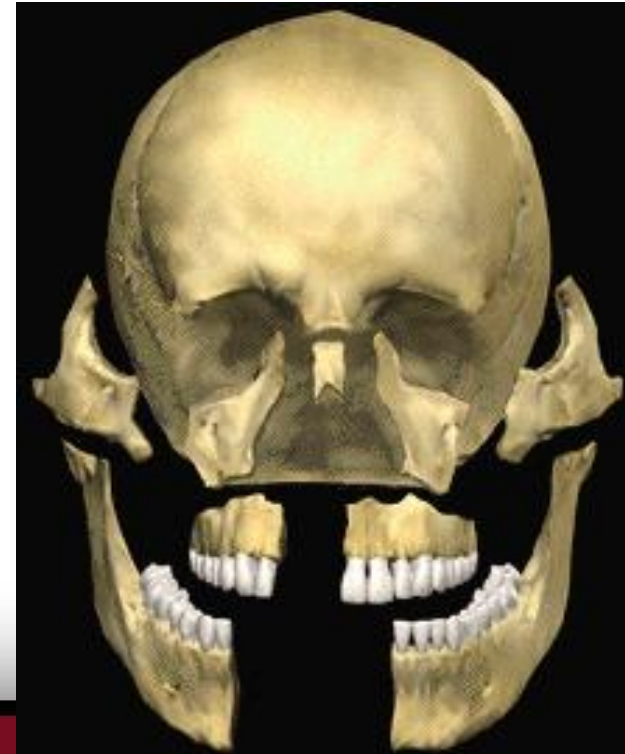


Management of Facial Fractures



EVALUATION OF PATIENTS WITH FACIAL TRAUMA



Before completing a detailed history and physical evaluation of the facial area, critical injuries that may be life threatening must be addressed



Vital signs, including respiratory and pulse rate and blood pressure, should be taken and recorded.



EVALUATION OF PATIENTS WITH FACIAL TRAUMA



other potentially life-threatening problems, such as excessive bleeding, should also be addressed.



An assessment of the patient's neurologic status and an evaluation of the cervical spine should be completed next.

Careful palpation of the neck to assess possible areas of tenderness and a cervical spine radiographic series should be completed as soon as possible.



Neurologic Evaluation and Management



Scalp.

The scalp should be examined for lacerations and evidence of fractures



Periauricular Region

The examiner should check for Battle's sign, an area of ecchymosis behind the ear that can occur with basilar skull fractures, particularly in the middle cranial fossa, and temporal bone fractures

Periorbital Region

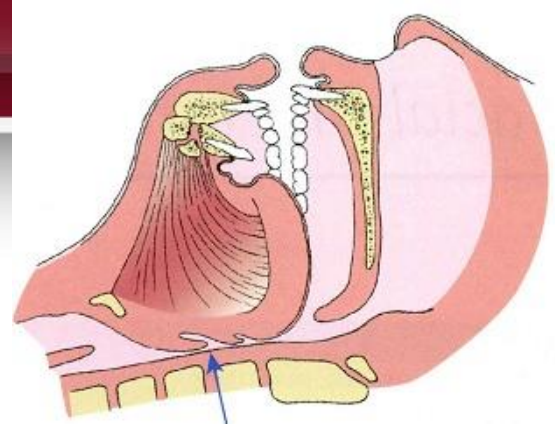
The examiner should observe for "raccoon eye," which is an area of ecchymosis, often bilateral, around the eyes that can occur with basilar skull fractures, particularly those arising from the anterior cranial fossa



EVALUATION OF PATIENTS WITH FACIAL TRAUMA



Management of the patient's airway is of vital importance. Frequently, fractures of the facial bones severely compromise the patient's ability to maintain the airway



Placement of a nasopharyngeal or an oropharyngeal airway may also be sufficient to temporarily maintain a patent airway.

In some cases, endotracheal intubation may be necessary

Any prosthetic devices, avulsed teeth, pieces of completely avulsed bone, or other debris may also contribute to airway occlusion and must be removed immediately



EVALUATION OF PATIENTS WITH FACIAL TRAUMA



In some cases an emergency tracheostomy may be necessary to provide an adequate airway.
In trauma patients who have complete upper airway obstruction, a cricothyrotomy is the most rapid way to access the trachea



History and Physical Examination



After the patient has been initially stabilized, as complete a history as possible should be obtained.

Five important questions should be considered:

- (1) How did the accident occur?
- (2) When did the accident occur?
- (3) What are the specifics of the injury, including the type of object contacted, the direction from which contact was made?
- (4) Was there a loss of consciousness?
- (5) What symptoms are now being experienced by the patient, including pain, altered sensation, visual changes, and malocclusion?



History and Physical Examination



Physical evaluation of the facial structures should be completed only after an overall physical assessment that addresses cardiopulmonary and neurologic functions and other areas of potential trauma

Periorbital ecchymosis, especially with subconjunctival hemorrhage, is often indicative of orbital rim or zygomatic complex fracture



A neurologic examination of the face should include careful evaluation of all cranial nerves. Vision, extraocular movements, and pupillary reaction to light should be carefully evaluated.



History and Physical Examination



the occlusion should be examined, and step deformities along the occlusal plane and lacerations of gingival areas should be assessed



The mandible should be carefully evaluated by extraorally palpating all areas of the inferior and lateral borders and the temporomandibular joint, paying particular attention to areas of point tenderness.

