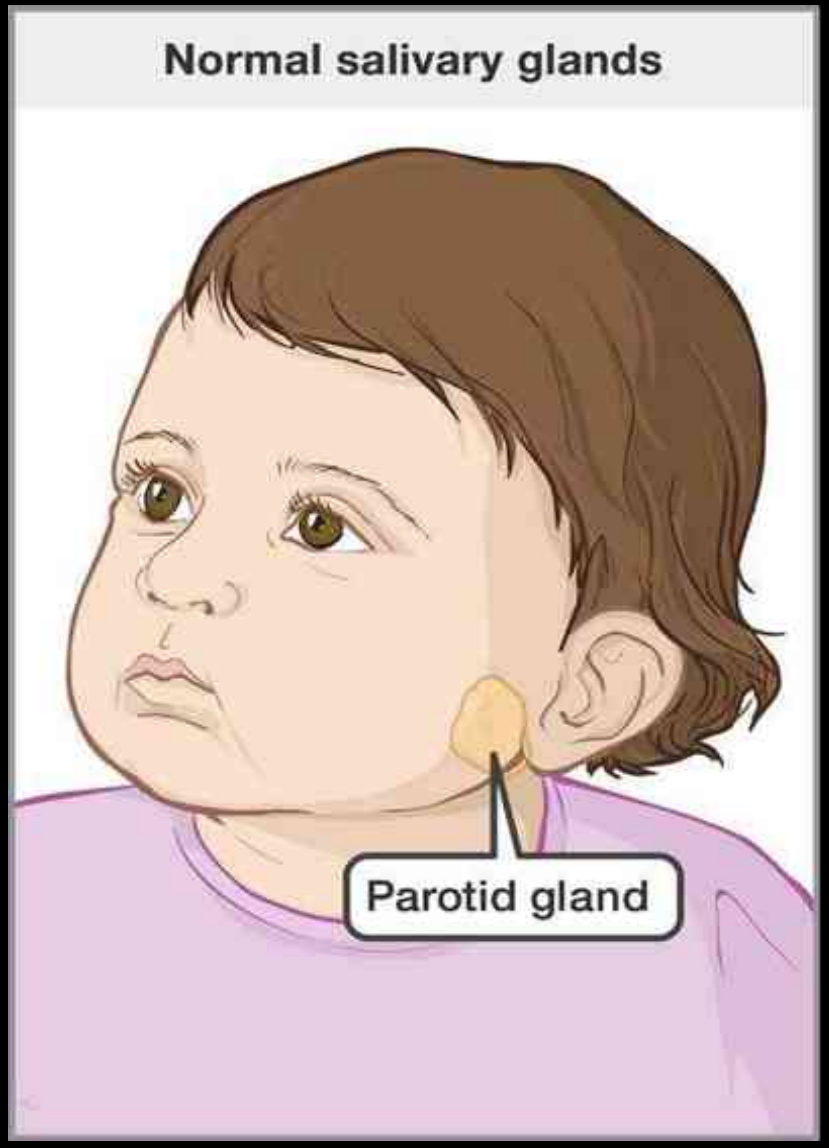
a. *Aplasia : absence of the gland*
b. *Atresia : absence of the duct*
c. *Aberrancy: ectopic gland*

- *2. infection*
- *3. Obstruction*
- *4. autoimmune disease (Sjogren syndrome)*
- *5. mucous retention or extravasation phenomena*
- *6. necrotizing sialometaplasia*
- *7. tumor*

sialadenitis

- ***Acute sialadenitis***
  - ***Viral infection***

Mump : Headache, chills, xerostomia pain below the ear and sudden swelling of the parotid of one or both sided .


Normal salivary glands
Parotid gland


Mumps
Swollen parotid gland and cheek
© AboutKidsHealth.ca

Investigations :

- *Increase serum amylase*
- *Antibody against virus*

Treatment :

- *Self limited*
- *fluid*
- *Antipyretic*
- *Antibiotic to prevent secondary infection*
- *Vaccination*

Bacterial infection

- Mostly affect parotid

Predisposing factors :

- Poor oral hygein
- Drugs that decrease salivary flow

- Clinical features
- Sudden pain at the angle of mandible
- Usually unilateral
- Overlying skin red and worm
- Purulent discharge from the duct

Investigations :

- *WBC count (increase)*
- *Swab*

Treatment

- *Antibiotic*
- *Fluid ,oral hygiene, stimulation of salivation*
- *Surgical drainge*

Chronic sialadenitis

Predisposinf factors :Acute sialadenitis, duct obstruction

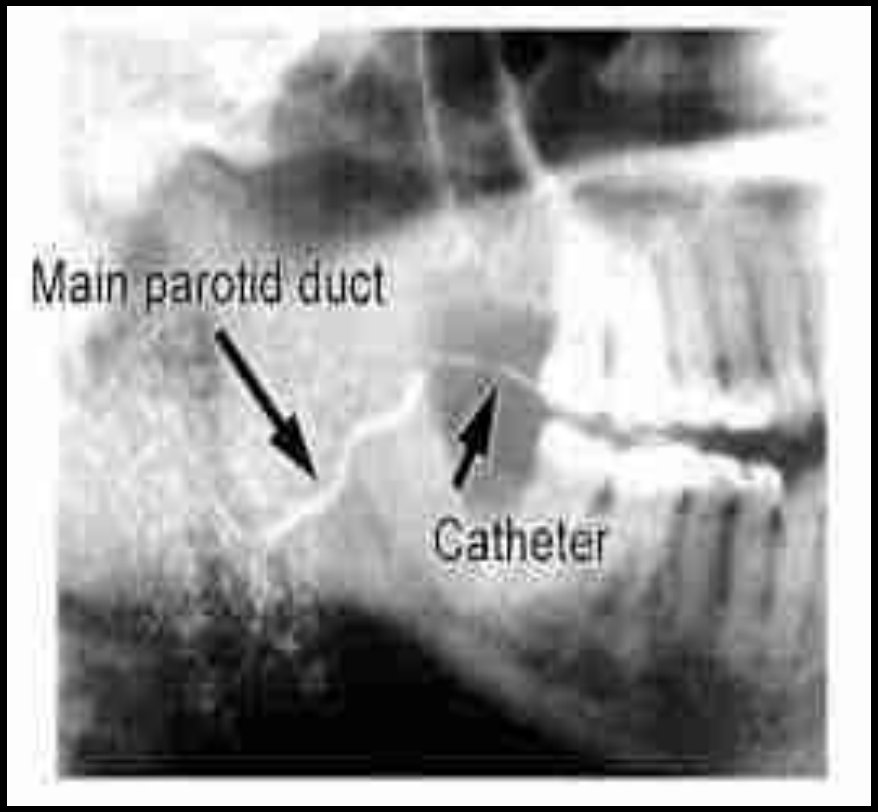
Clinical features : Recurrent swelling , firm tender glands

Investigations : Sialography

Treatment :

- ***Antibiotic***
- ***Conservative treatment : removal of obstruction,dilutation of the duct,drainage of the pus***
- ***Surgical gland excision***

Sialography


Main parotid duct
Catheter


Stricture
Gland
Duct

Figure 1A:
The parotid glands are located bilaterally in the cheek area in front of your ear and have a "tail" area that can extend over the lower jaw.

