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Characteristics of Patients with Combined Face Bone Injuries in Andijan Region from 2022-2024

Boymurodov Shukhrat Abdujalilovich
Head of the Department of "Maxillofacial Surgery and Dentistry" Tashkent State Medical University

Najmiddinov Bokhodirjon Bakhritdin ugli
Assistant of the Department of "Maxillofacial Surgery and Dentistry" Tashkent State Medical University

Annotation: The work presents the results of a clinical and statistical analysis of patients with combined facial bone injuries who underwent treatment at the Andijan branch of the RSCEMC in 2022-2024. A study was conducted on 122 patients and 30 individuals in the control group. It has been established those able-bodied men (20-40 years old) constitute the main risk group, with road accidents being the leading cause of injuries. The most vulnerable structure of the facial skeleton was the lower jaw, which accounts for about 38% of all fractures. In 76% of cases, facial injuries were combined with craniocerebral injuries, which significantly aggravated the course of the traumatic illness.

Clinical manifestations included pain, swelling, trismus, impaired occlusion, and hypesthesia of the infraorbital region. The greatest treatment effectiveness was achieved with early stabilization of bone fragments using osteosynthesis methods and complex therapy in accordance with the principles of AO CMF. The obtained data confirm the region-specific patterns of epidemiology and pathogenesis of combined craniofacial injuries and emphasize the need for further study of the body's systemic reactions in severe injuries of the maxillofacial region.

Keywords: combined trauma, maxillofacial region, facial bone fractures, mandible, craniocerebral trauma, osteosynthesis, epidemiology, pathogenesis, AO CMF, clinical characteristics.

Introduction. Combined injuries of the maxillofacial region (MFA) are one of the most complex conditions in traumatology, characterized by multiple injuries to the bones of the facial skeleton in combination with injuries to the head, chest, and internal organs. Such lesions are accompanied not only by local but also by systemic disorders associated with inflammation, endogenous intoxication, and metabolic stress.

The purpose of the study was to study the characteristics of patients admitted to the RSCEMC Andijan branch from 2022 to 2024 with combined injuries of the maxillofacial region. To identify age, gender, etiological, and nosological characteristics of injuries, as well as to study the severity of the general condition and the features of combined facial bone fractures with injuries of other anatomical areas.

Materials and methods. The study involved 122 patients with combined facial bone injuries who were treated in the neurosurgical department of the Andijan branch of the RSCEMC and 20 practically healthy individuals (control group).

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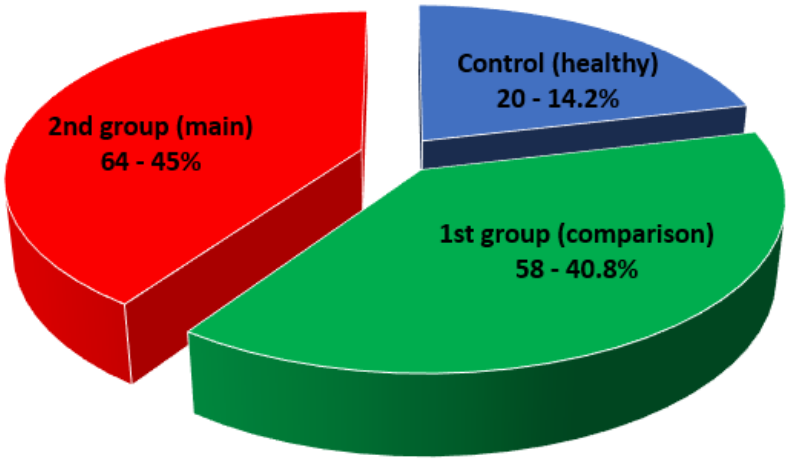
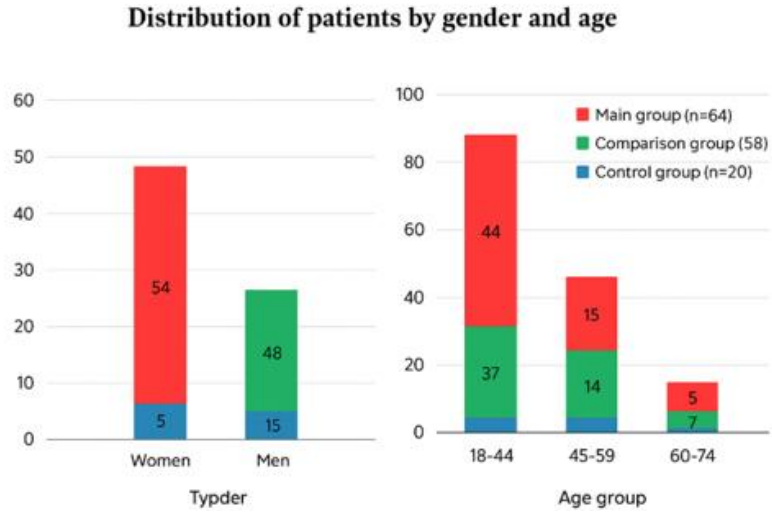
Distribution of patients by groups

