Single-stage implantation in the atrophic alveolar ridge of the mandible with the Norian skeletal repair system.

Abstract:
Dental implants have played a part in rehabilitation of the jaws for more than 40 years, but in some cases they alone are inadequate because of extreme alveolar resorption. Correction may necessitate a two-stage procedure with additional interventions. We have made a preliminary study of the use of the Norian skeletal repair system (SRS), a carbonated calcium phosphate bone cement used to augment the alveolar ridge as a single-stage procedure, with the placement of implants. Ten edentulous patients with insufficient vertical bone in the interforaminal area were treated. After a horizontal osteotomy and crestal mobilisation of the alveolar ridge, implants were placed through the crestal part and fixed in the basal part of the mandible. Norian SRS was used to fill the gap created. The prostheses were inserted 3 months later. Forty implants were inserted. The follow up period was 60 months, and no fractures or dislocations developed. One of the implants was lost and there was one wound dehiscence, but no surgical intervention or revision was necessary. Radiographs showed good consolidation of the bony structure in all cases. We have described a reliable, single-stage procedure for augmentation and implantation in a highly atrophic alveolar crest. A 98% survival is comparable with those of other techniques. Further clinical trials are necessary to replicate these promising results.