

Clinical case number 2

5 year old patient with suspected transverse arch hypoplasia and severe long segment coarctation.

Referred for CMRI and Cardiac cath as separate procedures.

Availability of a MRWire makes it possible for such patients to undergo one combined procedure rather than 2 separate procedures. CMR guided right and left heart catheterization procedure was performed to evaluate baseline hemodynamics and pressure gradients across the aortic arch/coarctation area.

Results CMR

CMR showed trivial aortic arch hypoplasia and severe coarctation. A decision was made to proceed with stent angioplasty of the aorta. Successful use of MRWire to complete right heart cath and perform pull back pressure across the aortic arch with balloon wedge catheter (6Fr). LV could not be reached as anticipated due to geometry of the aortic arch and wire/catheter being advanced preferentially to the right innominate artery. Baseline coarctation gradient of 49 mm Hg. Guidewire easily steerable and visible, especially when decreasing the flip-angle during real-time scanning.

Results cathlab

Patient was transferred to the cath lab under same anesthesia and underwent successful stent angioplasty of the severe coarctation of aorta. There were no adverse events/complications encountered with the hybrid cath-MRI procedure, use of the MRwire, and subsequent cath lab intervention. The MRWire was also tested under fluoroscopy and was visible in the Phillips Cath lab at high fluorosetting .

Figure 1 – shows use of the MRWire to maneuver the gad filled balloon tip from the right PA (wedge) location to the left PA (wedge) position.

Figure 2 and 3 –MR angiogram of patient showing severe coarctation and post stenotic dilation of the aorta

Figure 3 - Lateral projection aortic angiography showing a CP stent across the coarctation site .

