

Iliopsoas muscle abscess after total hip arthroplasty mimicking adnexal mass: A case report

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ABSTRACT

Early and accurate diagnosis is difficult in clinical practice as the onset of iliopsoas abscess is commonly characterized by nonspecific symptoms. The coexistence of iliopsoas abscesses and prosthetic joint infections is extremely rare. In this case, we report a case of iliopsoas abscess mimicking adnexal mass after total hip arthroplasty (THA). A 52-year-old G2P2 woman visited the emergency department because of pain in the right lower quadrant of the abdomen. Gynecological and ultrasound examination showed a complex adnexal mass measuring 10×6 cm. The patient underwent THA for the right hip due to a failed treatment of collum femoris fracture 7 years ago. Laparotomy revealed a mass originating from the extrapelvic portion of the right iliac muscle. Intraoperative orthopedic consultation was necessitated. The solid mass was completely “shelled out” from the anterior abdominal wall. Though rare in incidence, we recommend that advanced imaging modalities such as computed tomography or magnetic resonance imaging could be performed as routine preoperative imaging on patients presenting with adnexal mass if there is a clinical history of hip arthroplasty.

Keywords: Adnexal mass, infected total hip arthroplasty, ovarian tumor, pelvic pain, psoas abscess, surgery.

Cite this article as: Saçinti KG, Varlı B, Kocaoğlu H, Yıldırım Baydemir B, Aytaç R. Iliopsoas muscle abscess after total hip arthroplasty mimicking adnexal mass: A case report. Zeynep Kamil Med J 2022;53(1):49–52.

Received: May 30, 2021 **Accepted:** November 25, 2021 **Online:** March 04, 2022

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INTRODUCTION

Iliopsoas abscess is considered as a collection of pus in the iliopsoas compartment. It is a rare medical condition. Its incidence is 0.4/100 000 in the UK, as reported by Bartolo et al.^[1] Early and accurate diagnosis is difficult in clinical practice as the onset of iliopsoas abscess is commonly characterized by nonspecific symptoms. Therefore, diagnosis often is delayed and requires a high index of suspicion. Primary iliopsoas abscesses are thought to originate from distant sources via the hematogenous or lymphatic spread. Secondary abscesses are caused by direct spread from an infected adjacent joint and bone.^[2] In general, this association is rarely reported in the literature.^[3] Therewithal, adnexal mass, and periprosthetic joint infection patients do not coincide with one another. Herein, we report a case of iliopsoas abscess mimicking adnexal mass after total hip arthroplasty (THA). To the best of our knowledge, this is the first report in the literature.

CASE REPORT

A 52-year-old G2P2 woman was admitted to our emergency department due to pain in the right lower quadrant of the abdomen. In the abdominal examination, a 10 cm mobile mass was palpated on the right lower quadrant. Gynecological examination showed an anteverted uterus without any sign of pelvic inflammatory disease. Ultrasound examination showed a complex adnexal mass with heterogeneous internal echoes measuring 10×6 cm. The right ovary could not be seen separately. Uterus and contralateral ovary were noted as normal. No pelvic free fluid or any other suspicious findings were observed in the ultrasound. Her vital signs, including fever, were all in the normal range. The patient underwent THA for the right hip due to a failed treatment of collium femoris fracture 7 years ago. She had 20 pack-year smoking history, rheumatoid arthritis for 20 years, and high blood pressure for 10 years. She had been using sulfasalazine and hydroxychloroquine sulfate 10 years prior for rheumatoid arthritis. She had regular menstrual periods, had no urinary, sexual, or bowel-related complaints. Her C-reactive protein (CRP) level was 86.7 mg/L (normal range, 0–5 mg/L), WBC count was 12.9×10⁹ cells/L (normal range, 4.5–11×10⁹ cells/L) with 70.8% neutrophil (normal range, 40%–70%) dominance. Tumor marker levels (including CA-125) were all in the normal range.

A diagnostic laparotomy was decided to diagnose/treat the mass. Laparotomy revealed a mass approximately 10 cm in diameter, originating from the extrapelvic portion of the right iliac muscle. It extended to the deep pelvic bones and was bulging into the pelvic cavity as well. There was a bone defect at the medial wall of the ilium, where metallic implants could be seen. Other pelvic structures and peritoneal surfaces were found to be expected. Thereafter, intraoperative orthopedic consultation was necessitated. The solid mass was completely “shelled out” from the anterior abdominal wall with the orthopedic surgeon (Fig. 1). The postoperative course was uneventful, and the patient was discharged on the second postoperative day. Final histopathologic examination confirmed the right-sided pelvic mass as fibrinous exudates and surrounding granulation tissues with scattered metallic particles.

