Iliopsoas Bursitis Managed with Endoscopic Bursectomy and Lesser Trochanter Decompression

A Case Report

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Abstract

Case: A 32-year-old woman presented with worsening right anterior hip pain, reduced hip flexion strength, and passive range of motion during hip flexion. Magnetic resonance imaging of the hip demonstrated a prominent lesser trochanter and localized fluid signal intensity at the iliopsoas bursa. The patient underwent endoscopic iliopsoas bursectomy and lesser trochanterplasty, reporting improvement in all clinical outcome scores at 1-year follow-up.

Conclusion: Lesser trochanter morphology should be evaluated in patients presenting with iliopsoas bursitis. In patients failing to respond to conservative management, endoscopic iliopsoas bursectomy and lesser trochanterplasty may address pain and functional limitations.

The iliopsoas muscle-tendon complex functions as the primary flexor of the hip, providing dynamic stabilization to the hip joint, and erector of the lumbar spine[1,2]. The iliopsoas complex has been implicated in several extra-articular hip conditions, including internal snapping hip, iliopsoas impingement, iliopsoas tendonitis, and iliopsoas bursitis. Internal snapping hip is caused by sliding of the iliopsoas tendon over a prominent cam deformity or iliopectineal eminence, commonly reporting as occurring during hip flexion and extension, while iliopsoas impingement occurs when a tight iliopsoas compresses the anterior labrum during hip hyperextension, resulting in labral pathology[1,3]. Repetitive trauma across the tendon, regardless of the etiology, can result in iliopsoas tendonitis or bursitis.

Patients with iliopsoas bursitis frequently present with complaints of anterior hip pain that is exacerbated by walking, stair climbing, athletic participation, and repetitive hip flexion-extension[1,4-6]. Clinical evaluation typically includes magnetic resonance imaging (MRI), which may demonstrate an enlarged bursa and hyperintensity on T2-weighted images with thin bursal walls. In patients with iliopsoas bursitis, MRI can further identify any potential underlying causative source or associated intra-articular pathology[7]. Iliopsoas conditions are generally managed conservatively, with activity modification, nonsteroidal anti-inflammatory drugs, physical therapy, and ultrasound-guided injections. In cases of failed conservative management, surgical treatment in the form of a bursectomy with treatment of the underlying cause of the bursitis may be indicated[1,6-10].

In this report, we present a previously unreported cause of iliopsoas bursitis caused by mechanical impingement of a prominent lesser trochanter on the iliopsoas bursa, resulting in persistent pain and dysfunction.

The patient was informed that data concerning the case would be submitted for publication, and she provided consent.

Case Report

A 32-year-old woman with no history of previous lower extremity symptoms presented with 8 months of worsening right anterior hip pain. The patient endorsed an insidious onset of dull/achy pain, primarily localized to the groin, exacerbated by hip flexion. Before presentation, the patient had received an intra-articular cortisone injection, which provided no relief. The patient denied history of musculoskeletal conditions, dermatitis, rheumatologic conditions, or family history of rheumatologic or autoimmune conditions. At baseline, the patient's clinical outcome scores were as follows: Hip Outcome Score (HOS)—Activities of Daily Living (76.5), HOS—Sport Scale (69.4), International Hip Outcome Tool-12 (56.0), and visual analog scale (VAS) for pain (75.0).

Disclosure: The **Disclosure of Potential Conflicts of Interest** forms are provided with the online version of the article (http://links.lww.com/JBJSCC/B719).

Keywords: sex: female; disease/condition: lesser trochanter impingement; iliopsoas bursitis; procedures: lesser trochanterplasty; Iliopsoas bursectomy

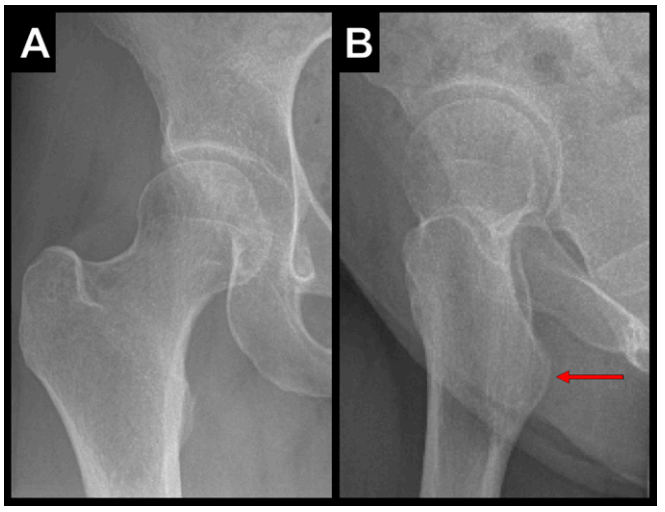

Fig. 1

Preoperative (**Fig. 1-A**) anterior-posterior and (**Fig. 1-B**) Dunn lateral radiographs of the right hip demonstrating prominence of the lesser trochanter (solid red arrow).

