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Case Report

Neonatal hepatic abscess with resolving portal vein thrombosis

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Introduction

Hepatic abscess in a neonate is a rare but serious disorder. Diagnosis of hepatic abscess requires a high index of suspicion in any septic neonate. CT scan and ultrasound of liver are the most sensitive diagnostic tests in detection of hepatic abscess.¹ Portal vein thrombosis is a rare complication of hepatic abscess and very few cases have been reported in English literature. Our case report highlights the difficulty in diagnosis of neonatal hepatic abscess and describes the development of portal vein thrombosis with complete resolution on treatment.

Case report

A male neonate was brought at the age of 12 days with complaints of fever and poor feeding since 2 days. The

neonate had a foul smelling discharge from the umbilicus. The neonate had been admitted to NICU for first 2 days of life for respiratory distress (transient tachypnea of newborn) and was discharged from hospital on seventh day of life. Mother had been screened for HIV infection and had been found to be negative. There was no history of umbilical venous catheterization. On examination the neonate was irritable and febrile. The respiratory rate was 70/min and heart rate was 190/min. Liver was palpable 2 cm and spleen was palpable 1 cm below costal margins. Chest radiograph showed non-homogenous opacities in right upper zone. All other investigations including CSF studies were normal.

The neonate was started on antibiotics (cloxacillin and gentamicin). Blood culture sent at this stage revealed the growth of staphylococcus aureus sensitive to cloxacillin and vancomycin. Umbilical pus swab culture was sterile. The neonate continued to remain febrile over next 1 week with an increase in liver size. A sepsis screen repeated at this stage was suggestive of bacterial infection with a shift to left and a band count of 21%. An ultrasound examination of abdomen showed enlarged liver with multiple small hypoechoic space occupying lesions involving both lobes of liver. CT scan abdomen done at this stage also showed multiple liver abscesses (Fig. 1). A repeat blood culture done at this stage showed a growth of staphylococcus aureus with no change in sensitivity pattern. In view of presence of liver abscesses with no response to previous treatment, the neonate was switched over to vancomycin and clindamycin. At this stage it was noticed that the neonate had developed bilateral pitting pedal edema. A repeat ultrasound showed multiple abscesses in both lobes of liver with thrombosis of portal vein radicles (Fig. 2), which was confirmed on Doppler studies. Coagulation

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Fig. 1 – Contrast enhanced scan showing multiple abscesses evident as hypodense foci involving both lobes of liver.

work up was normal. The neonate was put on enoxaparin (low molecular weight heparin) 1.5 mg/kg subcutaneously 12 h. Over the next 1 week, there was regression in hepatomegaly, the neonate became afebrile and there was resolution of pedal edema. Doppler studies done at this stage showed recanalization of portal vein radicles with hepatopetal flow.

Vancomycin and clindamycin were given for a total period of 3 weeks and 10 days respectively. Enoxaparin was stopped after 2 weeks following confirmation of resolution of portal vein thrombosis on Doppler studies. Repeat follow up of the neonate at the age of 3 months, 6 months and 12 months showed normal growth and developmental milestones. There

was no hepatomegaly. Repeat ultrasound and Doppler studies were normal.

Discussion

Neonatal liver abscess is uncommon, carries a high mortality and is difficult to diagnose. Lam et al² have reported an unusual case of liver abscess in a preterm infant presenting with abdominal distension and suspected gastrointestinal perforation, rather than the more usual features of fever, hepatomegaly, abdominal tenderness, right-sided pleural effusion, and leukocytosis. Mal-positioning of the umbilical venous catheter in the liver was responsible for liver abscess in the case reported by them. Moens et al³ have described two neonates with liver abscess following umbilical venous catheterization. Both the babies were preterm and needed percutaneous aspiration in addition to antibiotic therapy. DeFranco et al⁴ have also described a full-term neonate with a history of umbilical venous catheterization followed by coagulase-negative staphylococcal sepsis. The infant developed a solitary hepatic abscess with saprophytic organisms. Tan et al⁵ have described six neonates with liver abscess. All neonates were premature with gestational ages between 24 and 34 weeks. Persistence of positive blood culture despite appropriate antibiotic treatment in 67% of the cases prompted use of hepatobiliary ultrasounds to detect liver abscess. Surgical drainage of liver abscess was performed in 33% of the cases, with the remainder being treated conservatively with appropriate intravenous antibiotics. Half of the infants recovered with resolution of their liver abscess on serial hepatobiliary ultrasound. The other half died of fulminant sepsis. As described by Tan et al,⁵ the case reported by us also had persistent positive blood cultures despite appropriate antibiotic treatment. Our neonate had received intravenous fluids during first 2 days of life; but there was no history of umbilical venous catheterization. In our case, liver abscess was diagnosed on use of hepatobiliary ultrasound. Our case did not require any surgical drainage. There are few other case reports of liver abscess in neonates described by various authors; all emphasizing the rarity of the condition.^{6,7}

Portal vein thrombosis is rarely reported as an acute complication of neonatal hepatic abscess.^{1,8,9} In our case, portal vein thrombosis was suspected on ultrasound and confirmed on Doppler studies and CT scan. The neonate showed complete resolution of portal vein thrombosis following use of low molecular weight heparin. These babies should be followed up during first 5 years of life (ultrasound and Doppler studies) to look for development of portal cavernoma and portal hypertension. In all other case reports in literature, there was formation of portal cavernoma with development of portal hypertension subsequently. Our case is thus unique in respect of having shown complete resolution of hepatic abscesses and portal vein thrombosis with the use of conservative measures.

Fig. 2 – Ultrasound of the liver showing a portal vein branch. The vein is distended and echogenic material is noted within the lumen representing thrombus.

Conflicts of interest

All authors have none to declare.

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