

Anesthetic management of patient in gestation with psoas abscess extended to inguinal and gluteal region

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Citation this Article: Dr. Shubhajyothi Swamiadke, Dr. Kusuma M, Dr. Javed Wani, Dr. Ambareen Momin, Dr RL Gogna, “Anesthetic management of patient in gestation with psoas abscess extended to inguinal and gluteal region”, IJMSIR- October - 2021, Vol – 6, Issue - 5, P. No. 147 – 151.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Psoas abscess extending to the inguinal and gluteal region is a rare condition of pyomyositis of the psoas muscle which can be difficult to diagnose particularly in women in advanced stage of pregnancy. Manifestations of such soft tissue infections or intra-abdominal pathology and the routes by which these infections spread are usually unclear and may be overlooked. We hereby present a case of 27 year old pregnant woman at 26 weeks of gestation period first presented in surgery OPD with painful swelling of the right lumbar region since 20 days and fever since 8 days. The patient presented with tenderness on extension of right lower limb, difficulty in walking, and difficulty in extending the right lower limb. Primary Investigations revealed anemia and leukocytosis. The patient’s history indicated trauma one year ago in right lumbar and pelvic region. The patient reported in emergency department and successfully underwent

emergency surgical procedure under general anaesthesia.

Keywords: Psoas abscess, Inguinal region, Gluteal region, Gestation, Anemia, Leukocytosis, Hypotension, General Anaesthesia

Introduction

The psoas muscle is a retroperitoneal muscle that originates from the lateral borders of the 12th thoracic to the 5th lumbar vertebrae and ends as a tendon that inserts into the lesser trochanter. Psoas abscess was first described by Mynter in 1881 as psoitis which is a collection of pus in the psoas compartment and can be primary or secondary ⁽¹⁾. Psoas abscess can descend along the psoas sheath and reach the inner upper third region of the thigh but it infrequently penetrates the sheath and involves thigh adductors. Psoas abscess clinical presentation is variable and often nonspecific. Psoas abscess classical presentation is characterized by fever and pain in the anterior thigh or groin extending to lower limbs. The diagnosis is aided by radiological

testing. A CT scan is useful in making a definitive diagnosis but ultrasound is a good choice to detect a large psoas abscess. However, psoas abscess diagnostics still remains a challenge due to insidious clinical presentation and delayed reporting by patient resulting in poor prognosis. Several case studies indicate such patients reported when the pain becomes extremely unbearable requiring an emergency surgical intervention and anaesthetic management which leaves little room for accurate diagnostics and then due to paucity of time it is entirely left to the expertise of Surgeon and Anesthesiologist.

The 27 year old patient's case reported here had this rare complication of psoas abscess extended to inguinal region and gluteal region at 26 weeks gestation period. The patient reported in emergency under extreme pain condition, which was managed successfully with open surgical incision and drainage procedure under general anaesthesia. The patient was followed up with antibiotic therapy and then pregnancy till 36 weeks of her gestation period.

Case Presentation

The patient was a 27 year old woman with G3P2L2 at 26 gestational weeks of pregnancy, who first presented in surgery OPD on 23/03/2021 due to onset of acute pain in the right lumbar region covering an area of about 20cmsx10cms = 200 sqcms, extended to inguinal region and gluteal region. The patient was having pain in right lumbar region since the past 3 weeks, accompanied by low grade fever since 8 days, with localized rise in temperature in right lumbar region. The pain increased on walking and caused the woman to limp for the last week before presentation. There was no complaint of accompanying nausea, vomiting or diarrhea. The patient has history of trauma one year ago

at right lumbar and pelvic region. Primary investigations revealed Hb at 8 gm% (Anemia), TLC 16190 (Leukocytosis), Platelet count 4,10,000. COVID Rapid Antigen test was done and reported as negative.

The patient presented in emergency department on 27/03/2021 with extremely unbearable pain in lumbar region extending to inguinal and gluteal region. Primary investigation had revealed anemia and leukocytosis. At presentation, patient was conscious, oriented, diaphoretic with cool clammy extremities, BP was 80/60 mm Hg, Pulse was 110/min, regular, SpO₂ was 100 % on RA with NBM of 6 hrs. The pregnant patient was informed about the high risk of the emergency surgical procedure and consent for the emergency surgical procedure was taken from the patient.

Inside the operation theater, we aimed for infection control including prevention of transmission of infection to the health care team and prevention of contamination of anesthesia machine and other anesthesia equipment by following the careful transportation of patient, hand hygiene and proper donning. SpO₂ probe, BP cuff and ECG leads were applied to the patient for regular monitoring throughout the surgery. FHS was heard. A wedge was placed under the right hip to avoid supine hypotension syndrome. Initial pre induction BP of the patient was 80/60 mm Hg. Hence, she was preloaded with IV fluids. The BP responded after giving fluids and came up to 100/60 mm Hg. Considering pregnancy and placental perfusion, it was decided induction would be done with general anaesthesia while avoiding hypotensive drugs.

The patient was given aspiration prophylaxis 30 mins prior and antibiotic prophylaxis was given 60 mins prior to skin incision. She was then premedicated with

Glycopyrrolate 0.004 mg/kg and fentanyl 1 mcg/kg. Induction was done with etomidate 0.2 mg/kg, and muscle relaxation was achieved by atracurium 0.5 mg/kg. Using 7 F cuffed endotracheal tube. Balanced anesthesia was maintained by oxygen/air (50:50) with sevoflurane (2 Mac). Analgesia was supplemented with boluses of IV fentanyl (50 mcg) 2 hrly. Throughout the surgery, 1 pint PCV was transfused and a total fluid given over 3 hours was 1500 ml crystalloid, blood loss was 100 ml, and urine output was 200 ml. FHS and uterine contractors were monitored throughout OT using external tocodynamometer. No tocolytic was administered.

