

Reconstruction of the lower jaw after bisphosphonate osteonecrosis with the use of patient specific implant

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Extensive bony defects that occur after jaw resection in patients with osteonecrosis are one of the main problems facing a maxillofacial surgeon. Reconstruction often requires autogenous bone material to restore the integrity of the mandible. Known methods of bone autograft sampling have some limitations in this category of patients, while they are quite traumatic. Within the framework of the study, individual titanium mandibular endoprosthesis was manufactured using selective laser sintering technology.

The aim of the study is to improve surgical treatment efficiency in patients with extensive defects of the lower jaw after osteonecrosis with the use of titanium patient specific implant.

Materials and Methods: This technique was applied in 12 patients to replace an extensive mandibular defect. Three-dimensional model of the prototype was exported in STL format and manufactured using selective laser sintering technology. Treatment efficacy was assessed on the basis of external and intraoral examination data, as well as radiological data in the pre- and postoperative periods.

Results: In all cases face lower third symmetry was achieved, mouth opening was restored, and the function of chewing, swallowing, and speaking were normalized. According to CT-scans the position of the implant and fixing screws were correct. In the early postoperative period, moderate swelling of the tissues and minimal pain was noted. After 3 and 6 months, the restoration of the shape, size and range of motion of the lower jaw, and the patient's habitual bite, was noted. After 12 months, a persistent positive cosmetic and functional result of the operation was noted. Inflammatory complications were not detected in any clinical case.

Conclusion: Thus, lower jaw reconstruction using described above technique is an effective method. The implant can easily adapted to the surgical wound, which reduces the time of surgical intervention and the risk of complications in the postoperative period.

Biography

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