Giant Primary Psoas Abscess: Masquerading Peritonitis—
for Diagnosis and Treatment

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ABSTRACT

Primary psoas abscess is a distinct clinical entity with vague clinical presentation and obscure pathogenesis, although the literature regarding it is sparse. Psoas muscle abscess is an uncommon clinical phenomenon, extremely difficult to diagnose and needs to be investigated with considerable thoroughness. We emphasize the importance of ultrasonography and computed tomography along with role of the treatment. A 15-year old female presented with pain and distention of the abdomen. We report an extremely rare case of bilateral giant psoas abscess diagnosed as peritonitis. Ultrasonography showed abscess of the left psoas muscle which ruptured anteriorly into the peritoneal cavity and caused intraperitoneal abscess but computed tomography revealed different picture. In our case, computed tomography has the main role in the diagnosis/management of the psoas abscess. Conservative treatment was given using antibiotics and drainage. The patient was discharged in good condition. In follow-up period of 9 months, she remained well and asymptomatic.

Key words: peritonitis, bilateral, ultrasonography, computed tomography, surgical drainage.
INTRODUCTION

Primary psoas abscess (PPA) potentially carries high mortality and morbidity, if diagnosis is delayed.\textsuperscript{1} It carries a good prognosis provided early drainage is performed and parenteral antibiotic therapy is administered to the patient. The worldwide incidence was 12 cases per 100,000 per year in 1992, but the current incidence is unknown.

The psoas muscle has a rich vascular supply that is believed to predispose it to hematogenous spread from sites of occult infection. Psoas abscess (PA) can also be secondary to gastrointestinal or renal pathology through direct infection of adjacent structures. The most common causes are appendicitis, diverticulitis, Crohn’s disease and carcinoma. The organisms responsible for infection are Gram-negative germs (\textit{Escherichia coli}, \textit{Klebsiella} spp., \textit{Pseudomonas aeruginosa}, \textit{Proteus mirabilis}, \textit{Enterobacter} spp.) and Gram-positive cocci (\textit{Staphylococcus aureus}, \textit{Staphylococcus epidermidis}, \textit{Streptococcus agalactiae}, \textit{a-hemolytic streptococci}, especially \textit{Streptococcus mitis}). It can also be of tuberculous etiology and associated with cold abscesses of lower thoracic and upper lumbar vertebral bodies, as the psoas is attached to these vertebrae.\textsuperscript{2}

Psoas muscle abscess is an uncommon clinical phenomenon, which needs to be investigated thoroughly for the proper management. Modern imaging techniques such as ultrasonography, computed tomography (CT), magnetic resonance imaging (MRI) and radionuclide scans allow more rapid diagnosis and decrease the morbidity and mortality of patients with PA.\textsuperscript{3} However, at the initial stage of the disease, the negative results of image studies often make the physicians ignore the possibility of psoas pathology.

PPA carries a good prognosis, if early drainage is performed and parenteral antibiotic therapy administered which provide a safe alternative to more invasive surgical drainage in most of patients. High index of clinical suspicion is required for the diagnosis of psoas abscess. Rarely, psoas abscess can extend to the abdominal compartment presenting as peritonitis as giant abscess bilaterally, as seen in our patient. Awareness of this disease entity, careful physical examination and appropriate imaging studies such as ultrasonography, computed tomography and magnetic resonance imaging are the key to make a correct diagnosis.

CASE ILLUSTRATION

A 15 year-old female presented with pain in the abdomen, fever, vomiting. The pain was more present in the right pelvic region and limping occurred of a few days duration. There were no history of diarrhea or any urinary symptoms. She complained of tenderness on palpation or percussion of his lumbar vertebrae. She had taken treatment from in the form of analgesics and antibiotics but her condition was worsened and reported to our institute in emergency. She also gave a past history of lung tuberculosis 2 years back for which she took complete course.

Physical examination revealed a temperature of 38°C, a pulse rate of 110/minute and a blood pressure of 110/70 mm Hg. She was pale and toxic. The chest X-ray was clear with normal heart sounds. Abdominal examination revealed generalized tenderness and swelling in bilateral lumbar region. The swelling was larger approximately 8x10 cm in size on the left side compared to the right side. She had physical signs of psoas inflammation. Bowel sounds were absent. Diagnosis was kept as peritonitis.

On blood tests, the white cell count was 16.3x10^9/l, and his urine was clear. The ESR was 81 mm/hour. Liver enzymes, serum creatinine, blood urea, and nitrogen values were normal. Plain X-ray of the abdomen showed obliteration of the right psoas shadow. Radiography of the lumbar spine and hip was normal. Ultrasonography (USG) revealed evidence of large abscess seen in left psoas muscle ruptured anteriorly in the peritoneal cavity and caused intraperitoneal abscess. Abscess was also present over right psoas muscle but was less as compared to left. Bilateral hydronephrosis was present due to psoas abscess. Contrast enhanced computed tomography (CECT) scan of the abdomen and pelvis showed bilateral psoas abscess with huge collection on left side of psoas region as dimensions could be possible to measure. The collection extends in the bilateral retroperitoneal areas of the abdomen superiorly from hypochondrium to inferiorly.