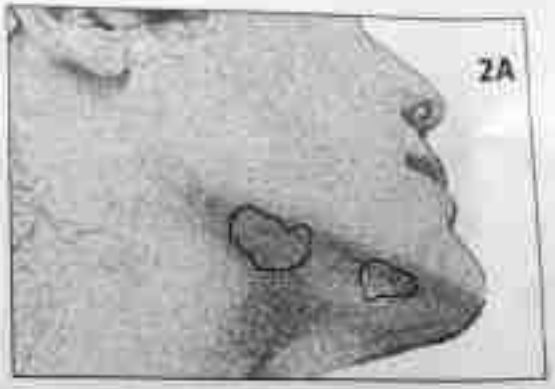
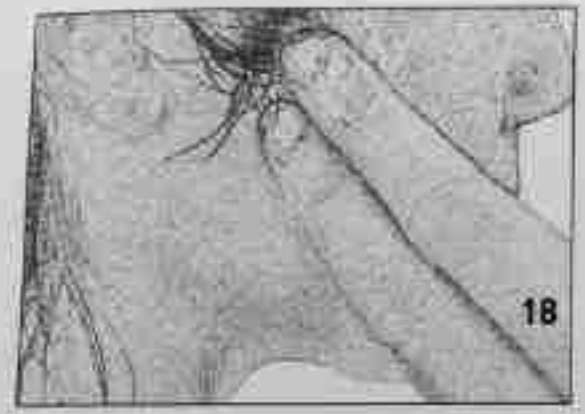
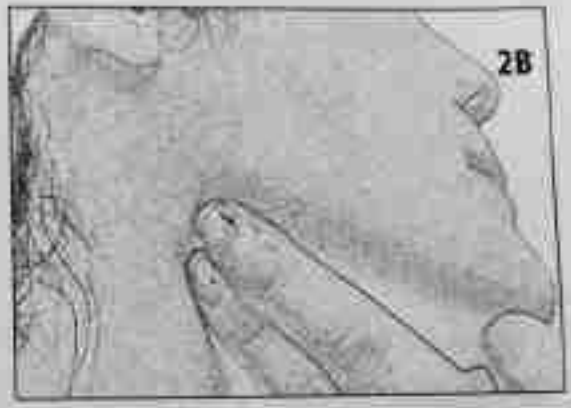
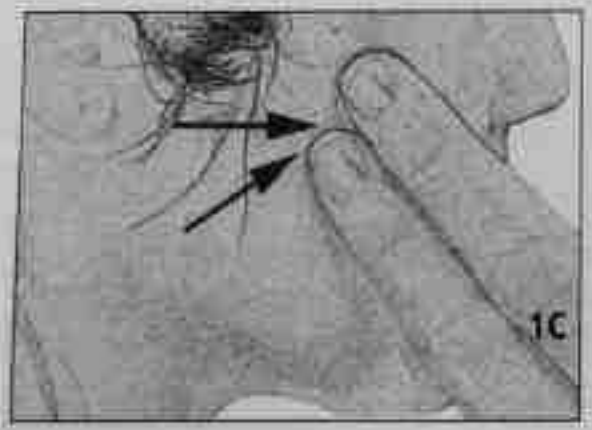


Figure 2A:
The submandibular and sublingual glands are located bilaterally under your jaw and tongue with the sublingual gland closer to the chin.

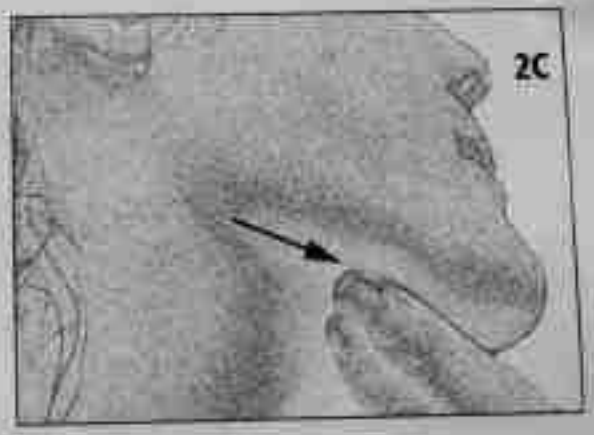


Figures 1B and 2B:
Place two fingers on the body or tail area of the parotid or under the jaw for the submandibular/sublingual glands.





Figures 1C and 2C:
Sweep fingers forward with gentle pressure as indicated by the black arrows. This will encourage movement of saliva past a possible obstruction or constriction and into the oral cavity.



Sialolithiasis

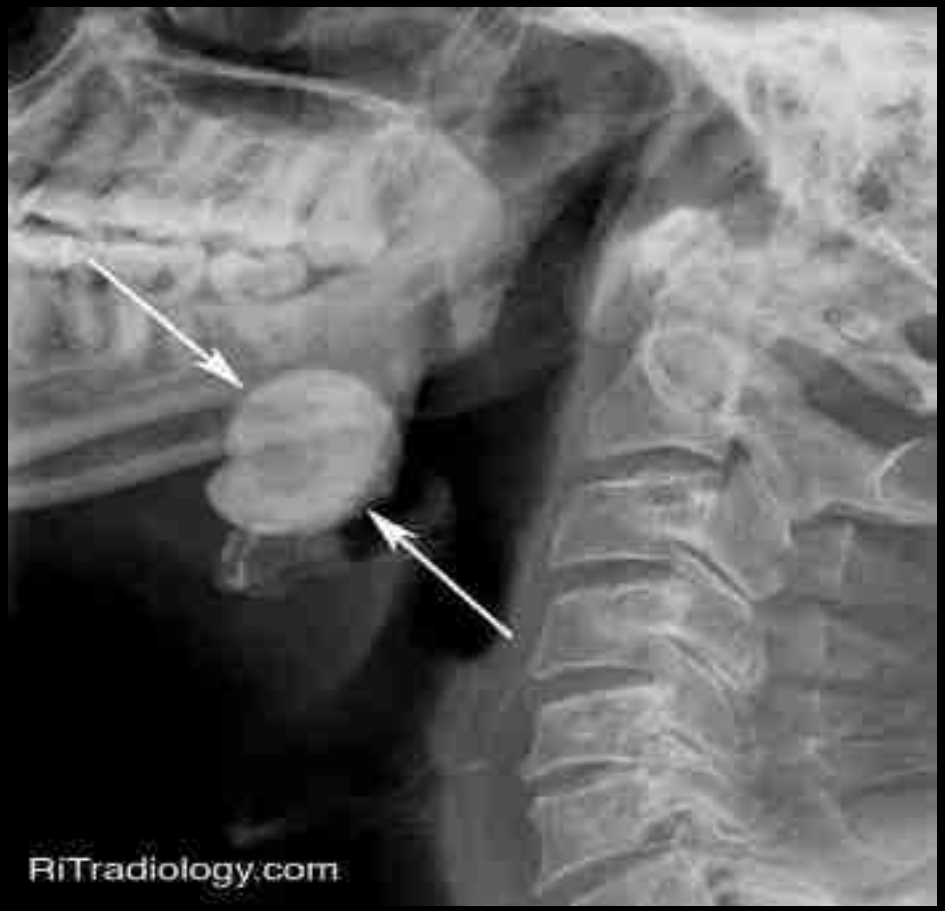
Mostly in the submandibular gland due to:

