# **Craniofacial fracture**

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## Classification

Craniofacial fracture classification.

### Treatment

In the facial fractures, a large number of these patients also sustain a head injury. Neurosurgical care should be the first choice when an intracranial injury is associated. In such situation, suitable timing of the reduction of the facial fractures would be often missed and this would result in functional disturbance and deformities of the face.

The report of Nishiyama et al. concerns the early definitive treatment of the extensive craniofacial fractures. Operative procedure and its result are presented.

They have surgically treated 100 cases with facial fractures during the past 7 years. Sixty-nine percent of these cases were injured in traffic accidents. The most common site, accounting for 72%, was the middle third of the face. Open reductions and internal fixations were performed within 10 days following the injury in all cases. Among 100 cases, 28 had associated intracranial injuries. Most of these cases were accompanied with frontobasal or zygomatic fractures. Twenty-four cases underwent craniotomy for acute intracranial hematomas, brain contusions, CSF rhinorrhea or optic nerve injuries. In 21 out of 24 cases, primary reconstruction of the fracture were performed at the time of craniotomy. Whether a primary reconstruction was available or not was determined according to the patient's general condition and the severity of the associated intracranial injury. In the extensive frontobasal injury, it is of the utmost importance to have a water-tight dural closure. Fractures involving the sinus were treated by exenteration of the sinus without packing to establish the pathway to the nasal cavity <sup>1)</sup>.

see Frontal sinus fracture

#### **Case series**

A retrospective review was conducted of 33 consecutive patients with complex fractures of the anterior cranial fossa and facial skeleton, who required elective surgery for craniofacial reconstruction. Patients who required emergency surgery for intracranial clots or penetrating wounds were excluded. In all cases, all or almost all the anterior skull-base was injured with compound fractures of the frontal sinus, the orbital roofs, the lamina cribrosa, and the planum sphenoidale. In all cases, the prioritization of treatment was carefully discussed, and surgical timing and strategy were agreed.

There was one dead. Olfactory injuries were always found intraoperatively. There were no mucoceles, CSF-leak recurrences, cranial infections, or neurological worsening. The functional and neurological results were highly satisfactory.

The one-stage surgical treatment of complex craniofacial fractures has numerous advantages, including the possibility of reducing facial fractures without the risk of CSF leaks. It also eliminates the need for repeated procedures in fragile patients, and the need to dismantle the facial reconstruction if the skull base repair is performed later. The main issue is the surgical timing, considering that the maxillofacial surgeon usually favors early facial repair, whereas the neurosurgeon generally prefers delayed manipulation of the contused frontal lobes. A timeframe of 10-14 days after trauma may be a good compromise for safe procedures with excellent neurological and functional outcomes<sup>2)</sup>.

# **Case report from HGUA**

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Multiple comminuted left craniofacial fractures.

Skull fractures: left parietal, temporal, and frontal bones, with herniation of brain parenchyma through them. Soft tissue hematoma in the left facial region with scalp involvement in the temporal and parietal regions. Fractures of the left zygomaticomaxillary complex: zygomatic arch, anterior and posterior walls of the maxillary sinus, frontal sinus fracture and hematosinus. Also associated with subcutaneous emphysema adjacent to the fractures.

Sphenoid bone fracture with involvement of both sinus walls, noting a fracture line in the clivus extending to the carotid canal.

Longitudinal and oblique fracture of the left petrous part, extending to the anterior wall of the external auditory canal (CAE)

The left orbital wall fracture are associated with inferior and lateral displacement of intraorbital contents, with herniation of extraconal fat into the maxillary sinus and slight displacement of the inferior rectus, without thickening of the same.

Zygomaticomaxillary complex fractures: Fractures of the left zygomaticomaxillary complex with inferolateral displacement: zygomatic arch, anterior and posterior walls of the maxillary sinus, with

involvement of the frontal sinus and hematosinus.

Skull base fractures affecting the body, walls of the sinuses, and greater wing of the left sphenoid bone, noting a fracture line in the clivus extending to the carotid canal.

Longitudinal fracture line affecting the petrous part with probable incudomalleolar subluxation and hemotympanum, continuing with a fracture line of the greater wing of the sphenoid bone.

1)

Nishiyama T, Kawakami K, Kawamoto K, Okuyama T, Matsumura K, Kurimoto T, Kawamura Y, Matsumura H, Morita K. [Treatment of craniofacial fractures]. No Shinkei Geka. 1987 Jul;15(7):733-41. Japanese. PubMed PMID: 3670543.

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