



# OPTIMIZATION OF DIAGNOSTICS AND TREATMENT OF PATIENTS WITH FRACTURED BONES CHEEKLO - ORBITALM AREAS

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## RELEVANCE OF THE TOPIC

Traumatic injuries occupy an important place in the pathology of the maxillofacial region and represent an urgent treatment problem [7,9,10]. One of the leading tasks of maxillofacial traumatology is the diagnosis and treatment of trauma to the middle zone of the face, leading to disfigurement and impairment of the basic functions of the body: vision, breathing, digestion, and smell.

Fractures of the bones of the zygomatic-orbital region (SOO) are the second most common injury after fractures of the mandible. They make up from 16 to 25% of all injuries of the maxillofacial region [1,2,5] and correspond to the general tendencies of traumatism: a constant increase in the number of victims, the growth of complex types of fractures, the rejuvenation of the contingent of patients, and the severity of the injury due to its combination.

Despite the high prevalence of this type of fractures, there are still a number of errors in their diagnosis and treatment, leading to the development of complications of the injury. Among patients with post-traumatic deformities of the midface zone, up to 25% is due to damage to the bones of the zygomatic-orbital region.

This type of pathology is characterized by a gross disturbance in appearance and functional disorders: difficulty opening the mouth, diplopia, impaired nasal breathing, dacryocystitis, rhinitis, post-traumatic maxillary sinusitis [1,2,5,6].

Given the complexity and outcomes of surgical treatment of post-traumatic deformities of the mucosa, diagnosis, timely and qualified treatment of patients in the acute period are of great importance.

## PURPOSE OF THE STUDY

To assess the effectiveness of the complex of

- Diagnostic measures in patients with fractures of the cheekbones
- The orbital area to improve functional and aesthetic treatment results.

## MATERIALS AND RESEARCH METHODS

In the course of this work, an analysis was made of 63 case histories of patients who were treated in the Department of Maxillofacial Surgery of the Samarkand Medical Association in 2019-2020 for fractures of the bones of the zygomatic-orbital region.

The research took into account the following data:

1. The total number of patients with this pathology who were treated.
2. The ratio of fresh and old fractures, taking into account the generally accepted classifications.
3. The nature of the diagnostic manipulations performed (R-logical studies, consultations of related specialists).
4. The proportion of operated patients and types of surgical interventions.



## HOSPITALIZATION TERMS

All patients, depending on the choice of treatment method, were divided into 2 groups:

- The main group (35 people) who underwent complex treatment using local ozone therapy according to the method we developed.

- Control group (28 people), who were treated according to the traditional scheme.

In order to compare the obtained results of functional diagnostic methods, an additional comparison group of 15 practically healthy people aged 19 to 31 was selected.

When analyzing the tactics of managing these patients and the quality of diagnostics at the prehospital stage, errors were identified in 72.5% of cases, the most frequent of which is the late referral of patients for treatment to a specialized hospital. The correct diagnosis was made in 34.5% of cases, incomplete - in 44.8%, incorrect - in 20.7% of cases.

## RESEARCH METHODS

1. X-ray examination of the bones of the facial skeleton in the pre- and postoperative period

2. Microbiological study of the lavage water of the maxillary sinus on the side of the injury before and after treatment

3. Clinical analysis of blood and urine.

The obtained results and data of control examinations were entered into the examination card developed by us, compiled on the basis of a 4-point scale and allowing to quantitatively assess the dynamics of the postoperative period.

Examination of each patient and most of the additional studies were performed three times - before the operation, after 7-10 days and 30 days after the operation. Based on the comparison of quantitative (point) indicators before and after the operation, conclusions were drawn about the effectiveness of the treatment and the presence or absence of long-term complications.

**Results of treatment** of victims with injuries of the zygomatic bone

The main principle of treatment of victims with injuries of the zygomatic bone and arch is the restoration of anatomical integrity. This is achieved by repositioning the fragments in the correct position and fixing in various ways. We used an intraoral bloodless method using a device to reposition fragments of the zygomatic bone. During the period from 2019 to 2020, 63 fractures of the zygomatic bone and arch were repaired using this method. In case of ineffective fixation of fragments after

reduction, secondary displacement of fragments and open fractures of the zygomatic bone with damage to the upper jaw, various methods of osteosynthesis were used in 29 patients. In 34 patients, intraoral reduction of the zygomatic bone fragments with the device of the proposed design was effective and no additional fixation methods were required.

