CASE REPORT
Hip Pelvis 30(2): 125-128, 2018
http://dx.doi.org/10.5371/hp.2018.30.2.125

Print ISSN 2287-3260
Online ISSN 2287-3279
Hip & Pelvis

Femoral Nerve Palsy due to Noninfectious Iliopsoas Bursitis and Hematoma after Total Hip Arthroplasty: A Case Report

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Femoral nerve palsy after total hip arthroplasty is an uncommon complication. We present a case report of delayed-onset femoral nerve palsy associated with iliopsoas hematoma and bursitis 10 years after primary total hip arthroplasty in a 57-year-old male patient with avascular necrosis of the femoral head. The patient visited our clinic due to swelling of the inguinal area with sudden-onset knee extension weakness. Radiologic examination at admission revealed suspicion of bursitis and hematoma on iliopsoas muscle. After evacuation of the hematoma and bursitis debridement, the patient' s clinical symptoms improved dramatically. This is a rare report of femoral nerve palsy due to noninfectious iliopsoas bursitis and hematoma after total hip arthroplasty.

Key Words: Iliopsoas bursitis, Hematoma, Total hip arthroplasty

Iliopsoas bursitis is a potential complication of total hip arthroplasty (THA) due to various causes and may involve many symptoms (e.g., ipsilateral groin pain and lower limb swelling), and femoral nerve palsy is a rare condition following iliopsoas bursitis. In this paper, we report a case of delayed-onset femoral nerve palsy associated with noninfectious bursitis and hematoma of the iliopsoas muscle 10 years after primary THA to treat avascular necrosis (AVN) of the femoral head.

Submitted: December 4, 2017 1st revision: December 29, 2017
2nd revision: January 29, 2018 3rd revision: March 15, 2018
4th revision: April 12, 2018 Final acceptance: April 12, 2018
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CASE REPORT

A 59-year-old male patient underwent uncemented THA on the left side in 2006 and on the right side in 2007 due to bilateral AVN of the femoral head. The acetabular liner and femoral stem used were ceramic-on-ceramic bearings, and the size of acetabular cup was 68 mm (right) and 66 mm (left). Intermittent swelling in the right inguinal region began immediately after surgery, but no specific neurological signs were observed. His symptoms appeared to resolve spontaneously after a few days of rest and no definitive treatment. He visited our hospital with chief complaints of swelling and pain in the right inguinal area and knee extension weakness. He had no trauma or signs of infection (e.g., fever and rubor). A neurological exam revealed findings of grade 2 knee extension and decreased cutaneous sensation in the femur and medial tibia. Laboratory parameters were within normal ranges including erythrocyte sedimentation rate, C-reactive protein and white blood cell count used to assess inflammation. Radiographic findings revealed acetabular anteversion of 10.3° and anterior overhang of the acetabular cup (Fig. 1). An

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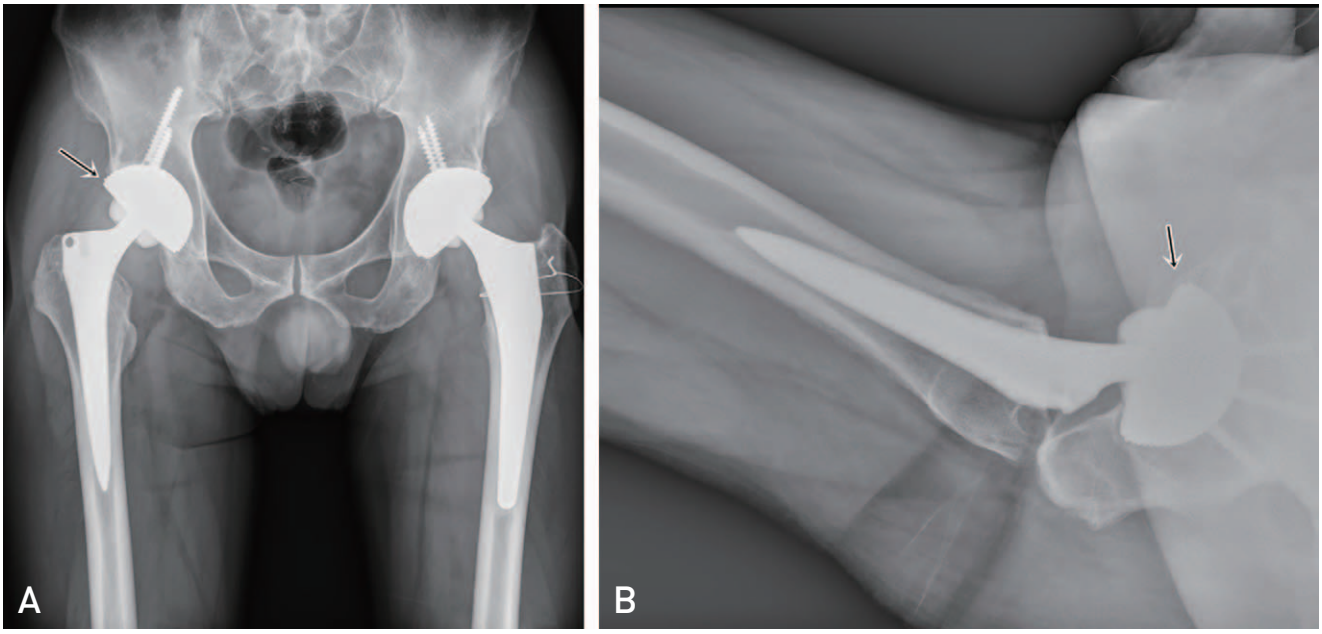