- *Anatomy of the duct*
- *Thick and High calcium content of the saliva*
- *Clinical feature :Xerostomia, pain and swelling during and after eating*
- *Investigations*
- *1.radiograph: OPG,PA, True lateral,Oblique lateral, occlusal*
- *2.sialography*

Treatment:

- *A.Surgical removal of the sialolith*
- *B.gland excision*


Çene Altı
Tükürük Bezi Taşı


RiTradiology.com

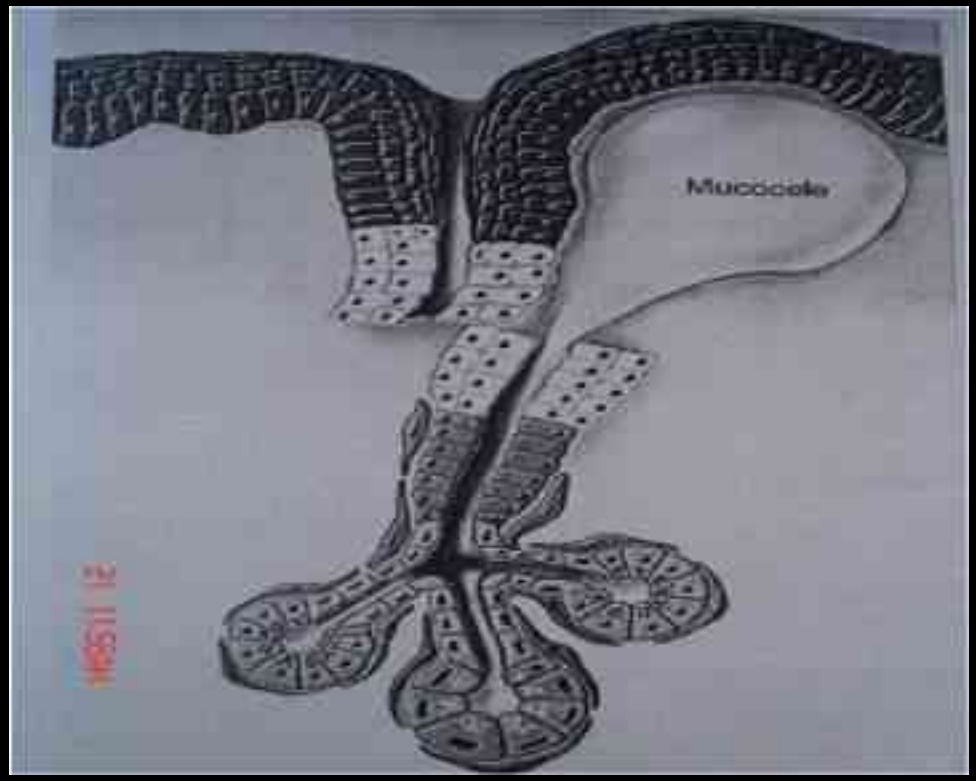
Sjogrens syndrome

- ***Autoimmune disease affect the salivary glands charectarized by Xerostomia , xerophthalmia, and usually associated with other connective tissue disorders***

- ***Investigations :***
- ***1.laboratory investigations: Rheumatoid factor , ESR***
- ***2. Sialogram (branchless fruit laden tree)***

- ***Treatment : Arifacial tear and saliva***

Mucocele

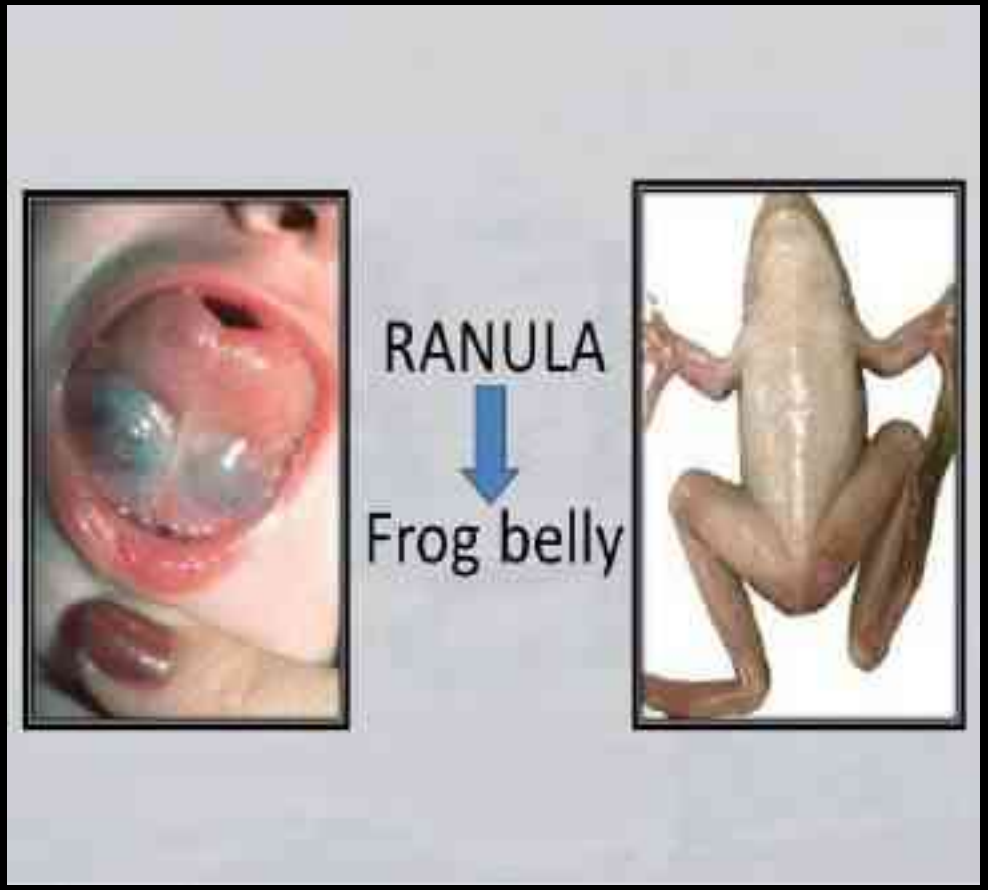


- Mucocele is clinical term that describes swelling caused by the accumulation of saliva at the site of a traumatized or obstructed minor salivary gland duct or it can be simply due to obstructed salivary gland duct.

- Mucoceles can be classified as EXTRAVASATION type and RETENTION type.

- A large mucocele in the floor of the mouth is called as RANULA.

