

TREATMENT OF FRACTURES OF THE UPPER AND LOWER HEAD IN ELDERLY PATIENTS USING THE IMMOBILIZATION METHOD IMPACT ON PERIODONTAL TISSUE

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Abstract. Oral hygiene and the condition of periodontal tissues were studied in 84 elderly patients with fractures of the upper and lower jaws and jaw immobilization using various methods. Fracture of facial and jaw bones A retrospective study of 665 case histories of elderly patients was conducted. Tissues of the periodontal complex and The most negative impact on oral hygiene is caused by splinting with Tigerstedt splints on both upper jaws. There are changes in the use of osteosynthesis, but the clarity is insignificant.

Keywords: fractures of the upper and lower jaw, immobilization, periodontium, oral hygiene, elderly patients.

Relevance. Despite significant progress maxillofacial surgery (maxillofacial surgery), rehabilitation traumatic injuries of the maxillofacial area is one of the current problems modern maxillofacial surgery and dentistry. Fractures of the upper and lower jaws (PVNC), including in adults, by frequency occurrence ranks first among fractures bones of the maxillofacial region (MFA) and constitute, according to According to various authors, up to 80% of all fractures.



Rice. 1. Splinting with Tigerstedt splints

According to our proctics, up to 70% of patients with traumatic bone injuries of the maxillofacial area have PNC. At the same time, about 15% of them are complicated various purulent-inflammatory processes with subsequent disruption of the bone integration of fragments.



Rice. 2. Schematic illustration and photograph injured marginal tissue periodontal complex when applying ligatures for fixing the tire.

Work is constantly being carried out on improving complex treatment of TMD, frequency complications reach up to 11%, which does not allow us to talk about effectiveness of currently existing methods treatment.



Rice. 2. Schematic illustration and photograph injured marginal tissue periodontal complex when applying ligatures for fixing the tire.

Morphological structural features teeth (coronal part, anatomical neck), physiological trema and diastema between teeth, insufficient supporting teeth in occlusion, pathological root resorption leads to limited ability apply dental splints for immobilization of VNPs, which are widely used in adults. However, despite this, in our country for temporary or permanent immobilization of the upper and lower jaw (TMJ) in adults, doctors often use orthopedic treatment methods that involve fixation and immobilization of TMJ fragments using intraoral splints, mainly about aluminum dental splints with intermaxillary fixation – individual Tigerschedt splints and smooth splint-brace, which are fixed in the cervical area of the teeth with using ligature bronze-aluminum wire or stainless steel wire with a diameter of 0.4-0.5 mm.



Rice. 1. Splinting with Tigerstedt splints

In this regard, both at the moment of fixing the tires and at throughout the entire time they are in the oral cavity inevitable tissue injury occurs periodontal complex. Availability of orthopedic designs for TMJ immobilization leads to difficulty in carrying out hygiene procedures, natural self-cleaning of the oral cavity, which leads to an increase in the number of pathogenic microorganisms. The largest microbial accumulations are formed in interdental spaces, physiological gingival pockets (gingival groove). Significant deterioration in hygienic conditions oral cavity, including due to traumatic exposure to tires, leads to the development of inflammatory pathological processes in the area of marginal periodontal disease or aggravates an existing one. Long-term the time of wearing orthopedic structures is risk factor for the development of purulent-inflammatory complications of fractures.

Purpose of the study: study the impact of methods immobilization on the condition of periodontal tissues and hygiene oral cavity in adults with fractures of the upper and lower jaw.

Materials and methods of research. Conducted retrospective study of 665 case histories of adults, hospitalized in the maxillofacial surgery department of the clinic Samarkand State Medical University (SSMU) with fractures of the maxillofacial bones region in the period 2020-2022. Eighty-four patients with PVNP were prospectively examined. who were undergoing

inpatient treatment in the maxillofacial surgery department clinics of SSMU, and 48 healthy patients under the age of 40 years somatic pathologies. Contingent of examined patients divided into 3 groups: Group 1 – 48 patients who, for Traditional immobilization was performed to fix the PVNP Tigerstedt double-jaw dental splints. 2nd group – 22 patients who underwent osteosynthesis of the TMJ for treatment of PVNP. Group 3 (control) – 18 practically healthy patient without any significant somatic and dental diseases. In all subjects examined, the patienta study of oral hygiene and condition was carried out tissues of the periodontal complex. The state of oral hygiene was assessed by Fedorov-Volodkina Hygiene Index (IHFV), intensity and prevalence of inflammatory gum tissue processes were determined using papillary-marginal-alveolar index (PMA), proposed by Massler and Schour, modified Parma.



