American Journal of Case Reports

e-ISSN 1941-5923
© Am J Case Rep, 2020; 21: e922221
DOI: 10.12659/AJCR.922221

Received: 2019.12.17
Accepted: 2020.02.13
Available online: 2020.03.23
Published: 2020.04.16

A Microbiologist's Mexico Trip Ends with Multiple Tiny Ring-Like Pelvic Abscesses

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

ABCDEF 1 Haider Ghazanfar
ABCDEF 1 Nisha N. Ali
ABCDEF 1,2 Richard B. Cindrich
ABCDEF 1,3 Ajsza Matela

1 Department of Internal Medicine, BronxCare Health System, Bronx, NY, U.S.A.
2 Division of Infectious Diseases, BronxCare Health System, Bronx, NY, U.S.A.
3 Division of Pulmonary and Critical Care Medicine, BronxCare Health System, Bronx, NY, U.S.A.

Corresponding Author: Haider Ghazanfar, e-mail: hghazanf@bronxcare.org
Conflict of interest: None declared

Patient: Female, 22-year-old
Final Diagnosis: Iliacus muscle abscess
Symptoms: Back pain • diarhea • leg weakness
Medication: —
Clinical Procedure: Joint aspiration
Specialty: Infectious Diseases • General and Internal Medicine

Objective: Rare disease

Background: Iliacus muscle abscess is a rare condition that frequently presents with nonspecific clinical symptoms. Abscesses in the iliacus muscle can arise from contiguous spread from adjacent structures or from distant sites via hematogenous or lymphatic routes.

Case Report: We report a case of iliacus muscle abscess in a 22-year-old female microbiologist who presented to the emergency department with severe back pain and lower-extremity weakness after returning from a trip to Mexico. She was found to have urinary tract infection due to Salmonella. The patient was found to have left iliacus muscle abscess and septic arthritis of the sacroiliac joint. She was initially treated with piperacillin-tazobactam, vancomycin, and metronidazole, which were later switched to intravenous ceftriaxone and oral levofloxacin. She was successfully treated with antibiotics, with a complete resolution of the multiple tiny abscesses.

Conclusions: Iliacus muscle abscess presents with nonspecific symptoms that can mimic neurologic diseases such as spinal cord compression. A high index of suspicion is required to make an early diagnosis and initiate prompt treatment with antibiotics and abscess drainage, if accessible. A detailed history is essential to assess risk factors and establish likely causative organisms. Delay in treatment can lead to an increase in morbidity and mortality. Long-term follow-up is crucial, as the incidence of relapse is high.

MeSH Keywords: Early Diagnosis • Female • Psoas Abscess • Salmonella

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/922221

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

Background

Iliacus muscle abscess is a rare condition that frequently presents with vague clinical features. Abscesses in the iliacus muscle can arise from contiguous spread from adjacent structures or from distant sites via hematogenous or lymphatic routes. The hematogenous route is more common due to the abundant blood supply of the iliacus muscle, and accounts for about 75% of all cases of iliopsoas muscle abscess [1].

Risk factors for primary abscess of the iliopsoas include diabetes mellitus, renal failure, intravenous drug abuse, or immunocompromised states like human immunodeficiency virus (HIV) infection [2]. Crohn's disease is the most common cause of secondary iliopsoas abscess [2]. Other etiologies include diverticulitis, appendicitis, colorectal cancers, urinary tract infections, osteomyelitis, septic arthritis, and intrauterine contraceptive devices [2,3]. Trauma and instrumentation of the inguinal, lumbar, or pelvic regions are also significant risk factors [4,5].

Iliacus muscle abscess is rarely caused by non-typhoid Salmonella species, and the literature on this topic is scarce [6]. It is difficult to make an early diagnosis of iliopsoas muscle due to the nonspecific clinical features. In this case report we present the challenges faced in the timely diagnosis of iliopsoas muscle.

Case Report

A 22-year-old female microbiologist presented to the emergency department with severe lower-back pain and bilateral lower-extremity weakness. Her symptoms started one week before admission after she returned from a trip to Mexico. Mexico is a Salmonella-endemic area. She reported progressive worsening of her symptoms since the onset and was unable to walk independently. Her back pain was compressing in nature and radiating to her lower extremities. She denied any sensory loss, paresthesia, or urinary or fecal incontinence. The patient had no recent history of trauma. She reported no urinary symptoms, fevers or chills. However, she recalled having watery, non-bloody diarrhea for 5 days during her stay in Mexico, which resolved shortly after her return to the United States. The patient's medical history included well-controlled, intermittent asthma and intrauterine device placement 3 months prior. She had no previous surgeries. She was an occasional marijuana user but denied any other toxic habits. She worked in a microbiology laboratory handling clinical specimens, which places her at risk of exposure to various micro-organisms.

