

A Case of Enlarged Iliopsoas Bursa Compressed Femoral Vein with Groin Pain

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Abstract Background: Iliopsoas bursal cystic lesion (IBCL), a rare disease on groin area, posing a significant threat to the lower limb thrombosis, but it is easy to misdiagnose or missed diagnose. Doppler ultrasonography (DU) with certain advantages could be used to detect the enlarged iliopsoas bursa (EIB) and compression of lower extremity vein. Case presentation: A 60-year-old man was admitted to our department complaining of pain and swelling in his right groin area for 3 weeks. DU demonstrated that there was a well-defined, echo-free, cystic mass in the right inguinal region, which severely compressed the common femoral vein (CFV), and the blood flow velocity was extremely slow. Then, surgery was performed to exclude the lesion, consequently, corresponding signs and symptoms had resolved completely. Histopathological results suggested the mass is an iliopsoas bursa filled with mucinous materials. After that, DU was displayed again and the results suggested that the EIB has almost been excised and there was a slight echogenic structure in the deep layer communicating to the hip joint space. Conclusion: Although, IBCL is rare and easy to misdiagnose and missed diagnose, the DU with certain advantages could be used to diagnose effectively this disease and guide the clinical prevention and intervention of thromboembolic events.

Keywords: doppler ultrasonography, iliopsoas bursa, femoral vein compression

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1. Introduction

Iliopsoas bursa is the largest and most constant synovial bursa in the region of the hip joint, serving as a cushion between iliopsoas tendon and joint capsule, as well as working for reducing the friction. Generally, iliopsoas bursal cystic lesion (IBCL) is caused by the synovitis or hip joint diseases. However, enlarged iliopsoas bursa (EIB) may cause a series of sever compression symptoms, because of its anatomical position, size, and common complications. Recently, doppler ultrasonography (DU) is recognized as an efficient imaging modality to noninvasively identify the IBCL, due to its high efficiency on the detections of EIB, mural thrombus, and patency of the runoff arteries. This article reports a rare case of the EIB compressed the common femoral vein (CFV) with groin pain, diagnosed by DU.

2. Case Presentation

A 60-year-old man was admitted to our department due to the pain and swelling in his right groin area for 3 weeks. He had a history of hypertension and diabetes mellitus.

Meanwhile, he had undergone percutaneous coronary artery interventions 2 years ago because of the coronal atherosclerosis heart disease. On physical examination, a palpable tender mass in the right groin area was observed, accompanying with compression pain. Right distal pulses were well and no significant limitations were observed in the motion of the right hip. DU demonstrated a gourd-shaped, well-defined, echo-free mass with a size of 6.2 cm × 4.0 cm × 3.2 cm in the right inguinal region (Figure 1(a)), which obviously compressed and narrowed the CFV (Figure 1(b)), causing the blood flow velocity was extremely slow in the right CFV, superficial femoral vein, and popliteal vein. Magnetic resonance imaging (MRI) revealed a well-defined, cystic mass in the right groin area with hypointense on T1-weighted image (Figure 2 (a)) and hyperintense on T2-weighted image (Figure 2 (b)). Contrast-enhanced computed tomography (CT) depicted a calabash-shaped, well-defined, hypodense mass with cyst wall slight contrast enhancement, which adjacent to the CFV and compressed the vein clearly as shown in Figure 2 (c) and Figure 2(d).

We can conclude that the pain and mass of his groin area are caused by the EIB compresses CFV. During the operation, we found that the right CFV was close to the mass and the vein was compressed apparently by the mass as depicted in Figure 3(a). Figure 3(b) exhibits that a large

amount of yellow jellylike materials flowed out from the bursa when we dissected the wall of the cyst. The bursa and viscous materials were removed and sent for histological examination. Next, an end-to-end anastomosis was performed from the iliac vein to the femoral vein after resected the involved vein. Histopathological results suggested the mass is a synovial cyst filled with mucinous materials. DU was repeated postoperatively and the results indicated that the calabash-shaped cystic mass anterior of the iliopsoas muscle had almost been excised. Even so, there was still a slight echogenic structure in the deep

layer, with a range of 4.1cm × 1.6 cm, and communicating to the hip joint space as depicted in Figure 1(c). Contrast-enhanced ultrasound revealed the deep synovial tissue appeared isoechoic and proven to be an iliopsoas bursitis (Figure 1(d)) with no obvious mural thrombus was observed in the venous lumen. Moreover, the patient had an uneventful postoperative course and then discharged in good general conditions (i.e., all of the painful symptoms of groin area were vanished). Combining with his medical histories, histopathological examinations, and DU results, we ascribed his IBCL to the synovitis.