The patients were divided into 5 groups depending on the type of surgery. In each of these groups:

- 1) Closed reduction and osteosynthesis with bone sutures (n — 11);

- 2) Closed reduction and osteosynthesis with mini- and microplates (n - 14);

- 3) Closed reduction and osteosynthesis of fractures of the zygomatic bone with a brace (n-22);

- 4) Closed reduction and osteosynthesis with M. Kirchner's wires (n-16).

All injuries to the zygomatic bone and arch, depending on the time elapsed since the moment of injury, were divided in each group into three subgroups:

- 1) Fresh fractures up to 10 days;

- 2) Old fractures 11-30 days;

- 3) Incorrectly consolidated and unconsolidated fractures over 30 days.

In the first group of patients (n - 11) with injuries of the zygomatic bone after closed reduction and osteosynthesis with bone sutures, positive results were obtained in all cases. Fresh fractures were observed in 24 patients, old fractures in 4, and incorrectly consolidated and unconsolidated fractures in 3. In four cases, satisfactory results were not achieved due to severe concomitant chronic injuries of the midface. Titanium wire and polyamide thread were used as suture material. At follow-up examinations 1 and 6 months after the operation, the patients did not show any complaints, asymmetry of the face and pathological changes in soft tissues in the area of surgery were not observed. The range of motion of the lower jaw was complete. When studying radiographs and computed tomograms, fusion of fragments was noted. The results of the study by the method of ultrasound osteometry of patients of the first group at various times are presented in Table 1.

Example. Patient G., 50 years old, case history No. 487, was admitted to the Department of Maxillofacial Surgery of SamMI (Samarkand) 02.02.2019 with a diagnosis of scalped wound of the zygomatic region, fracture of the zygomatic bone on the right.

**Figure: 1. X-ray of the bones of the facial skeleton of patient G. admission fracture of the upper jaw Le Fort II (Fig. 1)**



**Fig. 2. X-ray of the bones of the facial skeleton of patient G. after Operations**

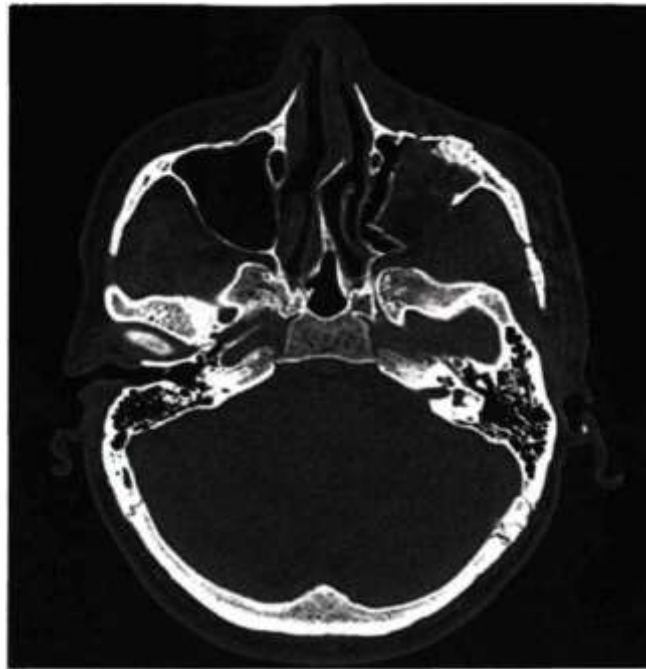


Work injury on the day of admission. Upon admission, the operation was performed: primary surgical treatment, osteosynthesis of the zygomatic bone with bone suture, bimaxillary splints and chin-parietal fixation were applied. 02/09/2009 was discharged under the supervision of a doctor at the place of residence.

In the second group of victims (n— 14) with injuries of the zygomatic bone after closed reduction, mini- and microplates were used for osteosynthesis. Titanium mini-plates of various manufacturers were used: "Deost", "Konmet" and "Stryker". Fresh fractures were observed in 9 patients, old fractures in 3, and incorrectly consolidated and unconsolidated fractures in 2. In 3 cases, satisfactory results were not achieved due to severe concomitant chronic injuries of the midface. In other cases, positive results were obtained. When

studying radiographs and computed tomograms, fusion of fragments was noted. At follow-up examinations 1 and 6 months after the operation, the patients did not show any complaints, asymmetry of the face and pathological changes in soft tissues in the area of surgery were not observed. The results of the study by the method of ultrasound osteometry of patients of the second group at different times are presented in Table 2.

