

A rare case report: enlarged iliopsoas cystic solid mass associated with femoral head necrosis induced by heavy alcohol consumption

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Abstract

Rationale: This article presents an unusual case of a large iliopsoas cystic solid mass associated with femoral head necrosis in a patient with heavy alcohol consumption for years.

Patient concerns: The patient reported pain and limitation of movement at the right hip for 4 months. A soft tissue mass can be palpated deep in the groin several days after the onset of pain.

Diagnoses: The laboratory assessments indicated an inflammatory response of the patient. Imaging was performed on the femoral head and iliopsoas cyst. The pathological feature of the mass was evaluated through biopsy examination. It was found that iliopsoas cystic solid mass is secondary to the femoral head necrosis induced by heavy alcohol consumption.

Interventions: The patient underwent elective total hip arthroplasty. The bursa was excised and the anterior hip capsule closure was performed.

Outcomes: After the surgery, imaging results showed a well-positioned prosthesis. At 1-year follow-up, the prosthesis was still well-positioned and no signs of recurrence of iliopsoas bursa were found.

Lessons: We suggested the performance of elective total hip arthroplasty, bursa excision, and closure of the anterior hip capsule in patients with femoral necrosis and iliopsoas bursitis presented simultaneously.

Abbreviations: MRI = magnetic resonance imaging, THA = total hip arthroplasty.

Keywords: alcohol, femoral head necrosis, iliopsoas cystic solid mass, total hip arthroplasty

1. Introduction

Excessive alcohol use may cause osteonecrosis. Osteonecrosis of the hip is a painful condition. It accompanies with limitation of hip motion that significantly comprises the quality of life of patients.

Iliopsoas cysts in the groin region secondary to hip diseases are usually asymptomatic but may cause pain when they become enlarged, compressing on the surrounding nerves, veins, or arteries. Patients may also have swelling of the lower extremity or femoral nerve palsy.^[1,2] Such enlargement of the iliopsoas cyst in

the groin region is usually found in patients with acute trauma, overuse injury, or rheumatoid arthritis. There were also cases in which patients developed iliopsoas cyst after total hip arthroplasty (THA). It is believed that the cysts were resulted by a foreign body reaction against particulate wear debris. Most of the cysts reported were composed of soft tissue and were fluid filled.^[3]

To our knowledge, it is unusual to observe a large iliopsoas cyst, particularly in solid mass, associated with femoral head necrosis in patients with heavy alcohol consumption. We here would like to share our experiences on clinical examination, diagnosis, and treatment of the patient.

2. Case report

The study was conducted in accordance with the principles outlined in the Declaration of Helsinki, which has been approved by the Ethics Committee of the Second Hospital of Jilin University (No. 2017078). Written informed consent to participate was obtained from this patient. Patient data were kept anonymous to ensure confidentiality and privacy.

The patient was a 63-year-old man, reported to have pain and limitation of movement at the right hip for 4 months. A soft tissue mass can be palpated deep in the groin several days after the onset of pain.

Physical examination revealed a significant limitation of motion of the right hip, atrophy of the right thigh muscles, and a 5 × 5 cm mass in the inguinal area. The patient had heavy alcohol consumption, approximately 300 mL clear spirits per day, for 40 years. The patient denied having steroids or trauma at the hip. He reported no tuberculosis or symptoms including fever,

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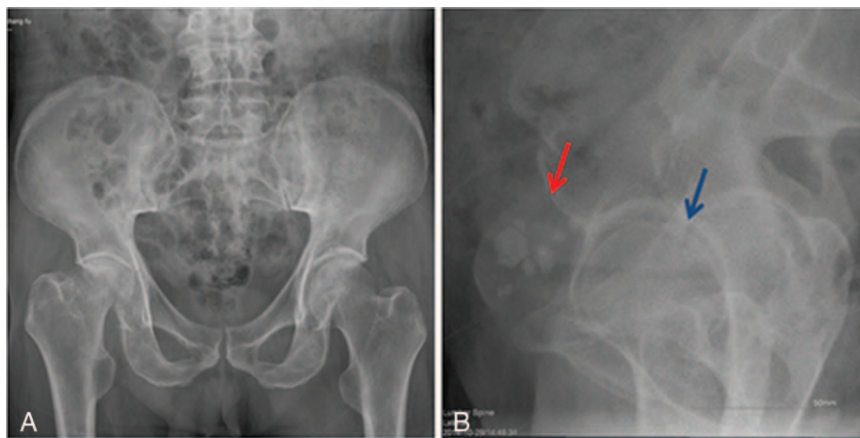


Figure 1. Anteroposterior (A) and lateral (B) plain radiograph were taken to examine the femoral head and iliopsoas cyst. The red arrow indicated the enlarged iliopsoas cyst with osseous composition, and the blue arrow indicated the femoral head.

weakness, night sweat, nocturnal pain, and severe loss of body weight.