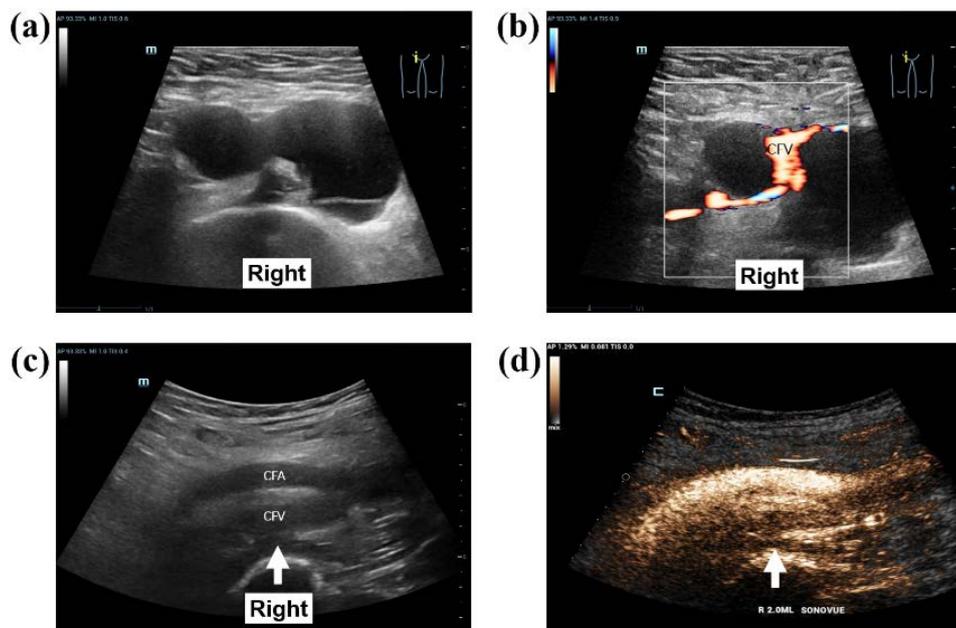


Figure 1. (a) Doppler ultrasonography (DU) shows a well-defined, echo-free, cystic mass in the right inguinal region. (b) Color doppler flow image shows that the cystic mass obviously compresses the common femoral vein (CFV) and narrows its lumen. (c) DU image after the operation, shows the enlarged iliopsoas bursa has almost been excised and there is a slight echogenic structure (white arrow) in the deep layer communicating to the hip joint space. (d) Contrast-enhanced ultrasound reveals that the deep synovial tissue (white arrow) appears isoechoic and no obvious mural thrombus can be observed in the CFV

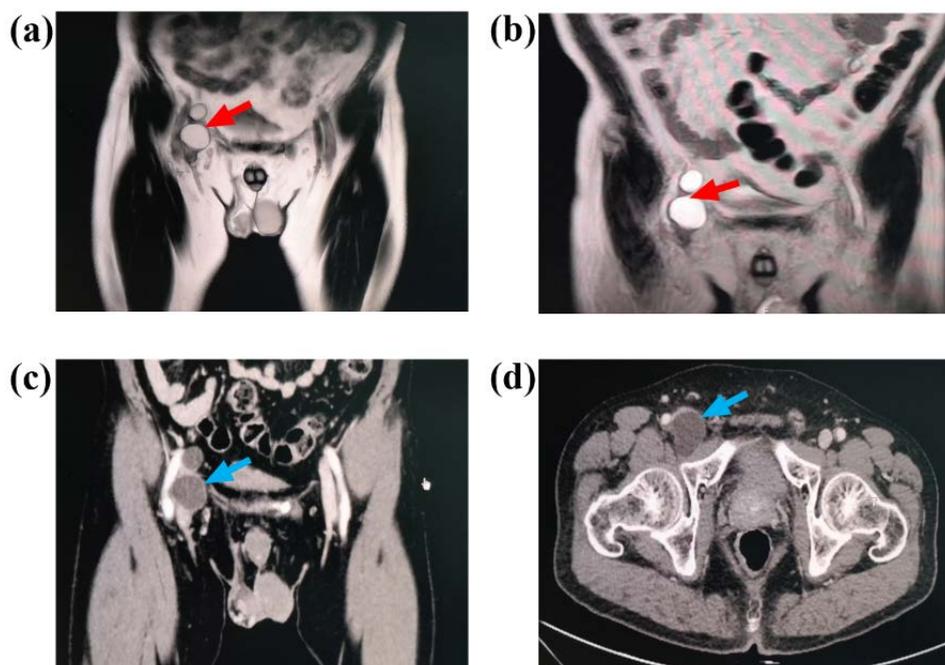


Figure 2. Coronal magnetic resonance imaging (MRI) of the pelvis shows a well-defined, cystic mass (red arrows) with hypointense on T1-weighted image (a) and hyperintense on T2-weighted image (b). Coronal (c) and axial (d) contrast-enhanced computed tomography (CT) show a hypodense, well-defined cystic mass (blue arrows) and its cystic wall exhibits a slight enhancement., indicating an iliopsoas bursitis and compressing the CFV

