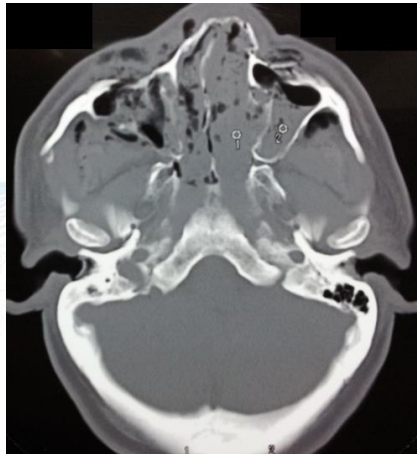


Maxillary fractures



Version 2 (December 12, 2018)

Faculty can replace the clinical images in the presentation with equivalent images

Learning objectives

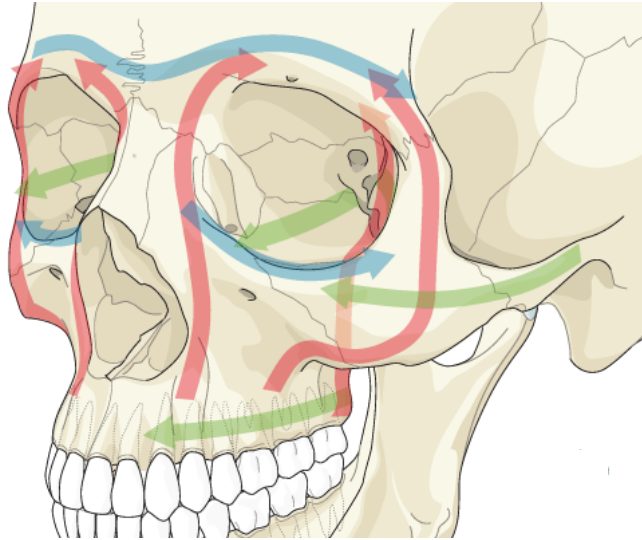
- Describe the different buttresses in the midface
- Describe the mechanism of injury for different types of Le Fort fractures
- Recognize signs and symptoms of Le Fort and palatal fractures
- Select appropriate imaging modalities and interpret the findings
- Formulate principles of management

Clinical findings

- Facial swelling or bruising
- Malocclusion
- Maxillary mobility
- Elongated face
- Paresthesia
- Nasal bleeding \pm rhinorrhea



Biomechanics

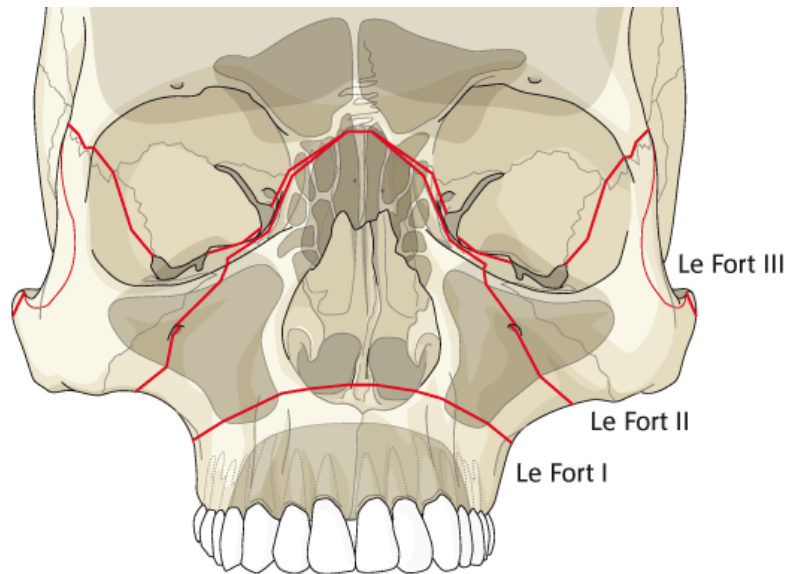


Vertical and horizontal buttresses



1. Maxilla makes up the greater portion of midface.
2. Upper jaw in the inferior aspect.
3. Support the globe superiorly.
4. Designed to withstand forces of mastication from below.
5. May be fractured by relatively small impact from other directions.