Laboratory assessments, including complete blood cell count, urine analysis, and liver function tests (except γ -glutamyl transpeptidase), showed no abnormalities. The detail laboratory results were alanine aminotransferase 30 U/L, aspartate transaminase 28 U/L, alkaline phosphatase 86 U/L, total bilirubin 86 U/L, direct bilirubin 1.68 μ mol/L, indirect bilirubin 6.32 μ mol/L, and cholinesterase 7742 U/L; the only abnormal liver function test

result was γ -glutamyl transpeptidase 107.3 U/L (normal range: 10–60 U/L). Elevated C-reactive protein (at 4.81 mg/dL) and erythrocyte sedimentation rate (at 18 mm) were found, indicating an inflammatory response. In addition, a positive T cell spot (T-SPOT) test was found. Negative results were obtained from general bacterial culture, identification, and concentrated acid-fast bacilli test.

Plain anteroposterior radiograph was performed. The radiograph revealed diffuse sclerotic changes of the right femoral head

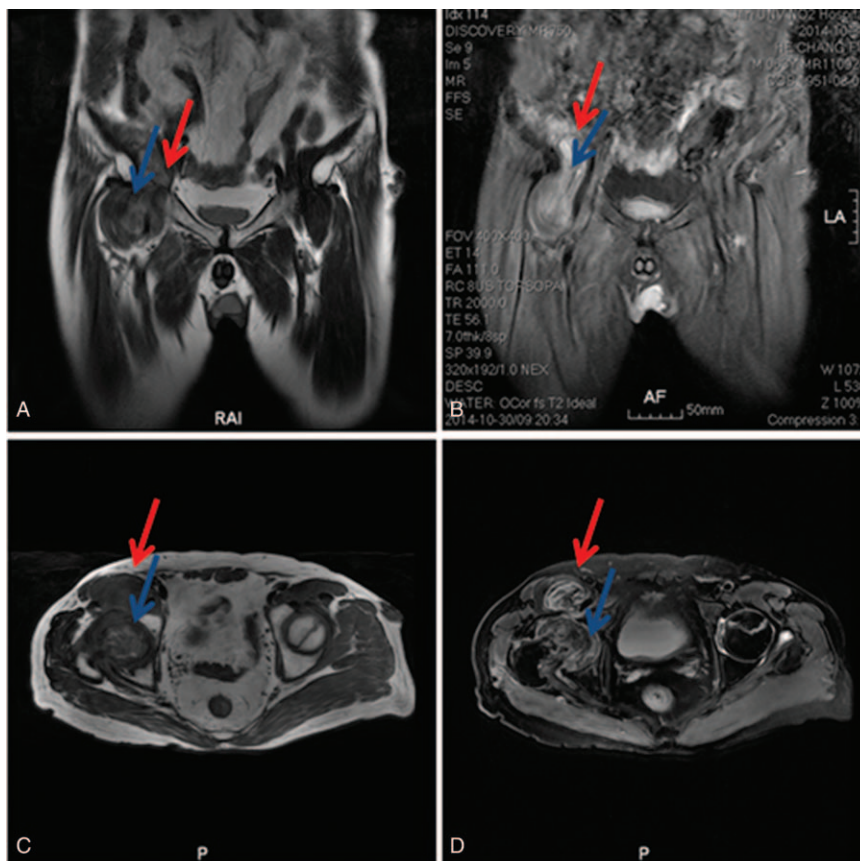


Figure 2. The coronal view of (A) T1- and (B) T2-weighted images, and axial view of the (C) T1- and (D) T2-weighted images. The red arrow indicated the enlarged iliopsoas cyst with osseous composition, and the blue arrow indicated the adjacent femoral head.

