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Images in Congenital Cardiac Disease

Unexpected complication of uncovered aortic end in ductal stenting

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Abstract A newborn with tricuspid atresia and pulmonary atresia underwent ductal stenting. The aortic end of the ductus was not completely covered and was wide open; the baby was discharged on dual antiplatelets. The baby presented after a month with desaturation, and an angiogram showed extensive thrombus in the stent and the right pulmonary artery. The angle formed by the stent with the uncovered aortic end is likely to have precipitated the thrombus.

Keywords: Stenting ductus; pulmonary atresia; duct-dependent pulmonary circulation; stent thrombosis

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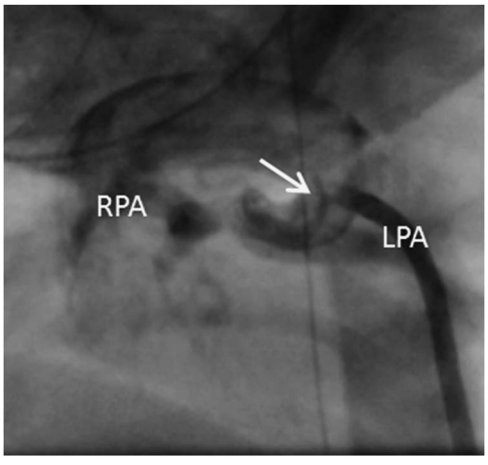
A 12-DAY-OLD NEONATE WITH PULMONARY atresia and intact ventricular septum was palliated with stenting of ductus arteriosus. The duct arose from the descending thoracic aorta, just after the origin of the left subclavian artery (Fig 1), and was stented from the femoral arterial approach with a 3.25 × 18-mm bare metal stent. After deployment, it was noted that the aortic end was incompletely covered by the stent (Supplementary video 1). The result was accepted as the aortic end was wide open. The baby was discharged on dual antiplatelets and was closely followed-up with monitoring of arterial oxygen saturation and echocardiogram. The baby presented at 53 days of life with increasing respiratory distress and desaturation. Echocardiogram revealed sluggish flow in the stent and reduced flow to the right pulmonary artery. Angiography showed presence of thrombus inside the stent with sluggish flow into the right pulmonary artery (Fig 2, Supplementary video 2). As the aortic end of the ductus was uncovered, there was an angle between the proximal end of the duct and the stent. It was not possible to track a balloon across the stent from the femoral arterial approach, and the patient underwent aorto-pulmonary shunt surgery with removal of the stent and augmentation of the right pulmonary artery. Incomplete covering of the ductus during stenting has been shown to result in stenosis



Figue 1.
Descending thoracic aortic angiogram showing ductus arteriosus (arrow) arising just after the left subclavian artery. RPA, right pulmonary artery; LPA, left pulmonary artery.

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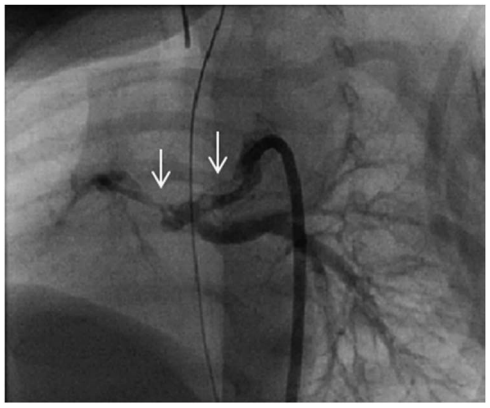

Figure 2.
Angiogram showing the stent in the ductus arteriosus with an uncovered aortic end and thrombus in the stent and the right pulmonary artery (arrows).

of the uncovered ductus. In this patient, incomplete coverage of the duct, with the angle between stent and the proximal end of duct resulted in stent thrombosis, despite dual antiplatelet therapy. This case reiterates the need to accurately position the stent within the ductus, adequately covering the pulmonary and aortic ends for optimum results.

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Conflicts of Interest

None.

Ethical Standards

This study has been approved by the institutional ethics committee.

Supplementary material

To view supplementary material for this article, please visit https://doi.org/10.1017/S1047951116002535