



Interpositional augmentation technique in the treatment of posterior mandibular atrophies: a retrospective study comparing 129 autogenous and heterologous bone blocks with 2-7 years follow-up

VERTICAL AUGMENTATION

117

ABSTRACT

In case of insufficient bone height following tooth loss, the implant rehabilitation of atrophic posterior mandible is challenging. The ideal approach seems to be the vertical bone augmentation performed with different techniques, as guided bone regeneration, alveolar distraction osteogenesis and onlay bone grafting. The aim of this retrospective study was to evaluate the clinical and radiological results of inlay augmentation procedure with three different types of block bone graft: autogenous bone block harvested from iliac crest (ABB), deproteinized bovine bone mineral block (BBB) and collagenated equine bone block (EBB). Following osteotomy, the different types of blocks were shaped and placed between the cranial osteotomized segment and the mandibular basal bone. Residual gaps were filled with particulated ABB, BBB or EBB taken from the respective blocks. The grafted areas were then covered with a resorbable collagen membrane (Bio-Gide, Geistlich, Wolhusen, Switzerland; OsteoBiol® Evolution, Tecness®, Giaveno, Italy). A total of 115 patients were treated and 129 inlay surgeries were performed (10 surgeries with ABB, 61 with BBB and 58 with EBB). The results showed a mean postoperative vertical bone gain of 5,55 mm, with the greatest augmentation obtained in the EBB group, followed by BBB and ABB. Anyway, these differences were not statistically significant. The Authors underline that EBB probably allows for a greater augmentation for its rigidity, due to the presence of a collagen matrix. At 7 years after loading, ABB and BBB showed 1.34 and 1.37 mm of peri-implant marginal bone loss respectively, while EBB lost 0.61 mm 3 years after loading. The result on implant survival rates with a 4.2-year mean follow-up were comparable (94.4% for ABB, 91,1% for BBB and 96.0% for EBB).

CONCLUSIONS

Within the limitations of this study, the Authors concluded that: *“the use of collagenated blocks should be considered with this technique involving a lower adjustment of the coronal segment on the block itself. As a consequence, heterologous biomaterials might be considered ideal in the inlay technique for the posterior mandible”.*

P Felice¹
C Barausse²
A Barone³
G Zucchelli⁴
M Piattelli⁵
R Pistilli⁶
DR Ippolito⁷
M Simion⁸

- 1 | MD, DDS, PhD, Researcher, Department of Biomedical and Neuromotor Sciences, Unit of Periodontology and Implantology, University of Bologna, Bologna, Italy
- 2 | DDS, Resident, Department of Biomedical and Neuromotor Sciences, Unit of Periodontology and Implantology, University of Bologna, Bologna, Italy
- 3 | DDS, PhD, MSc, Adjunct Professor, Department of Surgical, Medical, Molecular and Critical Area Pathology, University of Pisa, Pisa, Italy;
- 4 | DDS, PhD, Professor, Department of Biomedical and Neuromotor Sciences, Unit of Periodontology and Implantology, University of Bologna, Bologna, Italy
- 5 | MD, DDS, Professor, Department of Medical, Oral and Biotechnological Sciences, Dental School, University G. D'Annunzio of Chieti-Pescara, Chieti, Italy
- 6 | MD, Resident, Oral and Maxillofacial Unit, San Camillo Hospital, Rome, Italy
- 7 | DDS, Postgraduate Student, Department of Orthodontics, School of Dentistry, University of Brescia, Brescia, Italy
- 8 | MD, DDS, Full Professor, Department of Periodontology, Maxillo-Facial and Odontostomatology unit, Fondazione Cà Granda IRCCS, Ospedale Maggiore policlinico, University of Milan, Milan, Italy

ORIGINAL ARTICLE

Int Journal of Periodontics and Restorative Dentistry
2017 Jul/Aug;37(4):469-480

Grafted with

BONE SUBSTITUTE
OsteoBiol® Sp-Block

MEMBRANE
OsteoBiol® Evolution