Physical Examination

On physical examination, the patient was afebrile (temperature: 36.7°C), normotensive (blood pressure: 109/67), and normocardic (heart rate: 71). The patient demonstrated passive hip flexion to 85°, external rotation to 20°, and internal rotation to 20°. Pain was elicited with flexion-adduction-internal rotation testing, along with positive subspine impingement, while a negative flexion-abduction-external rotation and trochanteric pain sign were reported. In the supine position, the patient demonstrated reduced strength with straight leg hip flexion, able to overcome gravity for only a short period. In the seated position, weakness was appreciated with hip flexion, while no strength impairments in hip abduction and adduction were appreciated.

Preoperative Imaging

After initial examination, anterior-posterior and Dunn lateral radiographs of the right hip were obtained and reviewed. Prominence of the lesser trochanter and a small cam deformity were visualized; however, no further abnormalities were noted on the patient's radiographs (Figs. 1-A and 1-B). The morphological parameters of the hip based on radiographs were as follows: alpha angle (50.6°), Tönnis angle (7.9°), and lateral center-edge angle (25.1°). To better assess for any soft-tissue abnormalities, an MRI of the right hip was obtained demonstrating labral tearing with inflammation over the iliopsoas (Figs. 2-A and 2-B). Measurement of acetabular version on MRI found the hip to possess 17.4° of anteversion.

Indications

Given the patients' failure to respond to an intra-articular hip injection, the persistence of anterior hip pain worsened with hip flexion, and MRI findings indicative of iliopsoas bursitis, an injection into the iliopsoas bursa under ultrasound guidance was performed, with the patient reporting substantial pain relief immediately after injection. Based on the patient's history, limited strength and stiffness with hip flexion, response to iliopsoas injection, and radiographic and MRI findings, a diagnosis of iliopsoas bursitis secondary to lesser trochanteric impingement was made.

Surgical Technique

With the patient in the supine position, standard anterolateral portal and midanterior portals (MAPs) were established at the 12 and 2 o'clock positions, respectively. After creation of an interportal capsulotomy, a mild degree of chondromalacia and significant hip joint synovitis were observed. The labrum was noted to be intact without evidence of tearing or degeneration. A 4.5-mm shaver (Stryker) was introduced to gently debride the chondral surface and to perform a partial synovectomy.

The lesser trochanter was then localized under fluoroscopic guidance (Fig. 3). An accessory portal was established 3 cm distal to the MAP, allowing access to the medial aspect of the proximal femur. The prominent lesser trochanter, iliopsoas tendon, and inflamed iliopsoas bursa were then visualized with the arthroscope in the MAP (Fig. 4-A). Direct arthroscopic visualization with manipulation of the hip position demonstrated iliopsoas tendonitis adjacent to the prominent lesser trochanter. To reduce tension on the

