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Primary psoas muscle abscess diagnosed and treated during pregnancy: case report and literature review

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Background: Primary psoas muscle abscess is rare and can be difficult to diagnose, particularly during pregnancy.
Case: To our knowledge, this is the first case of primary psoas muscle abscess diagnosed during pregnancy. Clinical investigation did not reveal any infection spreading from adjacent structures. Surgical drainage and simultaneous Cesarean delivery of the infant, combined with appropriate antibiotics, enabled a cure.
Conclusion: The possibility of psoas muscle abscess should be taken into account when investigating lower back pain during pregnancy if conventional approaches are unsatisfactory.

Key words: PSOAS MUSCLE ABSCESS; PREGNANCY

INTRODUCTION

Primary psoas muscle abscess is a rare infection that can be a diagnostic challenge for the physician, particularly when the patient is pregnant. Review of the literature revealed that this is the first reported case diagnosed during pregnancy, and there has been to our knowledge only one such case diagnosed after pregnancy[1]. Two secondary psoas muscle abscesses have been documented, probably resulting from direct extension of an intrapelvic infectious process into the psoas muscle[2,3].

CASE REPORT

The patient was a 29-year-old primiparous woman at 36 gestational weeks, who applied to the emergency department with a history of right lumbar pain over the preceding 2 months. The pain was worse on walking and had caused the woman to limp for the last 2 weeks before presentation. She had sought medical advice for the pain, which had been misdiagnosed as lumbar disc hernia but had not been effectively treated. There was no complaint of accompanying nausea, vomiting or diarrhea. Physical examination revealed a subfebrile temperature of 37.7°C and mild tachycardia. There was mild tenderness in the right lower quadrant and costovertebral angle tenderness on the right side. The woman preferred to lie on her right side and hyperextension of the right leg caused enormous pain. Laboratory examination was normal. On obstetric US, fetal maturation and anatomy were normal, with an estimated fetal weight of 2570 g.

In our case, clinical presentation was consistent with pyelonephritis. Urinalysis showed 14–16 white blood cells and few bacteria, so we decided to administer intravenous antibiotics (ampicillin, 8 g/day, intravenously). Consultations with general surgical and orthopedic departments did not aid management. However, neurological consultation revealed the presence of a clonic response

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on elicitation of the right Achilles reflex. Lumbar MRI demonstrated multiple collections compatible with psoas and quadratus muscle abscess, the largest dimension measuring 6 cm (Figure 1)

Psoas muscle abscess was considered the definitive diagnosis, and US-guided percutaneous drainage was planned. At 37 gestational weeks, 1 week after admission, uterine contractions began with increasing frequency; on obstetric examination, dilation of the cervix was 3 cm. With lumbar pain worsening in the lithotomy position, it was decided to perform cesarean section for dystocia. A general surgical team was invited for simultaneous abscess drainage.

Following delivery of a healthy boy with an Apgar score of 9 at 5 min, and surgical closure of the uterus and abdomen, a longitidunal incision of 8 cm was made above the right iliac crest. External and internal oblique muscles were retracted in order to reach the retroperitoneal space. An abscess with a diameter of 5 cm was drained and a sample obtained for microbiological examination and culture. After meticulously washing the lumen of the abscess with isotonic saline, two catheters were placed for the drainage and the incision was repaired.

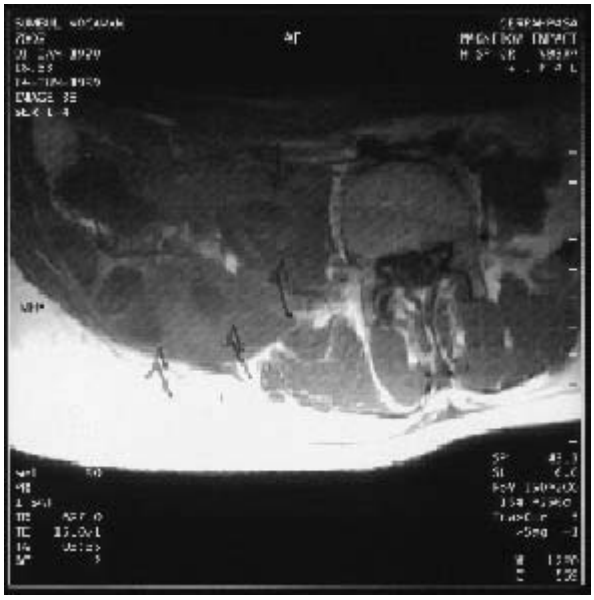

Figure 1 Lumbar MRI (T1-weighted axial view) showing collection in psoas and quadratus muscles (arrows), compatible with abscess. The thinned wall of the pregnant uterus can be seen in front

Lowenstein–Jensen culture for *M. tuberculosis* and anaerobic cultures remained sterile, but *Streptococcus sangius* was cultured aerobically. Combination antibiotic therapy covering a wide spectrum of organisms, both aerobic and anaerobic, was administered (intravenous metronidazole 1 g/day, sefepime 2 g/day and gentamycin 240 mg/day). The woman improved dramatically, and on the 5th postoperative day both drains were removed. Oral antibiotic therapy with metronidazole and sefepime was continued for 5 more days, and the woman was discharged on the 10th postoperative day with no complaints.

DISCUSSION

The psoas muscle is in close relationship with all the major abdominal and pelvic structures. Thus, any infectious process in these regions can spread to the psoas muscle and progress into the posterior mediastinum or the anterior thigh.

Primary psoas muscle abscess usually arises in young people and generally without a definable etiology; 83% of cases occur under the age of 30 years, and males are more often affected than females. Hematogenous spread is the presumed cause and *Staphylococcus aureus* is identified in 88% of positive blood cultures[4].

In contrast to primary psoas muscle abscess, secondary infections occur in older and more debilitated people with pre-existing diseases. The origin in 80% of cases is in the alimentary tract, and such causes include Crohn's disease, appendicitis, diverticulitis, pancreatic abscess and colorectal carcinoma. Not surprisingly, microorganisms normally in the bowel flora (*Escherichia coli*, bacteroides and enterococcus) are frequently isolated from these secondary psoas muscle abscesses. Bilateral psoas muscle abscess is extremely rare and represents less than 3% of secondary abscesses. Other causes include perinephric abscess, osteomyelitis, tuberculosis of the spine (Pott's disease) and postoperative complications[5].

The classical symptomatic triad of psoas muscle abscess includes lower back pain, limping and persistent fever with daily spikes. Urological and gastrointestinal symptoms are rarely present. At

rest, the patient tends to lie with the ipsilateral hip flexed because hyperextension of the hip on the involved side increases the pain (positive psoas sign). Paravertebral spasm may cause scoliosis and this is a useful sign of a retroperitoneal process rather than an intraperitoneal infection.

Leukocytosis, increase in the sedimentation rate and anemia may be detected, but these laboratory tests do not provide specific information. Septic arthritis and osteomyelitis can be ruled out by negative hip joint aspiration and normal bone radiography. The most cost-effective diagnosis of psoas muscle abscess is made by US or CT, with an accuracy of 41 to 95% and 95 to 100%, respectively[6].

Treatment of psoas muscle abscess may be conservative, with appropriate antibiotics, or by surgical drainage. Antibiotic therapy should be initiated immediately after obtaining sample material of abscess fluid for microbiological culture and sensitivity testing. Percutaneous drainage guided by US or CT is less invasive and equally effective for both uniloculated and multiloculated psoas abscesses[7].

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