Ranula



Xerostomia

- *Aging, duct obstruction, sjogren syndrom, drugs, radiation therapy, smoking*

- *Treatment: oral hygiene, sialogues (pilocarpine)*

Sialorrhea

- *Ill fitting denture, metal poisining,drugs…*

Treatment

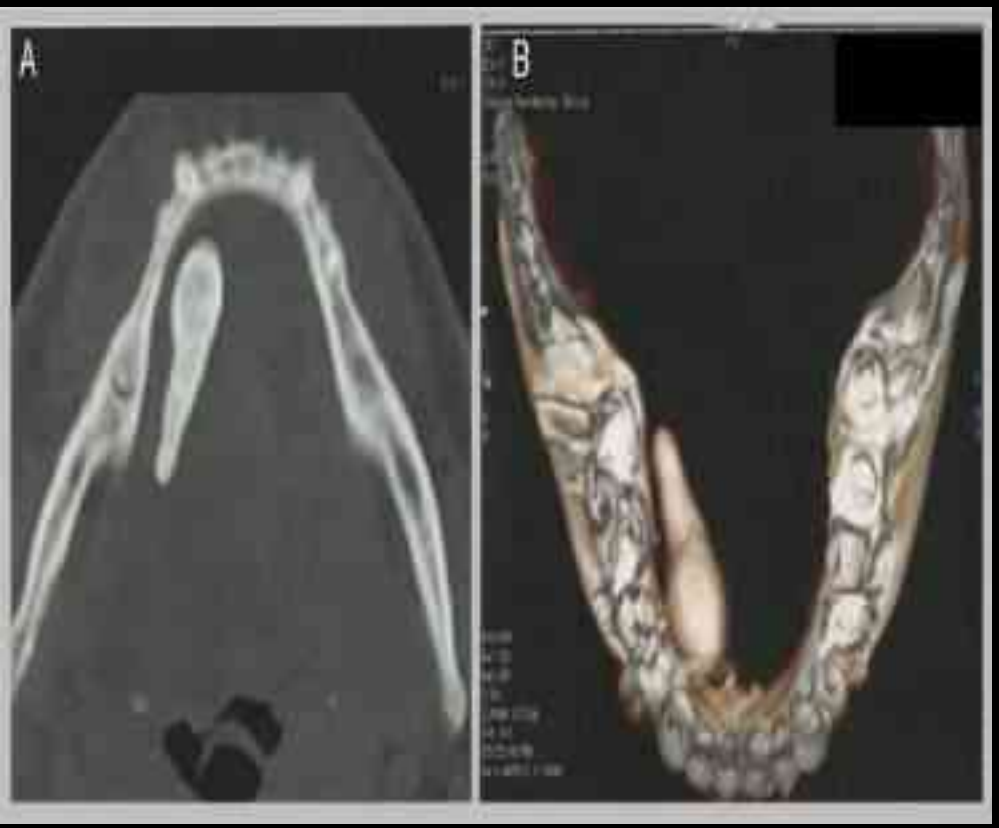
- *Anticholinergic drugs (atropine)*
- *Relocation of salivary glands ducts*
- *Botox injection*
- *Surgical excision of one or more glands*

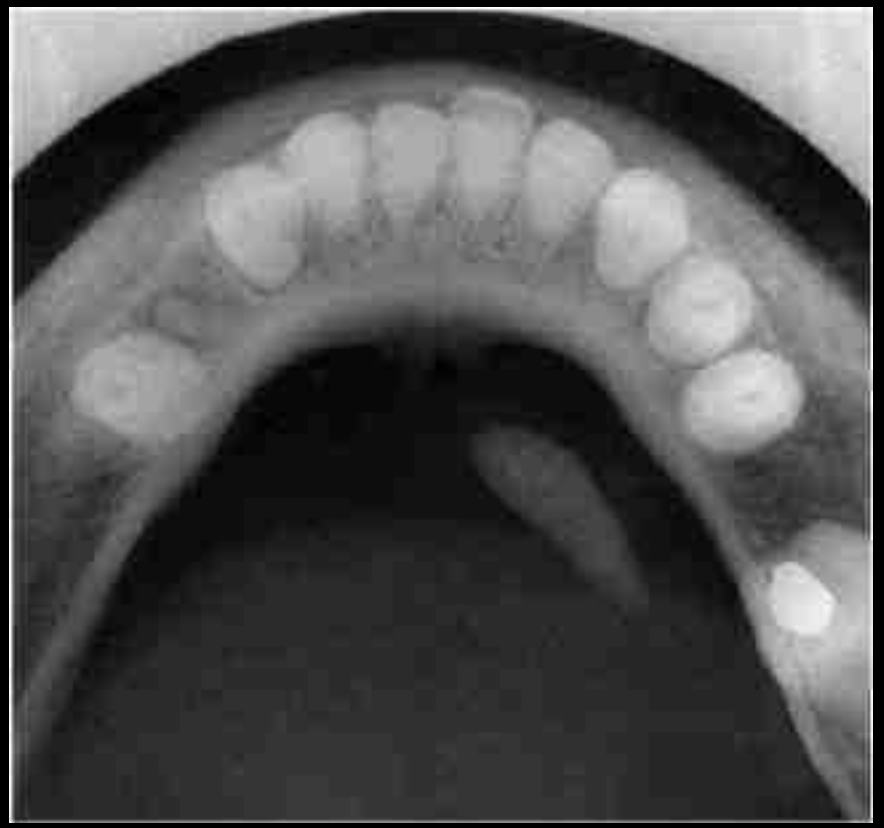
Necrotizing sialometaplasia

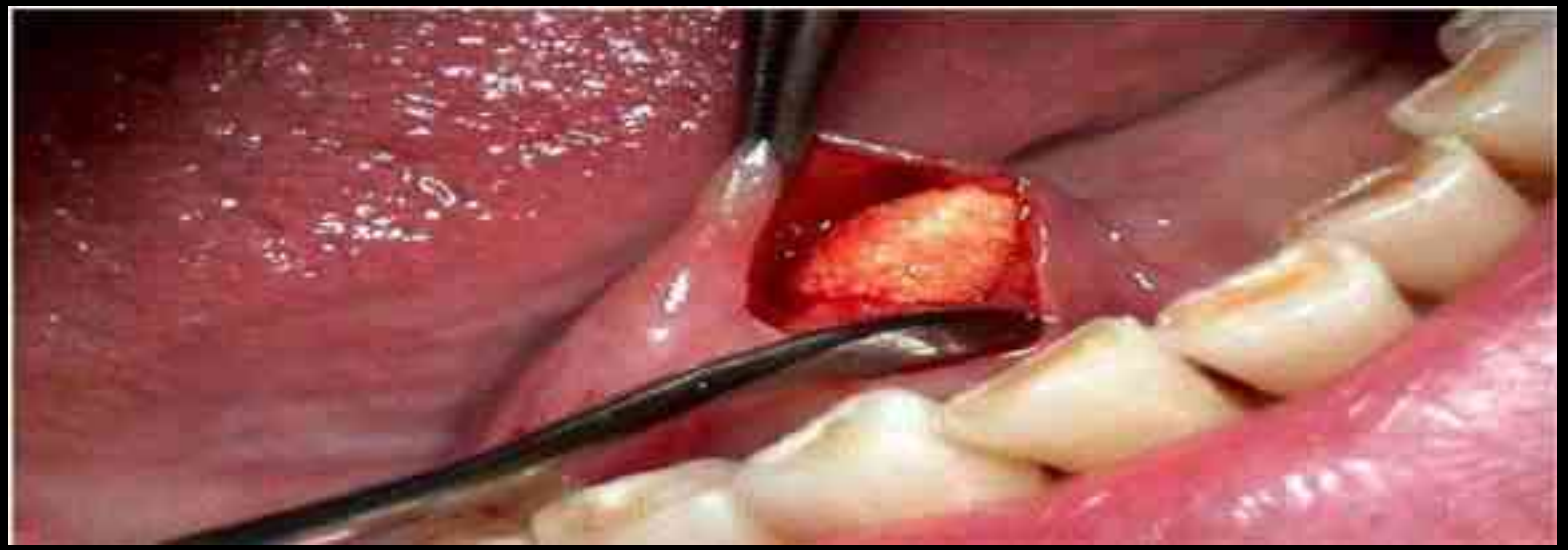
- *Inflamatory lesions of unknown causes*
- *Affect minor salivary glands*
- *Trauma lead to ischemia, necrosis*
- *Need biopsy*
- *Treatment: self limiting, irrigation with H2O2*