Rice. 3. Condition of the gums before (left) and after(right) Removing the Tigerstedt splint

If the inflammatory process is present in the papillary parts of the gum (papilla) – 1 point, in the marginal part (marginum) – 2 points, in the attached gum (attached) – 3 points. Index RMA was calculated using the formula: $RMA = \text{Sum of indicators in points} \times 100 / 3 \times \text{number the subject's teeth}$. The patients were examined over time treatment 2 times: before fixing the jaws and after 30 days or when removing tires (for group 1).

Research results and discussion. The results of a retrospective analysis revealed that among fractures of the maxillofacial bones with an incidence of 70% (n=500) cases were TMJ fractures, 15% (n=88) fractures of the nasal bones, 11% (n=74) fractures of the alveolar process, 1% (n=1) zygomatic bone fractures, 3% (n=2) fractures of the upperjaw(Table1).

Table 1. Structure of fractures of the maxillofacial bones in a patient (n=665)

Fracture location	Frequency of occurrence (inn) (%)
Upper and lower jaw	500 (70%)
Nose bones	88(15%)
Alveolar bone	74(11%)
Cheekbone	1(1%)
Upper jaw	2(3%)
Total:	665 (100%)

The most common cause of traumatic Damage to the patient's maxillofacial area - a fall. When treating PVNP in 70% of cases were immobilized using a splint Tigerstedt, in 15% osteosynthesis, 11% of cases immobilization using a smooth splint. Retrospective analysis showed that the medical records did not the initial state of periodontal tissues was recorded and condition after treatment with PVNP. At the beginning of the IHFV study in patients of all groups had no statistically significant differences and were in range from 2.2 ± 0.05 to 2.5 ± 0.2 points ($p > 0.07$). Comparison of results with the control group showed that in patients of group 1 and group 2 the

level oral hygiene is significantly worse -2.2 ± 0.05 and 2.5 ± 0.2 versus 2.5 ± 0.02 points ($p < 0.07 - 0.02$), which is consequence of traumatic injury. During the initial examination, inflammatory gum processes in all patients are more pronounced than in 3 group ($p < 0.02$). RMA has the highest rates in the 2nd group of patients - $25.4 \pm 1.2\%$ versus the 1st groups $22.2 \pm 1.5\%$. When examined after 30 days it was established further deterioration in oral hygiene patients of group 1. In group 2, the state of oral hygiene remained at the same level. Comparison of hygiene status at stage 2 of the study showed that the poorest hygiene in patients who fixation of the jaws was carried out with the application of dental Tigerstedt tires, - 3.5 ± 0.3 versus 2.6 ± 0.03 points (2 group) ($p < 0.002$). At the final examination, the increase in PMA values in groups 1 and 2 was 70% and 15%, respectively compared to the initial values State of the gums before (left) and after (right) removal of the Tigerstedt splint, condition of periodontal tissues after removal of the splint Tigerstedt.

Conclusion. Most common type of bone fracture the patients' maxilla are fractures of the upper and lower jaw. Most pronounced negative effect on tissue periodontal complex and the state of hygiene oral cavity is provided by double-jaw splinting, and with surgical treatment (osteosynthesis of the TMJ) there are changes, but they are not so pronounced. Treatment of PVNP in a patient with osteosynthesis is performed rarely and according to strict indications. This is explained by the fact that injury to the growth zone of the upper and lower jaws during osteosynthesis can further lead to underdevelopment of the TMJ in patients. To prevent inflammatory processes in periodontal tissues in the treatment of PVNP it is necessary develop and use new, more gentle methods treatment using various orthodontic structures and composite filling materials, may prevent complications of inflammatory periodontal diseases. Purpose of various modern antiseptic rinses and use sick irrigators can improve oral hygiene status and reduce the risk of developing inflammatory processes in periodontal tissues complex in the treatment of PVNP in patients. Before and after treatment with PVNP, record it in the history diseases, periodontal status of patients and the need to schedule a consultation with a periodontist.

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