Maxillary fracture classification



AOCMF

Some points for faculty:

- Pure Le Fort I, II, and III fractures are rare. They are commonly associated with other multiple midface fractures.
- Classic description—symmetrical fractures on the right and left side of the midface.
- Many fractures follow the Le Fort pattern but only unilateral.
- Fractures levels may differ on both sides.
- May be linear or comminuted or a combination.

Goals of management

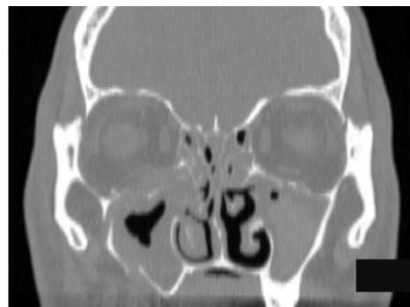
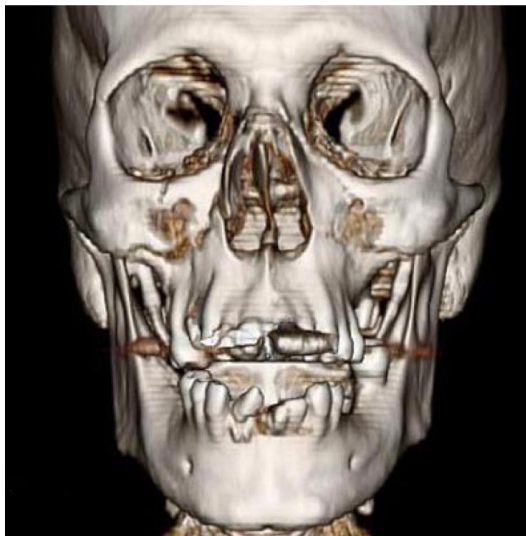
Restore anatomy in all three dimensions:

- Plating all anterior maxillary buttresses
- Restore vertical dimensions and horizontal projection
- Reestablish pretraumatic occlusion

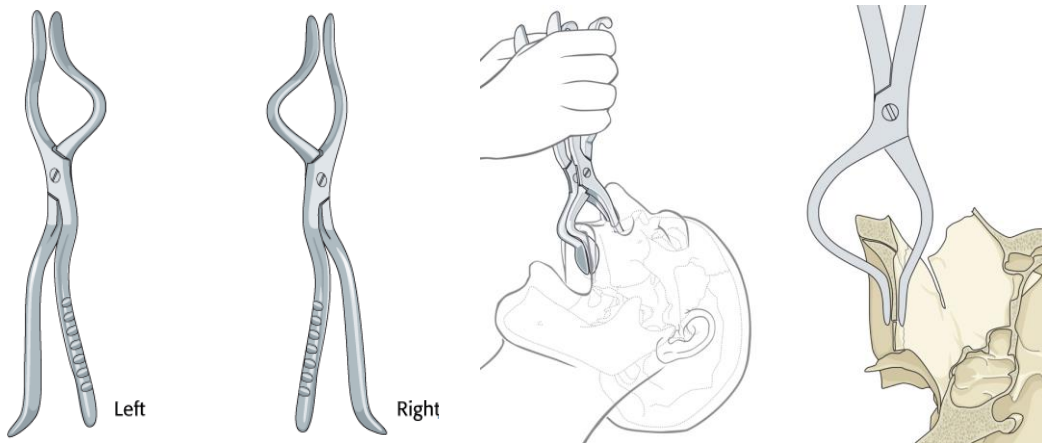


CT is required for diagnosis and planning.