Surgical management for galivary glands diseases

- ***Mucocele***
- ***Ranula***
- ***Duct obstruction***
- ***Submandibular excision***


A
B



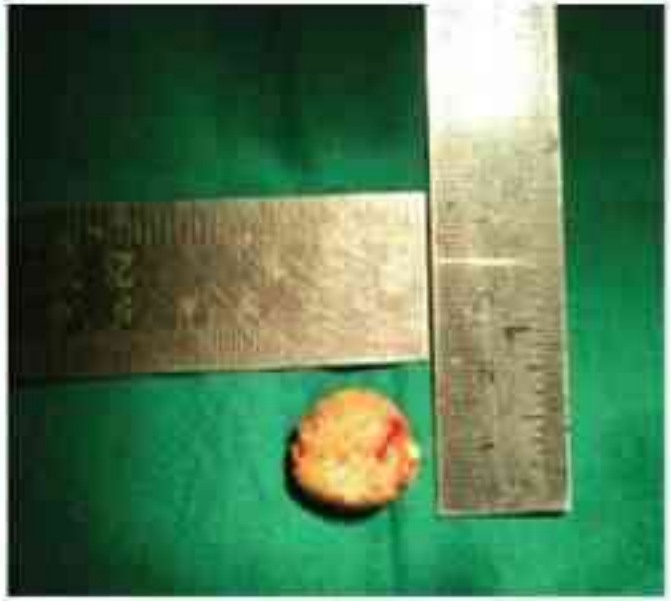


USG

Localisation

Surgical removal

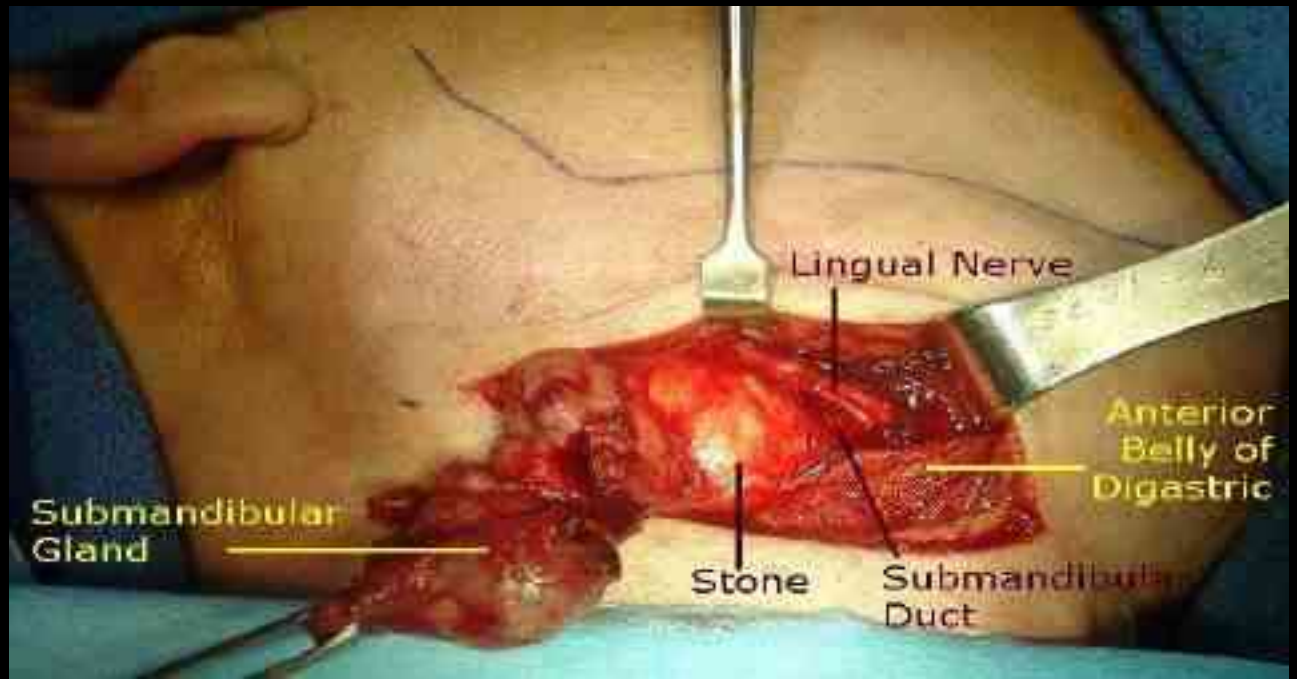
catheter placed after sialolithotomy

