

History and Physical: A 9-year-old boy from Ethiopia was admitted with a history of exertional fatigue. Physical examination showed weak femoral pulses with a blood pressure of 128/40mmHg on the right arm and 93/33mmHg on the right leg. He had a grade 3/6 machinery murmur at the left sternal border radiating to the back.

Imaging: Echocardiography demonstrated a large, 11mm, patent ductus arteriosus and a discrete, 8mm, coarctation of the aorta with a mean gradient of 58mmHg. The ascending aorta measured 16mm, arch 14mm, isthmus 10mm and descending aorta 17mm.

Intervention: Cardiac catheterization was performed under general anesthesia, with cannulation of the right femoral artery and the right femoral vein. Heparin 100IU/kg was given. Descending aortogram showed a juxtaductal coarctation of the aorta and a large patent ductus arteriosus measuring 6mm and 9mm, respectively, at the narrowest points. The isthmus measured 6mm and the descending aorta at the level of the diaphragm 25mm. The pressure gradient across the coarctation was 60mmHg. A 34mm Cheatham-Platinum covered stent premounted on a 14mm/40mm BIB was deployed and ballooned up to 8atm pressure. Repeat angiogram demonstrated a coarctation segment after stent implantation of 14mm with a reduction in pressure gradient from 60mmHg to 15mmHg. Due to a gap between the dilated descending aorta and the distal end of the covered stent, a residual patent ductus arteriosus was also observed. The stent was then further dilated at the distal end using a 14mm BIB and a 10mm Mustang balloon. Subsequent angiogram showed a closed patent ductus arteriosus, no pressure gradient across the stent and patent flow across the subclavian and carotid arteries. Manual compression of the groin provided adequate hemostasis. Post-procedure follow-up revealed normal femoral pulses and on echocardiography, a mean pressure gradient of 16mmHg across the aortic arch.

Learning Points of the Procedure: Simultaneous percutaneous treatment of coarctation of the aorta and patent ductus arteriosus is safe, as it avoids the use of an additional device, alongside limiting fluoroscopy, procedure times and need for further interventions.

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