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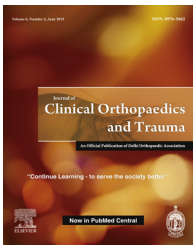

Case Report

Abductor muscle necrosis due to iliopsoas bursal mass after total hip arthroplasty

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ABSTRACT

Background: While symptomatic iliopsoas bursal lesions have been reported after total hip arthroplasty (THA), mass effect of the collection causing abductor muscle damage has not been reported in the literature.

Methods and Results: This report discusses the presentation, clinical findings, and operative management of a patient, status post metal-on-polyethylene THA, with a large psoas bursal collection with resulting abductor muscle injury and deep venous thrombosis from compression of the femoral vein. Despite the improved wear characteristics of modern-generation THA implants, physicians must be aware of the possibility of soft tissue irritation of the iliopsoas as a cause of soft tissue swelling, persistent pain, and potential adverse complications. It is also important to recognize the variety of effects and spectrum of severity for associated lesions, including muscle damage.

Conclusions: This report highlights the rare findings of abductor muscle necrosis, as well as acute thrombosis, related to iliopsoas bursitis. It also highlights a review of the available literature.

1. Introduction

The formation of cystic inguinal masses due to aseptic iliopsoas bursitis is a rare complication after total hip arthroplasty (THA).[1–4] Although predominantly associated with implant wear and pressure-driven migration of periarticular fluid into the iliopsoas bursa,[4,5] bursal-related complications may also result from direct frictional forces with mal-positioned or prominent hip implants. Large cystic bursal masses may present as inguinal masses, with or without pain, and in some cases, may cause femoral neurovascular compression and/or lower limb edema. Sudden death from pulmonary embolism has been found in non-surgical arthritis patients presenting with similar masses,[6] which heightens the potential morbidity and mortality associated with such bursal complications.

Although the majority of reports of iliopsoas bursal lesions after THA have been in the setting of metal-on-polyethylene (PE) implants, recent reports of their formation adjacent to

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metal-on-metal[7–9] and ceramic articulations[10] demonstrate that they are not limited to patients with certain bearing surfaces or specific trunnion factors. This report presents the case of a patient, status post metal-on-PE THA, with symptomatic bursal mass compressing the common femoral vein as well as causing muscle damage in the abductor mechanism. This is the first report of a cystic iliopsoas bursal lesion causing extrinsic large vein occlusion, deep vein thrombosis (DVT), and abductor muscle damage in the setting of a metal-on-PE bearing couple.

2. Case report

A 61-year-old female presented to our institution 9 years after metal-on-PE THA performed at another institution for femoral neck fracture. She reported anterior groin pain, worse with flexion activities, since the time of the index surgery. She underwent an image-guided iliopsoas tendon injection 4 years after surgery with temporary relief of her symptoms.

On physical examination, the pain was reproducible in the anterior aspect of the hip; this pain was exacerbated with resisted psoas maneuvers. The patient also had pain in the posterior aspect of the hip, as well as tenderness along the abductor musculature; testing of abduction in the lateral decubitus position elicited significant pain. Trendelenburg testing was negative.

Radiographs and advanced imaging revealed a well-fixed prosthesis with a prominent acetabular lip (Fig. 1), despite proper positioning of the components. Infection work-up was negative: erythrocyte sedimentation rate 9 mm/h, C-reactive protein 0.60 mg/L, and peripheral white blood cell count 5800 cells/μL. Serum cobalt and chromium levels were also within normal limits. An ultrasound-guided right iliopsoas bursa and peritendinous injection was administered with some initial pain relief, but no longer-term improvement.

A metal-subtraction magnetic resonance imaging (MRI) study (Figs. 2 and 3) revealed a hematoma and large multilocular iliopsoas bursal collection with intra- and extra-pelvic parts. The bursa extended from the iliac spine to the insertion of the iliopsoas tendon, displacing the intact tendon centrally. There was also extension of the peri-articular collection posteriorly and into the abductor musculature.

