

Integrated Management of Patients With Combined Injuries of the Facial Skeleton With Consideration of Oral Hygiene

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Annotation: Facial injuries constitute a significant proportion of all traumatic injuries, accounting for approximately 15-20% of emergency department admissions according to the World Health Organization data. The incidence of maxillofacial trauma has been steadily increasing due to road traffic accidents, sports-related injuries, interpersonal violence, and occupational hazards. Combined injuries of the facial skeleton, involving multiple anatomical regions simultaneously, present particularly complex clinical challenges that require sophisticated multidisciplinary management approaches.

Keywords: maxillofacial trauma, combined injuries, oral hygiene, comprehensive treatment, rehabilitation, antiseptic therapy, infection prevention

Introduction. The complexity of treating patients with combined facial skeletal injuries is significantly compounded when these injuries occur in conjunction with trauma to other body systems. In polytrauma patients, facial injuries are present in 40-60% of cases, often associated with traumatic brain injury, cervical spine trauma, and thoracic injuries. This constellation of injuries creates a clinical scenario where traditional treatment protocols may be inadequate, requiring innovative integrated approaches that address both the immediate life-threatening complications and the long-term functional and aesthetic outcomes.

Statistical analysis reveals that without proper comprehensive care, including adequate oral hygiene maintenance, 40-60% of patients with complex facial injuries develop infectious complications. These complications not only compromise healing but also significantly impact the final functional and aesthetic results, leading to prolonged hospitalization, increased healthcare costs, and reduced quality of life for patients.

Combined injuries of the facial skeleton remain among the most challenging issues in contemporary medicine. The rising number and speed of vehicles, the introduction of advanced industrial and agricultural technologies, the fast pace of daily life, the popularity of extreme sports, and the influence of stress-related factors have all contributed to an increased incidence of traumatic injuries, even outside wartime conditions.

In managing maxillofacial polytrauma, one of the key objectives is the prevention of complications associated with periodontal tissue damage, as well as minimizing morbidity in patients who already present signs of periodontal involvement. This represents a pressing concern for both maxillofacial surgery and general dentistry.

The majority of patients with combined injuries to the hard and soft tissues of the maxillofacial region are unable to maintain adequate oral hygiene independently. Surgical interventions, the application of splints and orthopedic appliances, food debris accumulating on metallic components and wire ends, together with retained blood clots and necrotic tissue fragments in the oral cavity, create favorable conditions for the rapid proliferation of pathogenic microorganisms.

Consequently, in patients suffering from facial skeletal and soft tissue trauma, meticulous oral hygiene at the early stages of treatment is of paramount importance. This approach ensures the effectiveness of

both surgical and conservative therapy, prevents inflammatory diseases of periodontal and mucosal tissues, and promotes timely and high-quality bone consolidation, regardless of the presence of orthopedic devices or operative interventions.

Purpose of the Study: To evaluate the oral hygiene status of patients with combined injuries of the facial skeleton and soft tissues, and to develop a comprehensive treatment strategy aimed at preventing periodontal pathology.

Study Population and Methods

The investigation included 123 patients diagnosed with combined facial skeletal injuries, treated at the Maxillofacial Surgery Department of the Central Hospital under the Samarkand City Medical Association. Among them, 96 patients (78.4%) were male and 27 (21.6%) were female, with a mean age of 41.4 ± 1.2 years. All patients underwent clinical, laboratory, radiological, immunological, and statistical assessments.

- Group I – 65 patients (52.8%) received standard treatment. On admission, each patient was examined by several specialists, a clinical diagnosis was established, the condition of the periodontal tissues was assessed, and conventional comprehensive therapy was administered.
- Group II (experimental group) – 58 patients (47.2%) followed the same diagnostic protocol, but their therapeutic program additionally included the topical application of *Eludril* solution.

Clinical Examination. In all patients with combined injuries of the facial bones and soft tissues, both local and systemic manifestations were observed, such as severe pain, general weakness, irritability, sleep disturbances, and loss of appetite. Headaches were reported in 94 patients (85.4%), general fatigue in all 123 patients (100%), and nervousness in 79 patients (81.6%).

Results of the Study: Based on the conducted research, it was determined that all 123 patients with combined injuries of the facial skeleton and soft tissues required comprehensive treatment with a focus on oral hygiene.

To evaluate the condition of oral hygiene in patients of both the main ($n=62$) and control ($n=61$) groups, the PMA hygiene index was applied.

In addition to standard hygienic measures, all patients were instructed to rinse their oral cavity independently with a furacilin solution.

In the main group ($n=62$), before the application of immobilization devices (Tigerstedt splints), patients were additionally advised to rinse their oral cavity with *Eludril* antiseptic solution both independently and prior to surgical procedures, alongside general and local therapeutic measures.

On the day of hospitalization, comparative analysis of oral hygiene indices between the two groups showed no significant differences, ranging from 25.7 ± 0.09 to 27.2 ± 0.13 points ($p > 0.05$).

However, by the 7th day of immobilization, oral hygiene in the control group had worsened, reaching 29.7 ± 1.06 points. In contrast, in the main group using *Eludril*, the index significantly improved, dropping to 12.7 ± 1.03 points.

Upon removal of immobilization devices (after 22 days), it was found that patients of the control group exhibited a further decline in oral hygiene levels compared to those in the main group. The final evaluation showed that the poorest hygiene was recorded in the control group (3.9 ± 0.19), whereas in the main group this value was significantly better (2.6 ± 0.09).

Conclusion. Thus, in patients with combined injuries of the facial skeleton and soft tissues, traditional treatment using immobilization splints without additional local oral hygiene measures contributes to inflammatory processes in the oral mucosa and periodontal tissues, leading to complications. The study demonstrated that implementing local oral hygiene protocols in patients with combined maxillofacial trauma effectively prevents possible complications.

In summary, comparison of the two groups revealed that in the control group periodontal inflammation was more severe, while the application of *Eludril* solution in the main group significantly improved oral hygiene, prevented progression of inflammatory processes in the periodontal and mucosal tissues, and contributed to faster tissue recovery and bone consolidation.

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