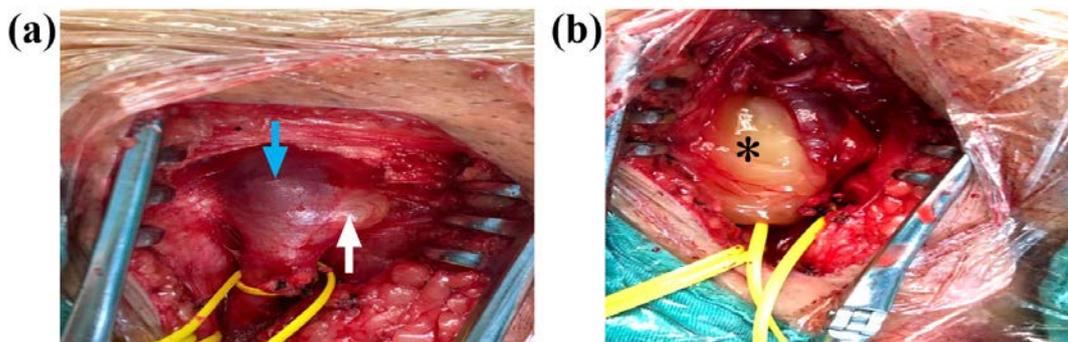


Figure 3. Intraoperative images show that the right CFV (blue arrow) is close to the iliopsoas bursa (white arrow) (a) and there is a large amount of yellow jellylike materials (asterisk) in the bursa (b), respectively

3. Discussion

As the largest bursa in the region of the hip joint, iliopsoas bursa overlies the above of hip joint capsule, posterior of iliopsoas muscle and lateral to the femoral vessels [1,2,3]. About 14% of the iliopsoas bursas are communicating with the hip joint capsular in healthy individual [4,5], while the rest part has a fibrous septum between the iliopsoas bursa and the joint capsular.

All kinds of factors, such as infection, trauma, long-term repeated compression, and stimuli may lead to synovial congestion, edema, and hypersecretion of the iliopsoas bursa [6]. Furthermore, various of hip joint lesions, such as aseptic necrosis of the femoral head, rheumatoid arthritis, hip joint degeneration, and hip joint replacement [2,5], could induce the joint cavity effusion increased, fluid spreads into the iliopsoas bursa from the joint capsule [6,7]. The histopathological results and imaging examinations confirmed that the EIB of our case is caused by the synovitis.

The incidence of IBCL is approximately the same in men and women. Most of this disease occur unilaterally, but a few can also be bilaterally [4]. For our case, the EIB occurred only in the right side. In normal circumstances, iliopsoas muscle sac with a small amount of cystic fluid is difficult to be detected by the imaging examinations. Patients may be asymptomatic, or present the compression symptoms related to the EIB, or an embolic event. The symptoms of compression include pallor, low-temperature, absent pulses, paresthesia, and pain. The symptoms of nerve compression and venous pressure, such as tingling, burning sensations, edema and deep venous thrombosis, may also occur [8]. Moreover, huge iliopsoas bursa may oppress pelvic cavity organs, such as rectum, bladder, and ureter, causing a range of correlative symptoms. It was reported that the iliopsoas bursa compressed femoral vein is rare because of the femoral vein and the nerve are located in different compartments [4]. In our case, the EIB compresses the CFV and results in severe vein stenosis and blood flow stasis in the lower limb veins with inguinal pain.

IBCL has a low prevalence, thus, it is easy to misdiagnose and missed diagnose. Consequently, it is important to accurately identify the EIB and associated abnormalities. Comparing with MRI and CT, UD as a safe and convenient imaging modality can be used to accurately observe and discriminate the tissues around the hip joint. Especially, the abnormalities can be found in time and corresponding clinical intervention can be given

to reduce the occurrence of thromboembolism events, when femoral vein compression combining with venous thrombosis. It is worth noting that our case has the danger of recurrence due to the partial residual iliopsoas sac on the venous wall and requires a long-term follow-up, while UD is a preferred monitoring tool in this situation.

Most of the time, the EIB can be treated by conservative management, such as rest, instillation of steroid and fluid aspiration of the bursa [4]. In our case, the surgical procedure was performed for the patient with groin mass and pain symptoms due to the compression of CFV.

4. Conclusion

We report a rare case of a diagnosis of enlarged iliopsoas bursa compressed the common femoral vein via Doppler ultrasonography (DU). DU, with its wide availability, easy repeatability and lack of radiation exposure, could be widely used in diagnosis of vascular and soft tissue lesions. This case provides a significant clinical pathway on the diagnosis of iliopsoas bursal cystic lesions by DU.

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