

CASE REPORTS

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# Diagnostic dilemma of primary neonatal iliopsoas abscess



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## Abstract

**Background:** Primary iliopsoas abscess is extremely rare in neonates and overlooked easily. It is potentially curable with surgical drainage and broad-spectrum antibiotics if diagnosed early.

**Case presentation:** A 13-day-old neonate was presented with a swelling and bluish discoloration on the left thigh and groin. There was a restriction of movement of the left lower limb, and he developed high grade fever later on, during hospital stay. In spite of a great dilemma, we could finally reach the diagnosis of primary iliopsoas abscess, performed surgical drainage, and controlled ongoing sepsis. At 3 months follow-up, the patient was doing well and there was no asymmetry in appearance of movements.

**Conclusion:** High index of suspicion, vigilant clinical examinations, and targeted laboratory investigations with imaging studies are of paramount importance in establishing its diagnosis. This case highlights the diagnostic difficulties and re-evaluates the representative features of neonatal iliopsoas abscess and its management.

**Keywords:** Iliopsoas abscess, Neonate, Primary, Methicillin-resistant *Staphylococcus aureus*

## Background

Iliopsoas abscess (IPA) is a rare entity especially in neonates and infants. The varied symptoms are more pronounced in IPA, often resulting in delayed diagnosis and inadequate management. Primary IPA is uncommon and occurred due to staphylococcus bacteremia while secondary IPA may result from septic arthritis. IPA may present with a triad of symptoms: swelling in the abdomen/femoral triangle, reduced mobility of lower limb, and fever [1]. Ultrasonography (USG) should be the investigation of first choice as computed tomography (CT) or magnetic resonance imaging (MRI) is technically difficult to perform in neonates. This condition is highly fatal in neonates due to rapid onset of sepsis. USG-guided percutaneous drainage and antibiotic therapy, though advocated, may not be adequate treatment

always. Early surgical drainage often required for complete resolution.

## Case presentation

A 13-day-old neonate was presented with a swelling and bluish discoloration on the left thigh and groin (Fig. 1a). There was reduced movement of the left lower limb. The baby was born by normal vaginal delivery at 37 weeks of gestation with a birth weight of 2.3 kg. There was no history of maternal fever or premature rupture of membrane. USG revealed left-sided large hydrocele and a collection in the left flank area, measuring about 2.5 mm × 3 mm. Needle aspiration from the flank swelling revealed clear fluid. The aspirated fluid from the iliopsoas region showed glucose of 121 mg/dl, protein of 2.5 g/dl, albumin of 1 g/dl and cholesterol of 45 mg/dl, but no microorganism. Blood investigations demonstrated anemia (hemoglobin 9.4 g/dL), total leucocyte count (TLC) of 13,800/cumm with 32% neutrophils and 64% lymphocytes, mild thrombocytopenia (platelet 1.3 lakhs/cumm), and C-reactive protein (CRP) value of 3.9 mg/dL (normal ≤1 mg/dL). We started intravenous

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antibiotics in the form of Piperacillin-Tazobactam, Amikacin, and Linezolid as possibility of an abscess could not be ruled out. The patient responded to supportive medical management and we were about to discharge the patient. Surprisingly, the patient developed fever and refusal to feed after three weeks of admission. We shifted the patient in the pediatrics intensive care unit (PICU). The swelling became tense and tender. The child was irritable and started crying with the movement of the left lower limb. Repeat laboratory examinations revealed hemoglobin 8.7 g/dL, erythrocyte sedimentation rate (ESR) 8 mm/1st hour, an elevated total leucocyte count (TLC) of 34,000/cumm with 42% neutrophils, 55% lymphocytes, and C-reactive protein (CRP) of 5 mg/dl.

New USG showed a hypoechoic space-occupying lesion (40 mm × 24 mm) in the left iliopsoas region with internal moving contents. We tried another aspiration from the swelling but nothing came out. As the swelling progressed with associated high-grade fever, an MRI of lower abdomen and pelvis was performed which suggested an extremely large, thick-walled abscess measuring 59.7 mm × 31.9 mm size along the left psoas muscle extending from the level of lower border of the left kidney superiorly up to proximal thigh inferiorly (Fig. 2). In the upper thigh, the abscess was seen to extend from the anterior compartment in to the posterior

compartment insinuating in between the muscles. Considering the condition, we discussed with the concerned pediatric surgeon and planned for surgical drainage of the abscess.