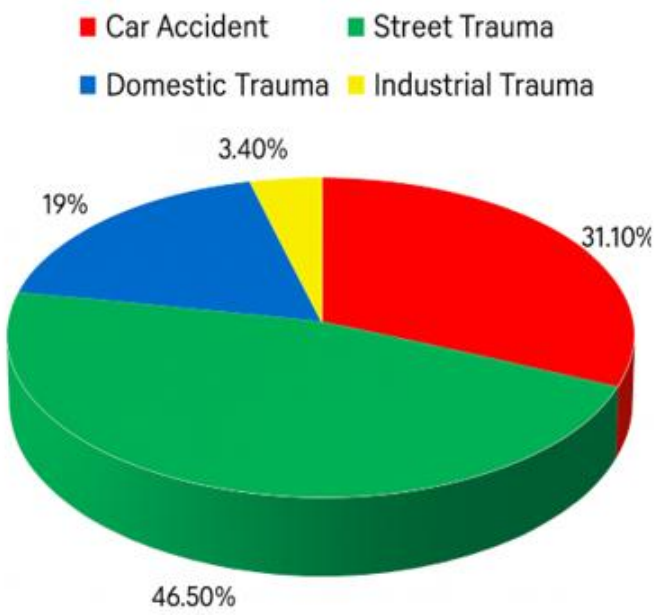


Distribution of patients by gender and age



The average age of patients was 32±7 years; men - 83.6% (n=102), women - 16.4% (n=20). The highest number of injuries was recorded in the age group 26-33 years (39.6%). The majority of patients are men of working age (18-44 years old, 66.4%).

Percentage of injuries by etiological factor



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The main cause of injuries was traffic accidents and street conflicts. Next comes domestic injury, and the least common cause of injury was an industrial injury.

Inclusion criteria:

- presence of combined injuries of the facial skeleton;
- 18-70 years old;
- absence of chronic liver diseases;
- consent to participation;

Exclusion criteria:

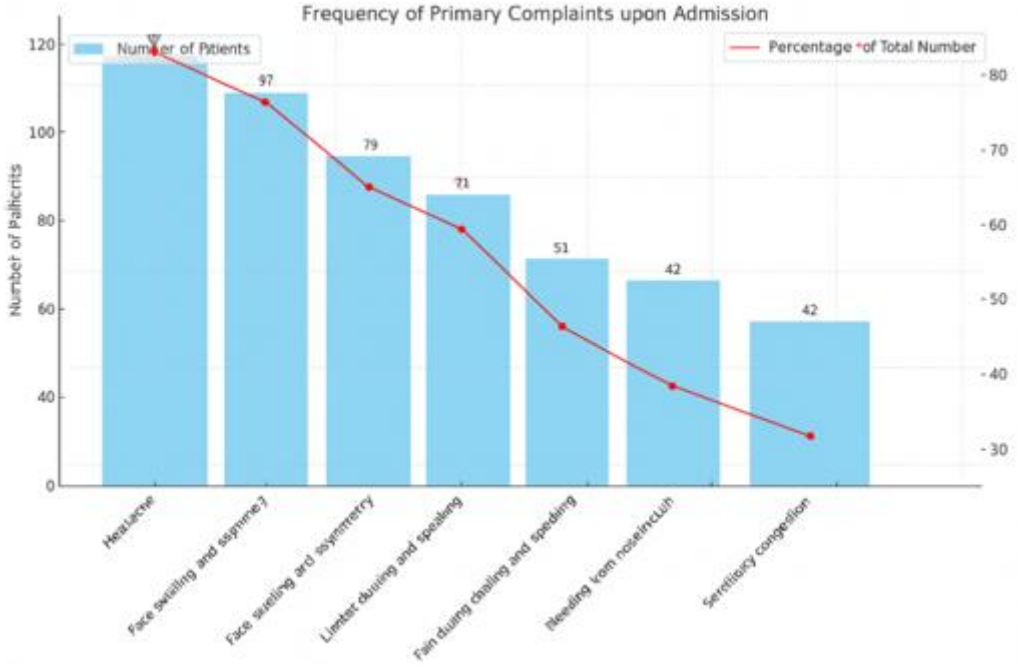
- isolated facial injuries;
- age < 18 or > 75 years;

