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Treatment methods for fractures of the zygomatic-orbital complex

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ABSTRACT

With fractures of the zygomatic-orbital complex, the lines of fractures pass through the zygomatic-alveolar crest - often at the base in the region of the alveolar process of the upper jaw; through the lower edge of the orbit - in the area of the zygomatic-maxillary suture or more medially; in the area of the zygomatic arch - along the zygomatic-temporal suture or near it; in the region of the lateral margin of the orbit, along the zygomatic-frontal suture.

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Displacement of bone fragments, moderate in the area of the zygomatic-frontal and zygomatic-sphenoid sutures, moderate or pronounced in the area of the lower edge of the orbit and zygomatic-alveolar crest, moderate in the area of the zygomatic arch - along the zygomatic-temporal suture. There are pronounced damage to the anterior and posterior walls of the maxillary sinus. The bone fragment of the zygomatic-orbital complex does not form small fragments.

Material and methods

We carried out examination and surgical treatment of 65 patients with fractures of the zygomatic-orbital complex, who were treated in the departments of maxillofacial surgery of the 7-city clinical hospital in Tashkent. The mean age of the patients was 34.6 years, of which 52 were men (80%) and 13 were women (20%). The causes of midface injury in 37 (56.9%) cases were road traffic accidents, in 28 (43.1%) cases - domestic trauma. Fractures of the walls of the orbit, which required reconstructive and restorative treatment, were diagnosed in 48 (73.8%) patients. In 5 (10.35%) cases, there were damage to the upper wall of the orbit, trauma to the brain and naso-ethmoid complex; these patients were treated jointly with a neurosurgeon. In 8 (16.7%) patients, damage to the lateral, medial and inferior walls of the orbit was observed, accompanied by severe deformity of the orbit, dislocation of fatty tissue and oculomotor muscles in the fracture gap, development of strabismus. Isolated damage to the lower wall of the orbit (blow-out) was diagnosed in 3 (6.25%) cases. The most frequent were fractures of the zygomatico-orbital complex and the lower wall of the orbit (32 cases, 66.7%).

All patients in the preoperative period had orbital deformity, axial dystopia in the form of enophthalmos of varying degrees (2-6 mm), vertical dystopia (hypophthalmos), oculomotor disorders in the form of limitation of eyeball mobility (in 43 patients (89.6%) and diplopia of a different nature.

Upon admission, all patients underwent a classic comprehensive examination, including an ophthalmological examination (visometry, ophthalmoscopy, exophthalmometry, biomicroscopy), diagnostics by related specialists (neurosurgeon, otorhinolaryngologist), spiral computed tomography with 3D reconstruction in three projections (frontal, sagittal and axial), magnetic resonance imaging of the orbits. The examination made it possible to clarify the location and nature of the damage, assess the condition of the oculomotor muscles, the optic nerve, the position of the eyeball, detect prolapse of the orbital tissue and clarify the size of the defect in the walls of the orbit, which is especially important for choosing an orbital endoprosthesis and planning surgical intervention. Photodocumentation was mandatory before and after surgical treatment, to assess the nature of the deformation and movement of the eyeball, the degree of hypophthalmos and enophthalmos.

All patients underwent surgery under general anesthesia and included the stage of osteosynthesis of the zygomatic bone and plasty of the lower wall of the orbit. The terms of surgical treatment of patients were as follows: 6 (9.2%) patients were operated on the first day after injury, 51 (78.5%) patients were operated on from days 5 to 14, and 8 (12.3%) patients were operated on 1-2 months after injury. %). Surgical treatment of damage to the zygomatic-orbital complex and the lower wall of the orbit was performed according to the technique we developed.

Taking into account modern technologies in the treatment of fractures of the bones of the facial skeleton, the methods traditionally used earlier (reposition of the zygomatic bone with a Limberg hook, etc.) are not often used today and, as a rule, in the complete absence of an alternative, although they are less traumatic in isolated fractures of the zygomatic bone, but on the other hand less reliable. Moreover, the nature and characteristics of fractures of the zygomatic-orbital complex in children (they are often complex in configuration, multi-comminuted) do not always allow such methods to be widely used to achieve a good result. The modern surgical method for the treatment of fractures of the zygomatic-orbital complex consists in open reposition and metal osteosynthesis with titanium wire ligatures or titanium mini-plates on screws with restoration of the orbital configuration and the correct position of the eyeball.

