Assessment and Management of Facial Fractures

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Overview
- Anatomy
- Emergency management
- History & Examination
- Nasal #
- Orbital (blowout) #
- Zygoma #
- Maxillary #
- Mandibular #

Anatomy

Emergency Management
- Airway & Breathing
  - Oedema, Blood, FB
  - Tube/Trache
- Circulation – haemorrhage
  - Pressure, packing, reduction, ...
- Cervical Spine
- Disability – GCS
- Any other injuries
  - Intracranial, Ocular
  - Trauma survey

Emergency referrals
- Airway compromise
- Uncontrolled haemorrhage
- Visual acuity
- Septal and pinna haematomas
- Le Fort II and III #
- Polytrauma
History

- A – Allergies
- M – Medications incl Tetanus
- P – PHx incl previous facial injuries/dental
- L – Last Meal, LOC
- E – Events: mechanism of injury

Examination

- General inspection
- Eyes
- Nose
- Midface
- Mouth
- Ears
- Facial sensation & movement

General inspection

- Swelling/asymmetry
- Any lacs or open wounds
  - Difficult cosmesis: eyebrows, lip vermilion
  - Overlying structures: parotid, lacrimal apparatus, facial nerve, bone
  - FB
  - Skin loss
- Forehead – frontal sinus #

Eyes

- Look: enophthalmos, anisocoria, SCH, eyelid lacs, periorbital oedema and ecchymoses
- Feel: palpate orbital rims – step, tenderness
- Move: VA, PEARLA, FROEM/diplopia
- Pain on upgaze → inferior rectus entrapment from orbital floor #, EMERGENCY
- Ophthal referral!
  - Anterior chamber: corneal injury (pain!), hyphema
  - Fundoscopy: retinal detachment, ...

Nose

- Look:
  - Deviation, obstructed breathing
  - Nasal septum: CSF rhinorrhoea, epistaxis
- Feel:
  - Deformity, bridge
  - Crepitus, subcutaneous air
- Septal haematoma –
- emergency drainage

Midface

- Look:
  - Depressions or swelling (Maxilla, Le Fort)
  - Zygoma #
- Feel:
  - Zygomatic step
  - Articulations of zygoma
- Move:
  - Midface stability
Mouth

- Look:
  - Lip lacerations
- Feel:
  - Intraoral examination: dental, tongue
  - Mandible #
- Move:
  - Teeth malocclusion
    - “Do your teeth meet the way they usually do?”
  - Trismus, TMJ dislocation
    - “Chew like you’re chewing a steak”

Ears

- Pinna haematoma – emergency drainage
- CSF otorrhoea, haemotympanum – basal skull #
- Vestibular nerve function

Facial innervation

- Facial sensation
  - Infraorbital nerve → maxilla #
  - Lower lip (inferior alveolar nerve) → mandible #
- Facial palsy?

Imaging

- X-Ray
  - Water’s, Caldwell’s, Fuch’s, sinus views
- CT Facial Bones – Axial, Coronal, Sagittal
- OPG for alveolar and mandibular #

Nasal #

- Deformity
- Oedema
- Tenderness
- Epistaxis
- Crepitus and subcutaneous air
- Septal haematoma
- Complex # may involve ethmoid bone, orbital vault, lacrimal apparatus, medial canthal ligaments (telecanthus)

Most common #
- “Have you ever broken your nose before?”
- “How does your nose look to you?”
- “Are you having trouble breathing?”

Management
- Urgent: control epistaxis, drain septal haematoma
- Later: GAMP nose, septorhinoplasty
**Orbital blowout #**

- Direct blunt force
- Orbital floor #
- Enophthalmos
- Periorbital swelling and ecchymoses
- Infraorbital anaesthesia
- Gaze palsy, diplopia
  - Caution inferior rectus entrapment (children)
- +/- Ocular injury

**Orbital blowout #**

- Management
  - Mild #: conservative
    - Observe
    - Analgesia
    - Prophylactic Abx
    - Avoid valsalva and nose blowing
  - Some indications for surgery:
    - Early enophthalmos
    - Inferior rectus entrapment
    - Ocular injury
    - # behind or involving equator (>50%)

**Zygomatic #**

- Second most common #
- Palpable step over arch
- Depressed, tender cheek
- Painful and limited jaw movement (trismus)
  - +/- Anaesthesia V2 region

**Zygomatic #**

- Management
  - Undisplaced #
    - Conservative: analgesia, Abx, avoid nose blowing
  - Arch #
    - most common
    - Gilles elevation
  - Body #
    - Complex #
    - Ocular involvement common
    - ORIF
Maxillary / Le Fort #

- High energy injury to front of face
- René Le Fort (1901)
- Le Fort I – Transverse maxillary
- Le Fort II – Pyramidal
- Le Fort III – Craniofacial dysjunction

Le Fort I

- Horizontal # of maxilla
- Symptoms
  - Teeth malocclusion
  - Mobile maxilla
  - Stable nasal bridge
- Management
  - ORIF

Le Fort II

- Fracture involving
  - Nasal bone
  - Medial orbit
  - Maxilla & sinus
- Symptoms
  - Nasal flattening, telecanthus
  - Epistaxis, CSF rhinorrhoea
  - Mobile maxilla and nose

Le Fort III

- Fracture involving
  - Nasal bone
  - Ethmoid bone
  - Maxilla
  - Zygoma
  - Base of skull
- Symptoms
  - Epistaxis, CSF rhinorrhoea
  - Mobile maxilla and zygoma
  - Airway obstruction

Le Fort II and III

- Emergency management
- Airway
- Haemorrhage
- ORIF

Mandibular #

- Third most common #
- Variable location, usually >1 fracture site
- Mandibular pain
- Teeth malocclusion
- Disrupted teeth roots
- Trismus
- Preauricular pain with biting
- +/- TMJ dislocation
Mandibular #

- Management
  - Undisplaced #
    - Soft diet 6/52
    - Analgesia
  - Indications for ORIF
    - Displaced #
    - Open #
    - Dental trauma

Take home messages

- Facial fractures = trauma
  - Remember ABC(D)'s, AMPLE history, Tetanus
- Know your anatomy
- Examination: Look, feel, move, soft tissue
  - Eyes, nose, midface, mouth, ears
- Know common #s
  - Nasal, orbital blowout, zygoma, maxilla (Le Fort)