- Falls, MVA & assaults are again commonest causes of facial trauma.

Assessment

History: Accidental/NAI. Epistaxis, impairment of vision, type of impact/implements used.
Exam: Airway & C-spine assessment. Note bruising, deformities, lacs (length, depth & what structures they traverse), FBs. Areas of tenderness, bony steps, crepitus & emphysema. Note in particular, nasal deviation, septal haematoma, mobility of teeth or midface, sensation over face or signs of BOS #.

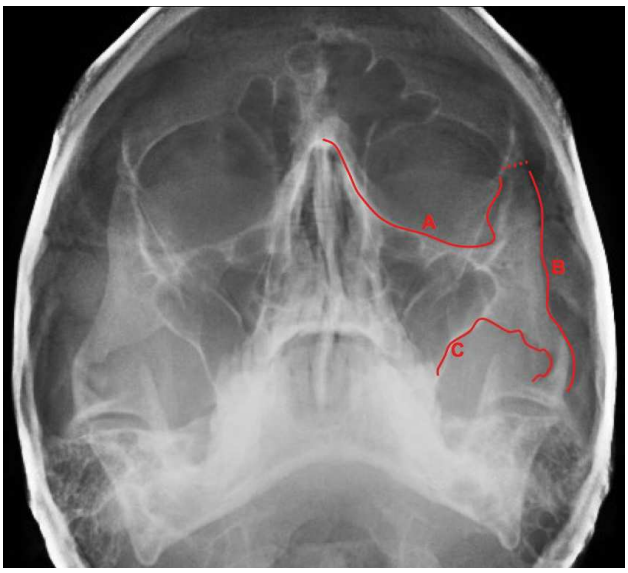
Investigation

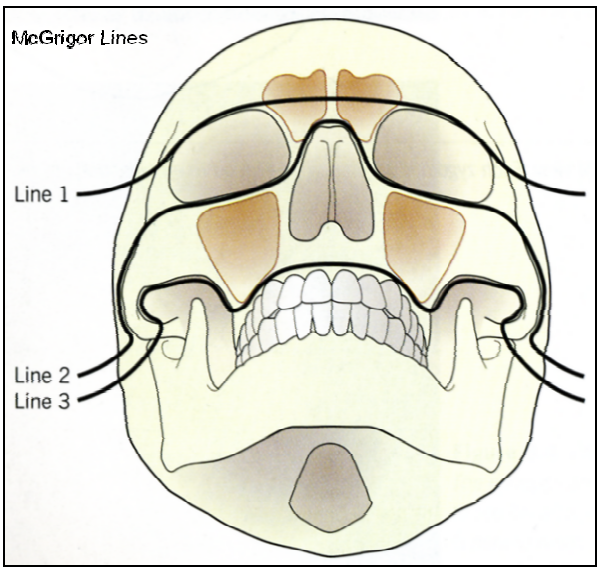
Bloods/Urine: If indicated by circumstances of injury.
Imaging:

- **Facial Xrays:** Some or all of occipitomental [OM 15°] (Waters') view, OM @ 30°, PA (Caldwell) view, Towne's view & lateral view. Also submentovertex (skyline) view for zygomatic arches & BOS, or OPG for mandible & teeth.
- **Facial CT:** non-contrast, fine cuts with reconstruction (3D, coronal & saggital) when # (or very likely #) of any bone other than simple nasal #.

XR Tips:

- Look at the orbits carefully, since 60-70% of all facial fractures involve the orbit.
- The exceptions: a local nasal bone #, a zygomatic arch #, and the LeFort I #. Bilateral symmetry can be very helpful. Normal radiopacities are usually bilateral, while abnormal ones are usually unilateral e.g. in maxillary sinus (2)
- Carefully trace along the elephantine lines of Dolan (A, B, C) or McGrigor's (1,2,3) lines when examining the OM view in a facial series.