To assess maxillary mobility, the patient's head should be stabilized by using pressure over the forehead with one hand. With the thumb and forefinger of the other hand, one grasps the maxilla; firm pressure should be used to elicit maxillary mobility

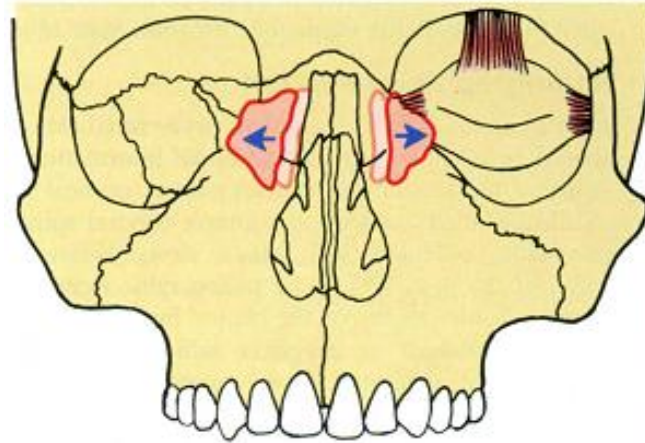


History and Physical Examination



An evaluation of the nose and paranasal structures includes measurement of the intercanthal distance between the innermost portions of the left and right medial canthus

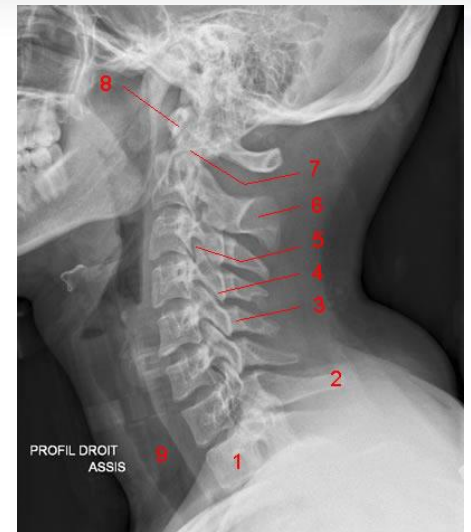
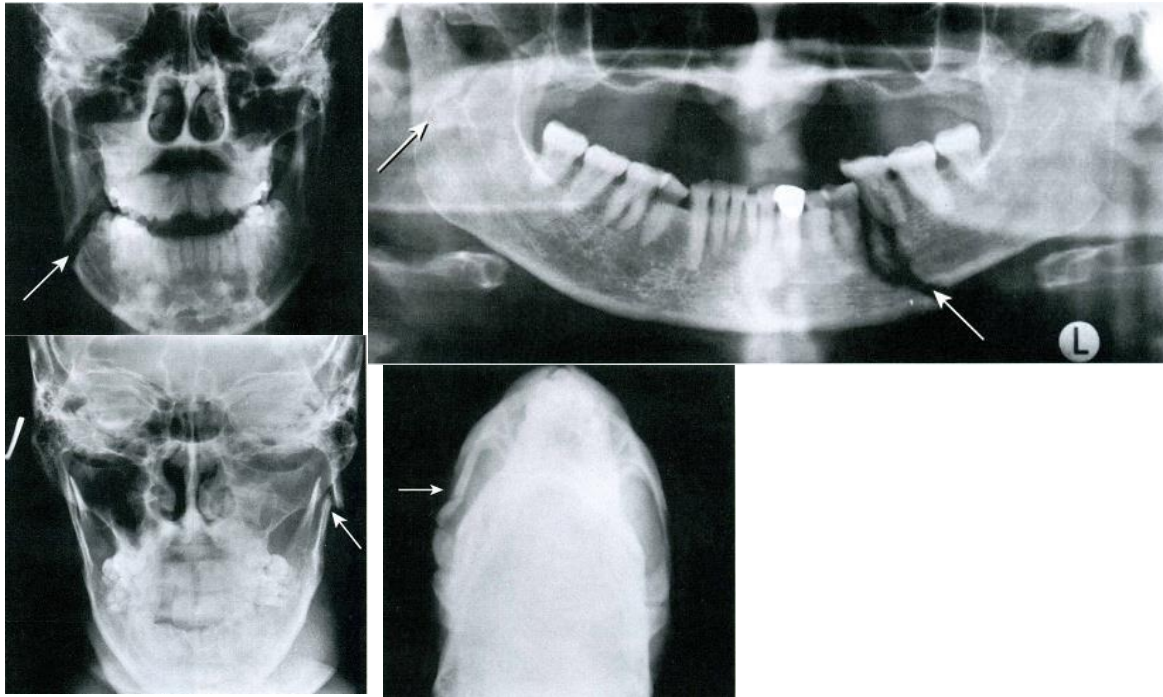
Telecantus traumatic



Radiographic Evaluation



in cases of severe facial trauma, cervical spine injuries should be ruled out with a complete cervical spine series