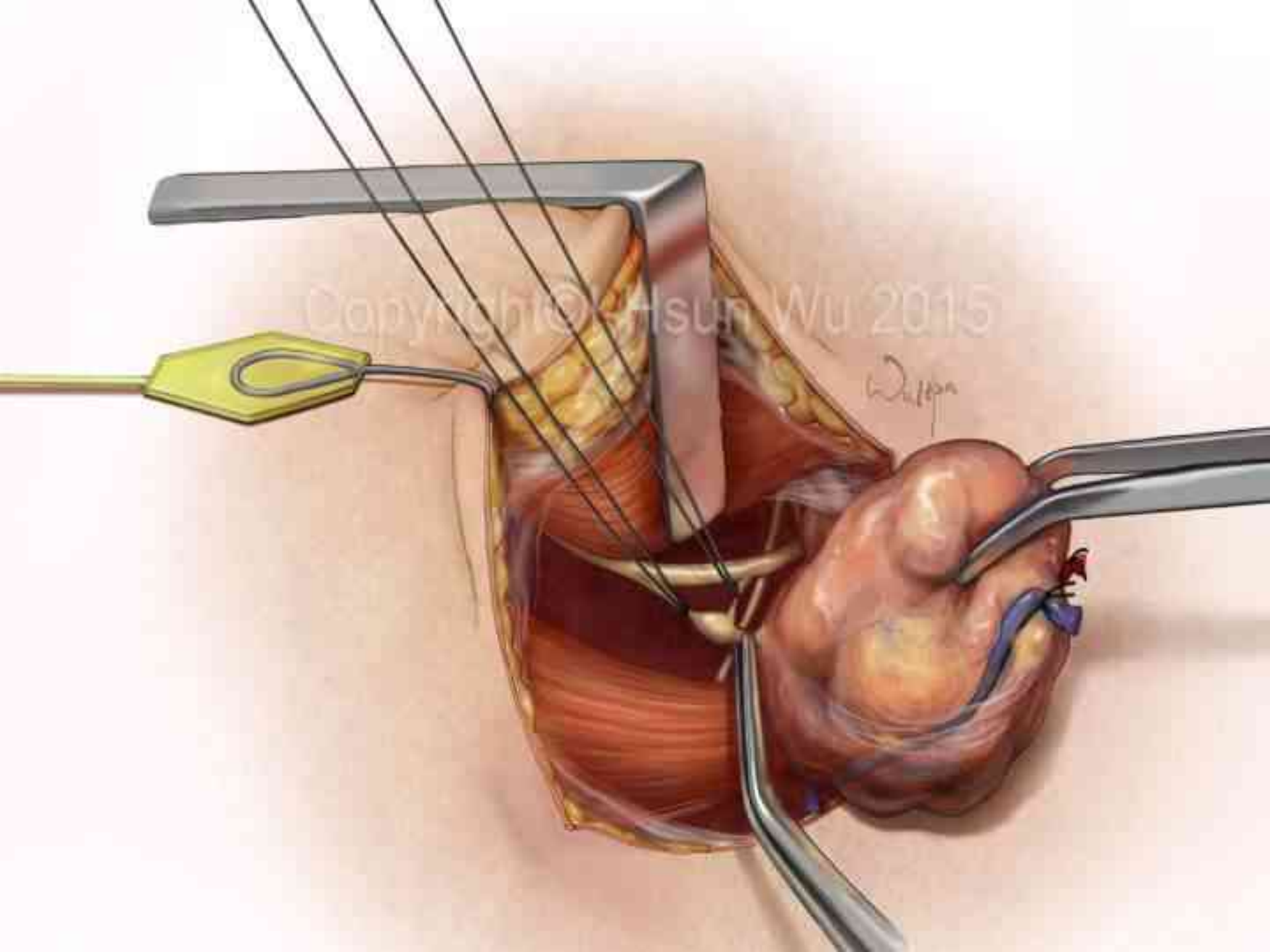


Surgically removed sialolith


Submandibular Gland


Lower Edge of Mandible
Incision

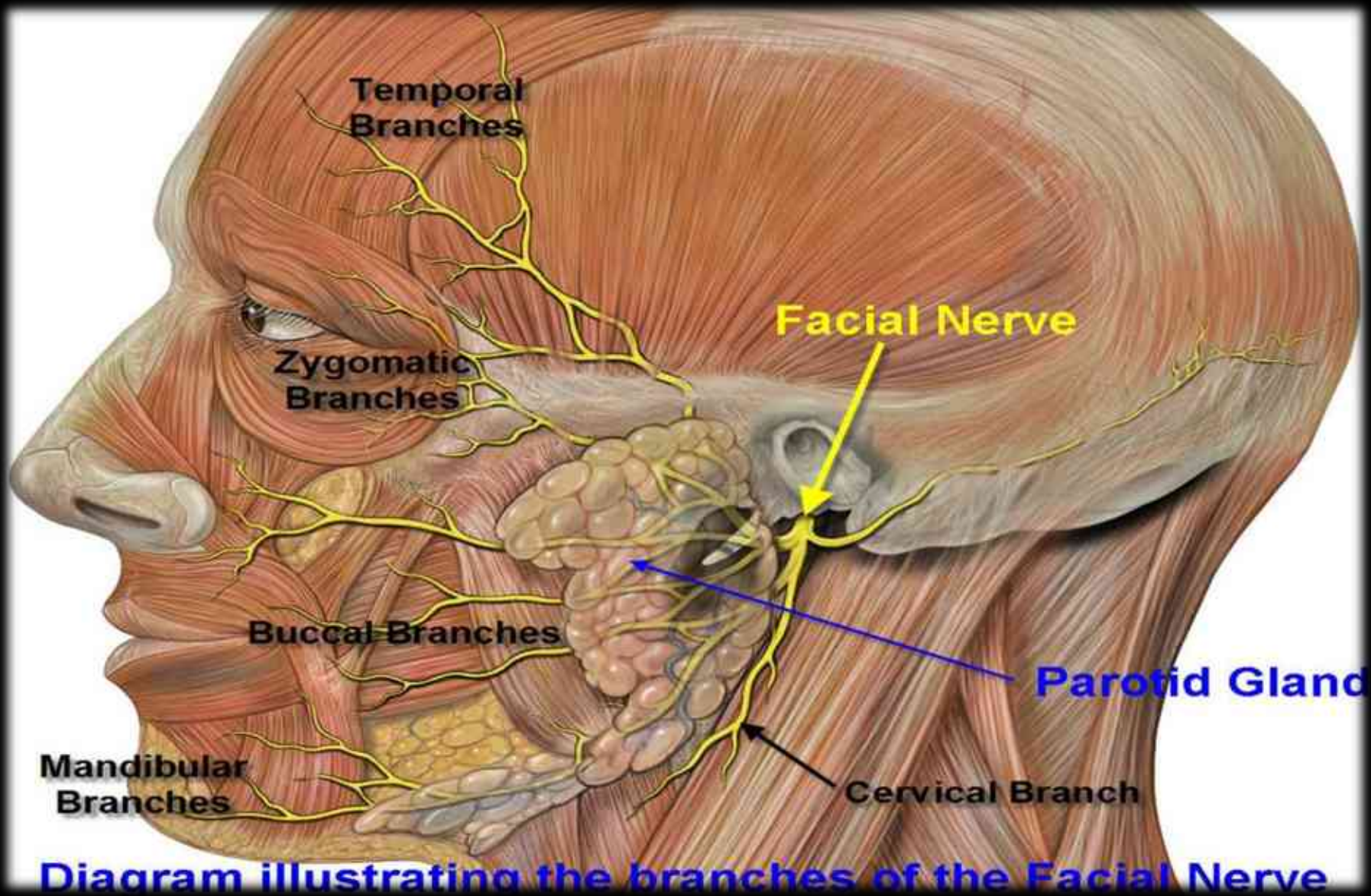

Lingual Nerve
Anterior Belly of Digastric
Submandibular Gland
Stone
Submandibular Duct



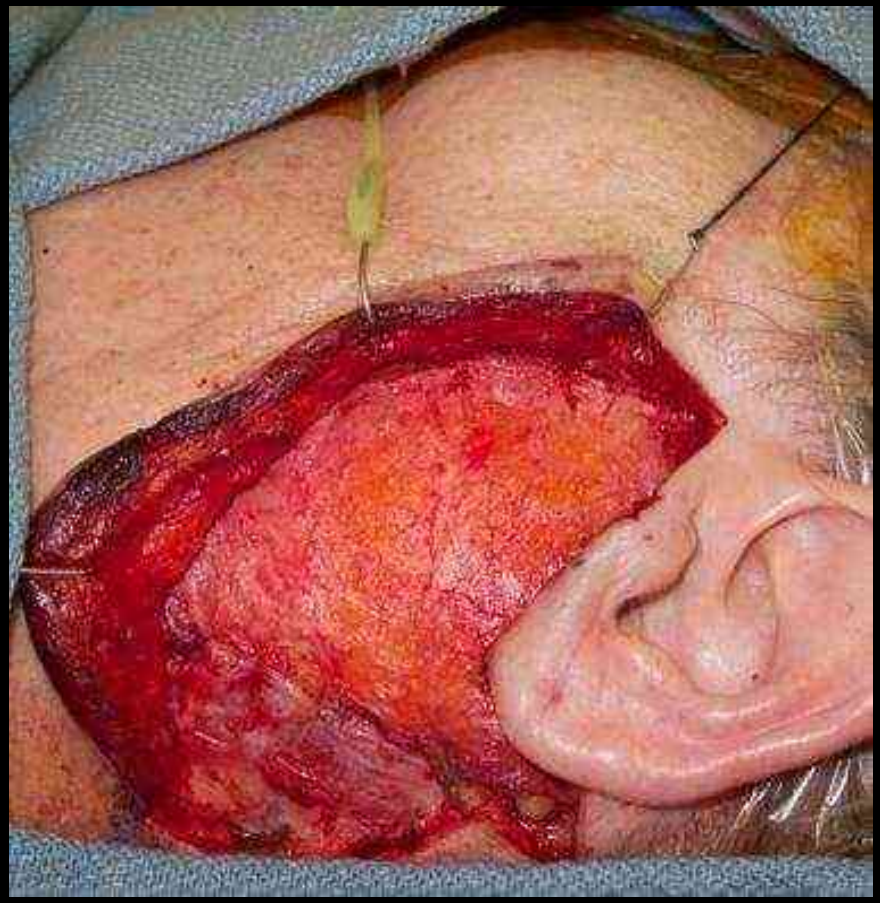
Complications of submandibular gland excision