Fig. 1. A 57-year-old male who had received bilateral total hip arthroplasty for avascular necrosis of femoral head. (**A**) Preoperative anteroposterior radiography hip presented inadequate actetabular cup size was used. (**B**) Hip trans lateral view showed 10.3° anteversion of acetabular cup and anterior overhanging.

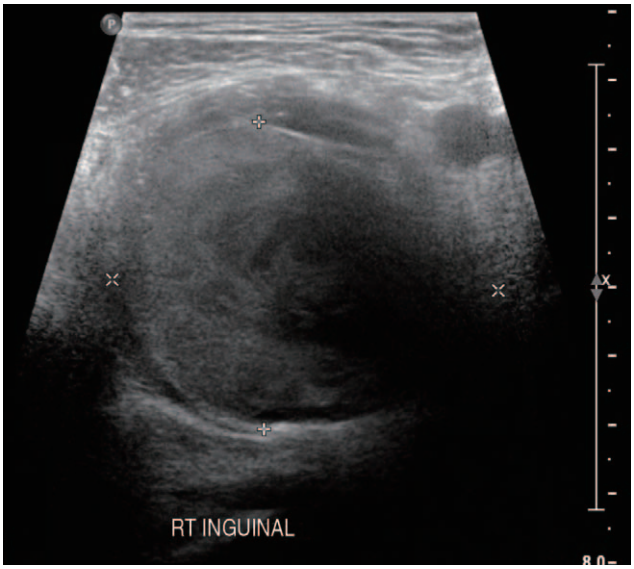

Fig. 2. The ultrasonography for patient shows 8×5×6-cm hematoma around hip joint.

ultrasound showed a 8×5×6 cm size hyperechoic mass around the anterior aspect of the iliopsoas muscle (Fig. 2). Gadolinium-based contrast magnetic resonance imaging demonstrated the an 11×5×6 cm size mass and the T2-weighted image showed swelling of the iliopsoas muscle (Fig. 3). Surgical findings revealed the formation of a hematoma between the acetabular component and iliopsoas muscle and extensive noninfectious iliopsoas bursitis. In a physical exam during surgery, iliopsoas impingement against the anterior aspect of the acetabular cup was confirmed during passive range of motion, and the removal of hematoma and bursitis was conducted. Immediately after surgery, extension of the affected knee was improved to grade 5, and the patient's paresthesia improved. No abnormal findings were observed in knee extension and cutaneous sensation during a 6-month outpatient postoperative follow-up. The patient consented and was fully informed about the case report.

DISCUSSION

Femoral nerve palsy after THA is a rare condition with an incidence rate of femoral nerve of between 0.1% and 2.4% and this complication occurs intraoperatively in most cases. The common causes could include overlengthening, iliacus muscle hematoma, extruded cement and injury from a screw used in the acetabular component[1-4].

