

## Departmental Guidelines - NASAL TRAUMA

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- Aetiology**
- assault
  - motor vehicle accidents
  - sports injuries

- Apart from actual fracture of nasal bones, injuries include:
  - soft tissue
  - septal **cartilage** fracture / dislocation
  - septal **bone** fracture / dislocation
  - septal **haematoma**
  - **csf leak** - cribriform plate or skull base
- Injury results from various forces:
  - frontal
  - lateral
  - combined

### **Classification**

- **Class 1**
  - frontal or frontolateral trauma
  - vertical septal fracture
  - depressed or displaced distal part of nasal bones
- **Class 2**
  - lateral trauma
  - horizontal or C-shaped septal fracture
  - bony or cartilaginous septum fracture
  - frontal process of maxilla fracture
- **Class 3**
  - high velocity trauma
  - fracture extends to ethmoid labyrinth
  - bony septum rotates posteriorly
  - bridge collapse
  - upturned tip, revealing nostrils
  - depressed nasal bones pushed up under frontal bones
  - apparent inter-ocular space widening

**NASAL TRAUMA** may be part of more extensive injury  
to face, skull, skull-base, neck, chest .....

**REMEMBER TO CONSIDER THE AIRWAY AND EXCLUDE  
CERVICAL SPINE INJURIES**

## Clinical features

- Epistaxis
  - Deformity
  - Nasal airway obstruction
  - Diplopia
  - Epiphora
- } naso-fronto-ethmoid fractures
- There is often periorbital swelling and there may be periorbital and subconjunctival ecchymoses
  - Septal haematoma may occur and should **ALWAYS** be excluded

### **NB**

- Assess nasal airway patency
- Test ocular movement and function as well as Vth nerve sensation (infra-orbital branch)
- Check dental occlusion
- Document all injuries, symptoms and signs
- Supplement notes with drawings, diagrams and photographs

(these injuries often require reports for legal purposes and good, clear documentation is vital)

- Assessment may be difficult if not seen immediately, thus it is entirely appropriate in absence of other injury to reassess 5-7 days later  
(except in cases of purely lateral trauma where displacements should be corrected immediately)

**People tend to see their faces at least once a day (and often many times) and are thus preoccupied with real and imagined changes / deformities**

## Investigations

- Most uncomplicated fractures require none
- In more serious injuries, radiography is important:
  - skull
  - face
  - nasal bones
- CT scan will help to show fracture(s) if there is uncertainty and sufficient reason to exclude the possibility

## Management – soft tissue

- Clean wounds and remove foreign material
- Anti-tetanus and antibiotic cover if appropriate
- Abrasions cleaned and left open
- *Steristrips* to small lacerations
- Fine monofilament sutures to large lacerations

## Management – fracture

- Nothing if no deformity  
Reassure and review
- Class 1 - reduce if early  
- disimpact and realign  
- if swollen, manipulate and reduce at 5-7 days
- Class 2 - septal fracture is often overlapping so fractures redisplace  
- manipulation of the nasal bones should follow excision of overlapping edges of septum
- Class 3 - requires open reduction  
- depressed nasal bones need elevation and support  
- septum is approached intranasally and reduced antero-inferiorly  
- malunion will require formal septorhinoplasty at 4-6 months if requested

Manipulation should not be delayed more than 10 to 14 days as fracture(s) become “sticky” and fixed, making reduction difficult or impossible.

It is also inappropriate to try to reduce an old deformity as the attempt will rarely succeed

## Management – soft tissue

- Septal haematoma  
(collection of blood beneath mucoperichondrium causing bilateral complete obstruction)
  - aspirate if small
  - usually incise and evacuate with a “quilt” suture and drain to prevent re-collection
  - appropriate antibiotic cover
- If septal haematoma is missed or not treated adequately, septal abscess may follow and result in cartilage necrosis and “saddle” deformity

## Management – csf leak

- Clear rhinorrhoea at any stage after trauma should raise suspicion of cribriform plate injury
  - confirm suspicion
    - glucose in fluid
    - $\beta$  transferrin assay
    - fluorescein via LP
    - high-res CT
  - antibiotic cover
    - until leak ceases there is risk of *pneumococcal* meningitis
- Most leaks close spontaneously but some require surgical repair:
  - fascia
  - mucosal flap
  - fat “plug”

Remember that low velocity trauma usually results in isolated nasal injury, while high-velocity trauma often has accompanying facial fractures and cervical spine injury must be considered

## Other Complications

- Respiratory obstruction
  - blood clots
  - dentures / teeth
  - swelling / oedema
  - tongue
  - laryngotracheal injury

<b>Manage</b>	- remove obstruction - position - intubate/tracheostomy
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- Haemorrhage
  - usually settles spontaneously
  - or easily controlled by pressure
  - torrential bleed from large vessel injury can be treated with direct pressure (if possible), nasal packing or exploration and ligation
- Inhalational injuries  
(MAY BE FATAL)
  - denture / tooth fragments
  - foreign material
  - blood and gastric contents

<b>Prevent</b>	- secure airway (tracheostomy / intubation )
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- Sensory loss
  - anaesthesia over maxillae and upper lip as result of infraorbital nerve damage
  - anosmia, especially if the cribriform plate is damaged