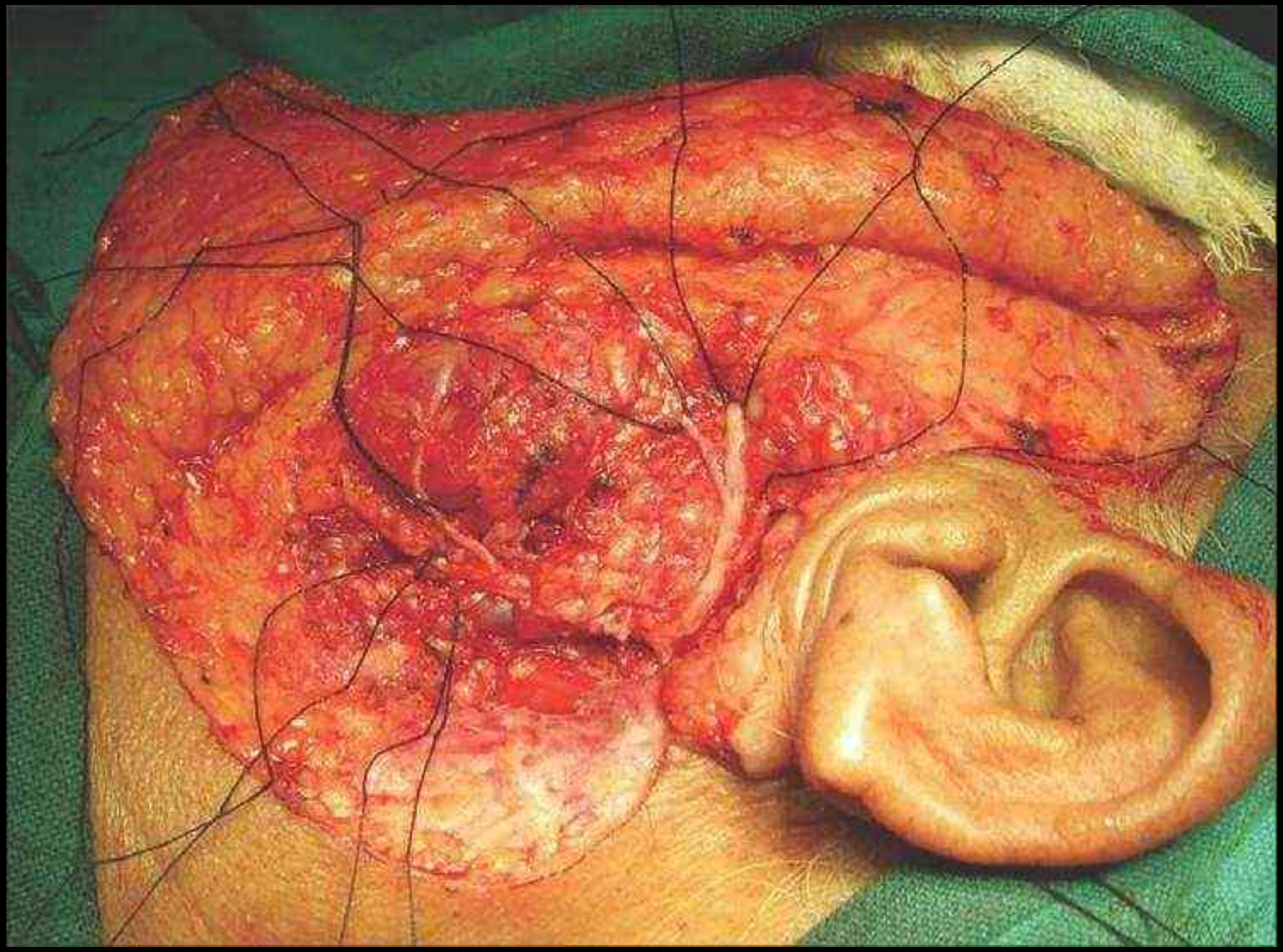
- *Bleeding and hematoma*
- *Infection*
- *Injury to facial nerve*
- *Injury to lingual nerve*
- *Injury to hypoglossal nerve*