The iliopsoas bursa is located near the anterior aspect of the hip joint capsule and posterior to the iliopsoas tendon and femoral nerve and vessels[5]. Since it communicates with the hip joint in 14% of the world's population, iliopsoas bursitis may occur in patients with rheumatoid arthritis (RA), osteoarthritis (OA), synovial chondromatosis and AVN[6]. In particular, a few cases of patients who presented femoral nerve palsy associated with bursitis after THA

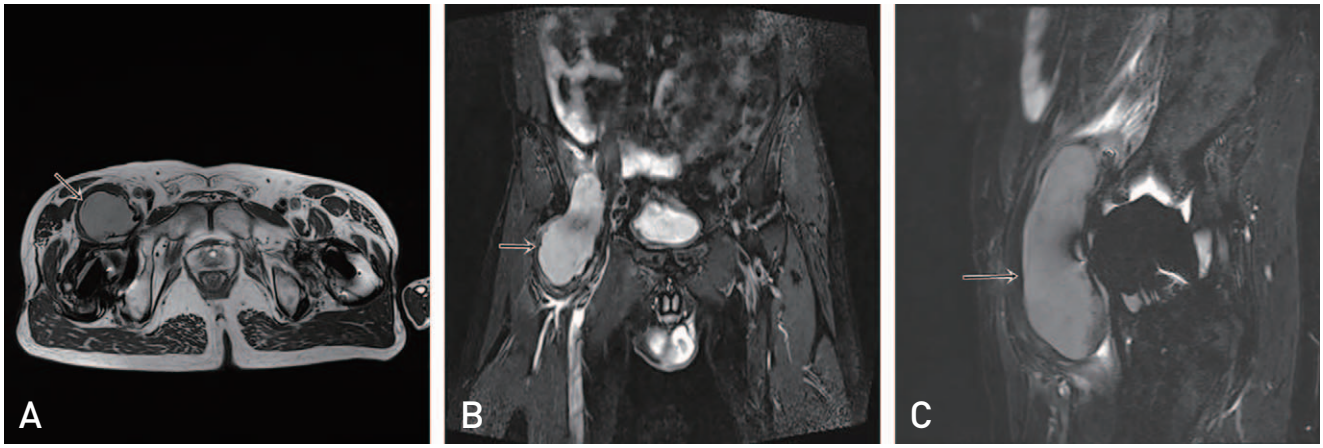

Fig. 3. About 11×5×6-cm mass at right iliopsoas muscle which showed muscle edema and enhancement, mass effect was founded on T2 magnetic resonance imaging view.

due to RA or OA have been reported[7]. In cases of femoral nerve palsy associated with the presence of hematoma, femoral nerve palsy may occur due to iliacus hematoma formation after THA among patients taking anticoagulants for prevention of deep vein thrombosis[4-8].

A case of femoral nerve palsy caused by iliopsoas hematoma formed immediately after surgery has been reported in a patient with the use of anticoagulants. However, the patient in this case report was characterized by having iliopsoas bursitis following THA without underlying conditions such as RA or OA, no history of anticoagulant use, femoral nerve palsy associated with iliopsoas hematoma caused by iliopsoas impingement against the anterior aspect of the acetabular cup, and neurological symptoms developed 10 years after THA.

Femoral nerve palsy appears to be caused by bursitis and hematoma resulting from anterior overhang of the acetabular component due to the use of oversized cups and reduced anteversion. No recurrence was detected during a 6-month outpatient postoperative follow-up, but we cannot completely exclude the possibility of recurrence without the correction of the fundamental reason for this complication. Ultrasound-guided aspiration and steroid injection can be effective treatment options, but bursitis and hematoma should be removed in cases of frequent relapse and compression of the nerves, and blood vessels[9]. Iliopsoas tendon release is an alternative option and reoperation has been reported to have insignificant difference in surgical outcomes[10]. For the patient in this case report, acetabular cup revision was considered after functional restoration of knee extension. But, since the patient refused to undergo the surgery, he is currently under follow-up observation without additional surgery.

Even in patients with no specific underlying systemic diseases or hemorrhagic signs, femoral nerve palsy may occur due to noninfectious iliopsoas bursitis and hematoma. Therefore, long-term follow-up is warranted in patients with the potentail risk of neurological symptoms after THA.

CONFLICT OF INTEREST

The authors declare that there is no potential conflict of interest relevant to this article.

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