CORRESPONDENCE

DEAD BONE GRAFTS IN ORTHOPAEDIC SURGERY

FROM PROFESSOR H. L. ROCHER, BORDEAUX, FRANCE

To the Editor of the Journal of Bone and Joint Surgery.

Sir,

In 1946 I presented at the French Congress of Surgery my experiences with the use of dead bone in orthopaedic surgery, prepared according to the method of my son, Dr Christian Rocher. The technique was first described by my pupil, Leon Dorriotz (Utilisation de L’Os Mort Humain Conservé en Chirurgie Orthopédique de Reconstruction, 1939. Bordeaux: Imprimerie Bière), who referred to sixteen cases, the earliest being in 1937. I thought it would be interesting to your readers to compare this method with that recently published in the Journal of Bone and Joint Surgery (Experiences with Boiled Cadaveric Bone. Journal of Bone and Joint Surgery, 34-B 429).

The bone is removed from amputated limbs. The soft tissues and the periosteum are cleaned off and the articular cartilage is removed. The bone is then boiled for three hours to clear thoroughly all the soft tissue from the marrow cavities. After this preliminary boiling the bone is cut into blocks of suitable size and shape for use as grafts, some being of compact bone and some

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of cancellous bone. The grafts are then boiled again for a further three hours to complete their extraction and are stored in 95 per cent alcohol. When the grafts are required for use they are sterilized together with the instruments.

These grafts are well tolerated. They become incorporated in the bony bed in which they have been placed. Experience shows that fusion of the graft with its host becomes complete. Within a year or so the fusion is so intimate that it is impossible to distinguish between graft and host.

In one case in which a graft was used in an operation for congenital subluxation of the hip the graft was absorbed. This failure was attributed to inadequate blood supply, for the graft was placed between the articular cartilage and the surrounding bone.

The dead graft performs two functions, mechanical and osteogenic. The mechanical property is used, for example, in the formation of an acetabular buttress, in the construction of a bone block, or in the repair of a pathological fracture occurring in a bone cyst or a giant-cell tumour after irradiation (Figs. 1 to 6). In the first two instances I insist on firm and deep implantation of the graft beneath the osteoplastic buttress raised by the gouge, thus making the transference of living cells easy between the dead graft and its living bony pedicle. Close contact ensures the stability of the graft. The osteogenic function is seen in the packing of a bone cavity. The cavity should be filled with compact and cancellous bone which should be hammered firmly in with a punch.

I no longer use dead bone for fusion of the spine in Pott's disease or for arthrodesis of the hip. I find an autogenous tibial graft quite satisfactory. Furthermore, bridging a gap with dead bone seems to me a risky procedure.

Since Doriot's paper and my communication to the Surgical Congress my pupils and I have come to regard dead bone as an economical and easy method of grafting for shelf operation, bony cysts, arthrodeses and pseudarthrosis and we have experience of over 200 cases. Lloyd-Roberts's paper gives us hope that cadaveric bone may also be used to speed up consolidation in an arthrodesis which is progressing slowly. In my experience a dead graft should not be used unless it is in contact with living bone. This contact guarantees success provided the bed for the graft is properly constructed. Loss of a graft is most unusual and it indicates a fault in operative technique.

Yours very truly,

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H. L. ROCHE.