On admission, the patient had normal vital signs but appeared to be in obvious discomfort due to severe back pain. On physical examination, she had tenderness over the lower lumbar spine and left the upper-hip area. Power in the left lower extremity was 2/5 and in the right lower extremity was 3/5. Deep tendon reflexes were normal bilaterally. There was no sensory deficit.

The neurology team was consulted and systemic steroids were initiated for suspected spinal cord compression. A chest x-ray was negative. The patient underwent an emergent computerized tomography (CT) scan of the lumbar spine, which was unremarkable. Magnetic resonance imaging (MRI) of the cervical, thoracic and lumbar spine was normal, so systemic steroids were discontinued.

Her initial laboratory results were unremarkable. On day 7 of the hospitalization, she was febrile to 102.5°F (39.1°C), and reported new onset of dysuria. A repeat white blood cell count was normal, but inflammatory markers including C-reactive protein (CRP) (242 g/dl) and erythrocyte sedimentation rate (ESR) (125 mm/h) were elevated. Septic workup was initiated and the Infectious Diseases team was consulted. The patient was started on broad-spectrum antibiotics including piperacillin-tazobactam, vancomycin, and metronidazole. Vancomycin was started to cover gram-positive cocci including methicillin-resistant *Staphylococcus aureus*, while piperacillin-tazobactam was started to cover gram-negative bacilli including *Pseudomonas aeruginosa*. Metronidazole was added to cover for anaerobes. Urinalysis showed nitrite, moderate leukocyte esterase, and many bacteria. Urine culture was positive for *Salmonella enterica* species which was sensitive to ampicillin (Susceptible <8), ceftriaxone (Susceptible <1), levofloxacin (Susceptible <2), nitrofurantoin and Trimethoprim/Sulfame (Susceptible <2/38). Blood cultures were negative. An extensive workup for other infectious causes including human immunodeficiency virus, sexually transmitted diseases, Lyme disease, rickettsial diseases, dengue fever, malaria, Zika virus, and Chikungunya were all negative.

As her pain and difficulties with ambulation persisted, and she patient underwent a contrast CT scan of the pelvis and lower extremities. CT and MRI revealed multiple abscesses of the left iliacus muscle, as shown in Figures 1 and 2.

MRI of the pelvis confirmed multiple small abscesses in the left iliacus muscle and was suggestive of septic arthritis of the left sacroiliac (SI) joint. The Interventional Radiology department was contacted. Due to multiple small-size abscesses, drainage of the collections was not possible; instead, the patient underwent CT-guided aspiration of the SI joint. The synovial fluid gram stain revealed no organism and the aerobic culture was negative. *Mycobacterium tuberculosis* complex polymerase chain reaction (MTB complex PCR) was also negative.

The surgical team advised against surgical intervention and recommended conservative management. Broad-spectrum

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

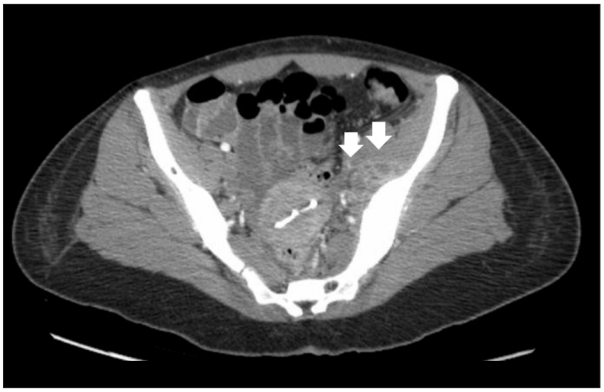

Figure 1. Computerized tomography scan of the pelvis at the time of diagnosis (before treatment).

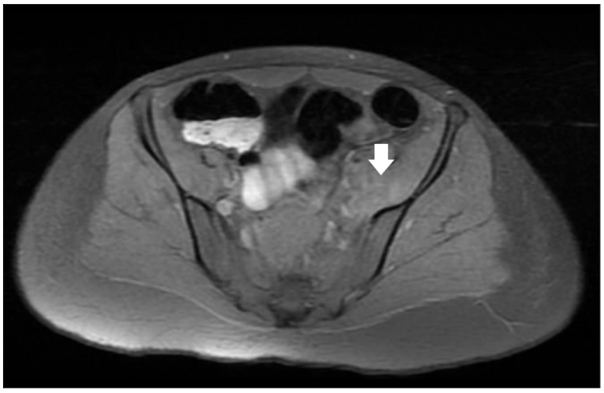

Figure 2. Magnetic resonance imaging of the pelvis at the time of diagnosis (before treatment).