CAUSE AND CLASSIFICATION OF FACIAL FRACTURES

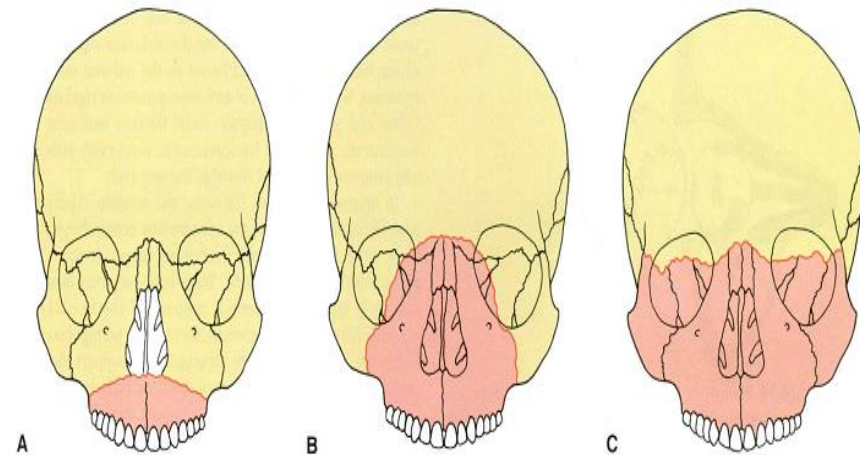


The Le Fort I fracture frequently results from the application of horizontal force to the maxilla, which fractures the maxilla through the maxillary sinus and along the floor of the nose

Le Fort II fractures, which is the separation of the maxilla and the attached nasal complex from the orbital and zygomatic structures

A Le Fort III fracture results when horizontal forces are applied at a level superior enough to separate the NOE complex, the zygomas, and the maxilla from the cranial base

Midface Fractures



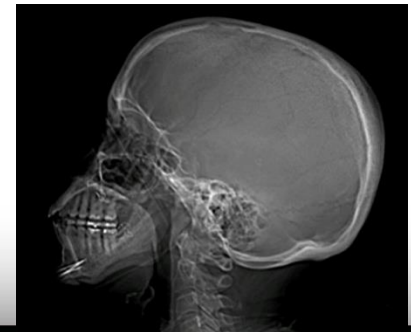
Facial Examination

The patient should be questioned about a salty, metallic-tasting discharge, which is an indication of **cerebrospinal fluid drainage**



Crepitation perceived on palpation is indicative of **orbital emphysema**. This is most commonly caused by communication with the ethmoidal sinus and secondarily with the maxillary sinus

A lateral skull view is useful in demonstrating the presence of fluid in the paranasal sinuses and of intracranial air



CAUSE AND CLASSIFICATION OF FACIAL FRACTURES

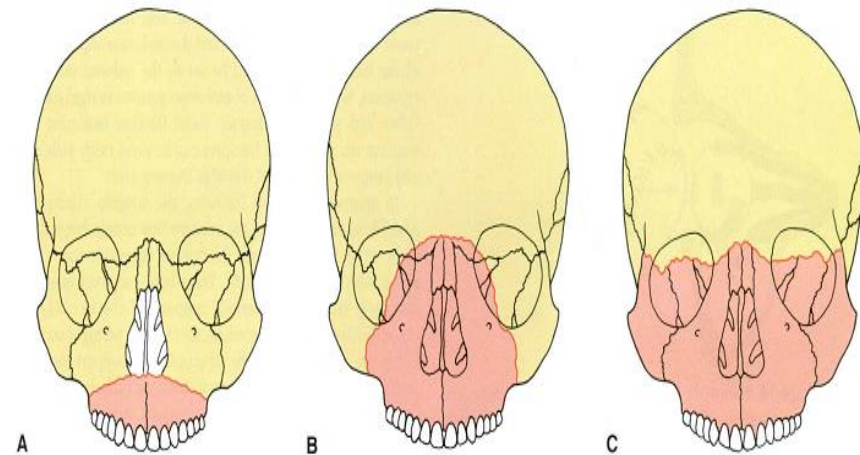


The **Le Fort I** fracture frequently results from the application of horizontal force to the maxilla, which fractures the maxilla through the maxillary sinus and along the floor of the nose

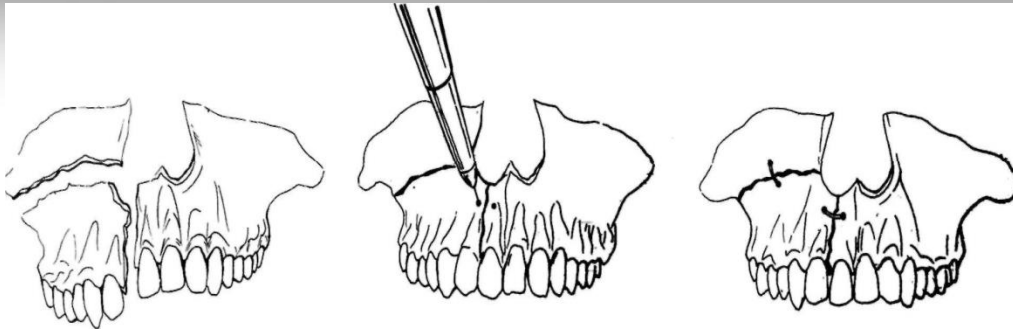
Le Fort II fractures, which is the separation of the maxilla and the attached nasal complex from the orbital and zygomatic structures

Le Fort III fracture results when horizontal forces are applied at a level superior enough to separate the NOE complex, the zygomas, and the maxilla from the cranial base

Midface Fractures



Le Fort Type I Fractures



The most accurate method of reduction is by means of an occlusal splint. It is especially useful in multisegmented maxillary fractures

A minimally displaced fracture is reduced and immobilized ideally by open reduction and immobilization carried out by appropriate plating devices.

