Fractured cheek / orbit

Fractures of the orbit and cheek often go hand in hand. Hence both will be considered together.
The cheek is predominantly formed by the zygomatic bone. It provides the prominence of the cheek and forms part of the lower orbital rim which supports the lower eyelid and protects the eye. Fracture of the zygomatic arch can produce limitation of mouth opening by interfering with the movements of the coronoid process of the mandible or temporalis muscle.
The walls of the orbit are made up of a number of different bones of varying thickness. The orbital floor and medial orbital wall are particularly delicate and are prone to damage (blow-out fractures). The orbital floor carries the infra-orbital nerve, which supplies sensation to the majority of the cheek and one half of the nose and upper lip. Under the floor lies the maxillary sinus. Numbness of the cheek and upper lip is therefore an important sign that should generate a high index of suspicion for orbital or cheek bone fracture.
Damage to the bony orbit can result in herniation of orbital fat and tethering. This results in restricted eye movements and double vision (diplopia).
All zygomatic fractures, by definition, pass through the orbit. Patients should therefore be assessed for ocular injury and diplopia. The eye takes priority.

Vertical displacement of the zygoma can drag the lateral canthus and lateral attachment of the globe with it. This can result in diplopia, hypoglossus, and an anti-mongoloid slant to the eye.

Blow-out fractures
These occur as result of a direct blow to the globe (e.g. squash ball to the eye), or to the prominence of the cheek. The floor of the orbit is relatively weak and is fractured with herniation of orbital contents into the maxillary sinus. Early assessment of the eye is essential, as management takes priority over the fracture itself. Very often the
eyelids become closed due to painful swelling. However, gently pressing on the eyelids (not the globe) for a few minutes reduces this sufficiently to assess visual acuity, pupillary size, and reaction and visualise the anterior chamber for hyphema. Contact lenses and superficial foreign bodies can be removed. **If a penetrating injury to the eye is suspected, pressure should be avoided.** A dilated pupil may often be due to traumatic mydriasis but its significance in relation to head injuries must be remembered.

**Assessment**

Clinical signs can vary and include.
- Pain
- Swelling / peri-orbital bruising and swelling
- Depressed cheek bone
- Altered sensation of cheek / upper lip
- Double vision
- Restricted jaw movements
- Subconjunctival haemorrhage
- Surgical emphysema
- Palpable infra-orbital step
- Antimongoloid slant
- Unilateral epistaxis (due to bleeding into maxillary sinus)
- Limitation of eye movements with diplopia
- Enophthalmos / exophthalmos (Proptosis)
- Hypoglobus (vertical ocular dystopia)
- Dysocclusion (premature contact on molar teeth)

**Imaging**

Plain radiographs—occipitomental (OM 0 and 30). ‘Campbell’s’ lines aid identification of midface fractures.

CT scan-axial and coronal. 3D Reconstruction with complex cases

**First aid and warnings**

These fractures do not require urgent intervention and can usually be assessed as an out-patient. The eye takes priority—a high percentage of injuries to the orbit are also associated with injuries to
the eye itself. Check visual acuity and consider ophthalmic opinion if abnormal. Also refer to maxillofacial team. **Advise the patient not to blow their nose.** If they do, it can result in peri-orbital surgical emphysema, which can result in orbital cellulitis. **Tell the patient to return if they have increasing swelling, pain, or change in visual acuity.**

Remember—a high percentage of injuries to the bony orbit are also associated with injuries to the eye itself. Always check visual acuity to identify rare sight-threatening emergencies that can occur.