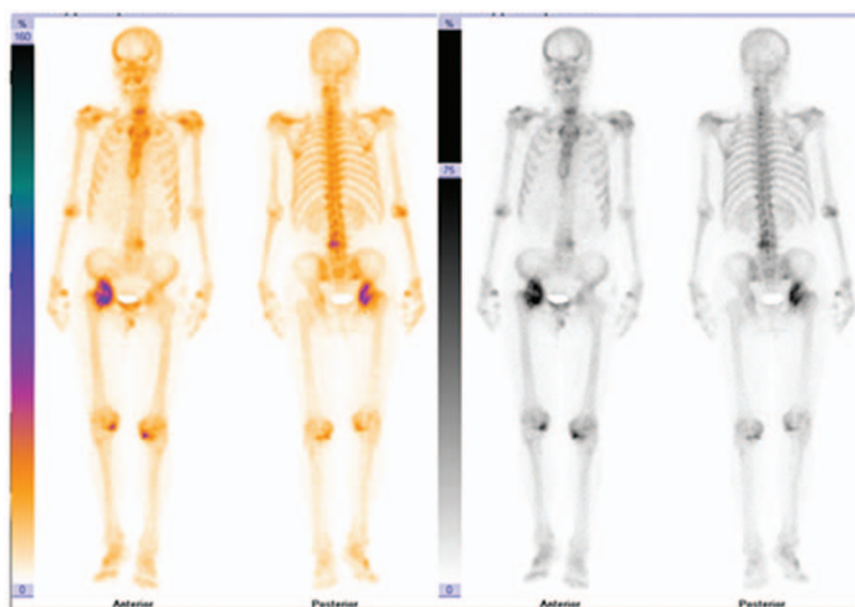


Figure 3. Emission computed tomography was performed to exclude metastatic bone tumors.

and an obvious narrowing of joint space, but the structure of the underlying acetabulum had not been significantly affected (Fig. 1A). Iliopsoas cysts with osseous tissue were found in the groin area (Fig. 1B).

Magnetic resonance imaging (MRI) showed abnormal signal intensities in the anterior-superior portion of the hip joint. Distended iliopsoas bursa was found with mixed signals, showing a communication between the cyst and right hip joint (Fig. 2). The T2-weighted image showed high signal intensity within the mass, suggesting the mass is fluid filled (Fig. 2B). Axial view imaging demonstrated the presence of a mass anterior to the joint, communicating to the joint space. The anterior mass seemed to be located under the iliopsoas muscle (Fig. 2C). Increased signal intensities were found at the periphery of the mass and inside the joint space under T1-weighted imaging, suggesting a synovial proliferation (Fig. 2D).

We also performed emission computed tomography, and the results indicated that it is not metastatic bone tumors. The imaging showed that the right acetabulum and femoral head had been destroyed, and abnormality was found on the lateral side of the right hip joint (Fig. 3).

A biopsy examination was recommended by the physician to examine the pathological feature of the mass. To further examine the content of the mass, we also performed an ultrasound-guided aspiration but failed to aspirate the excessive fluid. Additional biopsy was then taken, and a cartilage-like tissue was collected. The pathological report revealed a degenerative bone tissue, containing fibrogenesis and massive inflammatory infiltration (Fig. 4).

After differential diagnosis and pathological examination of the mass, a total hip arthroplasty (THA) was performed on the patient. No pus or excessive fluid was found after arthrotomy (Fig. 5A). During the procedure, we noticed severe deformity of the femoral head with a large area of the cartilage destroyed (Fig. 5B). When the femoral head was dissected, we observed a typical phenotype of necrosis in the femoral head (Fig. 5C). Severe damage of the cartilage and subchondral bone was found, but no connections were found between the joint and the anterior mass.

An incision was then performed in the inguinal area, and the bursa was found just lateral to the femoral vessels and nerve, displacing them medially, which was consistent with the MRI

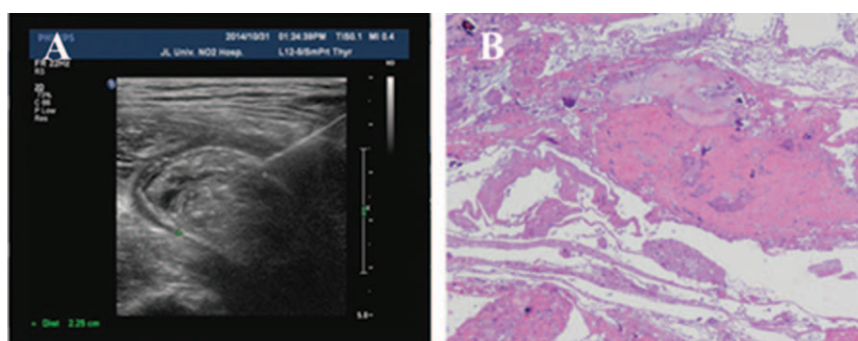


Figure 4. The presentation of ultrasound-guided aspiration showed a complete iliopsoas cyst (A), hematoxylin and eosin staining showed synovial cells proliferation, uptake of bone debris, and lymph follicle formation. Magnification=40× (B).