Treatment of an isolated orbital floor fracture can also be done with titanium miniplates or with a balloon placed in the maxillary sinus and “inflated” with fluid to elevate the orbital floor and move the eyeball into the correct position. In case of old incorrectly fused fractures of the zygomatic-orbital complex with the development of deformation of this area, refracture is performed (“repeated fracture” - separation of fragments along the old fracture lines) with their subsequent fixation in the correct position. Surgical treatment is performed under general anesthesia. The approximate duration of stay of children with a fresh fracture of the zygomatic-orbital complex in a hospital during surgical treatment of a fracture is 10-21 days.
Before treating patients with fractures of the zygomatic bone, zygomatic-orbital and zygomatic-maxillary complexes, the condition of patients should be compensated. Brain injuries and ophthalmic injuries are of paramount importance in terms of medical care. It is necessary to perform primary surgical treatment and suturing of wounds if the existing wounds are not required for access with open reposition of the bones of the middle zone of the face. It is advisable to perform specialized surgical treatment even when the patient is in the intensive care unit and resuscitation, since fractures of the bones of the middle zone of the face tend to consolidate faster than other fractures.

In the presence of a concomitant injury, delayed treatment of patients for non-life-threatening conditions can be performed simultaneously with the reposition of the facial bones of the skull. If the patient has indications for drainage of intracranial hematomas, it is advisable to have a maxillofacial surgeon present during the work of a neurosurgeon to assess existing damage to the facial skull and provide specialized assistance. The neurosurgeon, if possible, chooses an approach in such a way that it would be possible to fully reposition the bones of the facial skeleton.

Penetrating injuries of the eyeball are paramount of all craniofacial injuries requiring surgical treatment, with the exception of those that are life threatening. It is justified to postpone assistance for

damage to the eyeball only if the patient is transported to a specialized center where this assistance will be provided at a higher professional level, that is, to the ophthalmological department of hospitals.

All currently described methods for the treatment of fractures of the zygomatic bone, zygomatic-orbital and zygomatic-maxillary complexes can be divided into methods of closed and open reposition.

When performing closed reposition, a number of authors point to the desire to fix bone fragments in a stable position without osteosynthesis using mini- or microplate systems.

The currently widely used method of repositioning the zygomatic bone through a point incision in the cheek area was proposed by L. Stromeyer (L. Stromeyer, 1844). Although the closed reposition method has a sufficient number of disadvantages and does not allow rigid fixation of the zygomatic bone after reposition, it is very common. The use of hook reponators, such as the Limberg hook, for repositioning is a simple and inexpensive method of treatment, especially in patients with isolated zygomatic fractures.

Some authors suggest manufacturing a device from a Kirschner wire for fixation, which is a U-shaped bracket with two intraosseous elements and a correcting loop made on the crossbar of the bracket.

The use of wires for fixing bone fragments, although relatively simple to perform, does not provide the necessary degree of visualization for fractures of the zygomatic bone before fixation. The disadvantages of this method are that closed reposition is carried out without visualization of fracture lines, but only due to palpation determination of the boundaries of restoration of the bone contour, and fixation with a pin is carried out according to the same anatomical landmarks, which, in case of incomplete closed reposition or errors during its implementation, can lead to incorrect fixation.

A number of authors propose to improve the fixation of bone fragments after reposition by using techniques for fixing the zygomatic bone using self-produced spacers along the zygomatic-alveolar crest or zygomatic-frontal suture. The proposed method does not require complex devices, but at the same time, it does not eliminate the possibility of rotational displacements of the zygomatic bone and zygomatic-orbital complex, which can lead to secondary postoperative deformities. The method of fixation for fractures of the zygomatic bone, zygomatic-orbital and zygomatic-maxillary complexes using spacers cannot be called universal.

Interposition of soft tissues in the area of fracture lines, comminuted fractures, unstable fractures make closed reduction untenable and require open reduction. Some authors note that they abandoned the methods of closed reposition for fractures of the zygomatic complex due to unsatisfactory aesthetic results. Also, with closed reposition, it is not always possible to restore the volume of the orbit, which can lead to unsatisfactory aesthetic and functional results. Restoration of the previous volume of the orbit is an important criterion for assessing the quality of reposition and prevents the development of enophthalmos after surgical treatment.

Until recently, open reposition of the zygomatic bone and zygomatic-orbital complex was combined with tight tamponade of the maxillary sinus to hold bone fragments in an anatomically correct position. The use of this method has indications and is often used for small comminuted fractures. This method of treatment can lead to the development of infectious and inflammatory complications, secondary displacement of bone fragments during the formation and formation of scars, impaired ventilation of the maxillary sinus, lack of accurate comparison of bone fragments and, as a result, postoperative deformities. Fixation of bone fragments with an iodoform tampon is not rigid, the tampon tends to increase in size when soaked in blood, which leads to a change in the position of bone fragments, a decrease in the size of the orbital volume, which, in turn, leads to exophthalmos.

