ILIOPSOAS ABSCESS: A CASE STUDY

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Abstract

An iliopsoas abscess is a mass of purulent fluid that can occur within the tissue of the iliopsoas muscle.[1] This abscess can occur via different mechanisms which include hematogenous/lymphatic seeding from distant sites (primary abscess), or via direct infection from adjacent structures or foreign objects (secondary abscess).[2] These abscesses are rare occurrences that were often missed in the past, but due to improvements in imaging, more specifically CT and MRI scanning, diagnostic ability has greatly improved.[1,3]

This study will briefly describe the etiology, epidemiology, clinical presentation, diagnostic testing, and treatments that are associated with iliopsoas abscesses. The presentation, diagnosis, and treatment of a patient with a suspected iliopsoas abscess will also be discussed and compared to the literature recommendations.

An iliopsoas abscess can have a non-specific presentation and, due to its rarity, can often be missed or misdiagnosed, especially if the abscess itself is at an early stage and not very large.[3] This was observed based on the length of time it took to make the diagnosis and the fact that the first analysis of the CT image came back negative.

Case History

Mrs. M was a previously well 67 year old female with a past medical history of hypertension, gallstones, type II diabetes and chronic back pain. Her prescribed medications included metformin, atenolol, amlodipine, Ramipril, Januvia, Zopiclone and Cyclobenzaprine.

She presented to the emergency department, on June 7th at 20:00, with complaints of a painful and swollen right hip and groin area. Mrs. M denied knowing a of a possible mechanism of injury. She was previously seen in the Selkirk emergency department on June 3rd with pain that had increased since that visit. Patient has been bed ridden the last couple days because of the pain. Pain is sharp, radiates to the back and is worse with movement but does not cease with rest. Patient takes daily Percocet's and Advil as needed. No fever, shortness of breath, chest pain, recent travel, recent surgeries.

On examination, temperature was 36.5 Celsius, heart rate 61 beats per minute, blood pressure: 125/65 mmHg, respiratory rate 20 breaths per minute and oxygen saturation was 96% on room air. Patient was non-weight bearing due to pain. There was no obvious excess warmth/swelling to right hip, or signs of trauma/injury. No bulge in groin area. Groin was tender to palpation and internal/external rotation movements. There was pain with trunk flexion. Examination of the right was unremarkable. Abdominal exam normal except for mild tenderness of the right lower quadrant. Normal power and reflexes. Neurovascularly intact distally. Well's score was a negative 2.

Investigations showed an elevated white blood cell count of 13.6x109/L and raised neutrophile count at 79%. C reactive protein levels were greater than 228 mg/L during visit to Selkirk emergency. Hemoglobin level was low at 100 g/L. D-dimer was elevated at 899 ng/mL. Urea and electrolytes levels were normal. Blood cultures were negative.

CT of pelvis and abdomen to R/O appendicitis and psoas abscess 3 days ago showed no obvious abnormality. On re-reading a mild prominence of the right

iliacus muscle extending inferiorly with diminished attenuation present centrally. There is subtle stranding present within the adjacent lateral pelvic side wall fat. These findings were consistent with an infectious and inflammatory process.

Patient was started on IV Ceftriaxone and hydromorphone for pain control. June 15th a right hip washout and aspiration were performed. The aspiration was unable to obtain fluid but fluid from the washout itself was sent for culture. Patient was started on Vancomycin as a precautionary note before the cultures came back. The washout yielded fluid positive for MSSA. An infectious disease specialist was consulted and Ceftriaxone and Vancomycin were discontinued. IV cloxacillin was started for 4 weeks and a PICC was inserted. A repeat CT was done on June 17 showed radiographic improvement of abscess size. An MRI was scheduled for July 20th to correlated clinical improvement with abscess size decrease.

Literature Search

To help with our research into iliopsoas abscesses, we looked at UpToDate to get an overview of the pathogenesis, clinical manifestations, diagnosis, and treatment of iliopsoas abscesses. We also used Pubmed to search for relevant articles and studies on the issue to get an idea as to how these abscesses are described and approached in medicine.

Discussion

Introduction: The reason we decided to work on this case was due to the fact that iliopsoas abscesses are rare and it might be unlikely that we would see another case first hand for some time. Having said that, abscesses can be fairly serious if left undiagnosed and untreated for too long which could lead to a very dangerous and probably fatal outcome for a patient if that were to occur. Therefore, we believed that it would be a good case to look into in order to facilitate learning about an uncommon but potentially serious medical condition that should always be on the differential due to its seriousness and in spite of its rarity.

Epidemiology: In general iliopsoas abscesses are more likely to occur if a patient is a male between the ages of 44 to 58, or a younger patient in developing countries[1]. Our patient fits none of these commonalities however, which goes to show that this condition can affect anyone.

Pathogenesis: Certain conditions and comorbidities can predispose a person to developing an iliopsoas abscess. Some of these conditions include diabetes, renal failure, and immunocompromised states like HIV. These can lead to primary abscesses. Secondary abscesses may occur in the case of trauma near the hip area including the lumbar spine.[1,2] The patient in this situation had diabetes which does predispose her to uncommon infections like this.

The most common microbial cause of an iliopsoas abscess would be due to *Staphylococcus aureus*. Some reports have the percentage of S. aureus infections causing these abscesses as high as 88%[1]. Our patient followed that trend with

cultures being positive for methicillin sensitive S. aureus. Other common organisms include Streptococci and Escherichia species, while tuberculosis causing species are less common in developed western countries[1].

