

ONJ UPDATE 2024

Torino, 24 febbraio 2024

Abstract Submission FORM

USE OF 3D CUSTOM-MADE TITANIUM PROSTHESIS FOR MANDIBULAR RECONSTRUCTION IN PATIENTS WITH STAGE III MEDICATION-RELATED OSTEONECROSIS

SECTION: 4A

AUTHORS (max 8):

Luca Guarda Nardini*¹, Matteo Val², Marco Ferrari², Daniele Manfredini², Mirko Ragazzo¹

AFFILIATION:

1. Unit of Oral and Maxillofacial surgery, Ca Foncello Hospital, 31100, Treviso, Italy
2. Department of Biomedical Technologies, School of Dentistry, University of Siena, Siena, Italy

Background.

The purpose of this article is to present the outcomes of using customized mandibular prostheses without protective pedunculated flap in treating patients suffering from Stage III Medication-related osteonecrosis of the jaw (MRONJ).

Patients and methods.

The diagnosis of mandible's MRONJ was performed for each patient by clinical and anamnestic evaluation. Preoperative orthopantomography, CT and incisional biopsy of the exposed bone, if present, and of the surrounding mucosa were performed. The staging of the lesions was performed according to the SIPMO-SICMF classification of MRONJ. Using 3D virtual surgical planning the necrotic bone was removed. Surgical guides were manufactured using a 3D printing method after obtaining a proper design of the osteotomy lines. The positioning of the custom jaw prosthesis was digitally performed. Drill holes had been prepared in each surgical guide to assist in affixing them and they would also be used for the fixation of the prostheses with osteosynthesis screws. Finally, custom mandible prosthesis systems were designed and then obtained with the selective laser melting (SLM) technique. Data regarding the long-term complications/functions were evaluated at 3, 6, 12, and 24 months after surgery

Results.

5 patients underwent mandible computer-assisted resection and rehabilitation with custom prostheses. From the immediate post-operative period all the patients demonstrated good mandibular function. In only one case, the prosthesis also replaced a mandibular condyle. The minimum time of follow-up was 6 months, the longest 2 years. None of the patients showed oral exposure of the prosthesis.

Conclusions.

In advanced cases of Medication-Related Osteonecrosis of the Jaw (MRONJ), where the removal of necrotic bone could cause a mandibular fracture, custom prostheses replacement appears to be an effective treatment option. Even without a pedicle flap to shield the prosthesis, patients can achieve optimal mandibular function.

REFERENCES:

1. Ricotta F, Battaglia S, Bolognesi F, Ceccariglia F, Marchetti C, Tarsitano A. Use of CAD-CAM Bridging Mandibular Prosthesis in Osteonecrosis of the Jaw: The Experience of Our School. J Clin Med. 2020 Oct 30;9(11):3516. doi: 10.3390/jcm9113516. PMID: 33143100; PMCID: PMC7693825.
2. Zhao Z, Shen S, Li M, Shen G, Ding G, Yu H. Three-dimensional printed titanium mesh combined with iliac cancellous bone in the reconstruction of mandibular defects secondary to ameloblastoma resection. BMC Oral Health. 2023 Sep 20;23(1):681. doi: 10.1186/s12903-023-03386-0. PMID: 37730602; PMCID: PMC10510271.
3. Darwich K, Ismail MB, Al-Mozaiek MYA, Alhelwani A. Reconstruction of mandible using a computer-designed 3D-printed patient-specific titanium implant: a case report. Oral Maxillofac Surg. 2021 Mar;25(1):103-111. doi: 10.1007/s10006-020-00889-w. Epub 2020 Jul 28. PMID: 32725572.

Il titolo non deve essere superiore a 130 caratteri (spazi inclusi); l'abstract deve essere scritto in Times New Roman carattere 10. Numero minimo di parole: 400 inclusi titoli, autori e affiliazioni; numero massimo di parole: 600 inclusi titoli, autori e affiliazioni. Inserire al massimo 3 note bibliografiche. L'abstract (tutto in inglese titolo e testo) deve essere contenuto all'interno della prima pagina del form.