Failure of acetabular augmentation for recurrent dislocation after hip arthroplasty

Report of 3 cases

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Three patients who underwent acetabular augmentation according to the technique of Olerud and Karlström are presented. In all 3 the procedure was a failure. The factors involved in recurrent dislocation of the prosthetic hip and the reason for the failure of this technique are discussed.

In 1985, Olerud and Karlström suggested a new treatment for recurrent dislocation after hip replacement: an additional sector is fixed onto the lip of the initial acetabular component. We were attracted by the simplicity of this idea and have used the technique in 3 patients.

Case reports

Patient 1

A 60-year-old female underwent total hip replacement for a painful hip due to psoriatic arthropathy. The operation was performed by an experienced surgeon through the posterior approach. The immediate postoperative course was uneventful; but 1 year after surgery, the hip started to subluxate, and then dislocated recurrently.

This patient underwent acetabular augmentation according to the technique of Olerud and Karlström. All the dislocations had been posterior, and posterior acetabular augmentation was carried out. At surgery the acetabular component was seen to be slightly retroverted.

Six months after the revision surgery, the hip redislocated. Radiographs showed that the cancellous screws holding the additional sector had snapped and that the additional sector had moved. Acetabular revision was carried out and no further dislocations have occurred.

Patient 2

A 51-year-old female underwent total hip replacement after the failure of fixation of a fracture through a benign cystic lesion in the femoral neck. A Charnley long-necked femoral component was used, and the final reduction was said to be extremely stable by the surgeon.

The first dislocation occurred 6 months postoperatively, when she felt her hip sublux during walking. Acetabular augmentation was carried out 8 months after primary surgery. She remained well for a further 6 months, when routine radiographs showed that the cancellous screws holding the additional sector had snapped. The hip redislocated 2 months later, and dislocated a further five times before the acetabular component was revised for retroversion.

Patient 3

A 71-year-old female underwent total hip replacement for painful arthrosis. The surgery was apparently uneventful. Three posterior dislocations occurred in the first postoperative year, and acetabular augmentation was then carried out.

Eighteen months after revision surgery, the patient started to complain bitterly of pain in the buttock. Radiographs showed that the screws holding the additional sector had snapped (Figure 1). Initially the patient declined further surgical intervention; but after two further posterior dislocations, she underwent a formal revision arthroplasty, at which the acetabular prosthesis was seen to be retroverted.

Discussion

Dislocation is an important problem after total hip replacement, the incidence after primary surgery being between 0.6 and 1.8 percent (Fackler and Poss 1980, Williams et al. 1982).

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Figure 1. Case 3.

One of the risk factors for recurrent dislocation is the use of the posterior approach (Woo and Morrey 1982, Robinson et al. 1980), and it is noteworthy that all of the procedures reported here were performed through this approach. Most authors agree that the incidence of acetabular malalignment (socket retroversion) is higher when the posterior approach is used (Fackler and Poss 1980, Woo and Morrey 1982, Gore et al. 1982, Pettersson et al. 1982) and that prosthetic malposition and malorientation are significant factors in the development of hip dislocation (Fackler and Poss 1980, Woo and Morrey 1982).

Recurrent posterior dislocation could be caused by either socket or femoral retroversion. Although reliable methods to assess component orientation radiologically are now available (Herrlin 1988), no standard radiographs were taken in our cases, and socket retroversion confirmed at surgery was assumed to be the cause of the dislocation. There was no malalignment of the femoral prostheses.

Acetabular revision is a major undertaking, and thus the alternative of Olerud and Karlström (1985) seems attractive. This procedure was initially successful in each of these cases, no dislocation occurring for at least 6 months after augmentation surgery. However at between 6 and 18 months after surgery, the augmentation failed mechanically, and dislocation recurred.

Graham et al. (1988) and Reikerås (1989) have reported recurrent dislocation after acetabular augmentation. In the cases of Graham et al., the direction of dislocation was opposite to the original dislocation, and femoral neck impingement on a too thick additional sector was thought to be the mechanism. Reikerås reported recurrent dislocation in the same direction as the original dislocation, and also that the screws holding the additional sector snapped. Our observations confirm that this method of fixation is not sufficient to withstand the considerable forces involved in preventing hip dislocation due to component malorientation.

Our experiences have lead us to abandon this method of treatment of the dislocating hip, and we agree with Reikerås (1989) that correcting the cause of the dislocation will give better results than attempting palliative surgery.

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