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The management of frontal sinus fractures includes the creation of a safe sinus by minimizing the likelihood of early and late complications and the preservation of the function of the sinus and the maintenance of the cosmetic appearance of the upper face **[1]**.

How we treat and what we expect from the treatment of the patients with traumatic fractures of the frontal sinus

All patients with frontal sinus fractures admitted to Luis Medical Center, Tirana, Albania are

managed using a similar treatment protocol.

Our therapeutical philosophy is based on the amount of displacement or comminution of the anterior and/or posterior table, the integrity of the nasofrontal duct, smell dysfunction and the general neurologic status of the patient as determined by clinical and radio diagnostic examination.

All the patients are followed up from individual physician who keeps the progress of the medical and postoperative condition of the injured patient assessing his outcome. The assessment of the patient is defined as complications, length of hospital stay, and death.

In our department, we keep the Demographics of the patient, injury severity score, fracture pattern, mechanism of injury, length of hospital stay, the number of operations, concomitant maxillofacial injuries, treatment, follow-up, and complications which are described statistically.

The majority of patients with traumatic fractures of the frontal Sinus are male, they have a mean age of 31.5 years, and are presented with significant injuries demonstrated by a mean injury severity score of 24.7 and mean length of hospital stay of 9.2 days.

The most common mechanisms of injury is blunt trauma resulting from a motor vehicle collision, fall, assault, or other accidents.

Some patients are presented with nondisplaced frontal sinus fractures which are managed nonoperatively. The patients with frontal sinus injuries who require surgical repair it has consisted of:

- 1) Open reduction and internal fixation of the anterior table alone, with preservation of the sinus membrane.
- 2) Removal of all sinus mucosa, obliteration of the frontal sinus with autogenous abdominal fat, and reconstruction of the anterior table. and 3) Removal of all sinus mucosa, cranialization of the frontal sinus, and lining of the nasofrontal recess with a pericranial flap.

Death is something usual in patients with concomitant injuries.

The follow up of the patients with traumatic fractures of the Frontal Sinus is ranging between 0 and 95 weeks.

The patients who are treated nonoperatively usually do not demonstrate known complications.

80% of the followed-up patients maintain normal sinus function and anatomy and the overall complication rate is 6.5%.

The treated patients surgically may demonstrate complications which include: brain abscess, contour deformity, osteomyelitis, hematoma, meningitis, and mucocele [2].

The Role of the Nasofrontal Duct in Frontal Sinus Fracture Management

The surgical treatment of frontal sinus fractures is controversial, due to the anatomical complexity that surrounds the frontal sinus and the potential for disastrous complications if these fractures are not properly treated.

If the decision of the surgeon is to preserve the frontal sinus he must, by all means, to keep patent the nasofrontal duct.

The sacrifice of the nasofrontal duct warrants the removal of the frontal sinus as a functional unit by either obliteration or cranialization.

In our department, we follow a diagnostic and therapeutic algorithm for the operative management of frontal sinus fracture and explain to the patients the possible complications that have been encountered in the authors' experience with frontal sinus fractures [3].

Efforts to reduce surgical morbidity of Traumatic Fractures of the Frontal Sinus

In our department, we try to reduce surgical morbidity and to optimize the reconstruction of facial injuries. This is succeeded with the use of less invasive surgical approaches and in the use of computer image guidance in surgical planning and execution.

The last years, the minimally invasive management of frontal sinus inflammatory disease has gained wide acceptance. The surgical techniques and modern technology which are applied to surgery of the floor of the frontal sinus is also applied to the management of frontal sinus trauma [4].

The less severe injuries of the frontal sinus are being managed expectantly with endoscopic frontal sinus surgery. The most severe injuries of frontal sinus are often best managed through

cranialization with anterior skull base reconstruction. After that, the role of frontal sinus obliteration purely to obviate fractures of the frontal sinus outflow tract may be disappearing.

Literature

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