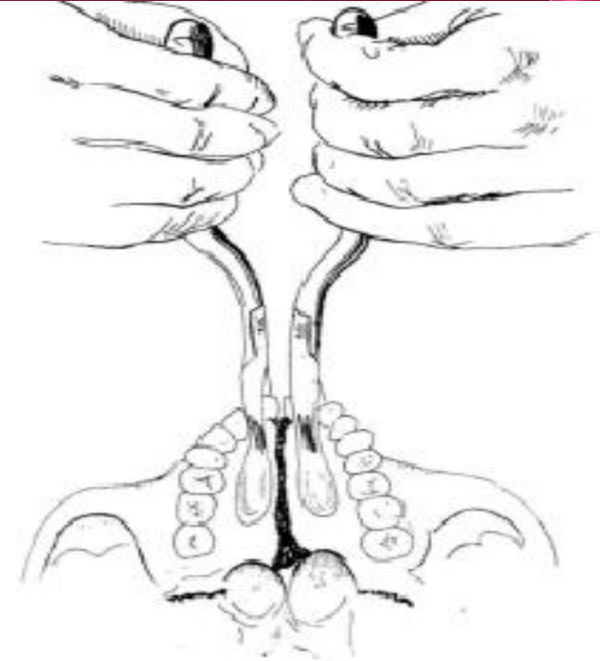


FIGURE 21-10 A Rowe disimpaction forceps is used in attempting to reduce a displaced maxilla.

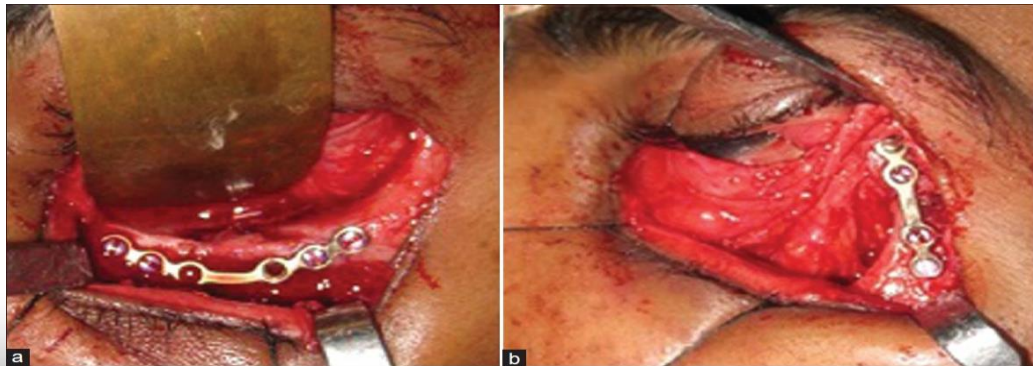


Le Fort Type II or Pyramidal Fractures



The Le Fort type II fracture is often referred to as a pyramidal fracture, with the apex of the pyramid being the nasofrontal suture

A closed reduction of a Le Fort type II fracture may be accomplished most easily with a Rowe disimpaction forceps. Intermaxillary fixation is then carried out to provide the anteroposterior position of the fracture.

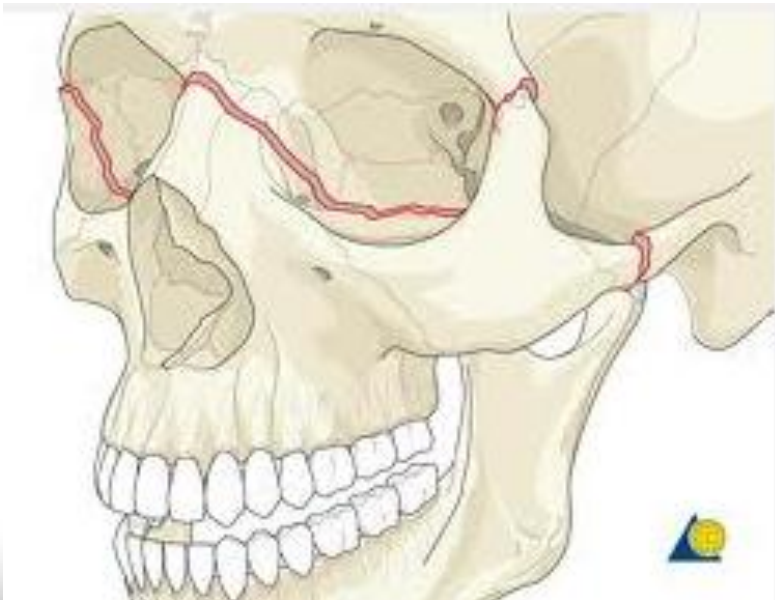


The subciliary or blepharoplasty incision is made 2 to 3 mm inferior to the gray line of the lower eyelid

Le Fort Type III Fractures



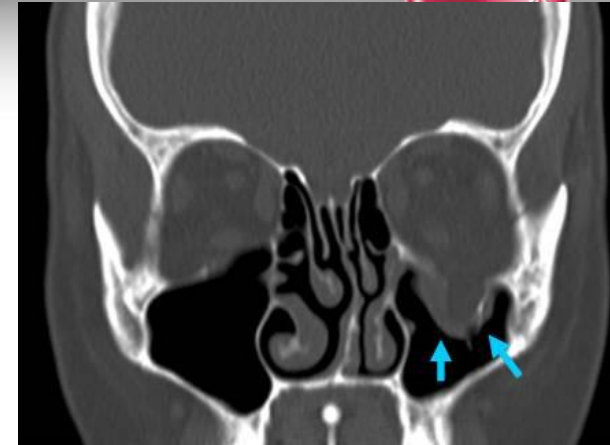
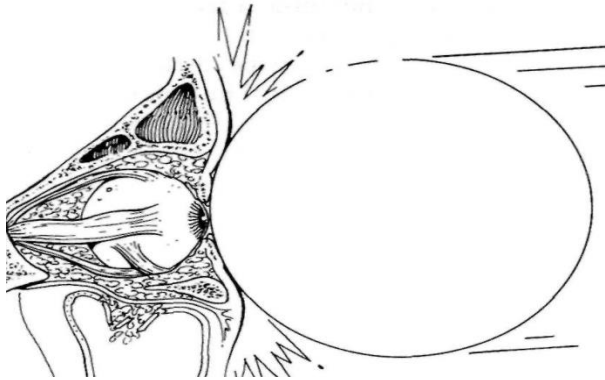
The symptoms are the classic dish face and the mobility of the zygomaticomaxillary complex often accompanied by cerebrospinal fluid leakage, edema, and periorbital ecchymosis



