ILIAC WING STORAGE OF FEMORAL HEAD AUTOGRAPH

C. A. MILLS, J. C. HOOPER

A safe, cheap, reliable method of bone storage is required for much arthroplasty revision surgery. We have screwed the femoral head taken from a primary hip arthroplasty to the ipsilateral iliac wing and, at a later date, harvested it for use in a contralateral revision hip arthroplasty.

**Case report.** A 58-year-old woman with a history of bilateral hip degeneration had had a cemented double cup arthroplasty 15 years before presentation. This was revised after 11 years to an uncemented titanium femoral and ceramic acetabular prosthesis, because of symptomatic aseptic loosening of both components. She presented with debilitating symptoms due to degenerative disease in the unoperated right hip, as well as symptoms from a loose left hip arthroplasty, with medial acetabular deficiency.

It was decided to operate on the right hip. Draping was modified to allow access to 7 cm of iliac crest, posterior to the anterior superior iliac spine, and a modified Hardinge approach was used. A routine hip replacement was then carried out using an uncemented prosthesis.

The excised femoral head was denuded of all articular cartilage and split along the line of the neck, so as to produce mirror halves. The deep layers of the wound were closed and the incision was then extended to include the iliac crest. Muscle and fascia were elevated from the inner plate of the iliac wing. The halves of the femoral head were placed cancellous surface down, onto the inner table of the ilium. Each was fixed with a 6.5 mm screw through the ilium into the graft (Fig. 1). Six months later the ESR and blood examinations were normal, and a bone scan indicated increased activity in the region of the stored graft. Symptomatically the patient was well, with no suggestion of infection.

A revision uncemented arthroplasty was then performed on the loose left hip. A modified Hardinge type approach was again used, allowing separate draping over the right iliac crest. Retrieval was technically simple. Culture of the graft was negative; histology revealed osteonecrosis with revascularisation at the periphery and new bone deposition in the revascularised areas. The graft was used in the form of plates of cancellous bone and as a paste, primarily to the area of medial acetabular deficiency. The patient remained afebrile postoperatively, and at six months was symptom free with a normal ESR. Radiologically the bone graft incorporated (Fig. 2). She was still symptom free at 18 months.

**Discussion.** Methods of bone harvest, storage and usage are currently undergoing reappraisal, partly because of the risk of transmitting acquired immune deficiency syndrome. Autologous cancellous bone is known to be the best type of graft (Brown and Cruess 1982), but nonbiological methods of graft storage kill the osteocytes (Harper 1982). The technique we have described provides a convenient, cheap, method of storage, with at least some viable osteocytes. The graft can be stored for at least six months and possibly longer, though resorption is a possibility. The method adds little to the duration or morbidity of the operation.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

**REFERENCES**
