A Rare Case of Iliopsoas Abscess in a Term Neonate — Case Report and Brief Review of Literature

Sai Praveen Peddu1 · Debasish Nanda2 · Antaryami Pradhan3 · T. V. Ram Kumar4

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Abstract
Iliopsoas abscesses are rare in neonates. Clinical presentation of neonates with iliopsoas abscess often mimics other common neonatal illness. Such abscesses cause a diagnostic dilemma for the clinician, often resulting in a delay in clinical diagnosis and institution of specific treatment. A 10-day old term male neonate from community presented with high grade fever, abdominal distension, left lower limb swelling with limitation of movement, and diagnosed to have left-sided iliopsoas abscess on ultrasonography. The neonate underwent extraperitoneal surgical drainage of the abscess and received a course systemic antimicrobial agent. The neonate was discharged on the 18th day of admission without any complications. The case describes the presence of a localized abscess in an uncommon location in neonate, with methicillin-resistant Staphylococcus being the causative organism, which represents a rare and potentially life-threatening infection in neonates.

Keywords Iliopsoas Abscess · Staphylococcus · Neonate · Surgical Drainage · Septic Arthritis

Introduction
Iliopsoas abscess is a rare occurrence in neonates [1, 2]. The etiology is usually considered to be idiopathic and few pathogenetic mechanisms have been postulated [1, 2]. Primary abscess occurs following a hematogenous or lymphatic spread from a distant source, and secondary abscess occurs as an extension of infection from nearby organs [2, 3]. Unlike adults and older children, clinical features in neonates may be non-specific and may emulate other common neonatal illness. These abscesses are associated with higher incidence of morbidity and mortality unless diagnosed and treated early in the course. Such abscesses are common in older children and adults, and fewer than 30 cases have been reported during neonatal period in literature. We report a rare case of iliopsoas abscess caused by methicillin-resistant Staphylococcus aureus (MRSA) in a term neonate.

Case Report
A male neonate presented on day 10 of life with high grade fever, refusal to feed, and abdominal distension for 2 days. The neonate was born by uncomplicated vaginal delivery at 40 completed weeks and was predominantly on breast feeding and occasional formula feeds through feeding bottle. On physical examination at admission, the neonate was febrile with temperature of 38.7 °C, having tachycardia (heart rate 170/min), abdominal distension with tenderness over the left iliac region, scrotal edema, and left lower limb swelling (Fig. 1). There was limitation of movement in the left lower limb. There was an intravenous cannula in the left lower limb, and the neonate was managed at a local hospital for 2 days and received intravenous antibiotics (ampicillin, gentamycin) prior to hospitalization. After admission, the baby was investigated for sepsis with complete blood count, C-reactive protein, blood culture, urine culture, and...
commenced on intravenous fluids. Intravenous antibiotics (piperacillin-tazobactam, amikacin) started after obtaining samples for culture. Initial laboratory evaluation revealed a normal hemoglobin (Hb 14.6 g/dl), neutrophilic leukocytosis (total leucocyte count 28.7 × 10⁹/l with 82% neutrophils; reference range: 4 × 10⁹/l–11 × 10⁹/l), normal platelet count (164 × 10⁹/l; reference range: 150 × 10⁹/l – 400 × 10⁹/l) and raised C reactive protein (32.4 mg/l; reference range: 0–10 mg/l). Abdominal radiograph suggested non-specific dilation of bowel. Ultrasonography of abdomen and pelvis was suggestive of a large retroperitoneal abscess of size 4.5 cm × 3.8 cm in the left iliac fossa surrounding the left common and external iliac veins involving the left iliopsoas muscle (Fig. 2). Open extraperitoneal drainage was done on the 3rd day of admission through an oblique loin incision, and pus was sent for culture and sensitivity (Fig. 3). Growth of Staphylococcus aureus (methicillin resistant) was reported from the pus culture specimen after 48 h of incubation, subsequently antibiotics changed to Vancomycin based on the sensitivity report. The neonate gradually improved and was afebrile in the next 48 h. Intravenous antibiotics were administered for 14 days. Ultrasonography prior to discharge revealed resolution of retroperitoneal abscess. The neonate was discharged on the 18th day of admission without any complication.