A universal and convenient method of fixation of fractures is the method of rigid fixation using mini-plates.

A feature of the treatment of fractures of the zygomatic bone, zygomatic-orbital and zygomatic-maxillary complexes is that the fixation of the bones must be carried out along buttresses.

2 vertical buttresses pass through the middle zone of the face - lateral and medial maxillary - and 1 horizontal buttress - upper transverse maxillary. An increase in the stability of fixation is achieved by performing a 3-point fixation, however, a number of authors note that this worsens the blood supply to bone fragments.

Bibliography:

1. Боймурадов Ш.А. Олимжонов Т.А. Оптимизация помощи больным с переломами костей средней зоны лица И73 «Интернаука»: научный журнал – № 4(227). Часть 1. Москва, Изд. «Интернаука», 2022. – 51-53 с. Электрон. версия. печ. публ. – https://www.internauka.org/journal/science/internauka/227
2. Боймурадов Ш.А. Олимжонов Т.А. Планирование репозиции костных фрагментов при переломах средней зоны лица с использованием виртуального моделирования И73 «Интернаука»: научный журнал – № 4(227). Часть 1. Москва, Изд. «Интернаука», 2022. – 54-56 с. Электрон. версия. печ. публ. – https://www.internauka.org/journal/science/internauka/227
3. Bobamuratova DT, Boymuradov ShA, Rakhmonov SB, Olimjonov TA (2018) Nutrition of Patients with Jaw Fracture and Page 6 of 7 After Orthognatik Surgery, Review of the Literature. J Dent Oral Disord Ther 6(2): 1-7. DOI: http://dx.doi.org/10.15226/jdodt.2018.00199
4. Fattaeva D. R., Rizaev J. A., Rakhimova D. A. Efficiency of Different Modes of Therapy for Higher Sinus after COVID-19 in Chronic Obstructive Pulmonary Disease //Annals of the Romanian Society for Cell Biology. – 2021. – С. 6378–6383-6378–6383.
5. Фаттаева Д. Р. и др. CLINICAL PICTURE OF SINUSITIS IN PATIENTS AFTER COVID-19 WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE //УЗБЕКСКИЙ МЕДИЦИНСКИЙ ЖУРНАЛ. – 2021. – Т. 2. – №. 2.
6. Холиков А. и др. ПЕРЕЛОМ ЧЕЛЮСТИ ДИАГНОСТИКА И ЛЕЧЕНИЕ //Stomatologiya. – 2020. – №. 2 (79). – С. 88-93.
7. Холиков А. и др. JAW FRACTURE DIAGNOSTICS AND TREATMENT //Stomatologiya. – 2020. – Т. 1. – №. 2 (79). – С. 88-93.
8. Холиков А. и др. Сравнительная характеристика методов лечения переломов нижней челюсти //Журнал вестник врача. – 2020. – Т. 1. – №. 4. – С. 109-114.
9. Холиков А. и др. Анализ современной эпидемиологической картины переломов нижней челюсти //Журнал вестник врача. – 2020. – Т. 1. – №. 4. – С. 103-108.
10. Fattayeva D. R. ADVANTAGES OF EARLY DETECTION AND TREATMENT OF ODONTOGENIC HEMORRHOIDS IN PREVENTING COVID-19 COMPLICATIONS //British Medical Journal. – 2021. – Т. 1. – №. 1.2.
11. Фаттаева Д., Ризаев Ж., Рахимова Д. ОСОБЕННОСТИ КЛИНИЧЕСКОГО ТЕЧЕНИЯ ХРОНИЧЕСКОГО ГАЙМОРИТА ПРИ БРОНХО-ЛЕГОЧНОЙ ПАТОЛОГИИ //SCIENTIFIC IDEAS OF YOUNG SCIENTISTS. – 2021. – С. 28.
12. Рахимова Д. А., Садыкова Г. А., Фаттаева Д. Р. ВЛИЯНИЕ РЕЗОНАНСНОЙ ТЕРАПИИ НА СОСТОЯНИЕ КАРДИОРЕСПИРАТОРНОЙ БОЛЕЗНЬЮ ЛЕГКИХ ПЕРЕНЕСШИХ COVID-19 //Теоретические и прикладные проблемы современной науки и образования. – 2021. – С. 376-380.