Clinical presentation: Unilateral flank pain, fever, an inguinal mass, severe limp, anorexia, and weight loss are all symptoms that can occur in patients with an abscess[4]. Unfortunately, most of these are non specific and not all of these symptoms would necessarily be present at the same time. The most common presenting symptom would be pain which is generally located around the lower back/flank, lower abdomen, and posterior aspect of the thigh. There might be some radiation of the pain to the hip as well. Over 90% of patients with an abscess would present with pain as a main complaint[4]. Pain in these areas unfortunately are rather nonspecific because there are a number of other medical conditions that can lead to similar pain such as a septic hip, metastatic cancer, or even appendicitis to name a few. The second most common sign would be fever which is present in up to 75% of cases but which again is very nonspecific[4]. In patients who present with fever as the main symptom it would be very difficult to determine the cause without a watch and wait approach or extensive testing. This might be necessary because an iliopsoas abscess can present sub acutely in a non-specific manner[3]. If it is missed, however, it can often lead to fatal outcomes1.

This case demonstrates why a high level of clinical suspicion must be there for an iliopsoas abscess. Lacking a fever the patient did not present with the classic triad of fever, flank pain and hip movement limitations. The fever might have been masked by the use of an anti-pyretic (Tylenol) or the fact this triad only has a sensitivity of 30%. The fact this illness is rare and the symptoms for this condition are non-specific makes it a diagnostic challenge for clinicians.

Tests/Diagnosis: The iliopsoas muscle is the main flexor of the hip joint. Therefore, the best way to determine if the problem lies with the iliopsoas would be to perform maneuvers that would force the muscle to contract or stretch its fibers which would increase pain if an abscess if is present. One such maneuver would be to hold the patient's thigh down and ask them to flex against the added pressure. Another test would be to passively extend the leg at the hip joint to stretch the iliopsoas muscle. A positive sign in both tests would be an increase in pain. The issue with these physical tests however stems from the fact that there could be other issues such as appendicitis or a simple muscle strain which would also elicit pain and because of its rarity, an abscess might not be suspected just from the outcome of these tests.

Generally blood work would be done in patients presenting with symptoms and it can be expected that in most cases inflammatory markers would be increased. These markers include CRP, WBC, and ESR. Anemia may also be present. Of course none of these tests can give an absolute diagnosis and the best way to prove or rule-out the existence of an abscess remains radiological imaging, specifically CT or MRI. CT is considered the gold standard but MRI could potentially give a better picture of the abscess due to improved soft tissue discrimination.[1,3]

If an abscess is visualized then a needle aspiration biopsy should be performed in order to collect a sample for lab testing. Normally these tests would includes gram stain, blood cultures and histopathological analysis to look for abnormal cells. Approximately 50% of the blood cultures come back positive for a pathological agent[4].

The situation with our patient was complicated because the initial CT report was misread and the subtle changes made by the abscess were not noticed. This was despite the fact the initial request specifically asked to access for any changes consistent with an iliopsoas abscess. This likely gave the emergency doctor in Selkirk a false sense of security because as was mentioned the best way to see if there is an abscess is with a CT scan.

This shows we have to be wary of relying too heavily on any one clinical finding or test result. That even the gold standard can you lead you astray and we always have to be diligent is another reason this case study is valuable. What was interesting in this case, the Selkirk doctor actually ordered a CRP level and the results showed elevation 10 times from the normal but the results were never actually looked at. Levels this high are almost certainly an indication of some inflammatory process that should be investigated further. It is likely that the patient had less debilitating symptoms at the time, along with the reassuring radiology report, these lab values were never carefully looked at.

Treatment: When an abscess has been diagnosed then the main method of treatment would involve incision and drainage, and the initiation of a broad spectrum antibiotic[1,2]. However, If the results of the blood culture are known, or become known at a later point in treatment, and there is information on the specific pathogen and its susceptibility, then a narrower targeted antibiotic would be preferred. Depending on the etiology of the abscess then the underlying condition should be treated as well.

Percutaneous drainage is preferred to surgical drainage as it is safer and less invasive. Generally this treatment is successful in the majority of cases, but there are situations such as with certain etiologies or comorbidities that would require a surgical intervention over a percutaneous one.[1,4]

Our patient followed a fairly standard treatment plan once she was diagnosed with an iliopsoas abscess. Initially was treated with empiric antibiotics (Iv Ceftriaxone) and once the organism was cultured she was stepped down to IV cloxacillin. Treatment of cloxacillin was done for 4 weeks, bringing the duration of antibiotic use to 6 weeks. One thing that as a student might be overlooked is just how long 6 weeks can feel to a patient when we are memorizing treatment plans. This is especially true when they are feeling better after a couple weeks but are still stuck in the hospital away from their normal life. Almost every day the patient would enquire about when she could leave, trying to narrow it down to the exact hour.

Conclusion

Iliopsoas abscess should be included in the differential diagnoses in patients presenting with fever, hip pain and limited hip movement. Educating

clinicians on the varied clinical presentations of an iliopsoas abscess is important in order to improve recognition of this condition. Early imaging should be considered to reduce the risk of complications such as septic shock and to improve outcomes, however it should be noted that the earlier a CT or MRI is performed, then the greater the chance of missing the abscess as it may be at an earlier stage and therefore smaller and less noticeable.

References:

1. Mallick IH, Thoufeeq MH, Rajendran TP. Iliopsoas abscesses. Postgrad Med J 2004; 80:459
2. Santaella RO, Fishman EK, Lipsett PA. Primary vs secondary iliopsoas abscess. Presentation, microbiology, and treatment. Arch Surg 1995; 130:1309
3. Takada T, Terada K, Kajiwara H, Ohira Y. Limitations of using imaging diagnosis for psoas abscess in its early stage. Intern Med 2015; 54:2589
4. Navarro López V, Ramos JM, Meseguer V, et al. Microbiology and outcome of iliopsoas abscess in 124 patients. Medicine (Baltimore) 2009; 88:120