Implants were recovered after four, six, or eight weeks for morphologic assessment.

In each of the 12-year preserved specimens, new bone formation occurred with hemopoietic marrow confined to the interior of the implant (Fig. 1). In the interval from four to eight weeks, the induced bone was remodelled to form a spherical ossicle. Remnants of the old persisted and incompletely resorbed at eight weeks with groups of few chondrocytes still located in old vascular channels. In the recently decalcified matrix, the same pattern of new bone was observed. The only difference with the 12-year-old samples was that new bone trabeculae and marrow were also present in the original medullary canal. All the implants were surrounded by a fibrous envelope. Although quantitation is required, grossly, the amount of living bone was apparently the same in both groups.

Bone induction in rat is still very active in HCl-decalcified implants after freeze-dried preservation for 12 years. Although morphometric and biochemical differences could exist in the new bone induced by old and recent matrices, their morphologic appearance is the same. From this observation, the freeze-drying technique appears to be appropriate to preserve the inductive capacity of such material for a long time.

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REFERENCES

1. Urist, M. R.: Bone: Formation by autoinduction. Science 150:893, 1965.
2. Urist, M. R.: Surface-decalcified allogenic bone (SDAB) implants: A preliminary report of 10 cases and 25 comparable operations with undecalcified lyophilized bone implants. Clin. Orthop. 56:37, 1968.

Dear Sir:

In 1979, we reported the results of a series of cases of refractory osteomyelitis treated with surgery, parenteral antibiotics and hyperbaric oxygen.[1] After an average follow-up period of 23 months, 34 of the group of 40 patients remained clinically free of disease and six had suffered recurrences. In 1984, the follow-up period of this group of patients was extended to 7.5–10.5 years and there had been four additional relapses at two, four, five, and six years, respectively. In this group of patients, who met strict criteria as refractory to previous surgery and antibiotic treatment, 75% remained free of evidence of active disease at an average of 8.4 years following combined treatment.

Hypoxia in infected, hypoperfused bone and soft tissue impairs fibroblast multiplication and collagen production to support capillary angiogenesis, as well as leukocyte bacterial killing by the oxidative pathway. Hyperbaric oxygen provides two to four hours daily correction of wound hypoxia and is adjunctive to surgery and antibiotic treatment.

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REFERENCE

1. Morrey, B. F., Dunn, J. M., Heimbach, R. D., and Davis, J.: Hyperbaric oxygen and chronic osteomyelitis. Clin. Orthop. 144:121, 1979.