The patient elected for surgical decompression of the bursal fluid, with potential release of the iliopsoas tendon and revision arthroplasty as indicated. One week prior to planned surgery, the patient presented acutely with bilateral pulmonary emboli. Repeat imaging demonstrated that the enlarged bursa and hematoma were compressing the adjacent femoral neurovascular structures. A resulting DVT was noted in the femoral vein. An inferior vena cava filter was placed, and treatment was started with rivaroxaban.

At revision surgery, the prior posterolateral approach was utilized. Upon opening the fascia, dark sanguineous fluid was noted throughout the capsule and peri-articular soft tissues. A cystic communicating mass was found in the posterior soft tissues, exiting the capsule at the level of the gluteus maximus sling. Part of the gluteus medius tendon was compromised by necrosis at the insertion on the greater trochanter, due to the pressure phenomenon within the fluid cavity. A thorough

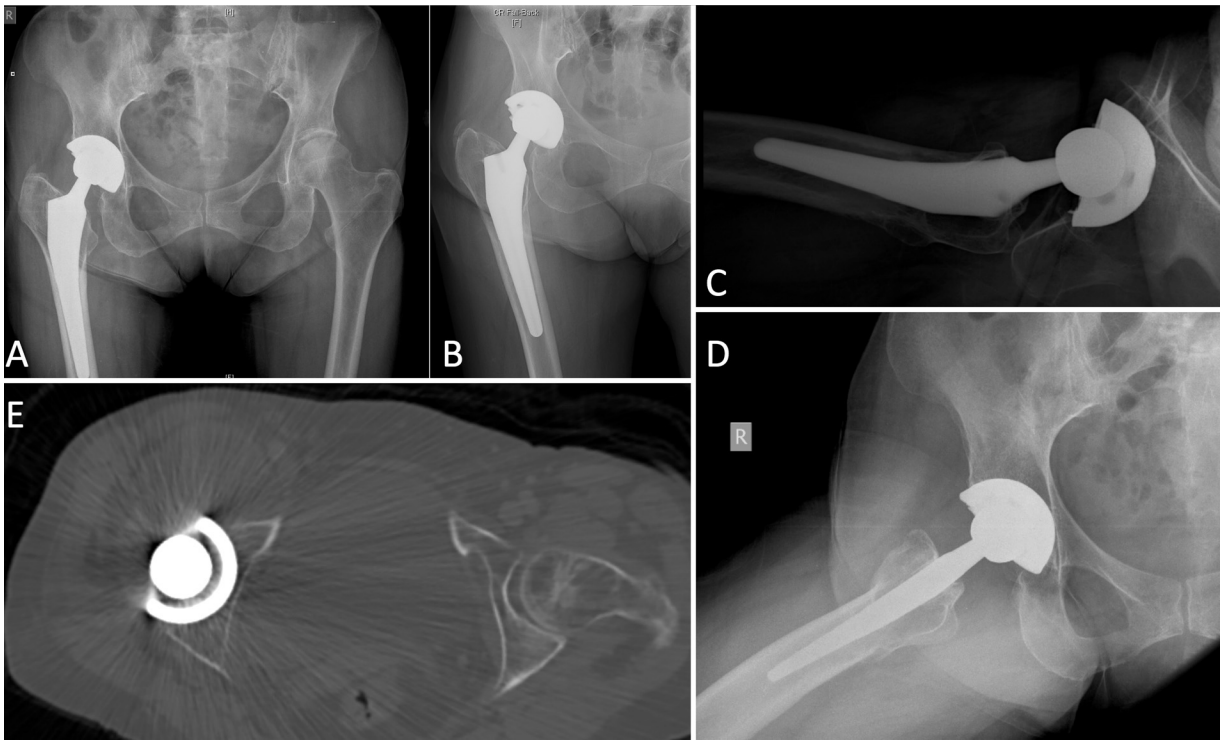

Fig. 1 – Antero-posterior radiographs (A, B) demonstrate a well-fixed total hip arthroplasty performed for femoral neck fracture. Cross-table (C) and frog-leg (D) lateral radiographs highlight a prominent implant rim, with overhang in the supero-anterior aspect of the acetabulum. Axial computed tomography (E) image 8 years after the index surgery confirms prominence of the prosthetic rim despite appropriate cup anteversion, with resulting large iliopsoas bursal collection.