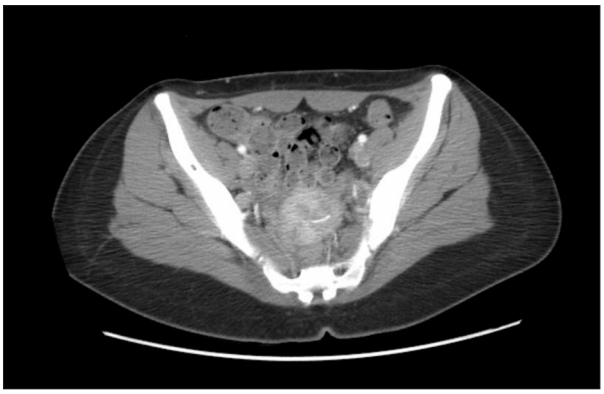

Figure 3. Computerized tomography scan of the pelvis showing complete resolution of abscesses after completion of 6 week of antibiotic therapy (after treatment).

antibiotics were discontinued and the patient was started on intravenous ceftriaxone and oral levofloxacin based on the results of the urine culture. She completed 4 weeks of intravenous therapy and was noted to have a significant clinical improvement. She was able to ambulate with a walker assisted by 2 physical therapists. She was discharged to an acute rehabilitation center, where she continued daily physical therapy.

After 4 weeks of intravenous antibiotics, the patient was advised to complete an additional 2 weeks of oral levofloxacin. She was subsequently discharged home, where she regained her strength and was able to ambulate independently again. The patient followed up in the clinic and was free of symptoms. Repeat CT of the pelvis with contrast done after 6 weeks of treatment showed complete resolution of the left iliacus abscess, as shown in Figure 3.

Discussion

Nontyphoidal Salmonella is a gram-negative bacterium that belongs to the Enterobacteriaceae family. It generally causes self-limiting acute gastroenteritis. Extra-gastrointestinal infections are uncommon. The reported incidence of urinary tract infection due to nontyphoidal Salmonella varies between 0.015% and 0.033% [7].

The iliacus muscle originates in the pelvis and is located in the extraperitoneal space known as the iliopsoas compartment. Iliacus muscle joins the psoas via the same tendon. The psoas and iliacus muscles are the main hip flexors and together form the iliopsoas muscle. Due to decreased prevalence of tuberculosis, iliopsoas muscle abscess is becoming uncommon in developed countries. *Staphylococcus aureus* is the most common causative organism of iliopsoas abscess in developing countries [2,8]. Gastrointestinal, urinary, and skeletal systems are the foci of infection. Non-typhi Salmonella has been rarely reported as a cause of iliopsoas abscess. In a study of 93 cases of iliopsoas abscess, non-typhi Salmonella was found in only 3 cases [8].

The classic clinical triad of iliopsoas abscess, which consists of fever, back pain, and limp, is only present in 30% of patients [9]. In our patient, back pain and inability to ambulate were present initially, and fever developed later during the hospital course, which made diagnosis more challenging. The symptoms of iliopsoas muscle abscess are usually nonspecific and can mimic other diagnoses. The reported median time between the onset of symptoms and a diagnosis of iliopsoas abscess was approximately 22 days, and for about 33% of patients, the interval was more than 42 days [8].

According to a literature review, iliopsoas muscle abscess is more common in young male patients [10,11]. Leukocytosis and elevated CRP and ESR are the common laboratory abnormalities [7]. CT scan is considered the criterion standard for the diagnosis of iliopsoas abscess [11]. According to some studies, MRI is superior to CT because of better delineation of soft tissues and the visualization of abscess walls [12].

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

Broad-spectrum antibiotics and percutaneous drainage are the treatment of choice in iliopsoas abscess and should be started even before the culture results come back [13,14]. In our case, because of the collection of multiple small abscesses, percutaneous drainage was not an option. Surgical intervention can be considered in cases where CT-guided drainage is not possible, and the patient is not responding to broad-spectrum antibiotics [15]. As our patient's clinical status improved with antibiotics, we continued conservative treatment. According to a study of 84 patients who were treated with antibiotics alone, 81 (96.4%) had a favorable outcome [8].

Delay in diagnosis and treatment of iliopsoas abscess leads to multiple complications, including sepsis, septic arthritis, deep venous thrombosis, and ileus [16–18]. Advanced age, bacteremia, and delay in treatment are associated with increased mortality [8,17]. The higher mortality rate is observed more frequently in secondary as compared to primary iliopsoas abscesses and is 19% [2,19]. Mortality can be as high as 100% if appropriate treatment is not initiated [20].

