

17<sup>th</sup> International Conference on

# Oral & Maxillofacial Pathology

September 24-25, 2018 | Montreal, Canada

## Total mandibular reconstruction with total custom titanium prosthesis in segmented microvascular fibula

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The objective of this work is to show a new surgical protocol in high complexity reconstructions in the mandibular skeleton, predicting more stable results and a greater chance of rehabilitation with integrable bone implants. This surgical case is the first made in the world. Until then, we only have cases of the most varied types of mandibular reconstructions, either microvascularized, or autogenous grafts isolated or with plaques of reconstruction, not guaranteeing a stable long-term result for the patient mutilated by extensive segmentations caused by benign or malignant oral pathology. Therefore, in this particular case, it shows a case of a patient with extensive ameloblastoma, who in a first surgical phase, was performed full mandibulectomy with a wide margin of safety and microvascular fibular graft with green-breasted fibular segmentation, grafted bone graft interposition bioss, rhBMP-2, and osteosynthesis with mini plates and 2.0 screws. After a few months after surgery, the appearance of the microvascular fibular graft was morphologically in the poor position, with vertical height exaggerated due to the high degree of angulation of the fibula, fibrosis in the stumps grafted with, bone instability to withstand chewing forces for future rehabilitation with osseointegrated implants. Therefore, a new surgery, with extra-oral access, segmentation of the fibular graft in specific areas and studied in virtual planning and manufacture of the total mandibular prosthesis in custom titanium, with height and mandibular shape, thicknesses at strategic locations as a zone of traction and compression, as well as to predict the exact locations for placement of the implants and their complete rehabilitation. Literature so far, there are no such extreme cases available. Only cases of mandibular Hemi-prosthesis. In this case, it is necessary to discuss the technique, virtual evaluation, and imaging, in order to promote a rehabilitative surgery with extreme stability, predictability and establish normal functionality to the patient.

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