

Arthroscopic Shaver-Assisted Total Hip Arthroplasty Revision

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A case report of a 54-year-old man who underwent a revision arthroplasty 13 years after his original hip replacement is presented. The patient presented to the clinic with a 2-month history of hip pain. Severe pelvic osteolytic lesions were seen on radiographs. The revision procedure consisted of debridement of the osteolytic lesions and bone grafting. An arthroscopic shaver was used to remove the osteolytic lesions proximal to the acetabular cup. Excellent debridement was obtained. Cortical bone allograft was used to fill the void areas behind the cup. The patient did well postoperatively with no recurrence of osteolysis as seen on radiographs obtained 7 months after surgery. This report presents a successful case of pelvic osteolytic debridement with the use of an arthroscopic shaver. (Journal of Surgical Orthopaedic Advances 13(3):174-176, 2004)

Key words: hip, osteolysis, revision

Revision surgeries for osteolysis of the pelvis after total hip arthroplasty are well documented in the literature. These can be performed in one of several ways. Removal of the osteolytic lesion is performed along with the options of exchanging the acetabular cup and inserting bone graft. Usually the removal of the osteolytic lesions is obtained by using a curette. This case report presents an alternative way of performing the debridement of the osteolytic lesions while preserving a well-fixed acetabular cup. This consists of using an arthroscopic shaver for the debridement of large osteolytic lesions behind a well-fixed acetabular cup.

Case Report

The patient is a 54-year-old man who received bilateral hip replacements 13 years ago. Upon referral to our clinic, he presented with a 2-month history of left hip pain. Radiographs obtained showed an osteolytic lesion measuring 7 by 5 cm on the left acetabular area (Fig. 1). Most of the osteolytic region was found around zone 2 of the DeLee and Charnley classification

(1). The right hip showed an osteolytic region of 3 by 2 cm.

The patient underwent a left total hip arthroplasty revision involving debridement of the osteolytic lesions around a well-fixed cup with the use of an arthroscopic shaver, liner exchange, and incorporation of cortical powder bone graft. A lateral approach to the hip was performed using the technique described by Hardinge (2). After removal of the head and polyethylene liner, as well as proper exposure of the acetabulum, the component was examined. A well-fixed cup with evidence of multiple spot welding was noted. However, due to the massive amounts of bone lysis as well as the ability to reach the

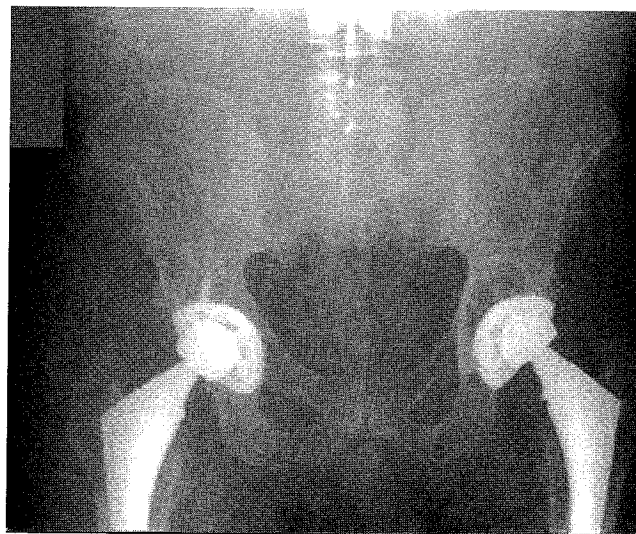


FIGURE 1 Preoperative anteroposterior (AP) pelvis radiograph. Note the extensive areas of osteolysis around DeLee and Charnley zone 2 of the acetabular cup.