Fifteen to thirty-six percent of patients with iliopsoas abscesses relapse after treatment [8,21]. The most common reasons for relapse are inadequate antimicrobial therapy or inadequate drainage [22]. Cases of relapse have been described up to 1 year after presentation. Therefore, long-term follow up of patients is important.

Conclusions

Iliacus muscle abscess presents with nonspecific symptoms that can mimic neurologic diseases. A high index of suspicion is required to make an early diagnosis and initiate prompt treatment with antibiotics and abscess drainage, if accessible. A detailed history is essential to assess risk factors and establish likely causative organisms. Delay in treatment can lead to an increase in morbidity and mortality. Long-term follow up is crucial, as the incidence of relapse is high. In our patient, complete resolution of the abscesses was seen after completing the course of antibiotics.

Conflict of interest

None.

References:

1. Harrigan RA, Kauffman FH, Love MB: Tuberculous psoas abscess. J Emerg Med, 1995; 13(4): 493–98
2. Mallick IH, Thoufeeq MH, Rajendran TP: Iliopsoas abscesses. Postgrad Med J, 2004; 80(946): 459–62
3. Agrawal S, Dwivedi A, Khan M: Primary psoas abscess. Dig Dis Sci, 2002: 47: 2103–5
4. Dolfin D, Barkin J, Arenson AM, Herschorn S: Psoas abscess after operation on lumbar spine. Urology, 1983; 21(5): 544–46
5. Buttaro M, González Della Valle A, Piccaluga F: Psoas abscess associated with infected total hip arthroplasty. J Arthroplasty, 2002; 17(2): 230–34
6. Heyd J, Meallem R, Schlesinger Y et al: Clinical characteristics of patients with psoas abscess due to non-typhi Salmonella. Eur J Clin Microbiol Infect Dis, 2003; 22(12): 770–73
7. Ramos JM, Aguado JM, Garcia-Corbeira P et al: Clinical spectrum of urinary tract infections due on nontyphoidal Salmonella species. Clin Infect Dis, 1996; 23: 388–90
8. Navarro López V, Ramos JM, Meseguer V et al: Microbiology and outcome of iliopsoas abscess in 124 patients. Medicine (Baltimore), 2009; 88(2): 120–30
9. Chern CH, Hu SC, Kao WF et al: Psoas abscess: Making an early diagnosis in the ED. Am J Emerg Med, 1997; 15(1): 83–88
10. Gruenwald I, Abrahamson J, Cohen O: Psoas abscess: Case report and review of the literature. J Urol, 1992; 147(6): 1624–26
11. Zissin R, Gayer G, Kots E et al: Iliopsoas abscess: A report of 24 patients diagnosed by CT. Abdom Imaging, 2001; 26(5): 533–39
12. Wu TL, Huang CH, Hwang DY et al: Primary pyogenic abscess of psoas muscle. Int Orthop, 1998; 22: 41–43
13. Taiwo B: Psoas abscess: A primer for the internist. South Med J, 2001; 94(1): 2–5
14. Hu SY, Hsieh MS, Chang YT et al: Clinical features, management, and outcome of iliopsoas abscess associated with cardiovascular disorders: A hospital-based observational case series study. BMC Musculoskelet Disord, 2019; 20(1): 474
15. Lee Y, Lee C, Su S et al: Psoas abscess: A 10 year review. J Microbiol Immunol Infect, 1999; 32: 40–46
16. Volpin A, Kini SG, Berizzi A: Psoas muscle pyogenic abscess in association with infected hip arthroplasty: A rare case of simultaneous bilateral presentation. BMJ Case Rep, 2015; 2015: pii: bcr2015209711
17. Huang JJ, Ruaan MK, Lan RR, Wang MC: Acute pyogenic iliopsoas abscess in Taiwan: Clinical features, diagnosis, treatments and outcome. J Infect, 2000; 40(3): 248–55
18. Ijaz M, Sakam S, Ashraf U, Marquez JG: Unusual presentation of recurrent pyogenic bilateral psoas abscess causing bilateral pulmonary embolism by iliac vein compression. Am J Case Rep, 2015; 16: 606–10
19. Qureshi NH, O'Brien DP, Allcutt DA: Psoas abscess secondary to discitis: A case report of conservative management. J Spinal Disord, 2000; 13: 73–76
20. Ricci MA, Rose FB, Meyer KK: Pyogenic psoas abscess: Worldwide variations in etiology. World J Surg, 1986; 10: 834–43
21. Sherman SJ, Stern J, Neufeld P: Recurrent psoas abscess. Postgrad Med, 1987; 81(4): 96, 99–100
22. Lin MF, Lau YJ, Hu BS et al: Pyogenic psoas abscess: Analysis of 27 cases. J Microbiol Immunol Infect, 1999; 32(4): 261–68

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]