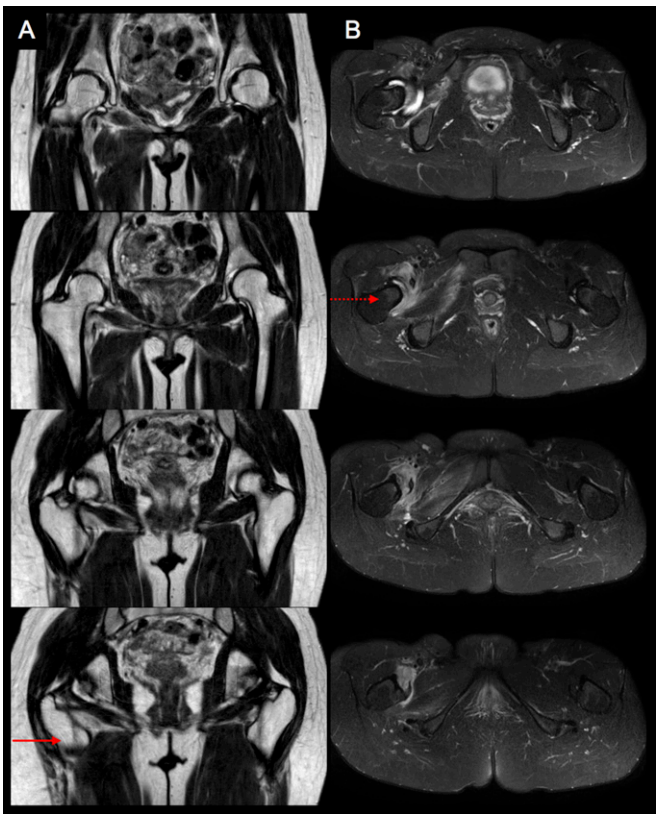

Fig. 2

Sequential coronal (**Fig. 2-A**) and axial (**Fig. 2-B**) T2-weighted magnetic resonance images of the pelvis, demonstrating a prominent lesser trochanter (solid red arrow) with localized edema (dashed red arrow) and distension of the iliopsoas bursa on the right hip.

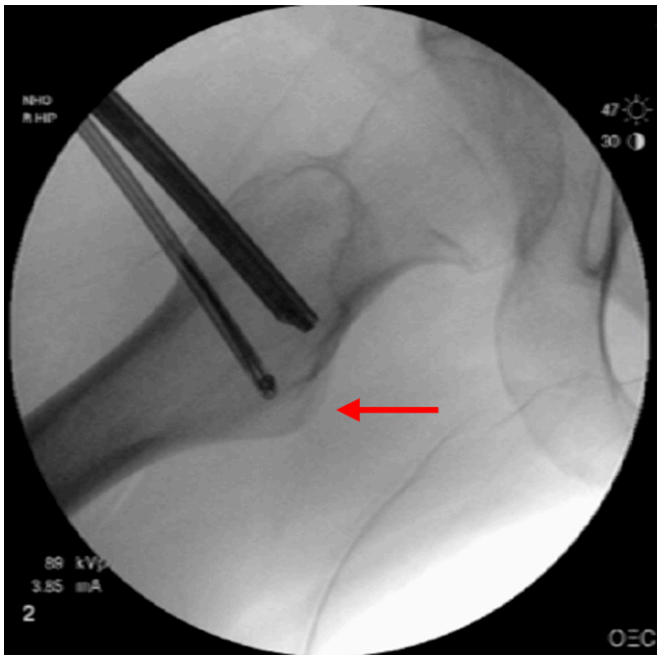

Fig. 3

Intraoperative fluoroscopic view of the right hip, showing a prominent lesser trochanter before lesser trochanterplasty (solid red arrow).

iliopsoas tendon and position the lesser trochanter in a more anterior position to decrease the risk of neurovascular injury, the hip was flexed 30° and externally rotated. The 4.5-mm shaver was inserted through the accessory portal to debride the overlying bursal tissue.

A 5.5-mm arthroscopic burr (Stryker) was then inserted in the accessory portal to resect the bony prominence of the lesser trochanter under fluoroscopy (Fig. 4-B). Care was taken to avoid disrupting the insertion of the iliopsoas tendon on the lesser trochanter. After satisfactory resection (Fig. 4-C), a dynamic hip examination was performed to confirm complete removal of all bony impingement, where no further abrasion or contact of the iliopsoas tendon against the lesser trochanter was observed in flexion, extension, and internal and external rotation. Portals were closed in standard fashion. Rehabilitation was performed as previously described[11].

Postoperative Course

At 2 weeks after surgery, the patient reported a reduction in pain and symptoms. At 6-week follow-up, the patient had progressed off crutches and demonstrated painless passive hip flexion to 120°, external rotation to 30°, and internal rotation to 20°, while being able to actively flex the hip without assistance. At 6-month follow-up, the patient reported continued progression with physical therapy and return to activity. Hip flexion strength was graded at 5/5. Radiographs (Fig. 5) and a repeat MRI of the hip were obtained at 6-month follow-up demonstrating a reduction in fluid intensity at the surgical site (Fig. 6). Although a moderate degree of fluid signal remained at or near the lesser trochanteric bursa, significant functional improvement and reduction in pain scores were reported. Improvements in clinical outcomes scores and pain were appreciated at 6-month and 1-year follow-up. (Fig. 7).

Discussion

Identification and treatment of the underlying pathology is critical during the management of iliopsoas bursitis, in addition to resection of the inflamed bursal tissue[7]. In this report, we present a previously unreported cause of iliopsoas bursitis, secondary to mechanical impingement from a prominent lesser trochanter on the iliopsoas bursa, resulting in persistent pain and dysfunction. As such, evaluation of lesser trochanter osseous morphology should be considered in patients presenting with symptomatic iliopsoas bursitis. In cases of suspected lesser trochanteric impingement, with failure to respond to conservative management, endoscopic iliopsoas bursectomy and lesser trochanterplasty may address persistent pain and functional limitations.