Research methods. Clinical examination: anamnesis collection, complaints assessment, physical and neurological examination.

Instrumental methods: radiography, computed tomography.

Results

Clinical observations



Main symptoms:

- headache (86.9%), dizziness, nausea;
- swelling and facial asymmetry (79.5%);
- restriction of mouth opening (trismus) - 64.7%;
- chewing and talking pain - 58.1%;
- bleeding from the nose and mouth - 41.8%;
- malocclusion - 34.4%;
- hypesthesia of the infraorbital region - 28.7%.

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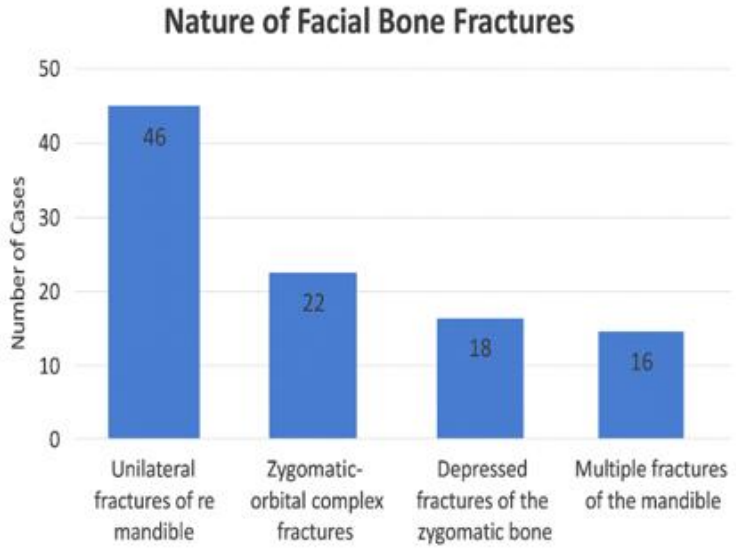
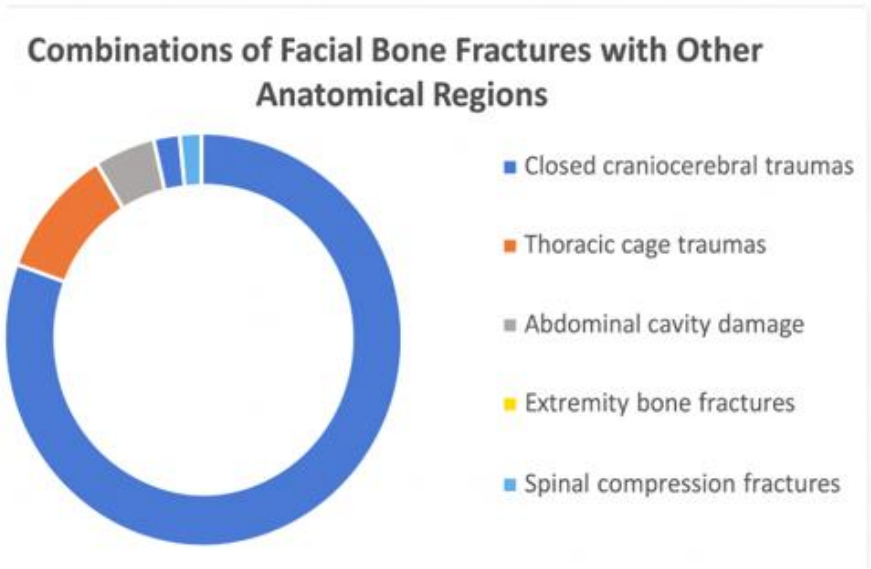
The most frequent objective signs were the "step" symptom on palpation (78 cases), crepitation (65), subcutaneous hematoma and midface edema (89), and skin cyanosis (22).