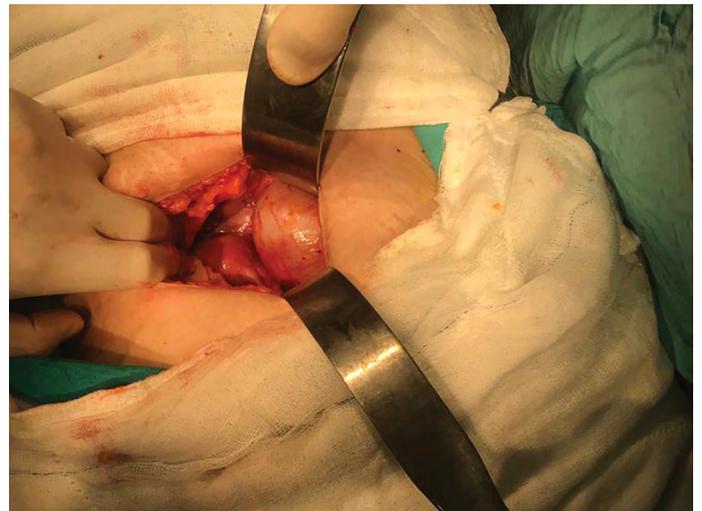


Figure 1: Intraoperative picture of the lesion.

The patient was then transferred to the orthopedics and traumatology department. Microbiological examination of the intraoperative materials revealed 12.4×10⁹ cells/L WBC count in the synovial fluid and culture-proven *Staphylococcus epidermidis* infection. The patient's clinical presentation complied with the periprosthetic joint infection due to microbiological and laboratory findings with elevated CRP, the intraoperatively arthroplasty-related purulent mass, and histological examination with the infection. Six days after the initial surgery, the patient was operated on for two-stage revision hip arthroplasty. One-stage surgery was contraindicated because the infection was penetrated into the pelvic cavity, where a radical debridement with safe borders could not be achieved. With a posterior hip incision, the implants were extracted a polymethyl methacrylate spacer with teicoplanin, and gentamycin was implanted (Fig. 2a). She also received intravenous antibiotherapy with teicoplanin and ciprofloxacin for 6 weeks. Eight weeks after the first stage of revision surgery, joint aspiration was revealed to be microorganism-free, and the WBC count was 1.92×10⁹ cells/L. The second stage of the revision was carried out without any complications (Fig. 2b). The patient received another 6 weeks of intravenous antibiotherapy with the previous regimen.

At her final follow-up 1 year after the initial surgery, the patient had no signs of infection, walked independently without an aid. Gynecological and ultrasound examinations were normal.

DISCUSSION

Iliopsoas abscess is a rare clinical situation and defined as a collection of pus in the iliopsoas compartment, and the diagnosis is difficult due to nonspecific clinical signs and symptoms. It can occur primarily via the hematogenous or lymphatic spread of an infectious process (tuberculosis, HIV, etc.), and a secondary abscess is caused by a nearby infection such as Crohn's disease, spondylodiscitis, and intraabdominal or urological infections.^[4,5] It is a severe condition with mortality rates up to 19% if left untreated.^[6]

There is a rare association between iliopsoas abscesses and prosthetic joint infections in the literature. Dauchy et al.^[7] demonstrated that 12% of patients admitted with prosthetic hip infection are associated with iliopsoas abscess even though this relationship has not been ad-