Nasal Fracture

- Most frequent injured facial feature.
- Most commonly missed #
- Imaging only indicated if other facial # are considered likely
- Mx: Analgesia. Generally review by GP or ENT at 5d when swelling subsides. If significant deformity or nasal obstruction then reduction considered before day 10.

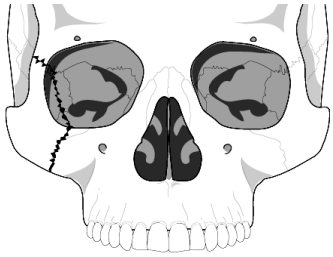
Naso-orbito-ethmoid (NOE) Complex Fracture

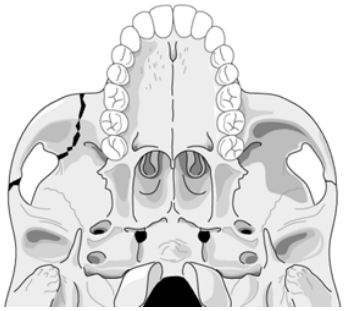
- # around nasal bridge & ethmoids
- Avulsion of medial canthal ligament from lacrimal bone → short, lat displaced medial palpebral fissure → Increased intercanthal dist (>35mm)

Septal Haematoma

- Red-blue discolouration of septum
- Deprives septum of blood supply → cartilage necrosis ± rapid abscess formation.
- Mx: LA spray, I&D, nasal packing, cephalexin 500mg PO qid, ENT review in 24h.

Zygomaticomaxillary Complex (tripod) Fracture





- Most common midface # (40%)
- Usually from direct blow to zygoma body
- Usually separation of all 3 attachments to face
- Fractures of any of:
    - Zygomaticofrontal suture
    - Zygomaticomaxillary
    - Infraorbital rim
    - Lat wall of maxillary sinus
    - Central part of orbital floor
- Features: Cheek/periorbital oedema/tenderness, infrorbital rim step, infraorbital n. paraesthesia, diplopia, subcut emphysema, test mandibular opening
- Inv: Facial/orbital CT
- Mx: Analgesia, don't blow nose, amoxicillin prophylaxis, Maxfax/Plastics r/v - ?surgery.

Zygomatic Arch Fracture

- Isolated # quite common
- Often from blow to side of the face
- Facial dimpling or depression may be visible
- Test mandibular opening isn't limited by # fragment or muscle entrapment
- Rx: Analgesia, Maxfax/Plastics r/v - ?surgery if depressed #/mandibular limitation.

Orbital Floor (Blow-out) Fracture

- Common
- Blow to eye, or large zygomaticomaxillary #.
- Forces soft tissues of the orbit downward with # to thin floor into maxillary sinus
- Features: enophthalmos, diplopia (esp on up gaze – inf rectus trapped), ~25% have eye injury too, XR signs as right:
- Mx: CT, Analgesia, don't blow nose, amoxicillin prophylaxis, Maxfax/Plastics r/v - ?surgery.

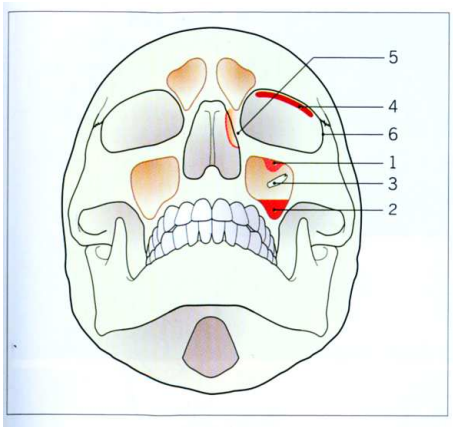
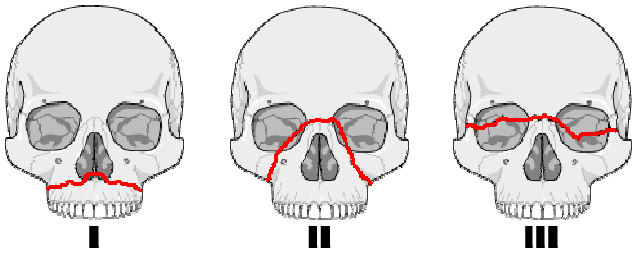


