



Technical Note

A modified iliofemoral approach to intrapelvic acetabular revision – technical note[☆]



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ABSTRACT

Among the patterns of acetabular osteolysis associated with acetabular loosening, the authors emphasize the severity of pelvic dissociation and medial segmental losses in which the quadrilateral lamina is severely affected. Such lesions are potentially lethal in cases of large vascular injury. This note aimed to describe a modified iliofemoral approach in cases of massive intrapelvic migration of the acetabular component in patients with total proximity of the iliac vascular bundle and absence of an anatomical demarcation plane between the migrated contents and the iliac bundle. This approach was performed in 12 of 21 patients who had these criteria.

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Acesso iliofemoral modificado para revisão de componente acetabular intrapélvico – nota técnica

R E S U M O

Entre os padrões de osteólise acetabular associados às solturas acetabulares, os autores destacam como de maior gravidade a dissociação pélvica e as perdas segmentares mediais nas quais a lâmina quadrilátera está gravemente acometida. Tais lesões são potencialmente letais em casos de lesão vascular de grande porte. O objetivo desta nota foi descrever um acesso iliofemoral modificado quando há migração intrapélvica maciça do componente acetabular em pacientes com proximidade total do feixe vascular ilíaco e ausência de plano demarcatório anômico entre o conteúdo migrado e o feixe ilíaco. Esse acesso foi feito em 12 pacientes de 21 que apresentavam tais critérios.

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[☆] Study conducted at Instituto de Ortopedia e Traumatologia, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo (HC-FM-USP), São Paulo, SP, Brazil.

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Introduction

In the last 50 years, total hip arthroplasty has been the best option for surgical treatment in patients with osteoarthritis, presenting good results in all orthopedic reference centers.¹

However, over the years, periprosthetic osteolysis due to wear of the polyethylene interface and metal particles, with the production of debris, has become one of the major challenges for hip orthopedists, leading to major surgical revision procedures, with increased morbidity, a long learning curve for the surgeon, and great costs for the paying sources. An exponential growth in the number of these procedures is also predicted, due to the wide dissemination and diffusion of primary hip arthroplasty technique, in addition to the aging and increase of life expectancy observed in most countries.²

Among the acetabular osteolysis patterns associated with acetabular loosening, the authors highlight the severity of pelvic dissociation and the medial segmental loss, in which the quadrilateral lamina is severely affected (AAOS).³

These migration patterns with the massive presence of the acetabular component in the intrapelvic position may present a high risk of damage to vital anatomical structures. According to an anatomical cadaver study, these structures include the internal and external iliac arteries and veins, urethra, bladder, sigmoid colon, rectum, femoral nerve, obturator nerve, and vas deferens.⁴

Such lesions can be caused by compression of migrated metal components, whether an acetabular screw, the acetabular component itself or even cement particles adhered to the risk structures.

Among the intrapelvic lesions, the lesion of the femoral iliac bundle (mainly the external iliac vein) is the situation that presents the highest risk of intraoperative death.⁵

Despite the relevance of the subject, there is still no consensus in the literature regarding the ideal flowchart for the treatment of these patients. Some authors indicate retroperitoneal access in all patients at risk, with the isolation of the iliac femoral bundle and reconstruction in one or two surgeries.⁶

Regarding vascular imaging, some authors claim it is unnecessary, while others suggest arteriography or angiogramy. There is also no consensus as to the best approach to be used in revision surgery: posterior, lateral, or anterior (iliofemoral or ilioinguinal).⁷

This study is aimed at describing a modified iliofemoral approach for revision of massive intrapelvic migrations of the acetabular component in a particular vascular risk situation.

Risk migration was defined as the presence of an angular migration above 90 degrees in relation to the limits of the iliopectineal line in the anteroposterior pelvic radiograph. This measurement was carried out using the digital goniometer software available (Enterprise, Philips®; Fig. 1).

The approach described below was performed in the 12 patients, of a total of 21 patients with intrapelvic migration >90 degrees, who met the following criteria:

- absence of gastrointestinal or genitourinary symptoms;
- massive intrapelvic acetabular migration according to the radiographic criteria described above;

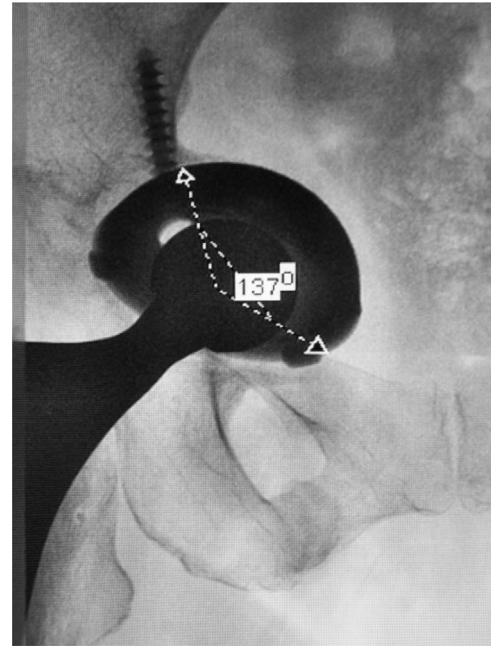


Fig. 1 – Measurement of intrapelvic angular migration.

- absence of a radiographic sclerotic line that surrounds the intrapelvic portion of the migrated component;
- direct contact of the migrated component with the external iliac vascular bundle or a distance of less than 5 mm between the external iliac artery or the external iliac vein visualized in the axial sections of pelvic angiotomography (Fig. 2).

Surgical technique

The anesthesiology team must provide a safe surgical protocol for this type of situation. This protocol includes: general anesthesia with the patient in a horizontal dorsal decubitus position, mean arterial pressure monitoring, bladder

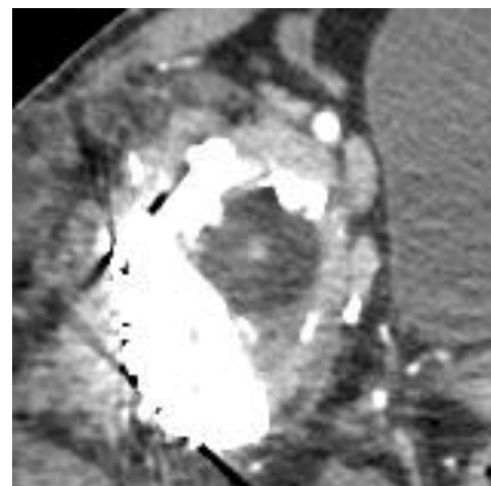


Fig. 2 – Angiotomography demonstrating direct contact of the external iliac vein with the acetabular component.

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