Endoscopic resection of the lesser trochanter has been described to address osseous abnormalities in patients with ischiofemoral impingement (IFI), a pathologic condition characterized by the narrowing of the ischiofemoral space. The narrowing of the ischiofemoral space results in inappropriate contact between the ischium and the lesser trochanter, with associated groin and buttocks pain[12]. In a case series of 5 patients with IFI, Hatem et al.[13] used a posterolateral and auxiliary distal portal to perform a lesser trochanterplasty, reporting significant improvements in the modified Harris Hip Score (51.3-94.2), with no complications at 2-year follow-up. Hatem et al.[13] highlighted that an advantage of this approach was

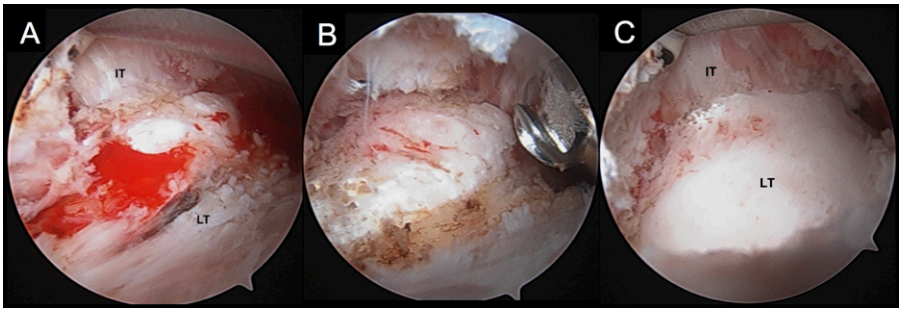

Fig. 4

(**Fig. 4-A**) LT and IT visualized through distal accessory portal, and subsequent (**Fig. 4-B**) lesser trochanterplasty using a 5.5-mm arthroscopic burr and (**Fig. 4-C**) final view demonstrating the IT attached to the LT after bursectomy and trochanterplasty. IT = iliopsoas tendon, and LT = lesser trochanter.

