

Intrapelvic cup migration following revision total hip arthroplasty: A rare occurrence.

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INTRODUCTION

Intrapelvic cup migration is a rare but serious complication following either primary or revision total hip arthroplasty. Posterior acetabular wall weakening is considered the main predisposing factor. A thorough preoperative planning is essential to restore pelvic anatomy and preserve muscle and bone stock, without damaging adjacent anatomical structures. We present a rare case of an 84-year-old woman with complete intrapelvic cup migration, nine years after her second revision surgery of a hip prosthesis placed sixty years ago due to congenital hip dysplasia.

MATERIALS AND METHOD

An 84-year-old female presented complaining about right hip pain and inability to bear weight. Symptoms began about three months ago with no history of trauma. The patient had a history of a right hip replacement at the age of 24 due to congenital hip dysplasia, which was revised twice because of aseptic component loosening. Neurovascular status was found to be intact. Radiographs revealed a dislocated hip with complete intrapelvic cup protrusion. Pelvic discontinuity was identified, with complete posterior acetabular wall distortion and absorption of the iliac bone. A CT-scan revealed a hyperdense mass-like lesion surrounding the protruded cup. No apparent participation of the intra/retroperitoneal organs, or the visceral contents of the pelvis in the inflammatory process was shown. Digital Subtraction Angiography confirmed the absence of any vascular injuries. Laboratory studies and blood cultures were normal, excluding potential infection.

RESULTS

A posterior approach using the previous skin incision was utilized. The acetabulum was debrided and reamed. The defects were filled with morselized bone allografts using the reverse-reaming technique. A 66mm diameter tantalum revision cup was placed within the acetabulum and fixed with two screws. The tantalum cup was then reinforced by the short flange titanium acetabular cage 66/68/70 (Zimmer Biomet®, Warsaw, Indiana, USA). The ischial flange was impacted into the ischium while the superior flange was stabilized to the iliac bone remnants with three screws. A cemented polyethylene bearing surface was placed. The femoral shaft was stable intraoperatively and was left in place to avoid further blood loss. No signs of instability were identified, and the incision was closed in usual manner. In the absence of neurovascular or other intrapelvic organ injury, the protruded cup was left in place to avoid further iatrogenic damage.

DISCUSSION

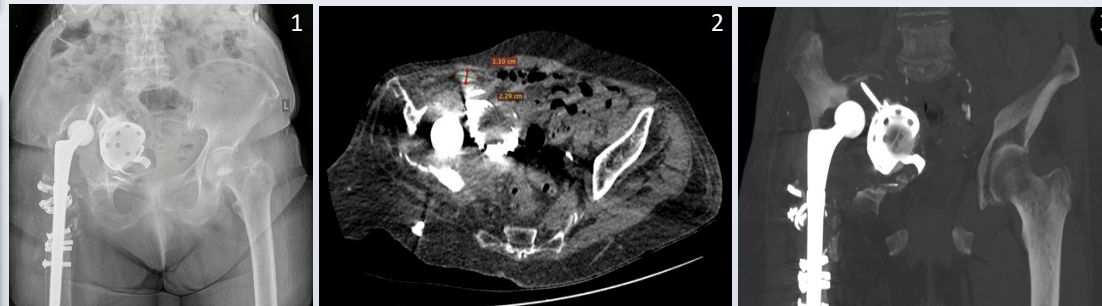
Intrapelvic cup protrusion following total hip arthroplasty is defined as migration of any prosthesis-related component at least 15mm medial to the ilio-ischial (Köhler's) line. Although rare, it is considered extremely serious and is directly associated with complications such as neurovascular injuries and damage to the intrapelvic organs. Progressive mechanical loosening, implant malposition, injuries accompanied with acetabular fractures and infection can lead to intrapelvic component migration. Structures mostly at risk include the external iliac artery, the bladder, the sigmoid colon, the sciatic nerve, and the iliopsoas muscle. To our knowledge, this is only the second case of intrapelvic cup migration following hip arthroplasty where the protruded cup was retained.

CONCLUSIONS

Clinical examination and imaging, including x-rays, CT and angiography, are essential for diagnosis and proper preoperative planning. A multidisciplinary approach in collaboration with radiology, general, vascular and urology surgeons may be required to understand the correlation of the protruded cup to the intrapelvic organs and to facilitate proper treatment. Meticulous attention during surgical procedure is important, being able to utilize different approaches and use a large variety of surgical instruments and implants to restore normal pelvic anatomy.

REFERENCES

Sciberras N. et al. Revision hip replacement with retention of the acetabular component for intrapelvic cup migration. *Current Orthopaedic Practice*. 25. 84-86.(2014). 10.1097/BCO.000000000000055.



Figures 1-3: Preoperative x-ray and CT indicating intrapelvic cup migration.



Figures 4-5: Digital subtraction angiography demonstrating no arterial injuries, postoperative x-ray.