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Shabih Manzar *

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Case Report

Inferior Vena Cava Occlusion with Significant Collateralization

Shabih Manzar *, Siddharth Mahajan, Ryan Jones, Ramachandra Bhat

Department of Pediatrics School of Medicine Louisiana State University Health Sciences Center 1501 Kings Highway Shreveport, LA 71103

Corresponding Author: Shabih Manzar, MD Louisiana State University Health Sciences Center 1501 Kings Highway

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Abstract

We report a case of a preterm infant who underwent transcatheter closure of patent ductus arteriosus (PDA) with Amplatzer Piccolo device through the left femoral vein. During the procedure, a partially occluded inferior vena cava (IVC) with significant collateralization was noted. The catheter was negotiated using a coronary guide wire and the infant tolerated the procedure well. Interestingly, the infant had a normal IVC in prior radiological films. The cause of this acquired occluded IVC remained obscure.

Keywords: electrocardiograph**;** coronary artery; ectasia; aneurysm

Case:

A preterm infant developed hemodynamically significant patent ductus arteriosus (PDA) that remained open despite medical management. Ultimately, the infant underwent transcatheter closure of PDA with Amplatzer Piccolo device through the left femoral vein. The intervention cardiologist noted a partially occluded inferior vena cava (IVC) with significant collateralization (Figure 1). The catheter was negotiated using a coronary guide wire and the infant tolerated the procedure well.

The finding of occluded IVC lead to further investigation to look for the cause. Looking back at the previous radiological films and reports, all parts of IVC (supra hepatic, hepatic, and infra hepatic) were noted to be patent as evidenced by a normally placed umbilical venous catheter (UVC) and peripherally inserted central catheter (PICC). Figure 2A showed the UVC traversing the IVC and situated in the right atrium (RA). Figure 2B, demonstrates the UVC tip crossing the IVC and seen in RA. Figure 2C, showed the PICC line inserted from the right femoral, traversing through the iliac vein and IVC with its tip placed above the base of RA.

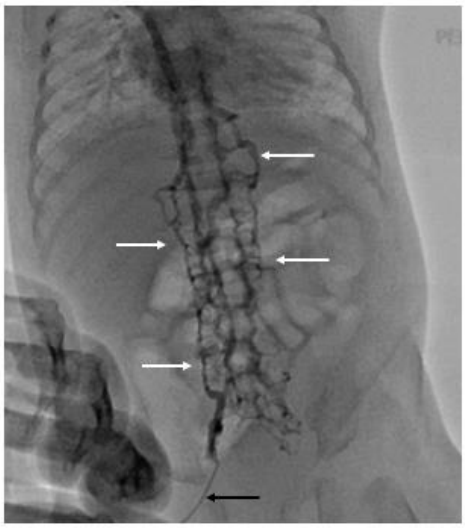

Figure 1: Venogram showing partially occluded inferior vena cava (IVC) with significant collateralization. The black arrow shows the catheter, and the white arrows show the collaterals.

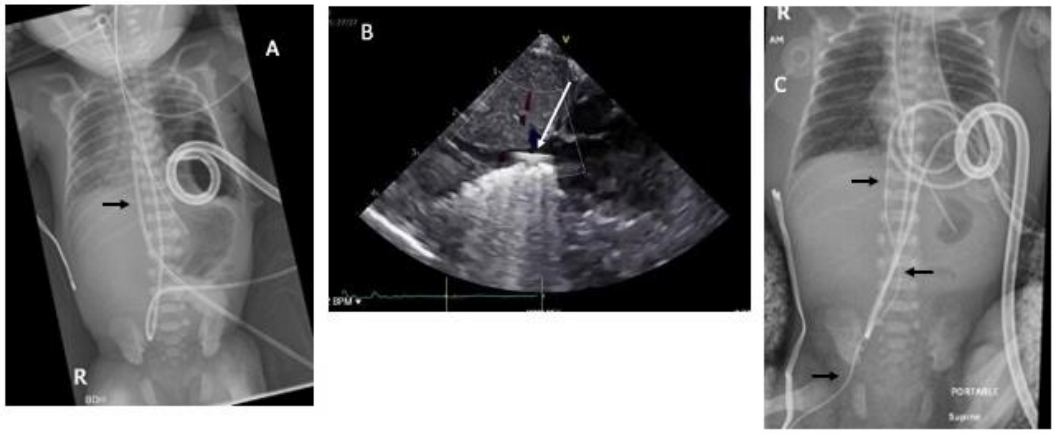

Figure 1:
Panel A- X-ray showing placement of an umbilical venous catheter (UVC). The catheter is noted to cross the upper portion of IVC, marked by the black arrow, with the tip in the right atrium (RA).
Panel B – A still clip of the echocardiogram showing the UVC crossing the IVC projecting towards the RA (white arrow)
Panel C – X-ray showing placement of a peripherally inserted central catheter (PICC). The PICC line passes from the right femoral to the common iliac and then traverses the IVC with tip seen in the RA (black arrows).

Discussion:

Inferior vena cava syndrome is rare in neonates. [1] No such case has been reported in preterm infants. Thrombosis or congenital anomalies could be among the possible causes [1], however, no clinical evidence was noted in the infant. The other possibility could be the intimal damage secondary to center line placement. The insidious, asymptomatic IVC occlusion with the development of significant collaterals in the case presented was puzzling.

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