- unilateral fractures of the lower jaw - 37.7% (46 cases),
- fractures of the zygomaticoorbital complex - 18.0% (22 cases),
- sunken fractures of the zygomatic bone - 14.8% (18 cases),
- bilateral fractures of the lower jaw - 13.1% (16 cases).

The lower jaw has been identified as the most vulnerable structure under direct mechanical impacts.



Associated injuries included:

- closed craniocerebral injuries - 93 patients (76.2%),
- chest injuries - 8.2%,
- abdominal organ injuries - 4.9%,
- fractures of the bones of the extremities - 3.3%,
- compression fractures of the spine - 2.5%.

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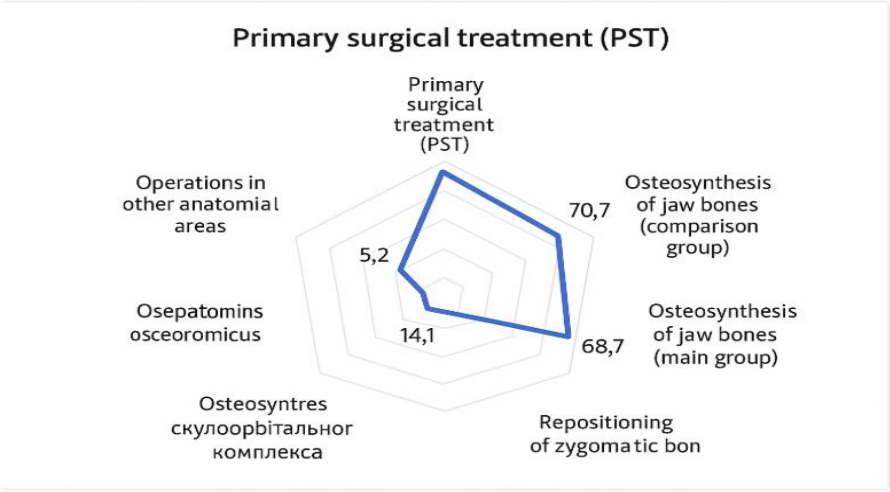
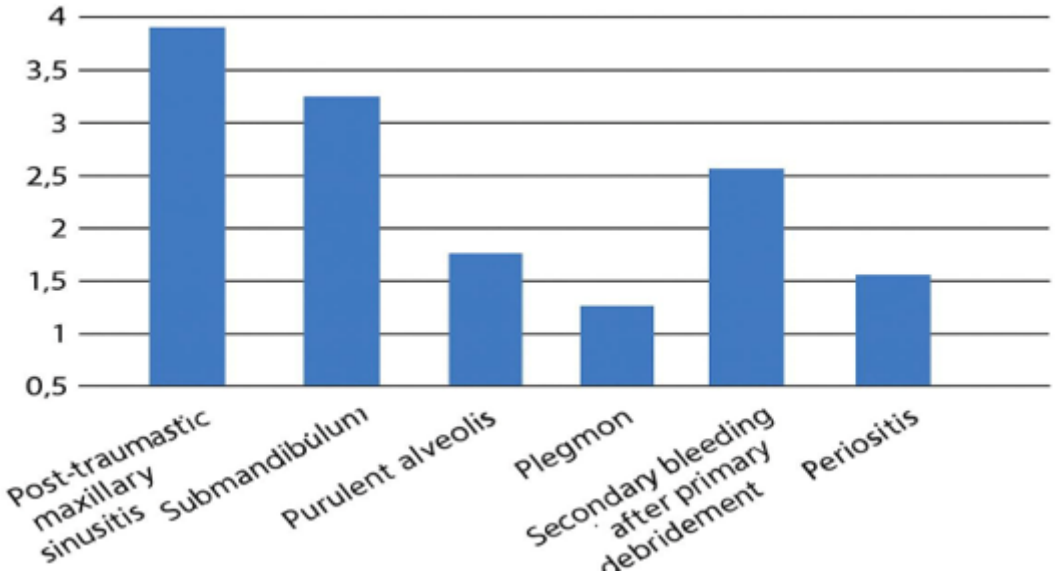
Surgical interventions



Primary surgical treatment of wounds - 93-95% of cases.