**Discussion**

Iliopsoas abscesses can be primary or secondary, primary abscess being more common in neonates and infants [2, 3]. It can also occur secondary to extension of infection from an adjacent organ. The affected neonates are often sick at admission. In most cases, the pathology remains unilateral, but bilateral involvement has also been reported [4]. Limb swelling, pain, and limitation of movement along with discoloration of the affected limb are the common presenting features. Abdominal mass as a presenting feature has also

Fig. 1 Picture showing swelling and discoloration of the left lower limb

Fig. 2 Ultrasonography showing a hypoechoic lesion in the left iliopsoas muscle (arrow head)

Fig. 3 Intraoperative picture showing surgical drainage of the abscess
been reported [3, 5, 6]. The clinical pictures often mimic the presentation of septic arthritis, which often remains as an important differential diagnosis [5, 6]. Sometimes, iliopsoas abscess can occur secondary to spread from the underlying septic arthritis of hip [7].

Staphylococcus aureus is the most common infectious agent reported accounting for more than 80% of the reported cases in neonates [1–3, 8]. Klebsiella and Streptococcus pneumoniae are the other pathogens being isolated from cases of iliopsoas abscess in neonates [7, 9]. In the present case, the causative organism was methicillin-resistant Staphylococcus aureus. Iliopsoas abscess caused by methicillin-resistant Staphylococcus aureus (MRSA) is extremely rare and potentially life-threatening. Only few cases of iliopsoas abscess caused by MRSA in neonates have been reported in available literature [10, 11]. Leucocytosis along with neutrophilia is a consistent laboratory abnormality reported from previous reports [1, 2, 8]. Ultrasonography is a simple bedside investigation for localization of abscess and remains the investigation of choice. CT scan or MRI helps in better delineation of anatomy and extent of the lesion and helps in planning drainage [12].

Though ultrasound-guided percutaneous drainage followed by a course of appropriate antibiotic is effective [13], lack of availability of appropriate size of catheter, expertise in percutaneous procedure in neonate, and other technical difficulty often precludes percutaneous drainage in neonates, as in the present case.

It is often difficult to identify the source of infection in majority of cases. Few cases of iliopsoas abscess have been described to be secondary to superficial infections [2, 14]. Infection related to the central venous catheters, secondary infection of iliopsoas hematoma has been reported [1, 7, 15]. Hematogenous spread from a distant focus or septicemia also remains a possibility. Underlying immunodeficiency increases the probability of such infections, as cases secondary to leucocyte adhesion deficiency are being reported [16]. In the present case, a definite source of infection could not be identified. The presence of retroperitoneal abscess on the same limb with peripheral intravenous cannula could raise the possibility of peripheral intravenous cannula being the probable portal of entry of organism but exact causal relationship is difficult to establish in the present case.

**Conclusion**

Iliopsoas abscess is not very common in neonates, with Staphylococcus aureus (both methicillin-sensitive and resistant) being the commonest organism reported. Such infections often represent a diagnostic difficulty for the clinician. Open surgical drainage may allow early resolution in such cases particularly in settings where access to percutaneous drainage is limited.

**Author Contribution** Dr Sai Praveen Peddu collected the data and was involved in case management. Dr Debasish Nanda drafted the initial manuscript and was involved in case management. Dr Antaryami Pradhan was the chief surgeon for the case and contributed in proofreading the manuscript. Dr TV Ram Kumar contributed in compiling and in the critical revision of the manuscript. All the authors have approved the final manuscript.

**Data Availability** Not applicable.

**Code Availability** Not applicable.

**Declarations**

**Ethics Approval** Not applicable.

**Consent to Participate** Written informed consent to participate in this case report was obtained from the patient attendants.

**Consent for Publication** Written informed consent for publication of this case report was obtained from the patient attendants.

**Conflict of Interest** The authors declare no competing interests.

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