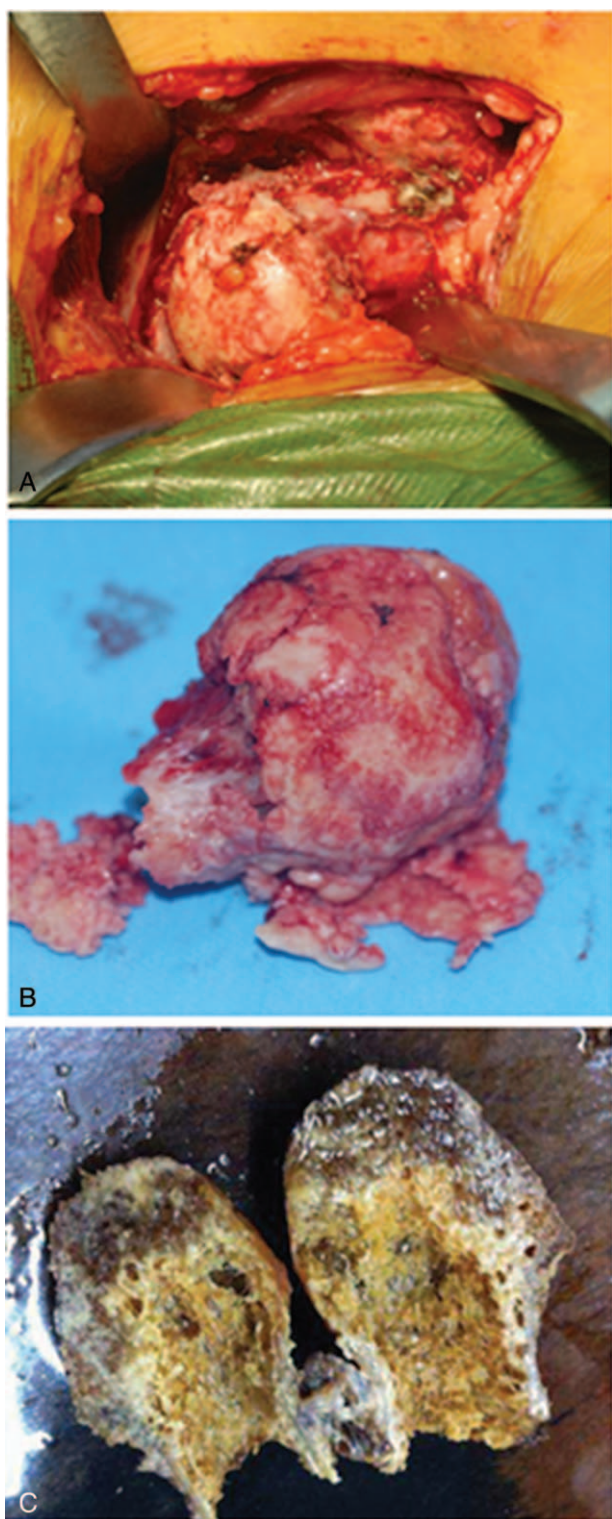


Figure 5. The morphology of the right femoral head examined during operation (A) and postoperation (B), the inner structure of the femoral head was dissected for examination (C).

results. The mass extended over the pectineal eminence down to the hip joint, revealing a direct opening into the joint. The bursa was removed. We found that its inner wall was smooth and shiny. The cartilage-like tissue was obtained and sent for pathological examination (Fig. 6A, B, and C). The results showed that the bursa was focally lined by synovial cells and composed of thick

fibrous tissues with some areas containing dystrophic calcification (Fig. 6D).

Anteroposterior plain radiograph was performed after surgery. The imaging showed a well-positioned prosthesis, and no mass in the groin area was detected (Fig. 7A). The postoperative course was favorable. At 1-year follow up, a plain radiograph showed an excellent prosthesis position, and the replaced hip was functioning well. No signs of iliopsoas bursa recurrence were found (Fig. 7B).

3. Discussion

Patients at the advanced stage of joint disease are usually eligible for THA. Before such treatment, however, it is important to have differential diagnosis to rule out other diseases with similar symptoms. This is especially true in this reported case, in which the lesion progressed rapidly accompanied with an unusually enlarged mass in the groin area. Normally iliopsoas bursa contains only a small amount of synovial fluid, which is difficult to be observed by imaging examination. Factors, such as inflammation or injury, may cause hypersecretion of the iliopsoas bursa. The hypersecretion in arthritic joints may also occur, causing compression of the iliopsoas bursa and hip joint. The outflow of content from hip joint to the iliopsoas bursa leads to the enlargement of cyst.^[4] A study reported 14 patients with iliopsoas bursa enlargement were all accompanied with articular disease of the hip.^[5] In the present study, the patient had femoral head necrosis, which was associated with alcohol consumption.

