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Aortic arch aneurysm early after coarctation repair in the neonatal period

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Background
Aortic coarctation is the sixth most common congenital heart disease and represents a spectrum of aortic narrowing that varies from a discrete entity to tubular hypoplasia. In neonates surgical correction is the recommended treatment, with good outcomes. Aneurysms of the ascending aorta or at the site of previous repair are the most dangerous complication following repair. In newborns aortic aneurysms is a rare complication usually associated with palliative balloon dilation used as a bridge to surgery in critically ill patients. Risk factors for the occurrence of aortic aneurysms following coarctation repair have been described in adults and are bicuspid aortic valve, older age at repair of coarctation, patch graft surgical technique and high preoperative peak systolic pressure gradient. In neonates this is a rare complication, especially in the early period after repair, and is less well studied.

Clinical Case
We present the case of a male newborn admitted to hospital at 10 days of life with poor feeding, signs of heart failure and absent femoral pulses. The newborn was diagnosed with a large midmuscular interventricular septal defect and aortic coarctation with hypoplastic aortic arch. Surgery was performed with coarctation resection and extended end-to-end anastomosis and pulmonary artery banding. Immediate post-operative course was unremarkable. On day 18 after surgery the infant had failure to thrive and had developed tachypnea over the previous week. A transthoracic echocardiogram was performed that showed a vascular structure in continuity with the transverse aortic arch, with a diameter superior to that of the aortic arch and with low velocity flow. An aneurysm of the transverse aorta was suspected and a CT scan was performed. This confirmed the diagnosis of a large transverse aortic arch pseudoaneurysm that wrapped around the aortic arch. A surgical correction was performed with autologous pericardial patch exclusion of the false aneurysm and filling of its lumen with fibrin glue. At surgery the aneurysm was seen to originate at the site of the previous repair. The post-operative course was uneventful. The infant has remained clinically well with no signs of re-coarctation or other complications at 15 months follow-up.

Conclusion
We present the case of a rare early complication after coarctation repair in the neonatal period – an aortic pseudoaneurysm at the site of repair, with echocardiogram and CT scan documentation. Although this is a dangerous complication with high mortality surgical correction was uneventful and the patient has remained clinically well.
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