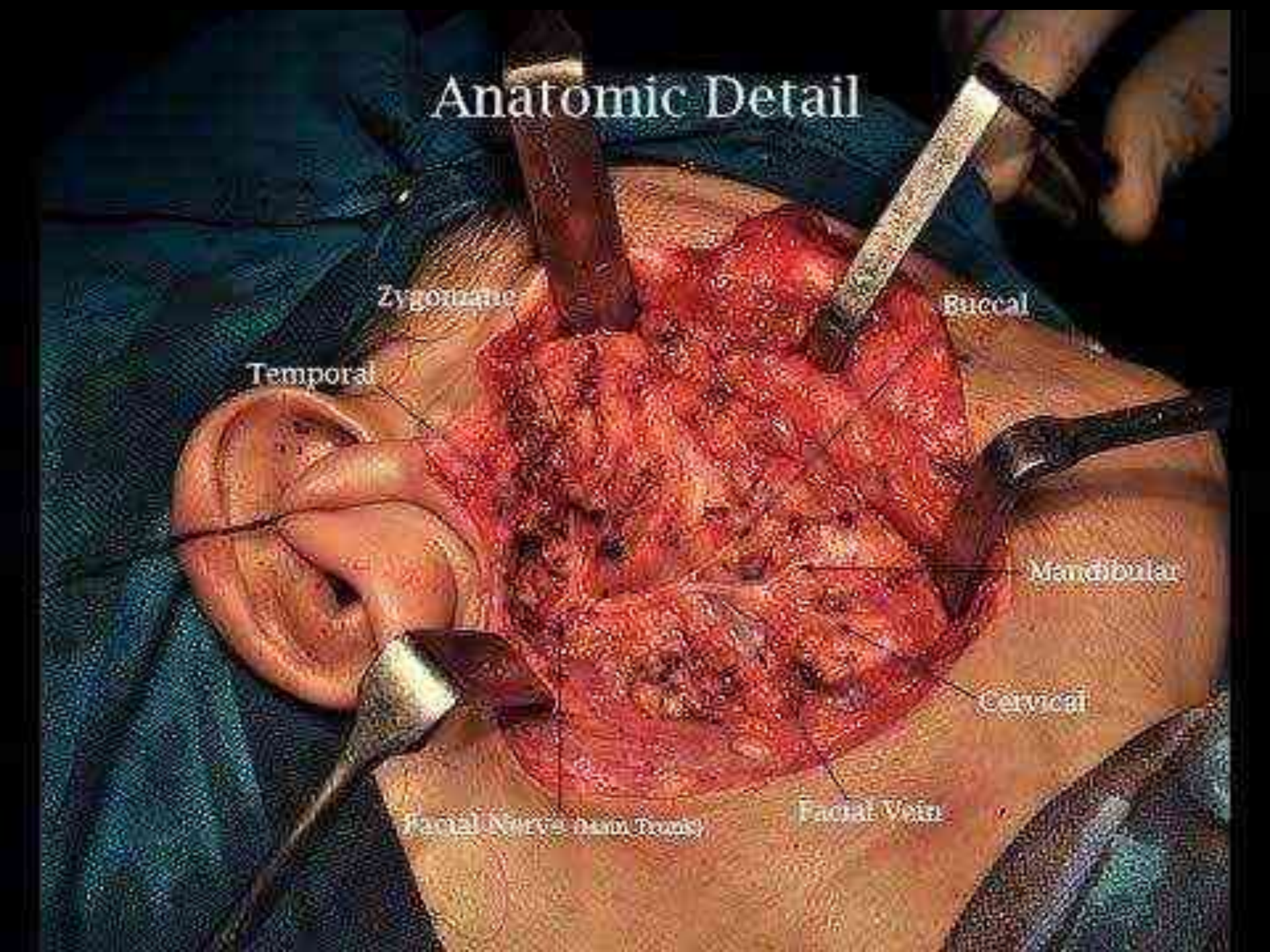
Parotid excision



Modified Blair incision for parotidectomy [3].

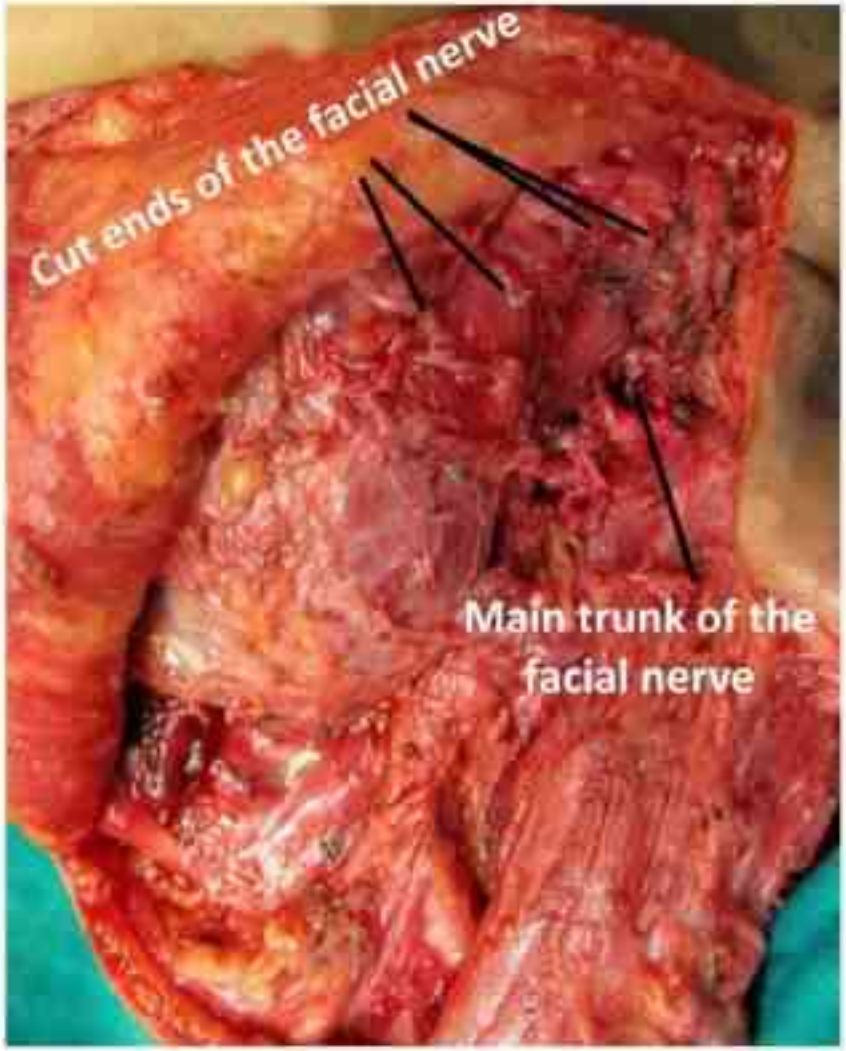





Anatomic Detail
Zygomatic
Buccal
Temporal
Mandibular
Cervical
Facial Vein

Complications of parotid excision

- *Bleeding and hematoma*
- *Infection*
- *Flap necrosis*
- *Salivary fistula*
- *Freys syndrome*
- *Facial nerve paralysis*



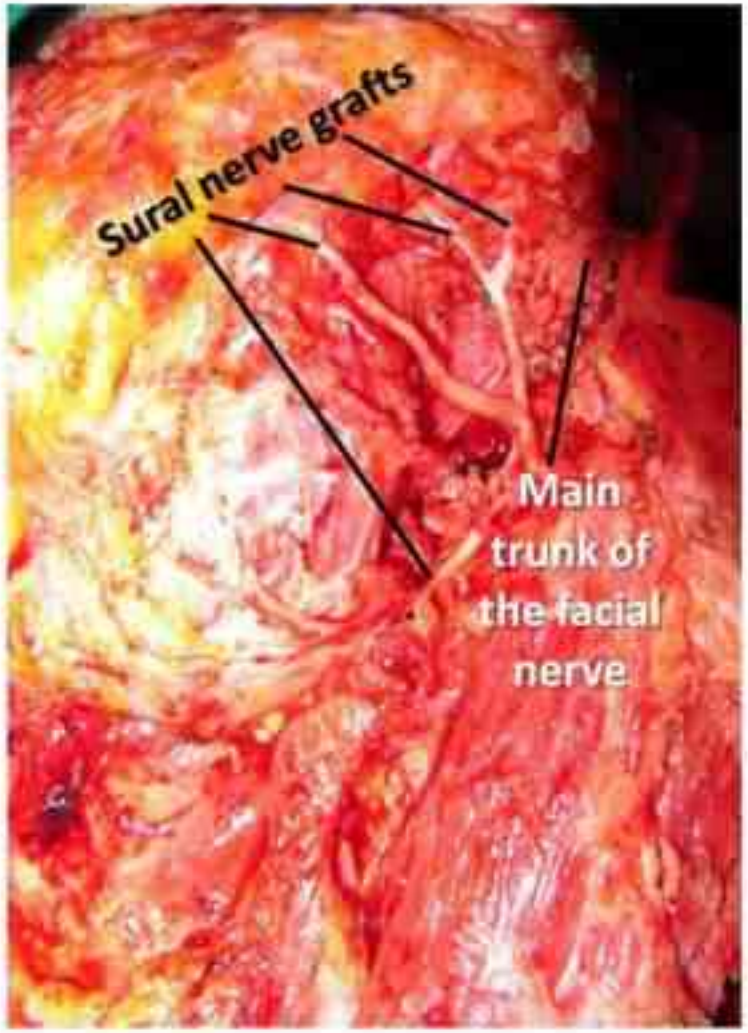


Fig. 1 and 2: The legends within the photograph are self-explanatory. In both photographs the sterno-mastoid muscle can be seen under the lower legends and has been retracted to expose the main trunk of the facial nerve. The sural nerve has been spliced into several cable grafts to repair the excised facial nerve. Photo courtesy: Prabha Yadav, Tata Memorial Hospital, Mumbai, India.

Thank you for listening …

#Rahil

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@rahil_clinic