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Histologic analyses of human mineralized bone grafting material in sinus elevation procedures: a case series.

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Human mineralized bone allograft is a solvent-preserved allograft and is therefore composed of a unique bone substitute that differs from other forms of bone allograft processed via standard cryopreservation. During solvent preservation, the mineral and collagen structures appear to remain intact, thus possibly facilitating bony ingrowth when the mineral is used as a bone graft. This case series illustrates the histologic and clinical effects of this bone graft material for sinus elevation procedures. Histology from bone biopsy core samples of four patients revealed newly formed bone with a well-organized lamellar bone structure in general, and in some cases, remaining particles were observed in contact with surrounding newly formed bone.

Histomorphometric analysis demonstrated a mean of 73.3% of bone formation (range, 66.1% to 85.0%) in the grafted sites, resulting in bone density that was similar to that of the original host bone (mean, 73.2%; range, 64.4% to 84.8%). Clinically, no complications were observed, and all implants were considered clinically osseointegrated after 6 months (range, 4 to 8 months). The results of this study suggest that human mineralized bone allograft could be successfully used in sinus lifting procedures and encourage further research of this solvent-preserved bone allograft material in oral reconstruction for future implant placement.