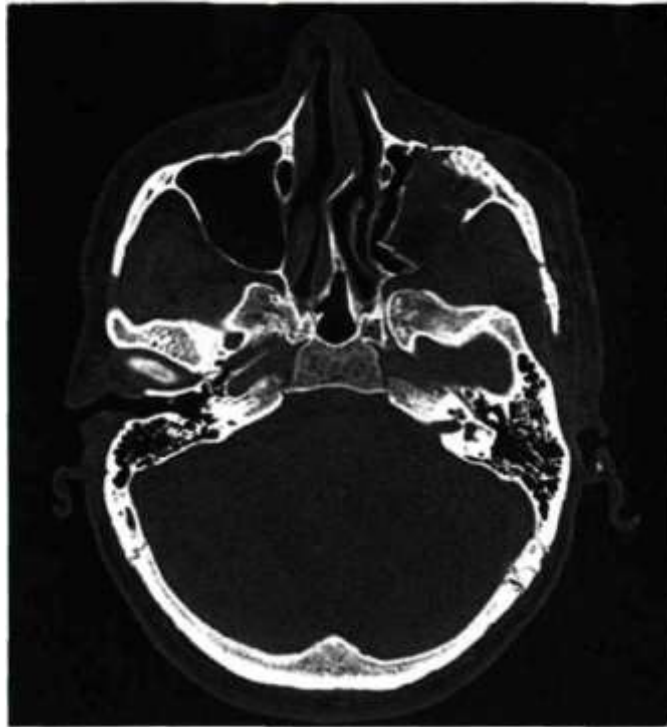
Example. Patient V., 21 years old, case history No. 1381, was admitted to the Department of Maxillofacial Surgery SamMI. 03/05/2019 with a diagnosis: fracture of the zygomatic bone on the left with displacement. On admission under intravenous anesthesia, the operation was performed: osteosynthesis with microplates (Fig. 3 and Fig. 4).



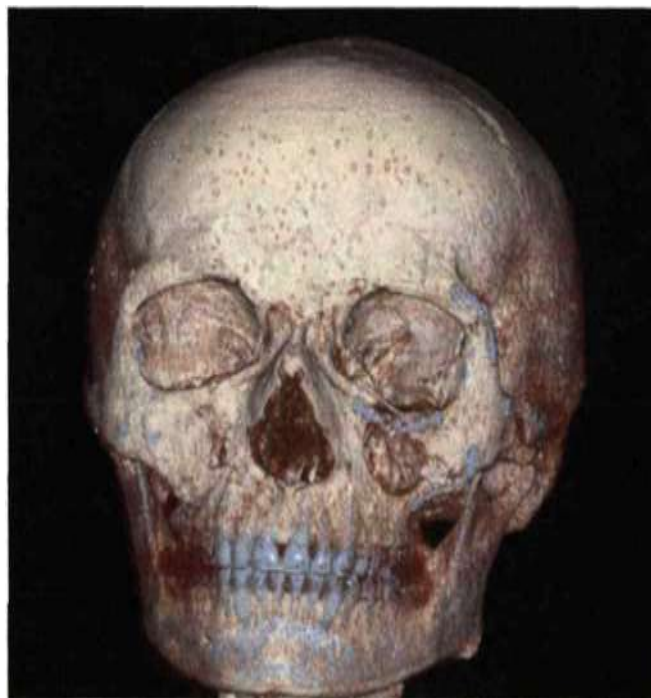
**Figure: 3. Computed tomography of the bones of the facial skeleton of patient V. at admission**



**Figure: 4. Computed tomogram MPR of the facial skeleton of patient V. on admission**



**Figure: 5. Computer tomogram of the bones of the facial skeleton of patient V. after the operation**



**Figure: 6. Computed tomogram MPR of the facial skeleton of patient V. after surgery.**

The postoperative period was a protocol without complications. On March 13, 2019, in a satisfactory condition, he was discharged under the supervision of a doctor to the rehabilitation room of the Department of Maxillofacial Surgery.

Conclusions: Clinical results were assessed as good and satisfactory. Good results

included such outcomes when the continuity of the zygomatic bone was fully restored, functional and aesthetic results were provided. Good and satisfactory results of surgical treatment of the consequences of fractures of the zygomatic bone and arch were obtained in 47 (96.4%) cases. Satisfactory



results were characterized by restoration of bone continuity with good cosmetic effect.

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