We performed a comprehensive examination on the patient before surgery to distinguish the femoral head necrosis-associated iliopsoas cyst from other conditions such as degenerative disease, sepsis, and tumors. In addition to the routine laboratory assessments, imaging such as x-ray, computed tomography (CT) scan, and MRI were performed. The imaging results helped us to understand the conditions of the femoral head and the location of the iliopsoas bursa, which are essential in planning for the operation.^[6] The CT and the ultrasound-guided aspiration also helped to exclude the metastatic bone tumors.

The patient had positive T-SPOT test. Therefore, it is important to ensure the absence of hip joint tuberculosis and spinal cord abscess. These could be examined by the CT scan of the lumbar spine and acid-fast bacillus in stained biopsy sections. These test results also helped us to rule out other causes such as rheumatoid arthritis.

During the operation, we performed a conventional THA, resection of the bursa, and closure of the anterior hip capsule. Cartilage-like tissue from the mass was obtained to examine the pathological features. The examination revealed that the tissue contained fibrous tissue with dystrophic calcification in some areas.

It is unclear why the iliopsoas bursa was enlarged to such an extent. Some literatures reported that risk factors may include overuse conditions, heavy labor, direct trauma, and repetitive friction.^[7] Also, direct communication between the hip joint and bursa secondary to the weakness of hip anterior fibrous capsule may worsen the bursa due to the increased intra-articular pressure.^[8,9]

Most of the iliopsoas bursa can be treated by nonsurgical procedures, such as stretching exercises, fluid aspiration, and intensification of disease-modifying therapy. Surgery is recommended for patients with medical symptoms due to the compression of adjacent tissues. Such symptoms usually resolved after resection of the bursa and closure of the anterior hip capsule. The excision of bursa may also be considered for patients planning for elective THA if the bursa was observed preoperatively.^[3]

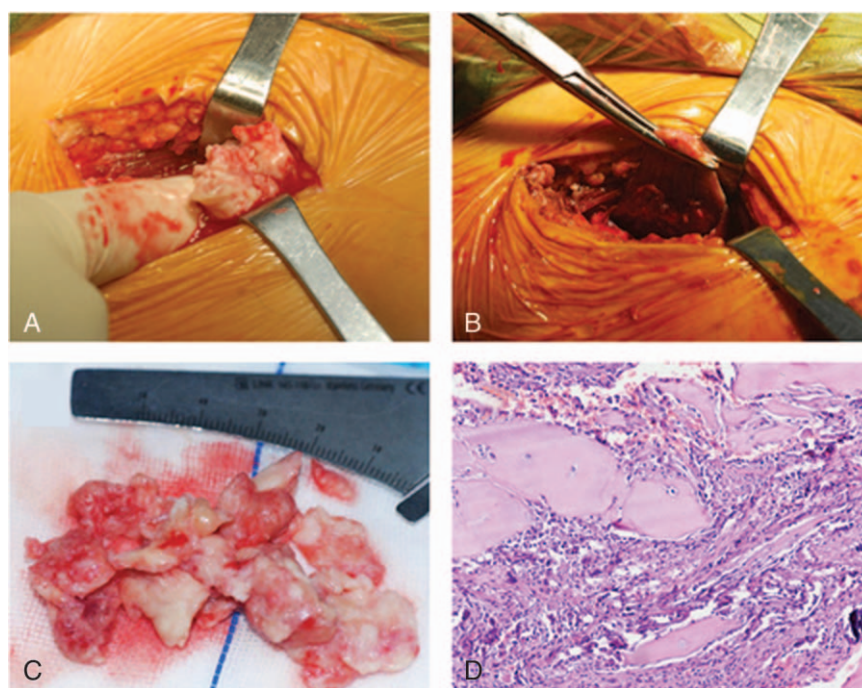


Figure 6. The cartilage-like tissue was obtained during operation (A) and postoperation (C), and the cyst cavity was intact (B). The pathological examination indicated fibrous tissues with dystrophic calcification. Magnification=40× (D).



Figure 7. Anteroposterior plain radiographs were taken immediately after the operation (A) and 1-year postoperation (B).

4. Conclusion

We reported here the pathological changes of iliopsoas cyst. It developed into a solid mass that contained cartilage debris. The iliopsoas cystic solid mass is secondary to the femoral head necrosis induced by heavy alcohol consumption. We also highlighted the clinical examinations and differential diagnosis that we went through to confirm the presence of groin mass in the patient. We suggest performing elective THA, bursa excision, and closure of the anterior hip capsule in patients with femoral necrosis and iliopsoas bursitis presented simultaneously.

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