Figure 3.23 *Isolated blow-out fractures. All, some or none of the following may be seen: 1 = tear drop in antrum, 2 = fluid level in antrum, 3 = thin plate of bone from the orbital floor displaced into the antrum, 4 = black eyebrow sign, 5 = opaque (blood filled) ethmoid sinus.*

Alveolar Maxillary Fracture

- Associated with fractured/avulsed teeth.
- May need CXR if teeth parts missing
- Maxfax/Dental surgeon referral

Le Fort Fractures

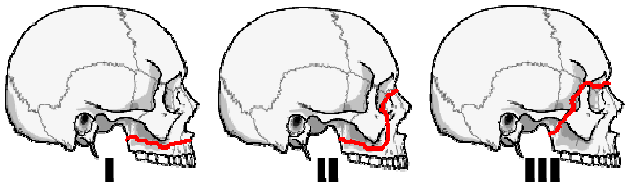


- Complex bilateral fractures with a large unstable fragment ("floating face") and invariably involve the pterygoid plates.
- Fractures of 3 main planes of "weakness"
- In practice often combination of #s found.
- Exam: One hand holds nose (I, II) or zygomatic arch (III) and other pull upper incisors.

Le Fort I

- Transmaxillary plane # between the maxillary floor and the orbital floor.
- May involve maxillary sinus medial lateral walls and always pterygoid plate.
- The floating fragment will be the lower maxilla with the maxillary teeth.

Le Fort II



- Pyramidal # through subzygomatic plane.
- Higher incidence of CSF leak.
- Mobile nose & dental arch.

Le Fort III

- Craniofacial plane fracture with craniofacial dysjunction
- Very severe injury, with significant associated skull, brain & soft tissue injury.
- Mobile entire maxilla and zygoma

Le Fort IV

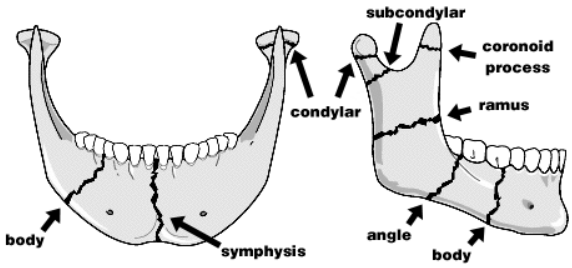
- Le Fort III + frontal bone #

Investigation: CT – often done in conjunction with brain CT± C-Spine CT.

Management

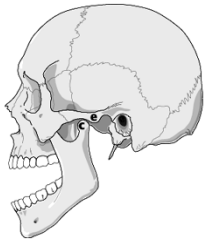
- ABCD+C-spine first, in particular airway (which may be difficult to secure).
- If C-spine cleared allow patient to sit forward.
- Haemorrhage may be significant – may need to pack oropharynx & nasopharynx
- Early surgery, embolectomy if bleeding not controlled
- Analgesia, amoxicillin, surgical fixation, beware ↑IOP pressure → occlude retinal artery.

Mandibular Fractures



- Fairly common
- Features: distortion, teeth malocclusion teeth, deviated or ↓mouth opening, mandibular n. paraesthesia
- As a moderately stiff ring, tendency to break in 2 places or #-dislocation. Usually contralateral.
- Most common sites: body & angle.
- OPG may miss subtle # esp of symphysis) so if no # or only 1 seen consider a CT.
- Treated as open # if # line enters tooth root or there is a gum/facial laceration.

Mandibular Dislocation



- From trauma with mouth open or excessive yawn
- Features: Pain, masseter & pterygoid spasm keep mouth open.
- Mx: Analgesia/light sedation. Relocate one side at a time.
- Technique: Grasp jaw, thumbs on post lower molars, push ↓ with both thumbs & lift ↑ with fingers on 1 inferior border of the mandible body.