CT required for diagnosis and planning

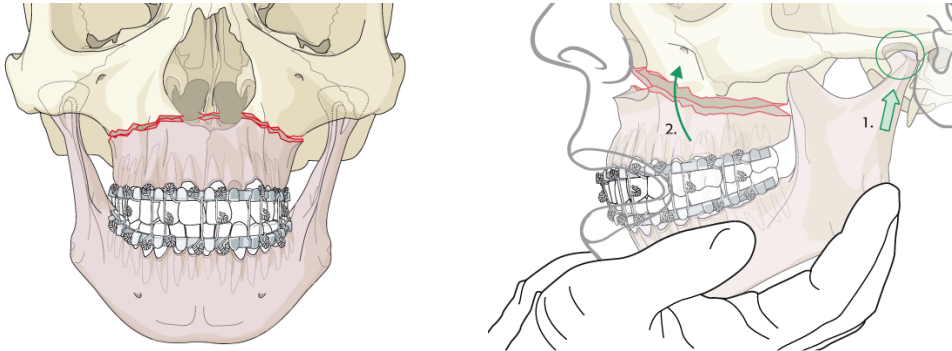


Reduction



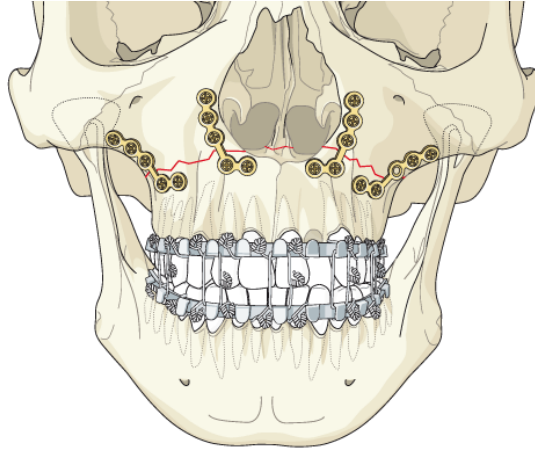
Maxillary fracture disimpacted with Rowe forceps

Reduction



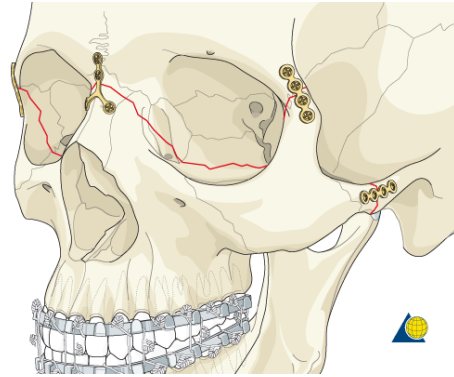
- Maxillomandibular fixation (MMF) applied
- Ensure condyles are properly seated in glenoid fossa

Fixation—Le Fort I



- Maxillary buttresses exposed by upper sulcus incision
- Fractured buttresses plated
- At least two screws on each side of the fracture

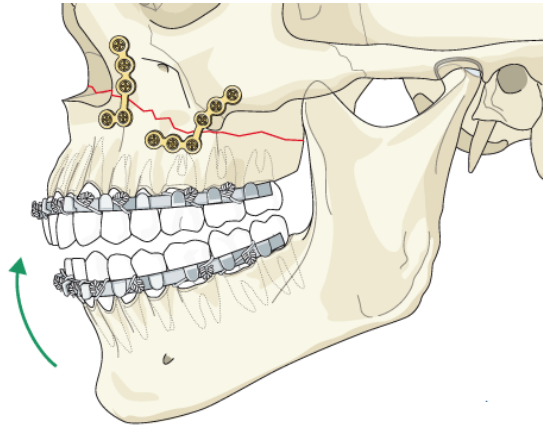
Fixation—Le Fort II and III



For complex fracture patterns, consider coronal approach for:

- Exposure and fixation of frontonasal region
- Exposure and fixation of zygomatic arch

After internal fixation...



MMF is released and occlusion checked

Take-home messages

- Le Fort fractures—three levels
- Adequate exposure necessary for reduction and fixation
- Management goals:
 - Restore vertical and horizontal projection of the face
 - Restore premorbid occlusion