Biphasic bone substitute and fibrin sealant for treatment of benign bone tumours and tumour-like lesions.

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Abstract:

PURPOSE: Bone defects resulting from tumour resection or curettage are most commonly reconstructed with autologous bone graft which is associated with limited availability and donor site morbidity. Recent research has focussed on synthetic biomaterials as bone graft substitutes. The aim of this study was to assess the safety and efficiency of a bone substitute as an alternative for autologous bone in the treatment of benign bone tumours and tumour-like lesions.

METHODS: In the present study, a biphasic ceramic (60% HA and 40% beta-TCP) combined with a fibrin sealant was used to reconstruct defects in 51 patients after curettage of benign bone tumours or tumour-like lesions. Patient age ranged from eight to 68 years (mean 29.7), defect size from 2 cm(3) to 35 cm(3) (mean 12.1), and time of follow-up from one to 56 months (mean 22.7).

RESULTS: Radiologic analysis showed complete bony defect consolidation in 50 of 51 patients after up to 56 months. No postoperative fractures were observed. Revision surgery had to be performed in one case. Histological analysis showed new bone formation and good biocompatibility and osseointegration of the implanted material.

CONCLUSION: In summary, the biphasic ceramic in combination with fibrin sealant was proven an effective alternative to autologous bone grafts eliminating the risk of donor site morbidity for the patient.