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acetabulum through the holes of the cup, an arthroscopic shaver was utilized to assist on the debridement proximal to the cup. The shaver was inserted through multiple holes of the acetabular component (Fig. 2). The osteolytic lesions were debrided through each of the cup holes where the shaver was inserted. The shaver was moved multidirectionally through each of the holes. Excellent debridement was obtained. With the aid of a curette, adequate debridement was achieved posterior to the cup. After pulse lavage of the cup, bone grafting was performed with the use of Kocher clamps to pack the ground cortical bone graft. This was performed until no further graft could be placed on the defects. A new liner was then carefully seated. Attention was then paid to the femoral stem, which required a cortical strut bone graft with two Luque wires. The following week the patient underwent revision of his right total hip arthroplasty for osteolysis. This revision, however, did not require the use of an arthroscope for removal of debris behind the acetabular cup because of the smaller extent of the bone lysis.

Postoperatively the patient did well. Radiographs obtained 7 months after surgery showed excellent integration of the bone graft without resurgence of the osteolytic lesions (Fig. 3).

Discussion

This case report concerns a patient who underwent a total hip revision with the use of an arthroscopic shaver and ground cortical bone allograft. The use of an arthroscopic shaver in the assistance of an acetabular component revision is an excellent way to remove osteolytic lesions behind a well-fixed acetabular cup. This allows the revision to take place without having to incur possible bone loss that goes along with the removal of a fixed cup.

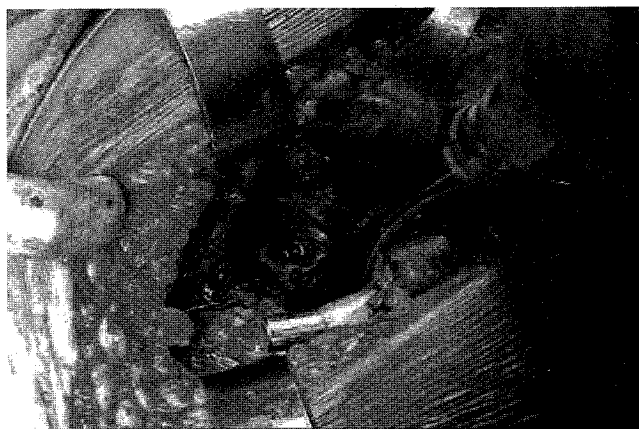


FIGURE 2 Debridement of osteolytic lesions proximal to the acetabular cup with the use of an arthroscopic shaver.



FIGURE 3 Seven-month follow-up AP pelvis radiographs showing excellent incorporation of the bone allograft without recurrence of the osteolytic lesions.

Several articles are found in the literature regarding the use of arthroscopic instruments during revision hip arthroplasty. These mainly involve the use of arthroscopes for the assessment of femoral cement mantles (3) or polyethylene wear (4). However, our search did not reveal any literature on the use of arthroscopic shavers during total hip arthroplasty revision.

A variety of investigators have written on the preservation of well-fixed cups in revision arthroplasties for osteolytic changes around the acetabular component. Maloney et al. report on the successful revision of 35 hips with the debridement of acetabular osteolytic lesions and subsequent filling with allograft bone chips for most of the lesions (5). In their cohort, all acetabular components appeared stable on radiographs and had their stability confirmed intraoperatively. After a 2-year follow-up, all lesions had either disappeared or decreased in size, with radiographic evidence of stable cups in all acetabula. The same outcome was also published on a subsequent publication by the same lead author (6). In this latter study, 40 patients had debridement of the osteolytic lesions with no recurrence or progression of the lesions in any of the patients (mean follow-up of 3.5 years).

Schmalzried and his group showed that removal of osteolytic lesions is effective in the treatment of pelvic osteolysis (7). In their study those who received bone allograft after curettage of the lesions showed excellent bone graft integration. However, they also found that those treated with curettage alone did well with no progression of the osteolysis.

We believe that the treatment of a patient with certain pelvic osteolytic lesions is feasible and favorable for

those patients with extensive osteolysis on areas easily accessible through the screw holes of a well-fixed acetabular cup. Newer computed tomography protocols are allowing better visualization of osteolytic areas around acetabular cups (8). These advancements are allowing for more accurate diagnosis and better preoperative evaluation of patients with osteolysis.

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