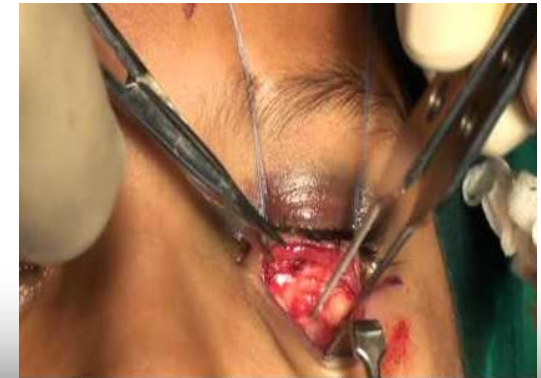
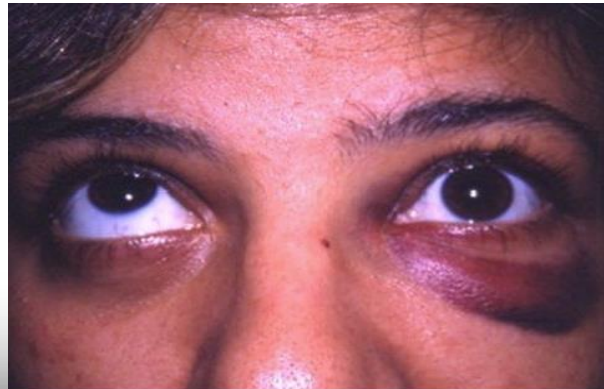
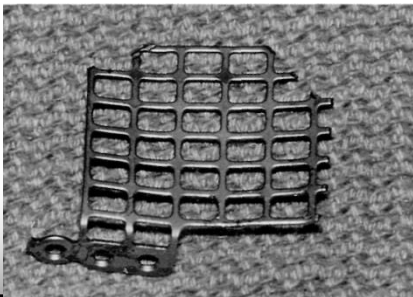
Orbital Wall Fractures



The term blowout fracture was coined by Smith and Regan. It refers to fracture of the floor of the orbit, which may be accompanied by displacement of the orbital contents into the maxillary sinus



The indication for surgical intervention is nonresolving diplopia within 2 to 3 weeks of injury







YOUR VISION OF THE WORLD
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JULIANNE MOORE MARK RUFFALO WITH DANNY GLOVER AND GAEL GARCÍA BERNAL



BLINDNESS

FROM FERNANDO MEIRELES THE ACCLAIMED DIRECTOR OF THE CONSTANT GARDENER AND CITY OF GOD

The most common cause of this complication is retrobulbar hemorrhage. This condition usually occurs within the first few hours following trauma or surgery

retrobulbar bleeding leads to increased retrobulbar pressure, which in turn results in occlusion of the ciliary arteries

The major signs and symptoms of retrobulbar hemorrhage are pain, proptosis, and decreasing visual activity

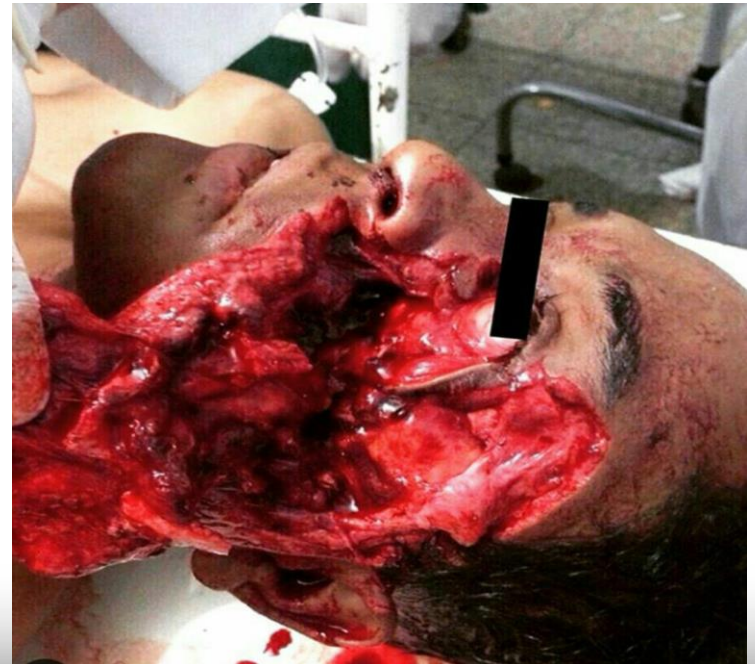
Ocular Complications



A displaced floor fractured below Whitnall's tubercle will not predictably result in **diplopia** unless the suspensory ligament is disrupted

ENOPHTHALMOS

Posttraumatic enophthalmos has been attributed to atrophy of orbital fat, enlargement of the bony orbit, dislocation of the trochlea, cicatricial contraction of the retrobulbar tissue, unrepaired fracture of the orbital wall, and displacement of the orbital tissue.