- Osteosynthesis of the jaw bones - 70.7% in the comparison group and 68.7% in the main group.
- Maxillary bone reposition - about 9%;
- Osteosynthesis of the zygomaticoorbital complex - 14-15%;
- Lower jaw splinting - 30-35%.
- Operations were performed mainly in the first 48 hours or in a deferred manner (3-14 days).

Complications



- Post-traumatic sinusitis - 4 cases
- Jaw area abscesses - 3 cases
- Purulent alveolitis - 1 case
- Phlegmon - 1 case
- Secondary bleeding after PHO - 2 cases
- Periostitis - 1 case

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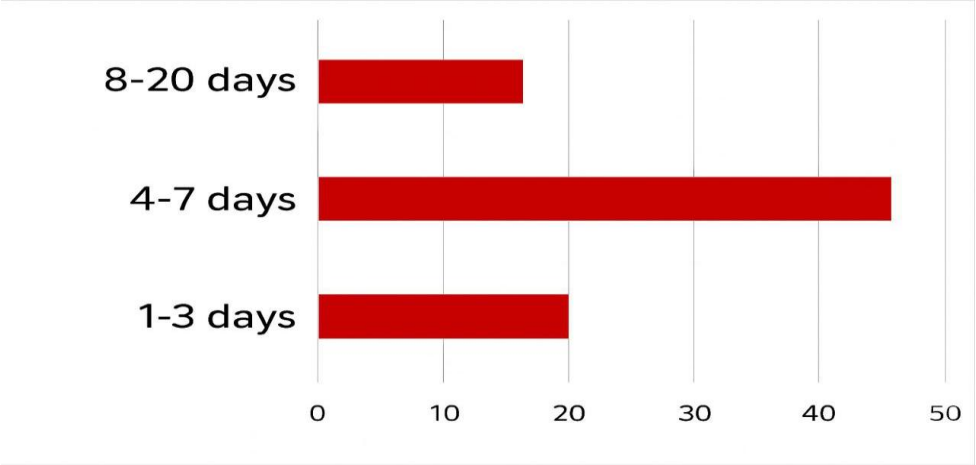
Duration of inpatient treatme



1-3 days - 20.7%

4-7 days - 56.9%

8-20 days - 22.4%

Discussion.

The obtained data confirm the trends characteristic of most regions of Central Asia and the world. Men of working age (20-40 years old) constitute the main risk group due to their high social and transport activity. Road traffic accidents remain the leading cause of combined craniofacial injuries, which is consistent with Zhang et al. (2021) and WHO (2023).

The anatomical vulnerability of the lower jaw is due to the peculiarities of its structure: a strong, but mobile arch perceives direct and oblique impacts, while the transfer of force occurs to the articular and alveolar processes. According to studies by Mijiritsky et al., 2022 and Nocini et al., 2023, mandibular fractures account for up to 40% of all facial injuries, which is fully correlated with Andijan observations.

The high frequency of combined BMD (76%) is explained by the commonality of the trauma mechanism: exposure in the face area is often accompanied by acceleration and rotation of the head, which causes brain contusion.

Surgical activity (osteosynthesis 70%) reflects modern trends in early fragment stabilization, which reduces the risk of infectious complications and deformations. Treatment effectiveness is enhanced by adhering to the principles of AO CMF (2023): anatomical repositioning, stable fixation, atraumatic technique, and early functional activation.

Conclusions

Combined injuries of the facial bones are more common in young men (20-40 years old) and are mainly associated with road accidents. The most vulnerable structure of the facial skeleton is the lower jaw, which accounts for more than one-third of all fractures. In 76% of cases, combined facial bone injuries are accompanied by craniocerebral injuries. Thus, the clinical material collected in the Andijan region confirms the epidemiological and clinical patterns of combined facial skeletal injuries, characteristic of world practice, and emphasizes the need for further research on the pathophysiological reactions of the body in such injuries.

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