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Case Report

Solitary sterile neonatal liver abscess in an infant

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ABSTRACT

Neonatal liver abscess is rare clinical entity. There should be strong index of suspicion in preterm and term neonates with indwelling catheters and unidentifiable focus. A differential diagnosis should be kept in mind in these patients. Surgical and antimicrobial led to a favorable outcome.

Keywords: Liver, Abscess, Neonate

INTRODUCTION

Neonatal liver abscess is a rare clinical entity and been recognized since the time of Hippocrates while Bright in 1836 published a report on liver abscess.[1] It could be idiopathic or secondary to umbilical catheterization, sepsis, central total parenteral nutrition catheters, necrotizing enterocolitis, prematurity, and neutrophil defect.[2] Premature infant with low birth weight are in high risk of liver abscess due to decrease adherence and chemotaxis of the neutrophils.[3] Herein, we present a 45-day-old male infant with solitary sterile pyogenic liver abscess with prematurity and low birth weight.

CASE REPORT

A 45-day-old male infant brought to the emergency department with complaints of loose motions with blood streaks and high-grade fever of 2 weeks for which taking treatment from outside. Birth history, baby was delivered prematurely at 34 weeks with a birth weight of 2300 g with an Apgar of 8 and 9, respectively. Baby was kept in the nursery for 1 day and was discharged. Maternal history was normal except that at 26 weeks of gestation was admitted for dengue fever. On examination, baby was febrile, dehydrated, and abdominal distension. The liver was enlarged 3 cm below the costal margin, firm, smooth with well-defined margins. Investigations revealed hemoglobin - 6.1 g/dL, total leukocyte count - 61000 mm^3, lymphocyte - 20.9%, monocyte - 4%, eosinophils - 1.8%, neutrophils - 69.2%, band forms 4%, platelet count - 37 × $10^3/\mu L$, erythrocyte sedimentation rate - 31.5 mm/h, C-reactive protein 28.6 mg/L, alkaline phosphatase 238 IU/ml, serum bilirubin total - 1.2 and direct - 0.6, serum glutamate pyruvate transaminase - 79 IU/L, serum glutamic oxaloacetic transaminase - 93 IU/L, total protein - 5.1 g/L, albumin - 2.6 g/L, globlin - 2.5 g/L, lactate dehydrogenase - 293 IU/L, prothrombin time (PT) - 20 s, activated partial thromboplastin time - 33 s, international normalized ratio (INR) - 1.8, alpha feto protein - 19.6 IU/ml, Widal-negative, culture for blood, stool and urine were sterile. Bedside ultrasonogram (USG) was done which showed hepatomegaly with heterogeneously hypoechoic lesion measuring 52 × 58 × 58 (111 ml) in the right lobe of the liver (Figure 1). Abdominal computerized tomography (CT) with intravenous contrast confirmed the diagnosis of liver abscess (Figure 2). After administration of packed red cell and fresh frozen plasma, the PT and INR were within normal limits. A USG guided aspiration was done yielding approximately 90 ml of pus drained. Culture and gram stain were of the pus from an abscess were negative. Test for qualitative defects of neutrophils

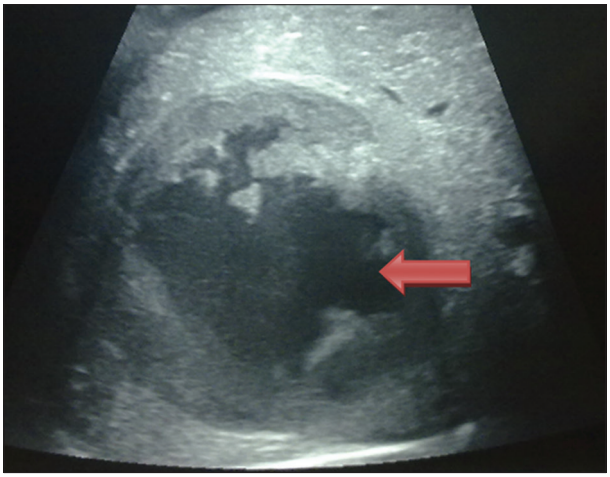

Figure 1: Ultrasonography showing heterogeneously hypoechoic lesion suggestive of abscess.