CAUSE AND CLASSIFICATION OF FACIAL FRACTURES

Mandibular Fractures



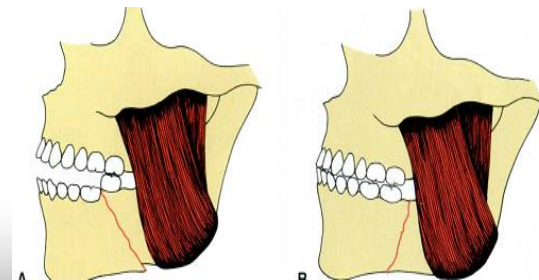
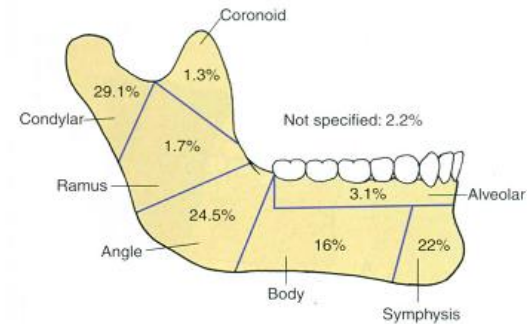
One classification of fractures describes mandibular fractures by anatomic location. Fractures are designated as occurring in the condylar, ramus, angle, body, symphyseal, alveolar, and, rarely, coronoid process areas.

Greenstick fractures are those involving incomplete fractures with flexible bone.

A simple fracture is a complete transection of the bone with minimal fragmentation at the fracture site.

in a comminuted fracture the fractured bone is left in multiple segments

A compound fracture results in communication of the margin of the fractured bone with the external environment.



TREATMENT OF FACIAL FRACTURES



Whenever facial structures are injured, treatment must be directed toward maximal rehabilitation of the patient.

To achieve these goals, the following basic surgical principles should serve as a guide for treatment of facial fractures:

reduction of the fracture (i.e., restoration of the bony segments to their proper anatomic location) and fixation of the bony segments to immobilize segments at the fracture site.

The rationale was that the mandible could be most easily stabilized, and the occlusion and remainder of the facial skeleton could be set to the reduced mandible.

However, with the advent of and improvement in rigid fixation (plate and screw) techniques, facial fracture treatment may begin in the area where fractures can be most easily stabilized and progress to the most unstable fracture areas



TREATMENT OF Mandibular Fracture (close)

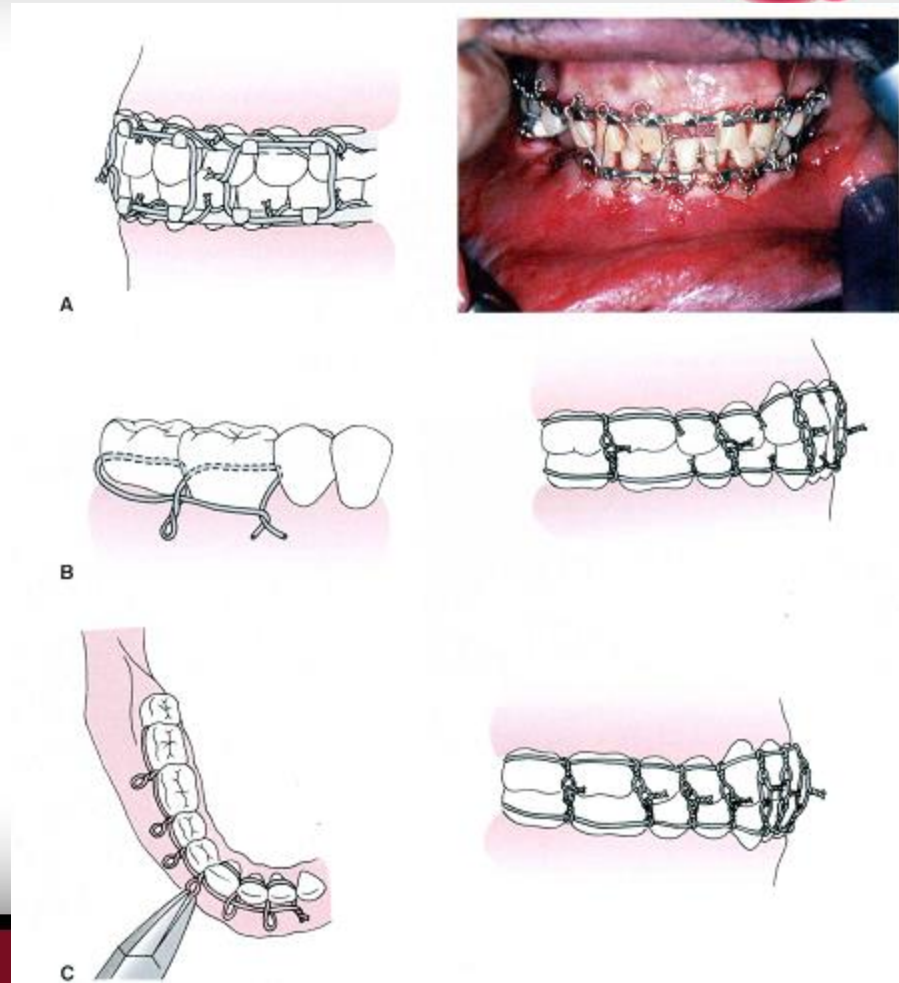


The first and most important aspect of surgical correction is to reduce the fracture properly or place the individual segments of the fracture into the proper relationship with each other.

establishing a proper occlusal relationship by wiring the teeth together is termed maxillomandibular fixation (MMF) or intermaxillary fixation (IMF).



