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Stoppa approach for intrapelvic damage control and reconstruction of complex acetabular defects with intra-pelvic socket migration: A case report



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ABSTRACT

INTRODUCTION: Failed hip arthroplasty with intrapelvic acetabular migration can be challenging due to the potential damage of intrapelvic structures.

PRESENTATION OF THE CASE: We present a case of a 75 year-old lady with failed hip arthroplasty with loosening of implants and intra-pelvic migration of the cup, antiprotrusio cage mesh, screws and plate. A modified Stoppa approach was performed, a part of the migrated elements were safely removed, the intrapelvic structures were controlled, and the bone defect was reconstructed through the Stoppa approach combined with the lateral window of ilioinguinal approach by means of bone struts and metallic plates, which is a novel technique. Then an extended posterolateral hip approach was done and the acetabulum was reconstructed using porous tantalum augments and morselized allograft. A cemented constrained socket was implanted. After one-year follow-up the patient is able to walk with one crutch without pain.

DISCUSSION: Due to intrapelvic migration, the implants used in hip arthroplasty may become entrapped between the anatomical structures lodged in the pelvis and cause damage to them. A careful preoperative assessment and planning are mandatory. A migrated socket can be inaccessible through a conventional hip approach and removal could be very difficult and dangerous.

CONCLUSION: The Stoppa approach in hip revision surgery can be a complement to traditional approaches to control the intrapelvic structures, remove migrated implants of previous surgery and reconstruct the pelvic defect.

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1. Introduction

A large acetabular bone defect, with loss of columns and migration of the acetabular component into the pelvic cavity is a hazardous condition that anticipates a difficult and potentially harmful revision of the failed arthroplasty. The cup, cement, screws and other items used in the previous surgery may become entrapped between the anatomical structures lodged in the pelvis and cause damage to them [1]. Vascular [2,3], neural [4], and visceral [5,6] complications have been reported in those cases. We present a novel surgical technique employed in a patient with

loosening and intra-pelvic migration of the acetabular construct through a very large and complex osseous defect.

2. Presentation of the case

We present a case of a 75 year-old lady who complained of progressive pain in her right hip. She had been operated six years ago for total hip replacement that needed hip revision surgery one year later. The patient had no relevant medical history. The physical examination showed severe impairment for hip movement and shortening of the right limb.

The x-rays showed loosening of implants and intrapelvic protrusion of the prosthetic cup as well as the metallic elements from the previous surgery including mesh, screws, plate and antiprotrusio cage (Fig. 1A).

The CT scan showed a huge bone defect that was labelled as major pelvic column loss, consisting on the total absence of the anterior or posterior column such that less than 50% of the acetab-