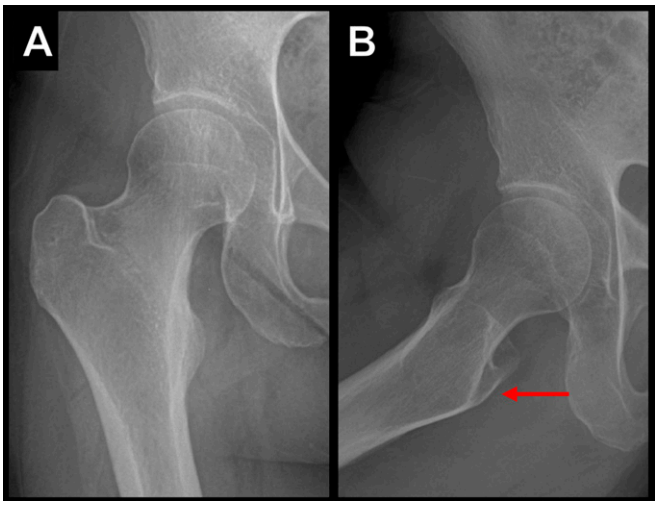

Fig. 5

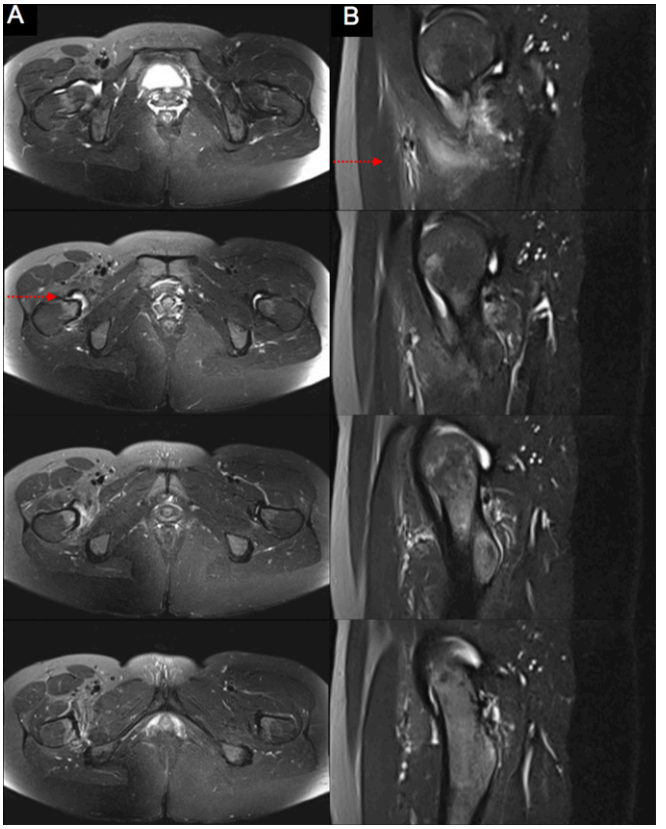

Fig. 6

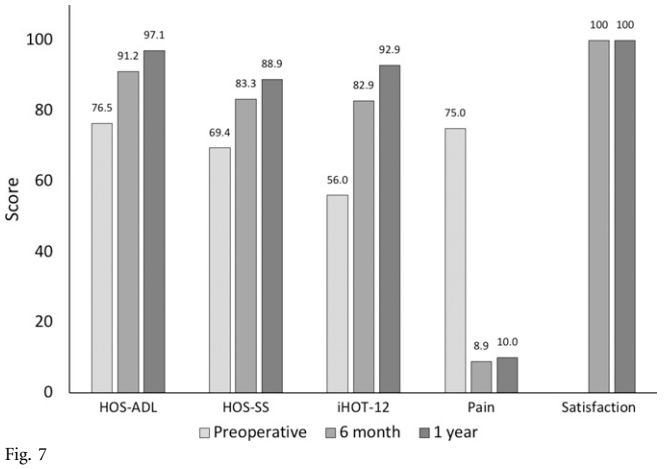

Fig. 7

Fig. 5 Postoperative (**Fig. 5-A**) anterior-posterior and (**Fig. 5-B**) Dunn lateral radiographs of the right hip obtained at 6-month follow-up demonstrating satisfactory resection of lesser trochanter prominence (solid red arrow). **Fig. 6** Axial (**Fig. 6-A**) and sagittal (**Fig. 6-B**) T2-weighted magnetic resonance imaging of the pelvis demonstrating a reduction in fluid intensity and swelling at the ischial bursa (dashed red arrow). **Fig. 7** Preoperative, 6-month, and 1-year clinical outcome scores and VAS for pain and satisfaction after endoscopic iliopsoas bursectomy and lesser trochanterplasty. HOS-ADL = Hip Outcome Score—Activities of Daily Living, HOS-SS = Hip Outcome Score—Sports Scale, iHOT-12 = International Hip Outcome Tool-12; Pain, VAS for pain; Satisfaction, VAS for satisfaction, and VAS = visual analog scale.

that a majority of the iliopsoas tendon remains attached to the lesser trochanter. Meanwhile, Goodwin et al.[14] described an endoscopic technique of performing lesser trochanterplasty using an anterior approach[14], avoiding the medial femoral circumflex artery, sciatic nerve, and disruption of the quadratus femoris muscle. In addition, external rotation of the hip allows for improved access to the posterior aspect of the lesser trochanter. However, an iliopsoas tenotomy is necessary to gain access to the entirety of the lesser trochanter[14].

When performing a lesser trochanterplasty for the treatment of iliopsoas bursitis, an iliopsoas tenotomy is not recommended. Recently, Brandenburg et al.[15] evaluated 36 patients with femoroacetabular impingement syndrome and/or chondrolabral pathology (n = 18 with internal snapping hip treated with iliopsoas release; n = 18 with internal snapping hip without iliopsoas release) and reported a greater reduction in iliopsoas volume (25% vs. 0.6%) and hip flexion strength (19.0% vs. 3.9%) in patients undergoing iliopsoas release. In addition to concerns of impaired hip flexion strength, the iliopsoas also functions as a stabilizer of the anterior hip, and tenotomy may potentially contributing to the development of anterior hip instability[16]. Through the use of appropriate patient

positioning and careful arthroscopic instrumentation, a tendon-sparing approach as described in this report can prevent the reduction in hip flexion strength seen in patients undergoing tenotomy[17-19].

This case report is not without limitations. First, the lesser trochanter morphology was not evaluated using a validated classification system. Suspected involvement of the lesser trochanter was based on preoperative imaging, direct endoscopic visualization, and iliopsoas tendinopathy adjacent to the bony prominence. In addition, although the patient demonstrated favorable outcomes after lesser trochanterplasty and iliopsoas bursectomy, it is not possible to determine whether an isolated bursectomy would be sufficient long-term management.

Conclusion

Lesser trochanter morphology should be evaluated in patients presenting with iliopsoas bursitis. In patients failing to respond to conservative management, endoscopic iliopsoas bursectomy and lesser trochanterplasty may address pain and functional limitations. ■

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