Introduction

A wide selection of components must be available for revision cases. Each case should be assessed, planned and rehearsed in order to avoid problems, reduce the operating time and offer a better result to the patient.

In the early years of the Charnley low-friction arthroplasty each innovation and development was often viewed with suspicion and resentment. By contrast, the plethora of apparently "newly discovered principles" is so vast that it makes one wonder how it is that 26-year results of the Charnley low-friction arthroplasty still out-perform all others both in the quality of results and the paucity of revisions? The mere fact that new components can be inserted must not be equated with the need to use them, let alone with long-term success.

The Acetabulum

The quality of the available bone stock will be the decisive factor when choosing which components or methods are to be used. It must be appreciated that improvement in the quality of the implant has little if anything to do with the quality of the bone stock which is meant to support that implant. The problem is invariably at the bone-implant junction. The acetabular rim is the essential load-bearing part.

The components and instruments necessary for replacement of the acetabulum at revision are as follows: a selection of Ogee-flanged angle-bore sockets; wire mesh and scissors. The Ogee flange, when appropriately trimmed, will provide rim support for the socket as well as adequate pressurization of the acrylic cement and post-operative stability in cases where the incidence of dislocation would otherwise be high.

Ortron wire mesh is very useful in revision cases where defects of the acetabular floor require to be covered in order to avoid the escape of cement into the pelvis. The Ortron wire mesh is cut with the scissors according to the size required, usually into a circular shape. Radial cuts are then made and the gauze "shaped" by bending. Trial will determine if the correct shape and size has been obtained. Once made to fit, the shaped Ortron gauze is partly flattened out. When placed in position and pressed into shape the elastic deformation of the gauze will make it stay securely in its place (Fig. 20.1).

At the time of writing (November 1987) rim-support sockets, although well advanced, are not in general use. They combine the experience of Charnley with the press-fit sockets, the results of revision surgery in the presence of acetabular defects as achieved by the author as well as the present and possibly future developments in bone grafting and supplementation in the widest sense of the term. The sockets ensure rim support of the implant under load while allowing implementation of bone grafting at the same time (Fig. 20.2).
The Femur

Revision surgery must not be synonymous with the use of ever-longer stems. It has been said that the length of the stem used in revision surgery is proportional to the delay and inversely proportional to the experience of the surgeon. Proximal fixation of the stem is essential but the design will vary with the availability of bone stock.

The following femoral components should be available at revision: standard stems, shorter stems, longer stems, extended neck stems, a modular proximal femoral replacement and a stem–Kuntscher nail combination.

Standard stems, used routinely in primary surgery, probably form the bulk of those used in revisions.

Shorter stems are extremely useful when extraction of all of the distal cement is not essential, or when exposure of the distally closed-off medullary canal is not indicated (Fig. 20.3). The exact length that is acceptable has yet to be determined although information is now being gathered. Experience with shorter stems extends over 5 years and well over 120 cases (both in revision and primary surgery).