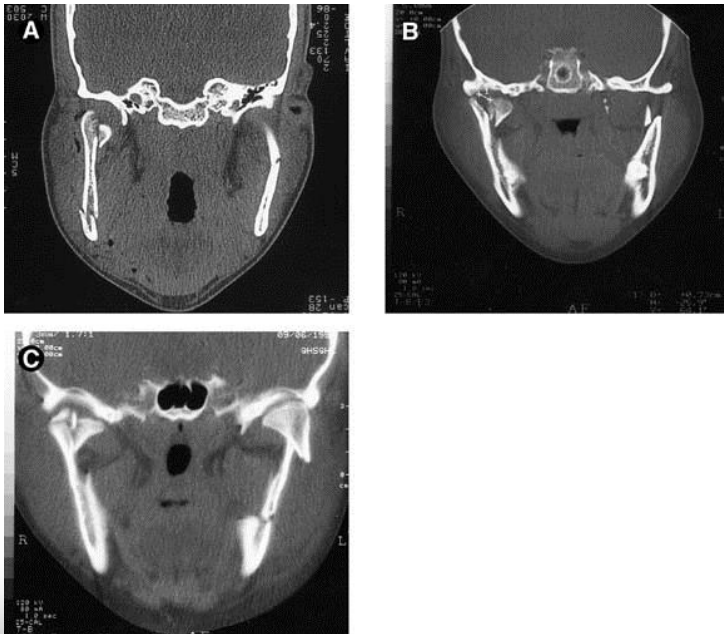
7-10 days IMF in children



TREATMENT OF Mandibular Fracture (open)



Indications for open reduction include continued displacement of the bony segments or an unfavorable fracture, such as in an angle



In some cases it is not necessary to achieve an ideal anatomic reduction of the fracture area. This is especially true of the condylar fracture.

TREATMENT OF Mandibular Fracture (open)



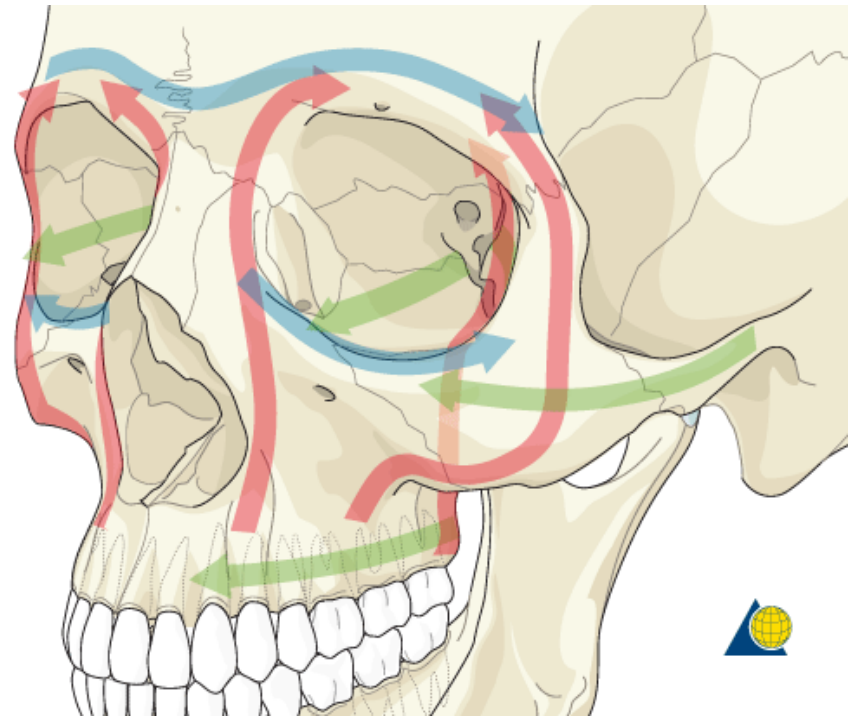
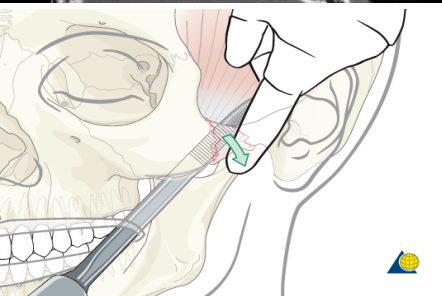
In some cases, posterior body and angle fractures can be treated through a combination approach using an intraoral incision combined with insertion of a small trocar and cannula through the skin to facilitate fracture reduction and fixation



