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# TREATMENT, RECONSTRUCTION AND REHABILITATION IN EXPLOSIVE INJURIES OF THE MAXILLOFACIAL REGION

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**Relevance.** Explosive and ballistic injuries of the face are simultaneous damage to bones (*mandibula*, *maxilla*, *articulatio temporomandibularis*), soft tissues and nerves. Consequences – functional (chewing, speech, breathing), aesthetic, and deep social-psychological trauma. In 62% of patients, foreign fragments remain (mostly metallic), which are easily detected by CT. Computed tomography (CT) is the most accurate method of examination, which allows assessment of both bone and soft tissue injuries.

**Purpose of the study.** Analysis of modern approaches to: surgical reconstruction – bone fixation, soft tissues, use of CAD/CAM-technologies; functional rehabilitation: speech, chewing, swallowing, neurorehabilitation; psychological support and social integration of patients.

**Materials and methods.** Review of clinical studies: free fibula flap (FFF), survival rates, CAD/CAM, psychological consequences of trauma. Systematic reviews, meta-analyses, and long-term patient observations were used.

**Results and conclusions of the study.** Successes and technical aspects of reconstructive surgery: flap survival rates – FFF – 94.5%, DCIA – 93.1%, Scapula – 97%, ORFF – 95.9% – with no statistically significant superiority of FFF over other options. Meta-analysis on osteoradionecrosis (ORN): total free flap failure rate – only 3.1% (95% CI: 1.3-5.4%). Overall reliability: success rate is approximately 95-96% in a center with 149 procedures. In real conditions: flap failure (complete or partial) is observed in 11.1% of cases, complete failure – up to 12.4%. Flap complications: in

28-36% of cases, with take-back risk up to 25%; complete loss – < 5% [1][2].

Rehabilitation: dental implants and quality of life. Implant integration: general survival rate – up to 97% after 1 year. Long-term perspectives: 5-year implant survival – 81%, according to systematic reviews. Successful osseointegration of implants in FFF: supported by direct criteria (Albrektsson) – very high level. Life of patients: among 23 patients with FFF and CAD/CAM, 81% rated their quality of life as good or excellent. Highest indicators – taste, shoulder mobility, reduction of anxiety; lower – chewing, appearance, salivation. Rehabilitation in 59 patients: oral rehabilitation – only 23.7%; implants – in 37.3% (implant survival 83.3%); satisfaction – 80%. Key trend: physiological results are improving, but a significant proportion of patients do not complete dental rehabilitation [3] [4].

Psychological consequences of trauma. PTSD after facial injuries: prevalence – 27% at 1-3 months and decrease to 10% after 6 months. Psychological symptoms: initially present in 54% of patients, and after 4-6 weeks PTSD was diagnosed in 41%. General psychological burden: depression, anxiety, PTSD – frequent and insufficiently diagnosed in maxillofacial trauma. Need for screening: psychological support – critically important for quality recovery [5] [6].

Impact – function and adaptation. Functional indicators: among 213 flap reconstructions – 93.4% success; 76% returned to normal nutrition, 88% – to intelligible speech. Positive growth after trauma (PTG): some patients experience deep psychological growth after trauma (due to reformatting of values, resilience, etc.) [7] [8]. Reconstruction in explosive injuries of the maxillofacial region – is a result of synthesis of: Reliable surgery (free flaps, CAD/CAM, precise planning); Functional rehabilitation (implants, restoration of chewing, speech); Psychological support – no less important than physical treatment; Considering long-term quality of life – a key to successful treatment.

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