



## Clinical success of dental implants placed in posterior mandible augmented with interpositional block graft: 3-year results from a prospective cohort clinical study

### ABSTRACT

In order to rehabilitate a missing tooth in the posterior mandible, it is mandatory to have a proper residual bone height. Even if short implants have been proposed in case of severe atrophy, if the residual height above the inferior alveolar nerve is no more than 5 mm, the use of short implants is not recommended. In these cases, augmentation procedures are indicated. Several techniques have been proposed to augment the atrophic mandible and above these the sandwich osteotomy technique has been described. In this study the Authors performed an interpositional bone grafting procedure with the adjunctive apposition of a cancellous equine xenograft and the placement of a platelet-rich fibrin membrane as coverage. The aim of the study was to assess the 3-year efficacy and clinical performance of implant-supported rehabilitations in posterior mandibles augmented with the sandwich osteotomy technique. Twenty-three partially edentulous patients with atrophy of the posterior mandible were selected and treated with vertical bone augmentation using interpositional equine cancellous bone blocks (OsteoBiol® Sp-Block, Tecnos®, Giaveno, Italy) and porcine corticocancellous bone particulate (OsteoBiol® mp3®, Tecnos®). Four months after augmentation dental implant were placed and loaded with fixed dental prostheses. Patients were followed for 3 years, and linear radiographic vertical bone gain and peri-implant marginal bone loss were assessed. Moreover, complication rates after surgery, prosthesis and implant failure rates, width of keratinized mucosa, and patient satisfaction were evaluated as secondary outcomes. The mean vertical bone gain was 5.6 mm after 4 months and the global 3-year survival rate was 95.5%. The mean marginal bone loss changed significantly ( $P < .001$ ) from implant placement to the 2-year analysis ( $0.91 \pm 0.35$  mm). 3 years after loading, the mean peri-implant marginal bone loss around implants was  $1.06 \pm 0.37$  mm, whereas the width of keratinized mucosa had an overall increase of  $0.39 \pm 0.36$  mm.

### CONCLUSIONS

Even if the results of this study require careful evaluation and cannot be generalized to all clinicians, the Authors concluded that *"in the presence of severe bone atrophy of the posterior mandible with a residual bone height of 3 to 6 mm, the osteotomy sandwich technique, with the use of an equine bone block, could represent a useful treatment to allow implant placement in a second-stage surgery"*.

### VERTICAL AUGMENTATION

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S Marconcini<sup>1</sup>  
U Covani<sup>2</sup>  
E Giammarinaro<sup>3</sup>  
E Velasco Ortega<sup>4</sup>  
D De Santis<sup>5</sup>  
F Alfonsi<sup>6</sup>  
A Barone<sup>7</sup>

1 | Department of Surgical, Medical, Molecular and Critical Area Pathology, University of Pisa, Italy

2 | Tuscan Dental Institute, Versilia General Hospital, Lido di Camaiore; Department of Surgical, Medical, Molecular and Critical Area Pathology, University of Pisa, Pisa, Italy

3 | Tuscan Dental Institute, Versilia General Hospital, Lido di Camaiore, Italy

4 | Universidad de Sevilla, Seville, Spain

5 | Department of Surgery and Translational Medicine, University of Florence, Florence, Italy

6 | Department of Surgical Sciences, Dental and Maxillofacial Department, University of Verona, Verona, Italy

7 | Unit of Oral Surgery and Implantology, Department of Oral and Maxillofacial Surgery, Geneva University Hospital, University of Geneva, Geneva, Switzerland

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