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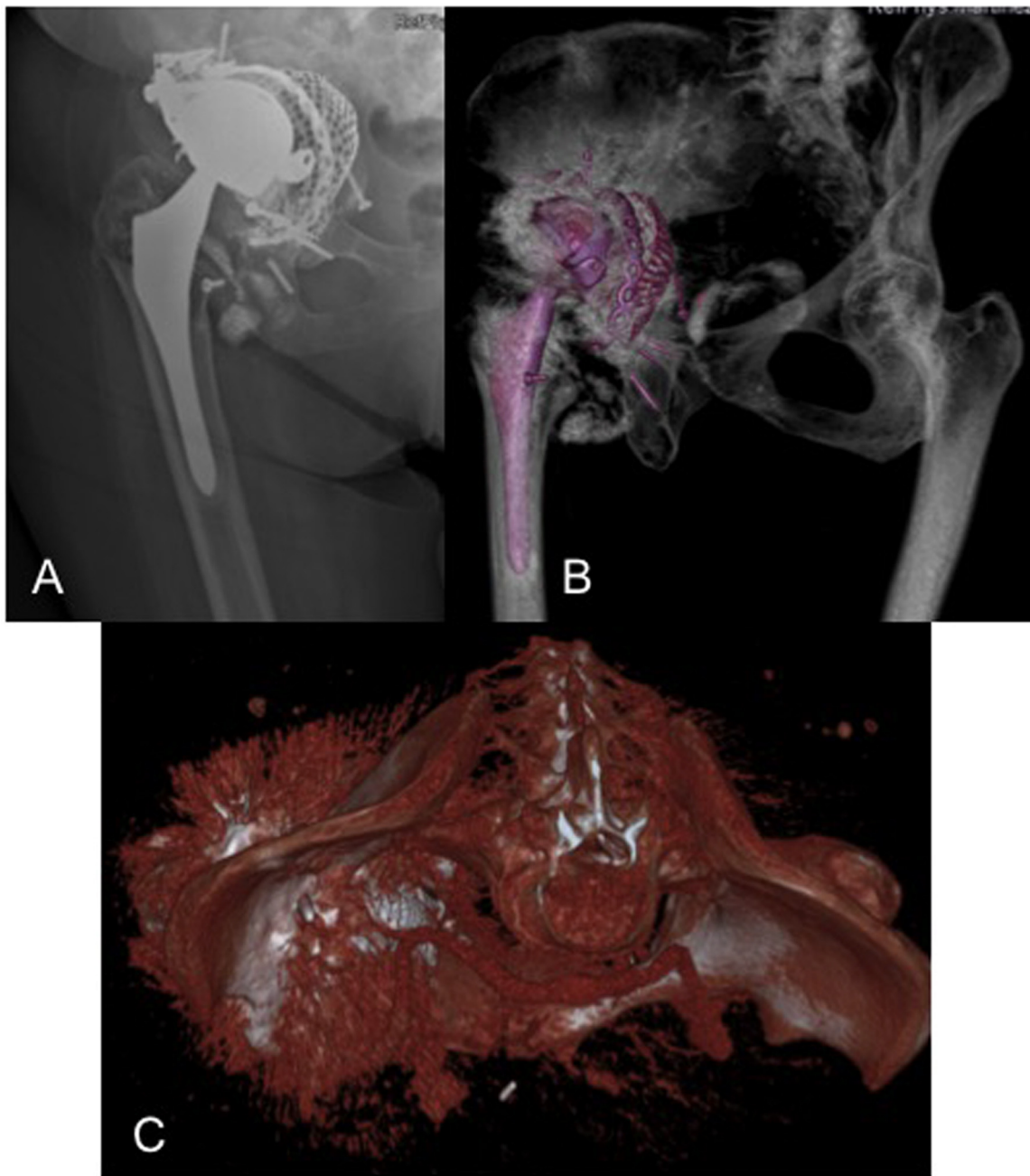


Fig. 1. Radiological images: AP x-ray view (A); CT scan views showing the intrapelvic prosthetic migration (A) and its relationship with vessels (B).

ular component could be supported by the remaining ilium and ischium segments and stable press-fit acetabular fixation is not possible. As a rudiment of posterior column remained intact, we did not consider the bone defect as pelvic discontinuity. Proximity of prosthetic implants to the pelvic vessels was also seen by CT scan (Fig. 1B and C).

C-reactive protein, erythrocyte sedimentation rate and leukocyte blood level were negative for infection. There were no external signs of infection.

The surgical procedure was done in two following stages. The first stage was done in supine position. A modified Stoppa approach was performed to access the internal pelvic ring. The corona mortis was identified and ligated in order to avoid bleeding and to retract vessels more easily. Intraoperative tissue samples were

obtained from the peri-implant membrane being negative for infection. Some screws were removed by this approach, but not the totality of the metallic elements, because of the risk of damage of intrapelvic structures. Two constructs plate-strut were used to reinforce the anterior column and quadrilateral lamina, pushing the foreign remnants medially. The constructs were made by using two reconstruction contoured plates (LCP 3.5 mm, Synthes). Fresh-frozen femoral-allograft bone struts were attached to the middle part of the plates by using monocortical screws.

The first plate was fixed anteriorly to the superior surface of pubic rami and laterally to the iliac wing through the lateral window of ilioinguinal approach. The other was fixed anteriorly to the inner surface of pubis and posteriorly near the sacroiliac joint following the inner pelvic ring (Figs. 2A and B, 3 video).

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