1. [Citation]
2. [Citation]
3. [Citation]
extending in the pelvic area. There are also posteriorly extensions in the posterior abdominal wall muscles and paravertebral muscles with evidence of air in the collection also.

The patient was resuscitated and third generation cephalosporin antibiotics were started. An oblique incision was given on bilateral sides. Abscess was drained of 2 liter on left side and 1 liter on right sided which was foul smelling. Pus was sent for tubercular and culture sensitivity tests, which came as negative. She went into renal failure in early stage but managed with antibiotics and dressings. She was discharged in a satisfactory condition after two weeks of the treatment.

**DISCUSSION**

PPA is a rare condition with an often vague and non-specific clinical presentation, which may be classified as primary or secondary, depending on the presence or absence of underlying disease. PPA occurs primarily in young males; secondary abscesses are observed in a somewhat older age group. A psoas (or iliopsoas) abscess is a collection of pus in the iliopsoas muscle compartment. Mynter first described psoas abscess in 1881 referring as psoitis. A review of worldwide literatures published from 1881 through 1990 has revealed that the incidence of PPA is around 4 cases per year. PPA is most prevalent in older patients. In Taiwan, 2 retrospective reviews were carried out, and 20 percent (8 out of 40 patients) were classified as having primary abscesses. A recent endemic study in Taiwan reported that the rate of occurrence was 2.5 cases annually.

The psoas muscle is a fusiform muscle which blends with those of the iliacus muscle in 30% of cases to form the iliopsoas. The muscle takes origin from transverse processes, intertubercular processes and intervertebral discs of vertebrae T12 to L5 and inserts at the tip and medial part of the anterior surface of the lesser trochanter of the femur.

PPA can be classified as either primary infection of the psoas muscle or secondary abscess from the direct extension of infection from adjacent organs. The etiology of psoas abscess remains uncertain. It results from either hematogenous spread from occult infection or local trauma with resultant intramuscular hematoma formation which predisposes to abscess formation. PPA occur most commonly in patients with history of diabetes, injection drug use, alcoholism, AIDS, renal failure, immunosuppresion or malnutrition. Low
socioeconomic status males under 20 years of age are more susceptible although psoas abscess can occur in any age group. The predominant organism in primary psoas abscess is Staphylococcus aureus followed by Escherichia coli and Streptococcus. Secondary abscess is caused by a mixed flora of enteric bacteria, commonly E.coli and Bacteroides.

Historically, psoas abscess was most commonly seen in patients with spinal tuberculosis also known as Pott’s disease. Today, it is associated with infections of the bowel, kidney and spine. Though in developing countries, Mycobacterium tuberculosis is the most frequent cause of secondary abscess. The typical triad of fever, flank pain, and limitation of hip movement is present only in 30% of cases. Other symptoms include malaise, anorexia, lower back pain, a palpable mass, or pyrexia of unknown origin.8,9

Laboratory tests such as raised leucocytes count and inflammatory markers are useful in the evaluation of suspected psoas abscess, but none are universal findings. As in most clinical scenarios, diagnosis is aided (confirmed) by appropriate radiological investigations. CT scanning has proved superior to ultrasound scanning and is considered the radiological investigation of choice.1,10 USG of the abdomen may demonstrate a hypoechoic mass suggestive of PA, but cannot identify the cause of the abscess. CT scan of the abdomen with contrast is the most efficient and accurate imaging study in diagnosing a psoas abscess as in our case. CT scanning is now used as the first line of investigation. CT scan of the abdomen not only helps in diagnosis, but also in identification of the etiology, for therapeutic purposes, and postoperative follow-up.1,11

Abscess can be drained radiologically or surgically. Percutaneous drainage may be difficult in some patients because of the location of the abscess, but whenever possible it should be employed. Even in patients with complex, multiloculated abscesses, percutaneous drainage should be attempted and open surgical drainage should be reserved if percutaneous drainage fails.4 We have done extraperitoneal drainage which is a safe and effective method for these abscesses. We are agreed with the author that with open drainage is a better option than percutaneous drainage because debridement and biopsy of adjacent tissues can be done with open process, which may help in shortening recovery time.4 The prognosis of PPA is better compared to secondary abscess.5 With appropriate treatment the prognosis is generally good. Primary psoas abscess has a better prognosis, the mortality rate being only 2.4%.

CONCLUSION

Ultrasound, CT, and MRI helped to make a definitive diagnosis. Psoas muscle abscess is a rare condition with vague clinical presentation, which presents a diagnostic challenge requiring a high index of suspicion. The role of CT scan was very important in this case. If patients are treated with USG basis then incision site could have been different, thus CT has helped us to remain in retroperitoneal space only. The patient was treated successfully with open surgical drainage and antibiotic therapy.

REFERENCES
