Case Report

Intracapsular fracture of the proximal femur after hip resurfacing treated by cannulated screws

Fracture of the neck of the femur after resurfacing arthroplasty usually leads to failure and conversion to a total hip replacement. We describe an intracapsular fracture of the femoral neck sustained after hip resurfacing which was treated by cannulated screws, resulting in union and retention of the resurfacing implant. The result at follow-up three years later was very satisfactory with a Harris hip score of 99.

We describe a case of an intracapsular fracture of the neck of the femur after resurfacing arthroplasty, treated by the use of cannulated screws.

Case report

A 57-year-old man underwent resurfacing of his right hip for severe osteoarthritis. His Harris hip score (HHS) at presentation was 45. A Birmingham Hip Resurfacing (BHR) arthroplasty (Smith & Nephew Orthopaedics Inc., Warwick, United Kingdom) was performed through a posterior approach. The acetabular component was uncemented, but the femoral component was secured using Simplex polymethylmethacrylate (Stryker Orthopaedics, Limerick, Ireland). There were no intra-operative complications and his postoperative course was uneventful. The postoperative anteroposterior (AP) pelvic radiograph showed the femoral component to be in a satisfactory valgus position (138°) compared with the anatomical neck-shaft angle of 132°. He was allowed to bear weight as tolerated and was discharged home on the second postoperative day.

At clinical follow-up at four weeks he had a pain-free range of movement and satisfactory appearances on the plain radiographs.

He returned to the clinic after two months with pain in the operated hip after a fall in the shower. The pain had gradually increased and he had reverted to using crutches. Physical examination showed a globally reduced range of movement.
movement associated with pain. Plain radiographs revealed a minimally displaced fracture of the superior surface of the neck of the femur. He was initially treated conservatively and advised to remain non-weight-bearing on crutches.

However, when reviewed two weeks later the hip was still painful. The fracture gap had increased (Fig. 1) and the femoral component was now in a varus position (124°). The patient was offered conversion to a total hip replacement, but requested that an attempt should be made to preserve the resurfacing arthroplasty. After discussion with the patient it was decided to attempt a closed reduction and internal fixation using cannulated screws.

Under spinal anaesthesia he was positioned on a fracture table. The fracture was reduced by slight traction and abduction. The reduction was confirmed using an image intensifier. A lateral incision was made and under observation from the image intensifier two guide-wires were passed superior to the stem of the femoral component of the BHR. Two 7.3 mm diameter cannulated screws (Synthes, West Chester, Pennsylvania) with a thread length of 16 mm were inserted. The image intensifier was used to confirm that the threads were beyond the fracture line and that the fracture was compressed. Post-operatively, the patient was allowed to bear weight partially on crutches. Weight-bearing was increased at six weeks and by three months he had returned to normal activities. The plain radiographs were satisfactory and showed union when followed up at ten weeks. At three years the result was very satisfactory with a pain-free range of movement and an HHS of 99. Plain radiographs showed that the fracture had remained united with no change in the position of the implants (Fig. 2).

Discussion

Fracture of the neck of the femur is the most common complication of hip resurfacing and usually requires revision.2 There have been reports on the conservative management of minimally displaced fractures of the neck after hip resurfacing.3,4 In these studies the fractures were undisplaced, or minimally displaced, with no progressive increase in the fracture gap or malalignment of the femoral component. In our patient there was a progressive increase in the gap with a varus position of the femoral component. As a result, complete failure was expected.

The usual treatment of completely displaced fractures after resurfacing is conversion to a conventional total hip replacement using a metal-on-metal bearing of large diameter.2 Since the fracture in our patient was only partially displaced and he wished, if possible, to preserve the resurfacing, it was reduced and internally fixed with an excellent result. Weinrauch and Krickler5 described the fixation by a blade plate of an extracapsular femoral fracture associated with hip resurfacing.

We believe that our case is unique in that the fracture was intracapsular in position.

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References


