Acetabular augmentation for dislocation of the prosthetic hip

A 3 (1–6)-year follow-up of 16 patients

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16 patients who underwent Olerud and Karlström (1985) acetabular augmentation following recurrent dislocation of total hip replacement were reviewed 3 (1–6) years later. 14 had no further dislocation, and no signs of component loosening at the time of review.

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Patients and methods

Between 1986 and 1992, 2 men and 14 women, average age 73 (45–86) years, underwent acetabular augmentation following recurrent dislocation of their hip prosthesis (Table 1). 3 patients had a sector cut from a standard cup and screwed to the acetabular component, whereas all the others were augmented with a Wroblewski stabilizing meniscus (DePuy International Ltd, St Anthony's Road, Leeds, LS11 8DT, U.K.) (Figure 1). 1 patient had a previous acetabular fracture, 1 a previous upper femoral osteotomy for arthrosis, 4 had already undergone revision surgery for prosthetic loosening. 3 patients had previous surgery for a femoral neck fracture, and the remaining 7 had undergone primary hip replacement for arthrosis or rheumatoid arthritis. 8 of the patients had long posterior wall Charnley prostheses inserted initially, 8 had standard Charnley cups. The primary surgery was carried out through a pertrochanteric Charnley approach in 11 cases, a modified Hardinge in 4 and an anterolateral approach in the case of previous acetabular fracture. All had several dislocations. Posterior dislocation occurred in 11 patients and anterior dislocation in 5.

Augmentation was carried out through the same surgical approach as the primary surgery in 10 cases and through a posterior approach in 6. In all cases, the stabilizing meniscus was screwed onto the area of the acetabular cup at which dislocation was thought to be occurring, which was determined by the area of wear on the cup. 4 of the menisci were attached using 2 AO partially threaded cancellous screws, the rest used 3 such screws. The patients were followed up for an average of 3 (1–6) years.

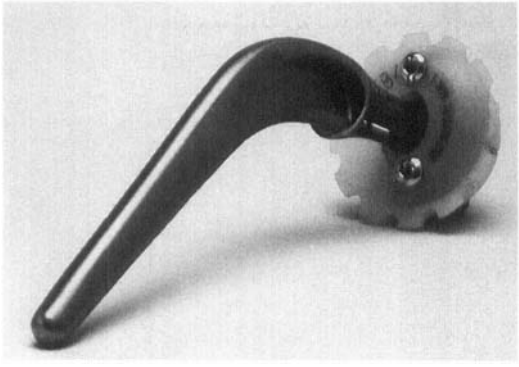

Figure 1. The Wroblewski stabilizing meniscus

Results

Of the 16 cases 13 had a good or excellent result at the time of review with no further dislocation or feeling of subluxation. 3 cases had further dislocation after augmentation. In 2 of these cases the acetabular component was subsequently revised with a new Charnley cup and no further dislocation took place. In 1, a patient with Parkinson's disease, re-augmentation was successful in preventing further dislocation. There was no difference in range of motion between the augmented and opposite normal hip. Radiographically none of the screws holding the menisci in place had broken or loosened and none of the femoral or acetabular components were loose.

Table 1. Patient details

Patient	Age	Primary diagnosis	Previous operations	Approach	Dislocation	Cause	Follow-up months	Further dislocation
1	75	OA	1	C	A	Soft tissue defect, cup anteversion	12	No
2	61	OA	3	H	A	Soft tissue defect, impingement	22	No
3	81	OA	2	H	A	Muscle detachment	60	No
4	45	Ac	3	A	A	Soft tissue defect	27	No
5	86	OA	2	H	A	Impingement	55	Cup revised
6	81	RA	1	C	P	Soft tissue defect	45	No
7	69	OA	1	H	P	Soft tissue defect	21	No
8	69	OA	2	C	P	Trochanteric nonunion	25	No
9	80	OA	1	C	P	Tight adductors	21	No
10	64	OA	1	C	P	Soft tissue defect, cup retroversion	47	No
11	73	OA	1	C	P	Tight adductors	70	No
12	79	N, A	2	C	P	Soft tissue defect	39	No
13	75	N, A	2	C	P	Trochanteric non-union	19	No
14	80	N	2	C	P	Tight adductors, soft tissue imbalance	22	No
15	77	OA	1	C	P	Tight adductors + psoas, Parkinson's	37	Re-augment
16	75	RA	2	C	P	Soft tissue defect	44	Cup revised

Primary diagnosis: Ac acetabular fracture, N neck of femur fracture, A avascular necrosis, OA osteoarthrosis, RA rheumatoid arthritis.
Approach: A anterolateral, C Charnley, H Hardinge.
Dislocation: A anterior, P posterior

Discussion

Repeated previous surgery for fractured neck of femur or acetabulum or revision hip replacement may cause recurrent dislocation (Carlsson and Gentz 1977, Dorr et al. 1983). Soft tissue disruption and subsequent weakness may cause the dislocation rather than faulty component placement (Nicholas et al. 1990). If a pertrochanteric approach is used in the primary surgery, then trochanteric non-union with displacement is approximately 6 times more likely to cause dislocation than if fibrous or bony union is adequate (Coventry et al. 1974, Fraser and Wroblewski 1981, Woo and Morrey 1982).

Most early dislocations following total hip replacement with correct component positioning can be treated by manipulation under anesthesia and then a period of immobilization with success rates approaching 50–66 percent (Khan et al. 1981, Woo and Morrey 1982). Dorr et al. (1983) suggested that a brace was preferable to bed rest, with motion stops set at 20 and 60 degrees of flexion and 10 degrees of abduction, worn for 4–6 weeks. If the reason for the dislocation is clearly faulty component positioning, revision should be performed at an early stage. Revision surgery for dislocation has a re-dislocation rate of 20–30 percent (Coventry et al. 1974, Khan et al. 1981, Woo and Morrey 1982, Dorr et al. 1983). This may well be due to further soft tissue disruption (Coventry et al. 1974). A more limited procedure that is less disruptive to the soft tissues and does not disrupt the hard tissues has much to recommend it. This is particularly true in the elderly or infirm. 14 of our patients had an excellent result from the technique of acetabular augmentation described by Olerud and Karlström (1985). In no case had the screws holding the meniscus broken, as described by Williams et al. (1982). It was simpler to perform than revision and was associated with little morbidity.

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