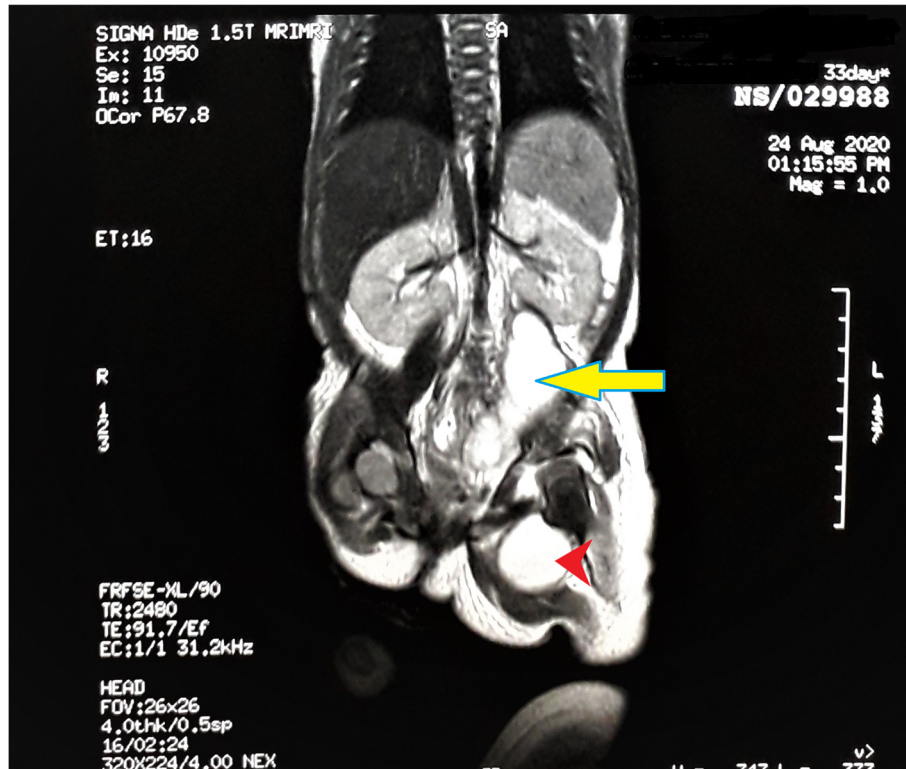
Initially, an incision was made in the medial aspect of the thigh where aspiration revealed frank pus. Another counter incision was made under finger guidance in the left flank, piercing the left psoas muscle (Fig. 1b). The whole cavity was then irrigated with normal saline and packed with roller gauze. Pus culture showed growth of methicillin-resistant *Staphylococcus aureus* (MRSA). However, the result of blood culture was negative. The patient was given meropenem and vancomycin initially which were changed to linezolid for 14 days according to the sensitivity of pus culture. The child responded well with the given treatment. At 3 months follow-up, the patient was doing well and there was no asymmetry in appearance of movements.

## Discussion

IPA is a collection of pus in the iliopsoas compartment. The condition was first described as “psoitis” by Mynter in 1881. It can be classified as primary or secondary, depending on the origin. Primary IPA, common in neonates and occurs as a result of the hematogenous spread of organisms from the occult site. Secondary IPA is common in adults and occurs due to the direct extension of the ongoing infective or inflammatory process near or within the iliopsoas muscle [2]. In the present case, USG could not differentiate it from lymphatic malformation. In spite of intravenous antibiotics, the patient developed fever and poor movement of the left lower limb with raised TLC and CRP after few days.

The important differentials include septic arthritis of the hip, traumatic injury to the hip joint and surrounding structures, osteomyelitis of the femur, abscess at the vaccination site, and lymphatic malformation [3]. Though the clinical differentiation becomes difficult at times but still it is crucial as the approach differs [4]. Delay in diagnosis and inadequate pus drainage may lead to sepsis, mortality, and sequelae of damage to the joints. At this point, CT or MRI must be considered as USG may not differentiate from cystic lymphatic malformation [5, 6].

The treatment of IPA is a combination of surgical drainage (percutaneous or open drainage) and broad-spectrum antibiotic therapy. In our case as well, antibiotic therapy was started before aspiration of collection and the surgical exploration was done under the coverage of systemic antibiotic. Simple medical management is not always sufficient and pus aspiration, or surgical drainage of abscess may be needed [7]. Many physicians prefer ultrasound-guided percutaneous drainage of the abscess in conjunction with proper antibiotic coverage.



**Fig. 2** Magnetic resonance imaging showing thick-walled abscess (59.7 mm × 31.9 mm) along the left psoas muscle (yellow arrow) extending from the level of lower border of the left kidney superiorly up-to left proximal thigh inferiorly (red arrow head)

However, surgical drainage is superior to percutaneous drainage in achieving prompt recovery. Presence of predisposing factors like immune compromise status or MRSA infection needs to be considered for delayed response. Role of immunodeficiency in a case of neonatal IPA is still unclear because most of the studies or reported cases did not reveal such [8].

## Conclusion

This case merits a mention due to the rarity of primary IPA in neonates as well as a diagnostic dilemma. However, high index of suspicion, vigilant clinical examination, laboratory investigations like leucocytosis, raised CRP, and MRI facilitate a prompt diagnosis and proper management without delay. The prognosis stands good with an early recovery with prompt drainage of pus.

## Abbreviations

IPA: Iliopsoas abscess; MRSA: Methicillin-resistant *Staphylococcus aureus*; PICU: Pediatric intensive care unit

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## Authors' contributions

PH contributed to performing the surgery. SR, PKD, AG contributed to performing early physical examination, general supervision of the case, and

post-operative care. SR and AG did the literature search. PKD and AG wrote the manuscript. The authors read and approved the final manuscript.

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## Declarations

## Ethics approval and consent to participate

Yes

## Consent for publication

The parents of the child have given written consent for publishing patient details including pre- and intra-operative images.

## Competing interests

The authors declare that they have no competing interests.

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