

Images

A Rare Case of Total Thrombosis of Ductus Venosus in a Neonate



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A female neonate born at 41 weeks of gestation was admitted to the neonatal intensive care unit and required mechanical ventilation due to meconium aspiration syndrome. An umbilical vein catheter (UVC) was inserted for initial venous access. The tip was drawn 2 cm backward to the site below the liver (low position) due to initial malpositioning (Supplementary Figure S1). The endotracheal tube was removed, and the UVC was replaced with a peripherally inserted central catheter on the fifth day of life. A follow-up echocardiogram revealed an oval lesion in the inferior vena cava (IVC) on the ninth day of life (Fig. 1A). The patient's body fluid balance was monitored carefully. Hemoglobin level (14.9 g/dl), hematocrit percent (44.0%), platelet count (111,000/ μ l), clotting time, liver function group, and blood culture results were normal at the time. Abdominal ultrasonography (Fig. 1B) (Supplementary Figure S2) and computed tomography scan (Fig. 2) showed total thrombosis of the ductus venosus (DV). The patient showed no significant hemodynamic

impairment after birth and no other occlusive thrombi in the portal veins or its branches; therefore, she received conservative management. Six months later, a follow-up ultrasonogram showed substantial resolution of the thrombus.

In this patient, the thrombus was likely formed after birth because prenatal thrombosis of the DV usually causes acute fetal distress and can be lethal. The ideal tip position of the UVC is at the junction of the right atrium and IVC.¹ A study reported that only 46% of UVCs were adequately positioned, and the risk factors for portal venous thrombosis included severe neonatal sickness and UVC placement, especially in intrahepatic and low positions.² Mechanical or chemical irritation of the vessel wall by a catheter is believed to contribute to thrombosis.² Morag et al. suggested that anticoagulation therapy included occlusive grade 3 portal vein thrombosis, presence of a second thrombus, and postcardiac surgery.² Early detection using ultrasonography and follow-up for all newborns with

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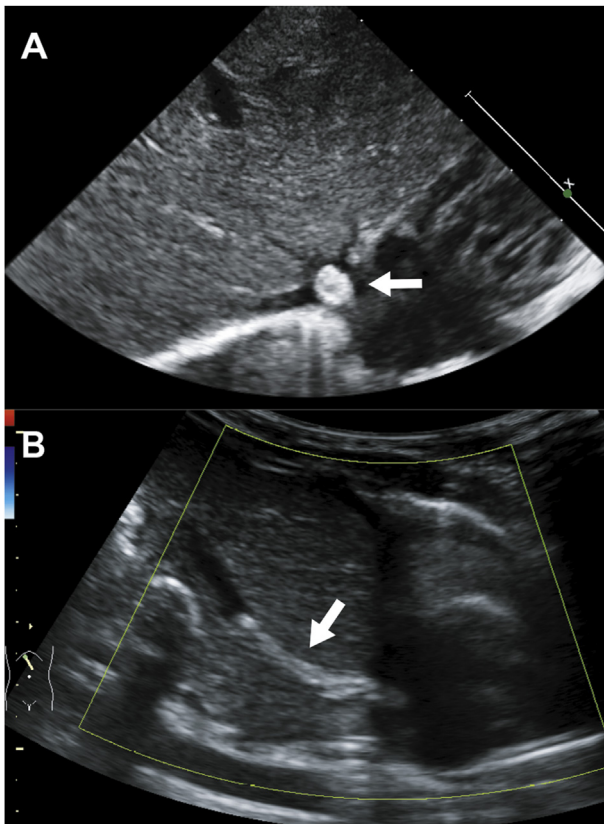


Figure 1 A follow-up echocardiogram revealed a hyper-echoic oval lesion (6×5 mm) inside the inferior vena cava (IVC) in the transverse view of the IVC on the ninth day of life (A). Another abdominal ultrasonogram showed a heterogeneous, hyperechoic tubular structure (28×4.5 mm) from the confluence of the hepatic veins to the left portal vein in the left lobe of the liver; however, no splenomegaly or ascites were noted (B).

UVC displacement are important because occlusive thrombosis affecting other portal veins or branches may cause potentially serious long-term complications such as portal hypertension and lobar atrophy.^{2,3}

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This article has not been submitted for publication elsewhere.



Figure 2 An abdominal computed tomography scan revealed a dense curvilinear calcification in the fissure for the ligamentum venosum of the liver. No other abdominal venous thrombosis was noted.

Declaration of Competing Interest

The authors declare no conflicts of interest regarding this manuscript.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pedneo.2020.07.005>.