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CASE REPORT

Intraoperative dislocation of the prosthetic femoral head into the pelvis during total hip arthroplasty

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An 86-year-old woman with severe osteoarthritis and severe pain in her left hip underwent total hip arthroplasty. Intraoperatively, the 22 mm femoral head impinged on the anterior rim of the acetabulum during a reduction maneuver, and disengagement of the femoral head from the neck occurred with migration of the head over the pelvic brim along the inner table of the pelvis. This complication related with hip arthroplasty is underestimated by many orthopaedic surgeons.

Keywords : femoral head ; impingement ; dislocation ; pelvis.

INTRODUCTION

We report a case of intraoperative dislocation of the prosthetic femoral head into the pelvis during total hip arthroplasty. Although there have been reports of dissociation of the trial femoral head with migration into the pelvis, we could not find any previously reported case of intraoperative dislocation of the prosthetic femoral head into the pelvis in English language literature.

CASE REPORT

An 86-year-old woman with severe osteoarthritis and severe pain in her left hip underwent a total hip arthroplasty. With the patient in the lateral decubitus position, a modified Hardinge lateral approach was used to expose the proximal part of the femur and the acetabulum. The anterior aspect of the hip capsule was excised. The acetabulum was reamed to 44 mm. A Reflection porous coated hemispherical cementless cup (Smith and Nephew, Memphis, USA) was impacted and fixed with two additional screws. A trial acetabular liner was then placed within the cup. The femoral canal was then prepared with the Synergy broach system (Smith and Nephew). A number 15 broach was inserted into the femoral diaphysis with a 22 mm standard head-high offset neck trial component. A cable was applied on the proximal femur because of a fissure formation during femoral canal preparation. Trial reduction was then performed with traction and internal rotation of the hip using the femoral head impactor as a

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Fig. 1

support. The soft tissues around the hip joint were moderately tight and the hip was stable with an excellent range of motion and without impingement. After the trial reduction, the hip was dislocated and an UHMW polyethylene neutral liner (Reflection Interfit, Smith and Nephew) was inserted to the acetabular cup, and a 22 mm standard head-high offset neck was fixed on the definitive size 15 femoral component. During reduction of the hip, the 22 mm femoral head impinged on the anterior rim of the acetabulum, and disengagement of the femoral head from the neck occurred with migration of the metal head over the pelvic brim along the inner table of the pelvis. We first tried to remove the head manually, then under fluoroscopy with the aid of a Kelly clamp. This maneuver was unsuccessful, and the head was further pushed into the pelvis, where it eventually lay anterior to the sacroiliac joint. We then impacted another 22 mm femoral head on the femoral Morse taper and reduced the hip joint. The hip was stable with no impingement (fig 1).

The prosthetic femoral head that was in the patient's pelvis was 22 mm in diameter and made of cobalt chromium alloy and had a smooth surface ; it was unlikely to cause penetration or compression of vital structures. The decision was made to leave it there, also taking into account the patient's age and general condition. The patient and her family were informed about the complication and the decision not to remove the femoral head unless she developed symptoms of compression of vital structures (*2*). The postoperative course was uneventful except for serous drainage which lasted for 10 days after the operation, presumably related to the dissection during attempts to remove the femoral head. The patient was walking without pain two months after operation. She was subsequently lost to follow-up.

DISCUSSION

We have not found any case report in English language literature describing intraoperative dislocation of a prosthetic femoral head, although dislocation of a trial head has been reported (*1-5*). After the prosthetic femoral head was firmly impacted on the Morse taper, the fixation was thought to be secure, as the femoral head had been impacted using the hammer. Despite this, the surgeon should still be cautious about the possibility of disengagement of the femoral head from the femoral neck. The taper and the recess in the head should be meticulously cleaned and dried. While this complication should be exceptional during reduction of a prosthesis with a firmly impacted prosthetic head, it is more likely to occur during the use of trial heads, many of which do not fit tightly on the trial femoral stem, particularly if they are worn out. During a lateral approach to the hip with anterior capsulectomy, a loose trial head may easily disengage from the trial femoral stem and migrate into the pelvis. As in our case, efforts to retrieve the femoral head from the pelvis can be unsuccessful. Trial femoral heads are made of plastic material, the long-term effects of which in the body are not known ; in addition, they are usually radiolucent, and fluoroscopy may not be helpful to locate a trial head dislocated into the pelvis.

If the trial or prosthetic femoral head dislocates into the pelvis during total hip arthroplasty, one should not to try to retrieve the head with a haemostatic forceps unless simultaneously pushing with the hands on the hypogastrium toward the iliac fossa to prevent the head from migrating farther into the iliac fossa (*4*). The trial head may then be grasped with a haemostat. If this is unsuccessful, exploration of the pelvis by a general surgeon would be necessary. A retroperitoneal approch can

be made through a six to seven centimeter incision along the iliac crest extending slightly anterior and medial to the anterior superior iliac spine (*4,5*). Following dissection of the abdominal wall mucles, one should place his or her finger along the inner wall of the iliac wing by reflecting the iliacus medially, then the femoral head can be located, then grasped with a long haemostat and pulled out. Alternatively, the opening made in the soft tissue over the superior brim of the anterior wall of the acetabulum for insertion of the cobra retractor can be enlarged so as to insert two fingers inside the pelvis and the femoral head can be grasped from this hole against the inner wall of the pelvis and lifted to the superior border of the anterior column of the pelvis, then retrieved through the surgical wound (*3*). If the decision is made not to retrieve the trial or prosthetic femoral head, the surgeon should inform the patient and family that he or she may become symptomatic and require component removal at a later date.

This intraoperative complication of hip arthroplasty is underestimated by many orthopaedic surgeons. It can easily be prevented by using trial heads fitting tightly onto the trial and definitive femoral stem, and by firmly impacting the prosthetic femoral head on the Morse taper.

It is also essential to have a good coordination between the surgeon and his assistant during the reduction of an anteriorly dislocated prosthetic head in a total hip arthroplasty performed through a lateral or posterior approach, as there is a risk of head-neck dissociation during the attempts to reduce the head into the acetabulum with traction and internal rotation.

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