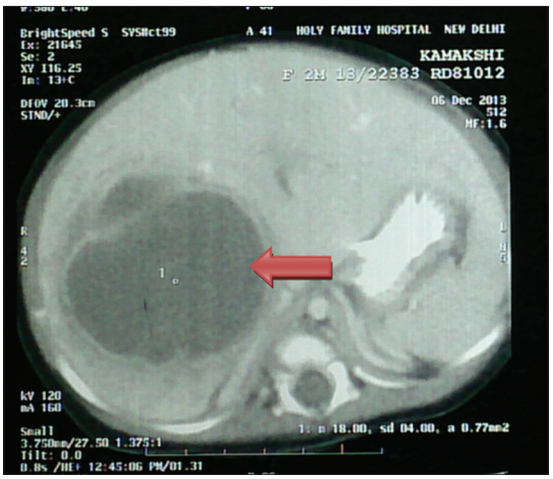

Figure 2: Computerized tomography scan showing hepatic abscess.

was advised but refused due to financial constraint. Serial USG of abdomen showed reduction of abscess and was discharged after 4 weeks of intravenous antibiotics with no recurrence on follow-up.

DISCUSSION

Solitary liver abscess is extremely uncommon and compromises 30% of reported neonatal liver abscess.[4] It is difficult to establish from the clinical picture alone as a sign and symptoms are non-specific. Liver abscess have a high fatality rate with <100 cases has been reported till date.[2] Liver abscess is most commonly pyogenic, amoebic or mixed infections but less commonly fungal. Liver infection in an infant differs from older children. Liver abscess is solitary and multiple whereas solitary liver abscess is larger, well-localized and can be drained easily. Liver abscess can be found in any part of the liver. Most of the solitary liver abscess are located in the right lobe as a result of the streaming of portal blood flow secondary to the fact that the right lobe is predominantly supplied by the superior mesenteric vein and because most of the hepatic volume is in the right. There are different routes of infective organisms reaching the liver of the newborn which includes portal circulation, hepatic circulation, systemic circulation, or by direct invasion from surrounding structures.[4]

Etiology of neonatal liver abscess is variable. The most common causative pathogens are *Staphylococcus aureus, Streptococcus pyogens, Escherichia coli, Klebsiella, Pseudomonas, Corynebacterium acnes, Anaerobes* and *Candida albicans* have been reported from neonatal liver abscess. In 50% of abscess, polymicrobial infection has been found. *Congenital tuberculosis, Congenital syphilis,* and *Listeriosis* have reported as etiological causes.[5] Guillois *et al*.[6] have reported neonatal staphylococcal sepsis, liver abscess and the pleuropulmonary infection transmitted via breast feeding in a mother of lymphangitis of breast.

USG and CT are useful for diagnosing this condition. USG has a good sensitivity. Halvorsen *et al*.[7] reported a sensitivity of 97% with an accuracy of >95% in adults. In our case, both USG and CT were done which were suggestive of localized collection. Image-guided percutaneous drainage to treat liver abscess has a success rate of 70-100%[8] while needle aspiration is a simpler, less costly, and equally effective mode of treatment.[9] Tan *et al*.[3] reported a series of six cases, three of whom were solitary abscesses that were treated by open drainage in two and antibiotics alone in one with good results.

Complications like hemorrhage, pleural effusion, empyema, persistent bile drainage, catheter displacement have been reported with both needle and percutaneous drainage. Baek *et al*.[9] and Giorgio *et al*.[10] in their study found the lower incidence of complications with needle aspiration than with percutaneous drainage. In our case, needle aspiration was done, and no such complications were encountered.

Treatment consists of withdrawal of the instrumentation on abdomen and vascular system and evacuation of the abscess with appropriate antibiotic in culture positive while in sterile both gram positive, gram negative, and anaerobes are advised.

CONCLUSION

Neonatal liver abscess is uncommon and may be fatal if untreated. Prompt and appropriate management is required to improve outcome. High index of suspicion is required in preterm and term neonates with indwelling catheters and unidentifiable focus. Bedside USG is a diagnostic tool for identifying neonatal liver abscess.

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