15 Fracture of the Shaft of the Femur

Introduction

Individual surgeons' experiences with the problems posed by fracture of the femoral shaft in patients with total hip arthroplasty is not great, primarily because the complication is fortunately rather rare, and secondly, because it is an emergency. Transfer of the patient in the acute stages is not advisable. Cases that are transferred are often those with failure of union after attempted conservative treatment.

The classification proposed by Khan and O'Driscoll (1977) offers a good "working scheme" and is to be commended. The problem to be tackled can usually be classified in one of three ways:

1. Fractures distal to the implant.
2. Fracture of the femur in the presence of a loose stem.
3. Fractures involving the stem–cement complex.

1. Fractures distal to the implant can be treated conservatively and will unite (Fig. 15.1) as pointed out by Charnley (1966). Care must be taken not to miss the loosening of the stem.

2. Fractures distal to or involving the distal part of the stem–cement complex and associated with stem loosening can present a technically difficult problem, in fact two problems in one: that of a fractured femur and that of a loose stem. Attempts to treat such a fracture by cementing a long stem may be misconceived (Fig. 15.2) and are no more appropriate than attempts to treat femoral fractures by the same method. Attempts to hold the fracture using a plate may also be doomed to failure (Fig. 15.3). The problems must be identified and treated deliberately. In this sphere the work of Sven Olerud (Olerud and Karlstrom 1984) is to be commended. (Khan and O'Driscoll also reported one such case in 1977.) Olerud manages the two problems by a single method, using a cemented femoral stem slotted down the intramedullary nail. This allows the distal femoral fragment to "ride up" and unite while controlled by the intramedullary nail and avoids the problems associated with keeping the fragments separated. This has been the author's method of choice in the handful of cases that have presented themselves for treatment (Fig. 15.4).

A selection of modified Charnley stems have been made available together with a choice of Kuntscher nails (Fig. 15.5). Alternatively the proximal part of the femur may have to be replaced (Fig. 15.6) and this is a really major undertaking.

A word of warning: to use a combination of a stem and a Kuntscher nail, even if fixed with acrylic cement, is to invite the possible problem of fretting and failure of the system. The most likely outcome would be fracture of the nail. This must be made clear to the patient. The operation is used as a salvage procedure, to ensure fracture healing. Further surgery may have to be undertaken. Meanwhile the use of support for ambulation is indicated.

It is in order to avoid problems of this nature that timely intervention for stem loosening is
Fig. 15.1. Fracture of the shaft of the femur managed conservatively. a Pre-revision radiograph. The problem was deep infection with loosening of the components. b Post-revision appearance: a shorter stem was used. c,d Fracture of the femoral shaft following a very severe fall. e Union achieved with conservative treatment, 3-year follow-up. (What is the next step if loosening of the stem occurs?)

Fig. 15.2. A long stem used in an attempt to secure fixation of the fracture of the femoral shaft distal to the tip of the stem. a The result of keeping the fracture fragments apart. b Revision using a long stem. c Non-union and fractured stem. d Bent stem removed at revision. The clinical history of the specimen is not known.