



FROM THE DELIVERY ROOM TO THE CATH LAB: STENTING OF AN AORTIC ATRESIA DISCOVERED DURING A TEEN PREGNANCY

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History and Physical:

16 year-old with no prior medical history was diagnosed with severe hypertension during pregnancy. Lower limb pulses were not palpable. The baby was delivered at 34 weeks due to severe hypertension.

Imaging:

An echocardiogram could not visualize the aortic isthmus but showed continuous flow in the abdominal aorta. She had a bicuspid aortic valve with mild AI. A CTA post partum confirmed severe coarctation of the aorta versus acquired, short segment atresia. Forward flow of contrast could not be confirmed. There was a significant burden of collateral vessels.

Indication for Intervention:

Severe coarctation versus atresia on imaging

Severe hypertension and significant upper to lower limb gradient

RUE: 179/97

LUE: 175/99

RLE: 116/72

LLE: 127/95

Intervention:

Radial artery access was used to gain access to the aortic arch proximal to the coarctation. Femoral artery access was used to gain access to the descending aorta distal to the coarctation. Angiography from above showed no flow of contrast to the descending aorta. The internal mammary arteries and intercostal arteries were dilated. Simultaneous angiography above and below suggested a thread like connection, beyond the left subclavian artery. The aorta at the diaphragm measured approximately 14mm in diameter.

A directional catheter was used to engage the "beak" proximal to the coarctation. A 0.014 coronary wire was passed through the catheter and easily traversed the aortic atresia. The wire was snared from below and the wire tension allowed passage of the catheter through the coarctation. We next snared the directional catheter and pulled the whole system proximally, leaving the tip of the snare catheter in the right subclavian artery. A 0.035 wire was placed through the catheter into the RSCA, facilitating the advancement of the 12Fr sheath from the descending aorta to the transverse arch. There was minimal resistance.

A premounted covered CP stent on a 14mmx3.5cm BiB balloon was selected and placed across the coarctation. Angiography in the aortic arch via the radial access was used to confirm positioning. The BiB balloon was sequentially inflated. Stent position was excellent. A waist



remained and was dilated with a 14mm high pressure balloon. There was minimal waist remaining. There was a final gradient of 3mmHg across the stent.

Learning Points of the Procedure:

Be prepared to use several different techniques to traverse an aortic atresia, but start with the least aggressive.

Judgement can be used during the case to make the decision on whether to stage the intervention over two procedures versus bringing the stent up to the intended diameter in one sitting.



Image 1: Baseline simultaneous aortic angiography in the ascending and descending aorta

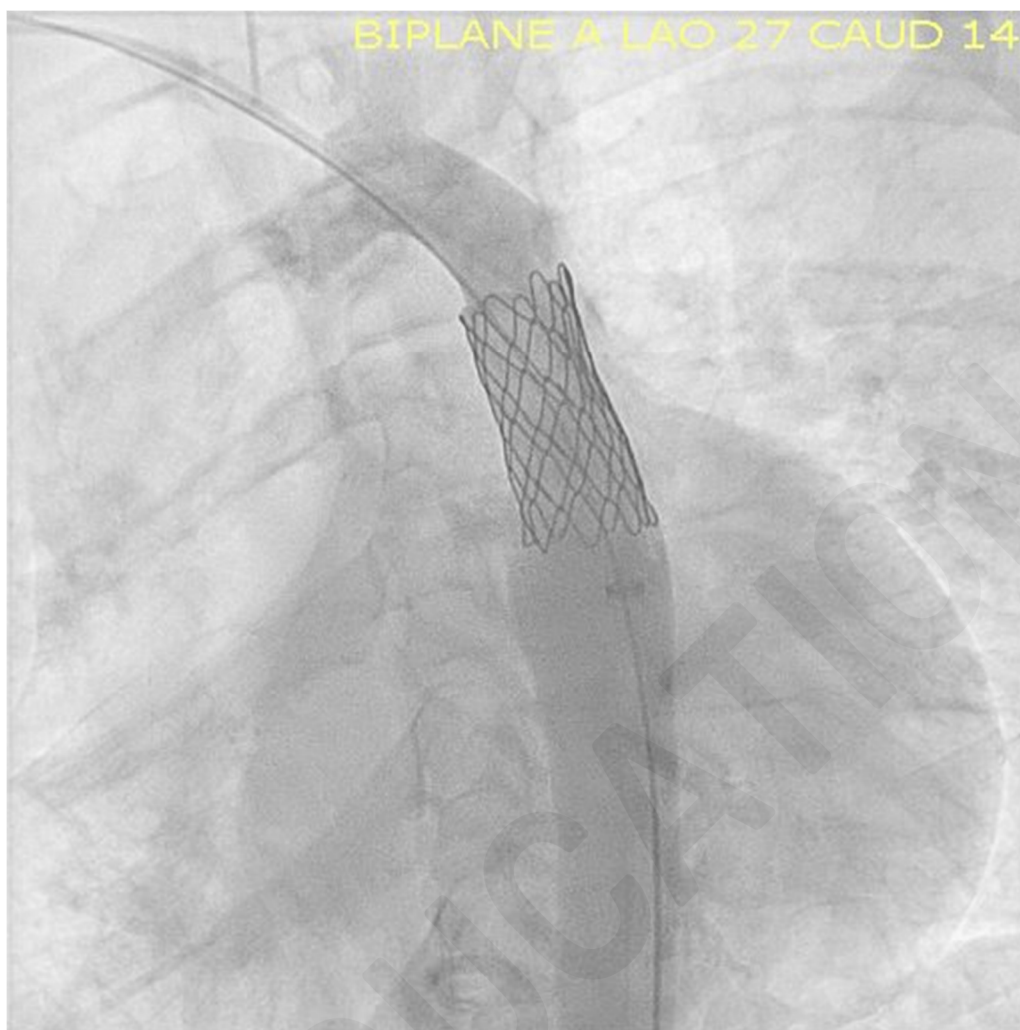


Image 2: Aortic Angiography post stent placement.