At the conclusion of surgery, neuromuscular reversal was achieved using Inj Neostigmine 0.05 mg/kg IV and Inj Glycopyrrolate 0.008 mg/kg IV. Patient regained consciousness, followed motor commands and was vitally stable, hence was extubated. FHS was heard. Postoperatively, patient was conscious and oriented with vitals: BP – 110/70 mm Hg, Pulse – 86/min and SpO₂ – 100 % on room air. The patient was monitored for SpO₂, BP, pulse, urine output and rest of the course was uneventful.

Our aim in perioperative management in this patient included maintaining of MAP >65 mmHg, maintain adequate heart rate, oxygen saturation >92%, avoiding induction of preterm labour and maintaining adequate uteroplacental blood flow. The patient was shifted to SICU for monitoring and management. She was shifted toward the next day and discharged on day 5 after completion of course of antibiotics.

Discussion

The psoas muscle is a retroperitoneal muscle that originates from the lateral borders of the 12th thoracic to the 5th lumbar vertebrae and ends as a tendon that

inserts into the lesser trochanter. Psoas abscess was first described by Mynter in 1881 as psoitis which is a collection of pus in the psoas compartment and can be primary or secondary⁽¹⁾.

The psoas muscle is in close relationship with all the major abdominal and pelvic structures, Therefore any infectious process in these regions can spread to the psoas muscle and progress into the posterior mediastinum or the anterior thigh. The clinical presentation of psoas abscess is therefore complex, variable and nonspecific⁽²⁾.

Literature review indicates that 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. Haematogeneous spread is the presumed cause and Staphylococcus aureus is identified in 88% of positive blood cultures. In contrast to primary psoas muscle abscess, secondary infections occur in older and more debilitated people with preexisting diseases. The origin in 80% of cases is in the alimentary tract and such cases include Crohn's disease, appendicitis, diverticulitis, pancreatic abscess, and colorectal carcinoma. In this case, psoas abscess manifests as a secondary abscess from the direct extension of contiguous infections from nearby adjacent organs namely vertebrae, pancreas, kidney, ureter, appendix, bowel or hip joint. Pain in right lumbar region and limitation of movement at the right hip, thigh and knee joint may be confused with neurological or joint disease. As the psoas muscle is innervated by L2, L3 and L4 nerve roots, the pain can radiate to the hip and thigh. In this condition, radiological investigations can be more helpful in making definitive diagnosis. In our case, the patient did not have any gastrointestinal or

genitourinary symptoms so secondary infections were ruled out. Our patient also did not report any neurological or joint problem therefore primary psoas abscess was suspected. Microbiology test revealed presence of *Staphylococcus aureus* which is the causative organism in over 88% of patients with primary psoas abscess and that secondary psoas is usually caused by enteric bacteria as concluded by Ricci MA et al having reviewed 367 cases of primary psoas abscess⁽³⁾.

Risk factors include diabetes, Human Immunodeficiency Virus (HIV) Infection, trauma, bacteremia, Intravenous drug abuse (IVDA) and contiguous bony or soft tissue infection. In our case, the patient had reported trauma about one year back. Our patient was accurately diagnosed as primary psoas abscess extended to inguinal and gluteal regions, directly from the Microbiology Culture Sensitivity report which reported presence of *Staphylococcus aureus*.⁽⁴⁾

As the iliopsoas muscle inserts onto the lesser tubercle of the proximal femur, it is possible that the psoas abscess could extend to the medial side of the thigh under the inguinal canal or to the hip joint. The clinical relevance of our case is that the primary psoas abscess extended inguinal and gluteal abscess is an extremely rare case. Failure to identify etiology of an inguinal abscess may result in its inadequate treatment⁽⁵⁾.

It deserves the caution of the clinician all the more in that the detection of the hidden psoas abscess requires high level of suspicion and that failure to recognize and treat psoas abscess with extensions to nearby locations can result in considerable mortality⁽⁶⁾.

Also it is indicated that the aetiology of iliopsoas abscess may vary with the country of origin, with a

preponderance of urinary tract infection in our Taiwan⁽⁷⁾.

The aim of this publication is to make clinician aware of the management of patients with psoas abscess with varied spectrum of extensions to adjacent locations, varied spectrum of manifestation, varied spectrum of infections and varied spectrum of clinical presentations. Thus Psoas abscess remains a therapeutic challenge. Though gastrointestinal disease is the most common cause, with CT Scan as the diagnostic modality of choice. The percutaneous drainage remains the initial treatment modality but is rarely the sole therapy required⁽⁸⁾.

Laparoscopic drainage is less invasive, requires a smaller incision, and allows more rapid recovery than the open method. However, open surgical drainage offers several advantages namely complete drainage, resection of infected tissue, contemporaneous treatment of the intra-abdominal primary lesion, and no need for radiation⁽⁹⁾.

Conclusion

Anaesthetic management during pregnancy is altogether a different challenge due to endocrinal, systemic and physiological alterations. We document a rare clinical manifestation of primary psoas abscess with extension to inguinal and gluteal region in a 27 year old patient at 26 weeks gestation with risk factors like anemia and leukocytosis with hypotension having had trauma one year back. General anaesthesia was opted over regional anaesthesia in order to maintain uteroplacental perfusion, avoid induction of preterm labour, and to also avoid a potential hypotensive state progressing to irreversible shock and sepsis. With minimal investigations, anaesthesia management was

planned well to preserve pregnancy and to ensure safety of mother as well as foetus.

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