TREATMENT OF Midface Fracture



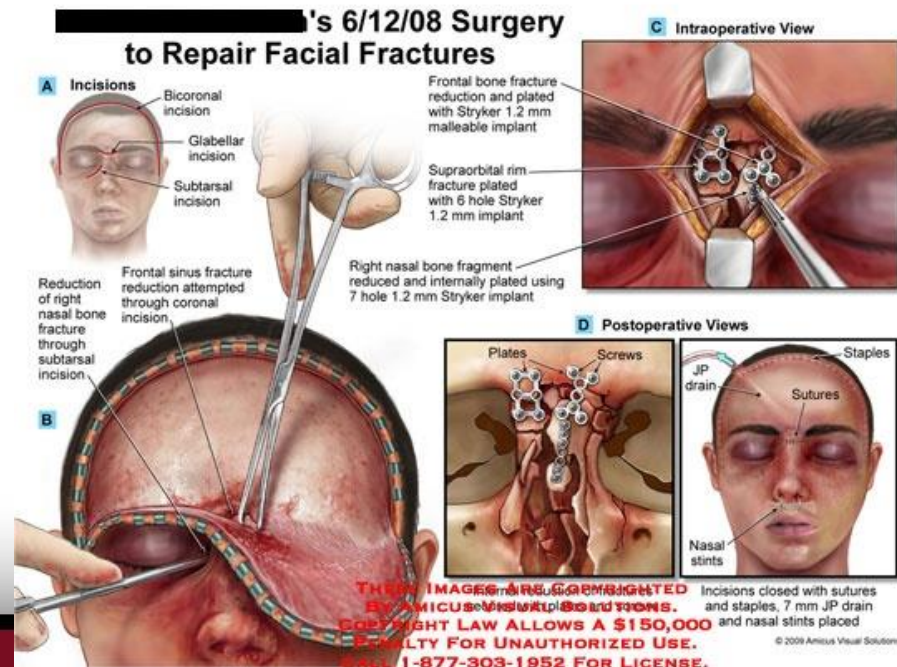
In zygoma fractures, isolated zygomatic arch fractures, and NOE fractures, treatment is primarily aimed at the restoration of normal ocular, nasal, and masticatory function and facial esthetics



TREATMENT OF Midface Fracture



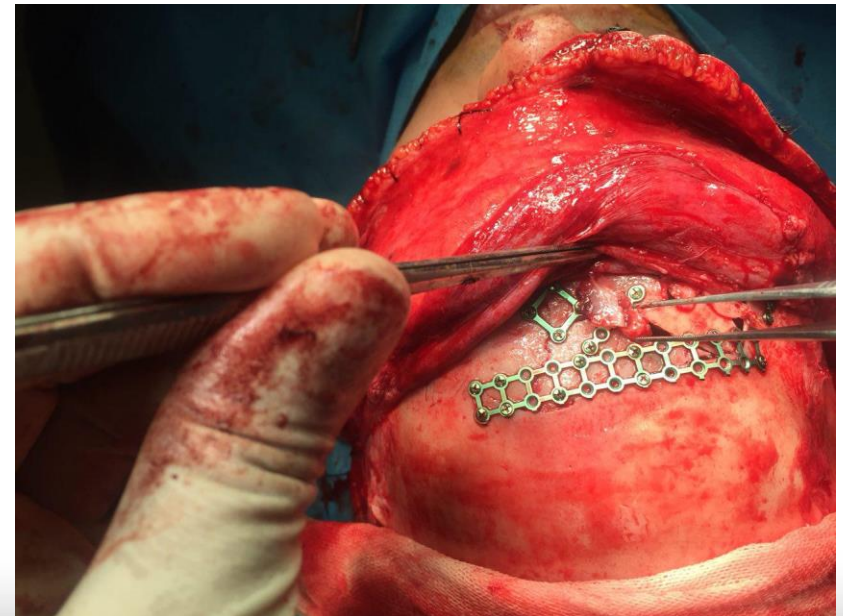
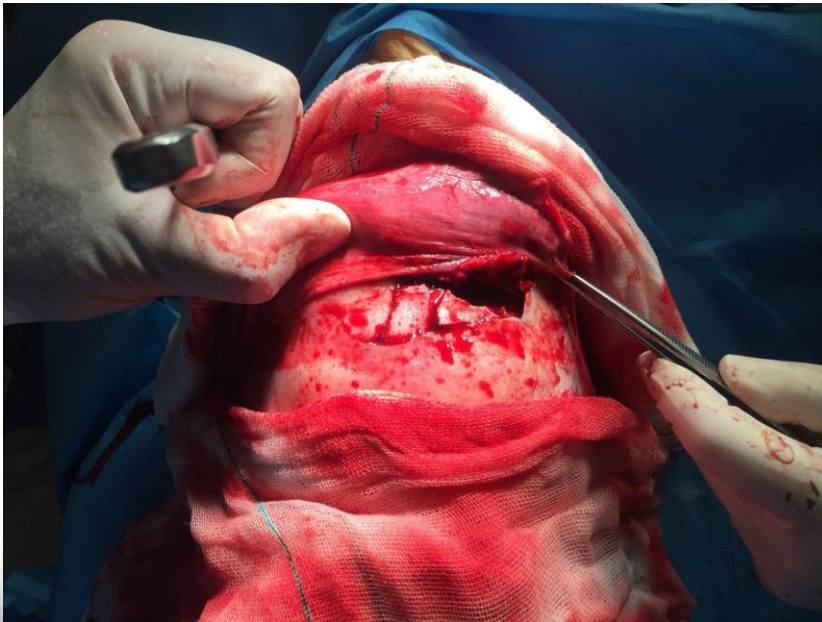
The most popular approach currently in use is the coronal flap, which allows exposure of the entire upper facial and nasoethmoidal complex through a single incision that can be easily hidden in the hairline



TREATMENT OF frontal Fracture



The most popular approach currently in use is the coronal flap, which allows exposure of the entire upper facial and nasoethmoidal complex through a single incision that can be easily hidden in the hairline



Lacerations



The lacerations should be closed from the inside out, that is, from the oral mucosa to the muscle to the subcutaneous tissue and skin.



