Acta orthop. scand. 48, 656–658, 1977

PENETRATION OF A LONG STEM PROSTHESIS INTO THE KNEE JOINT: A COMPLICATION OF TOTAL HIP REPLACEMENT

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The unusual occurrence of penetration of the stem of a femoral prosthesis into the knee joint during total hip replacement and the method used to deal with this complication successfully, without replacing the prosthesis, is described.

Key words: long stem prosthesis; penetration knee; complication; total hip replacement

Accepted 13.vi.77

With the widespread use of total hip replacement, various complications have been reported. The entrance of cement into the knee joint and a method of preventing this complication has been reported recently (Hallel et al. 1976). It is the purpose of this paper to report an unusual complication also resulting from the use of a long stem prosthesis, viz., penetration of the stem into the knee joint. The method of dealing with this complication without replacing the prosthesis is described.

CASE REPORT

A 68-year-old woman with a markedly symptomatic left hip resulting from gross loosening of a Thompson femoral prosthesis was admitted for total hip replacement on June 6, 1976. Because of severe osteoporosis of the femoral shaft, a femoral component 28 cm long, reaching the supracondylar region, was used. An anteroposterior radiograph of the knee region performed during operation, before injection of the cement, was considered satisfactory (Figure 1). One week after operation, when the patient started walking, she complained of pain and crepitus in the left knee which was slightly swollen and tender. The patella could be felt rubbing against an irregular surface. On the lateral roentgenogram it was seen that some acrylic cement had extended into the knee joint and the distal end of the stem of the prosthesis had perforated the anterior cortex at the supracondylar region with its tip lying against the articular surface of the patella (Figure 2).

Arthrotomy of the knee, under tourniquet, was performed 3 weeks after the joint replacement. A small irregular erosion of the articular surface of the patella was noted. The excess methylmethacrylate was removed and the cement lying on either side of the projecting metallic stem was undermined to about one millimetre below the level of the anterior cortex. The joint space was isolated, the articular surfaces protected with wet sponges and a high-speed saw-blade mounted on a hand-saw, cutting tangentially, was used to cut off the distal end of the prosthesis flush with the anterior cortex. A small grinding stone (7 mm wide) mounted on an air drill and fine metal files were then used to polish the cut surface, making sure that there was absolutely no contact between it and the patella (Figure 3). The wound was very thoroughly irrigated before closure. The postoperative

Figure 1. Anteroposterior radiograph of the left knee at operation. There is no evidence of penetration of the knee joint in this view.

Figure 2. Lateral radiograph of the knee 1 week after operation. There is acrylic cement in the knee joint and penetration of the stem of the prosthesis with its tip lying against the articular surface of the patella.

Figure 3. Lateral radiograph of the knee, 4 months after operation, showing the final shape of the tip of the stem and the complete absence of contact between it and the articular surface of the patella.

course was uneventful and the patient regained full symptomless mobility of the knee joint within a short time.

DISCUSSION

Loosening of a femoral prosthesis is not an uncommon complication of conventional hip replacement. Total hip replacement is the most commonly used form of treatment. Very often, a long stem prosthesis, extending into the supracondylar region, has to be used because of marked osteo-

porosis and to avoid fracture of the femur distal of the prosthesis.

Due to the natural forward convexity of the femur, which, at times, can be quite marked, protrusion through the porotic anterior cortex should be kept in mind; and, especially when a very long stem is used, both anteroposterior and lateral radiographs should be taken. If, in spite of preoperative evaluation, the stem is found to be too long at the time of trial introduction during operation, a shorter one can be used. If, however, it is already cemented, as in the present case, replacement of the prosthesis is difficult and since in this case arthrotomy is necessary to remove the cement from the knee joint, the method described offers a simpler and more satisfactory alternative solution.

REFERENCES

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