Facial fracture

Facial trauma, also called maxillofacial trauma, is any physical trauma to the face. Facial trauma can involve soft tissue injuries such as burns, lacerations and bruises, or fractures of the facial bones such as nasal fractures and fractures of the jaw, as well as trauma such as eye injuries. Symptoms are specific to the type of injury; for example, fractures may involve pain, swelling, loss of function, or changes in the shape of facial structures.

Facial injuries have the potential to cause disfigurement and loss of function; for example, blindness or difficulty moving the jaw can result. Although it is seldom life-threatening, facial trauma can also be deadly, because it can cause severe bleeding or interference with the airway; thus a primary concern in treatment is ensuring that the airway is open and not threatened so that the patient can breathe. Depending on the type of facial injury, treatment may include bandaging and suturing of open wounds, administration of ice, antibiotics and pain killers, moving bones back into place, and surgery. When fractures are suspected, radiography is used for diagnosis. Treatment may also be necessary for other injuries such as traumatic brain injury, which commonly accompany severe facial trauma.

In developed countries, the leading cause of facial trauma used to be motor vehicle accidents, but this mechanism has been replaced by interpersonal violence; however auto accidents still predominate as the cause in developing countries and are still a major cause elsewhere. Thus prevention efforts include awareness campaigns to educate the public about safety measures such as seat belts and motorcycle helmets, and laws to prevent drunk and unsafe driving. Other causes of facial trauma include falls, industrial accidents, and sports injuries.

Nasoorbitoethmoid fractures account for ~5% of adult and 15% of pediatric facial fractures. The appropriate management of these injuries requires an understanding of the anatomic features of the region, the classification of injury severity, assessment, and treatment methods.Prompt and proper management of these injuries can achieve both adequate functional and aesthetic outcomes [1)]

Classification

Craniofacial fracture.

Case series

A retrospective study of 379 consecutive patients who underwent operative repair of facial fractures at the West Virginia University Medical Center was carried out. Blindness developed in at least one eye in 21 (6%) of the 379 patients studied. Le Fort II and Le Fort III fractures, frontal bone and frontal sinus fractures, severe fractures of the zygoma, and fractures of the orbital floor were associated with fractures of the lesser sphenoid wing and optic canal in 5 of the patients studied. These 5 patients had indirect optic nerve injuries, as determined by CT scan and clinical criteria, which included visual loss with afferent pupillary defect and an otherwise normal ophthalmologic examination. In addition, one other patient who was not one of the 379 patients who underwent operative repair gradually developed ipsilateral blindness as a result of indirect optic nerve injury following minimal frontal bone trauma without a fracture. The usual mechanism of injury was trauma at the level of the orbital roof.

The principal findings on CT scan were those of fracture of the lesser sphenoid wing and subdural hematoma of the optic nerve sheath. The association between sphenoethmoid sinus hemorrhage and fracture of the optic canal (31%) in cases of facial trauma has been presented. The indications for optic nerve decompression have been discussed. To the authors' knowledge, there is no previous report of an optic canal fracture as diagnosed by computerized tomography in the literature [2)]

[1)]
Nguyen M, Koshy JC, Hollier LH Jr. Pearls of nasoorbitoethmoid trauma management. Semin Plast Surg. 2010 Nov;24(4):383-8. doi: 10.1055/s-0030-1269767. PMID: 22550462; PMCID: PMC3324217.
[2)]
Manfredi SJ, Raji MR, Sprinkle PM, Weinstein GW, Minardi LM, Swanson TJ. Computerized tomographic scan findings in facial fractures associated with blindness. Plast Reconstr Surg. 1981 Oct;68(4):479-90. PubMed PMID: 7280095.