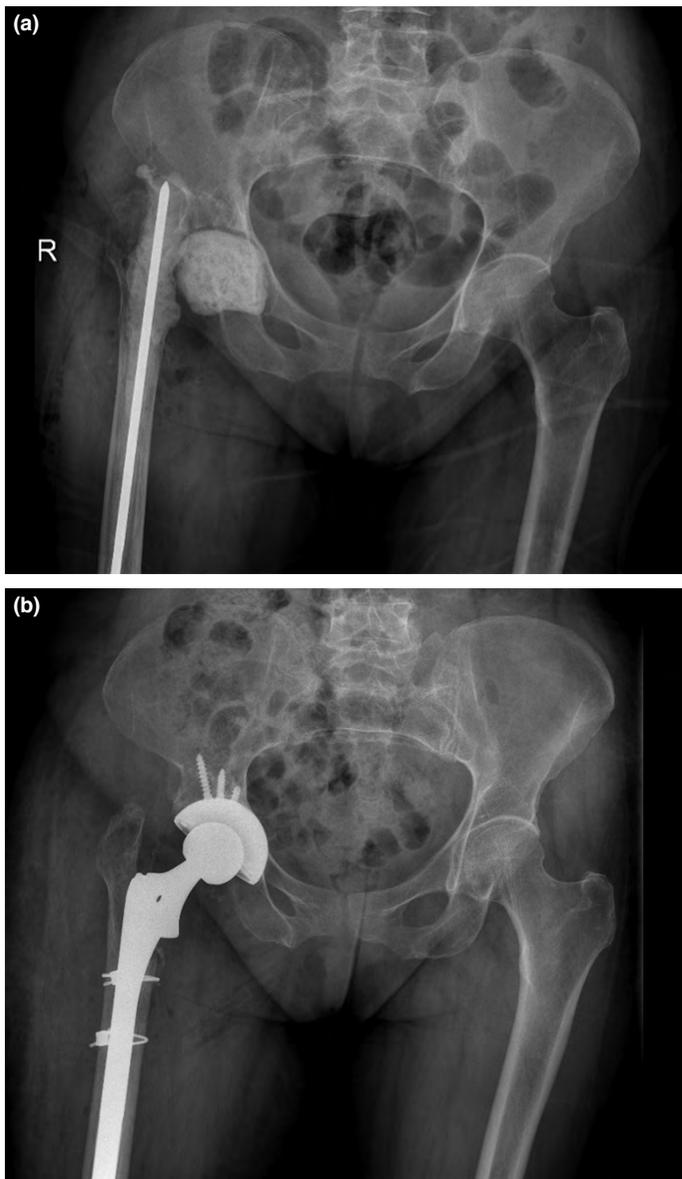


Figure 2: Pelvis AP image showing the right hip with antibiotic-loaded spacer after the first stage of hip revision (a) and revision total hip arthroplasty (b).

equately diagnosed. Moreover, slow onset, subfebrile fever, and pelvic pain can be deceiving for the physician. However, with the presence of any kind of orthopedic implant at the hip, the physician should always keep periprosthetic joint infection as a differential diagnosis.

In our case, the initial ultrasound examination failed to distinguish the abscess from an adnexal mass with heterogeneous echoes. To our knowledge, this is the first report of iliopsoas abscess with mimicking adnexal mass in patients with a history of THA. THA is indicated due to primary osteoarthritis, unlike our patient, where the surgery was conducted after a failed hip fracture. Therefore, it is a standard surgical procedure performed in the sixth and seventh decades of life. For this reason, adnexal mass and periprosthetic joint infection patients do not coincide with each other. We believe this is the major confounding factor in this case.

Ultrasound examination, which is the first choice in gynecological imaging, however, cannot always identify the presence of iliopsoas abscess. Moreover, magnetic resonance imaging (MRI) and computed tomography (CT) scans are not routinely performed in the gynecological approach. Although ultrasonography is less accurate than CT scanning and operator-dependent, it is preferred because it is cheaper and easily available. A CT scan with a soft tissue window can determine the location and size of the abscess in 95%–100% of cases.^[8] MRI has shown to be better than CT scans for the discrimination of soft tissues and the ability to visualize abscess walls and surrounding structures. The significant disadvantages of MRI are higher cost, lack of access in every healthcare facility, and poor image quality in the presence of hip arthroplasty.^[9]

Adnexal masses are commonly seen in the daily clinical practice of gynecologists. Management of these patients is done according to sonographic features of the patient's mass and clinical risk factors. Sonographic features of the abscess are very similar to adnexal malignant lesions; generally, differential diagnosis is made from a patient's clinical picture. In patients with infectious etiologies, fever, chills, abnormal laboratory values like leukocytosis, and highly elevated CRP levels are commonly observed. However, in our patient, we observed only minor signs of infection in the pre-operative period. Anatomical transposition of ovary and abscess confused the surgical indication, and the patient was operated on with suspicion of ovarian malignancy. After this case, we changed our clinical practice. In patients with complex adnexal mass and a history of hip arthroplasty, we always have an orthopedic consultation to rule out prosthesis infection.

Although rare in incidence, we recommend that advanced imaging modalities such as CT or MRI could be performed as routine pre-operative imaging on patients presenting with adnexal mass if there is a clinical history of hip arthroplasty.

Statement

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – KGS; Design – KGS; Supervision – RA; Data Collection and/or Processing – BYB; Writing – KGS; Critical Reviews – BV, HK.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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