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Porous block hydroxyapatite in orthognathic surgery

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ABSTRACT

Seventy-six nonconsecutive patients undergoing orthognathic surgery, in whom blocks of porous hydroxyapatite were implanted into osteotomy gaps in lieu of autogenous bone grafts, are the subjects of this report. Surgical procedures include inferior maxillary repositioning (10 patients), maxillary advancement (24 patients), transverse maxillary expansions (17 patients) and inferior repositioning of the chin (25 patients). A total of 140 anatomic sites were implanted. Eleven patients later consented to open biopsy of the implant material at a mean 10.2 months following implantation.

At the time of follow-up, mean 16.3 months, excellent osseous stability was observed. Three patients developed complications relative to the presence of the implant. Twenty-one of 24 biopsy specimens demonstrated an osseous union of implant to bone with osseous deposition within the implant pores. Radiographic follow-up revealed implant blocks to maintain their volume with no change in density or discreteness.

The biological behavior and biomechanical properties of porous block hydroxyapatite are discussed. These implant characteristics make it a feasible bone graft substitute in orthognathic surgery and justify its continued use in this context.

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