

Clinical News Corner

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Case Report: Pulmonary artery stenosis treated with AndraStent

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Case History: A 14 year old boy underwent uneventful arterial switch operation for transposition of great arteries (TGA) in the neonatal period. On routine echocardiographic follow up he developed increased narrowing of the left pulmonary artery (LPA) origin. Cardiac MRI demonstrated severe stenosis of the LPA origin and hypoplasia of the proximal LPA with a flow distribution of 92% to the right lung and 8% to the left lung. Clinical history revealed a slow decrease in exercise tolerance over the last years.

Procedure: Cardiac catheterisation was carried out in deep conscious sedation and without general anaesthesia through the right femoral vein. A 5 Fr. Amplatz right coronary catheter was advanced across the LPA stenosis and exchanged for a Pigtail catheter. The angiogram across the LPA origin demonstrated a tight stenosis of the LPA origin of approximately 15 mm length (Fig 1a and 1b). Hemodynamics revealed an RV pressure of 45/2 mmHg and LPA pressure of 16/10, mean 12 mmHg. After careful measurement of the anatomy and diameters the pigtail catheter was replaced by a 9 Fr. Mullins sheath (Cook) over an Amplatzer superstiff exchange wire.

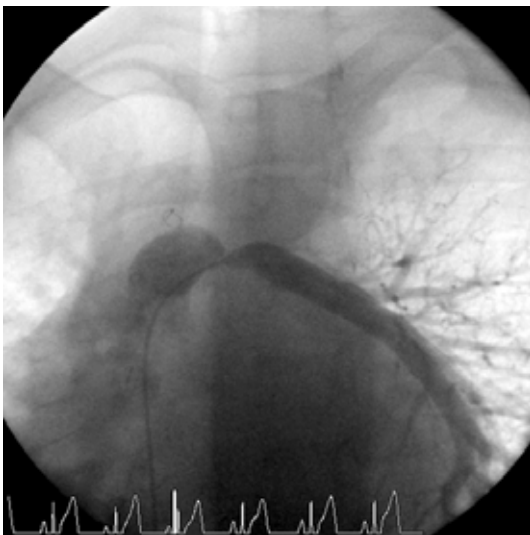


Fig 1a
LPA angiogram LAO 25° , cranial 20° showing tight stenosis of proximal LPA

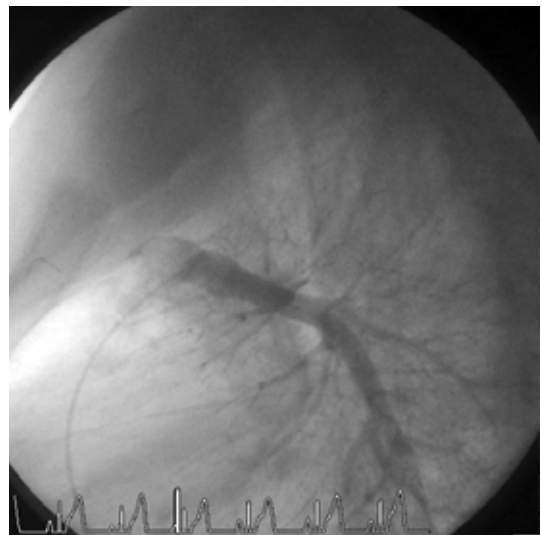


Fig 1b
Lateral projection of LPA stenosis

A 30 mm XL AndraStent® (Andramed Germany) was hand-crimped on a 10 mm x 40 mm Opta Pro Ballon (Cordis) and hand injections confirmed optimal stent position in the LPA stenosis site (Fig 3). The balloon was inflated with 10 atm using an inflator. The post implantation angiogram demonstrated an optimal stent position with relief of the obstruction and no extravasation. The proximal end of the stent was flared with a 14 mm x 20 mm Tyshak II Ballon (NuMed) to achieve an optimal anatomic result (Fig. 4, 5, 6). Hemodynamic measurements post implantation showed a RV pressure of 39/7 mmHg and an LPA pressure of 21/8, mean 15 mmHg. The stent shorting was 3% with a homogeneous diameter. Overall procedure time was 106 minutes with a fluoroscopy time of 18 minutes. The patient was discharged home 48 hours post procedure.

Cardiac MRI 6 month after after stent Implantation demonstrated an optimal stent position and a flow distribution of 67% to the right lung and 37% to the left lung.

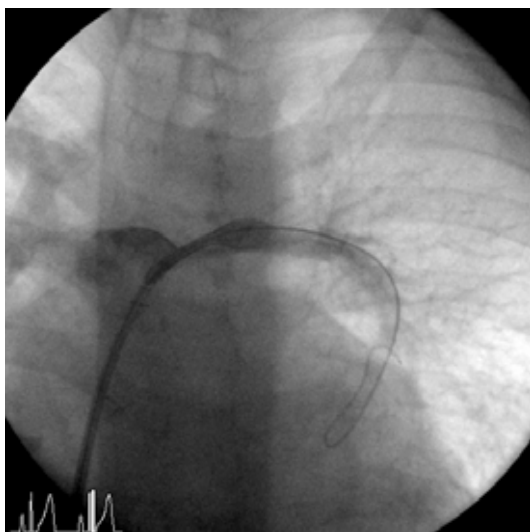


Fig 3
Picture of stent implantation in LAO 15° , caudal 20° projection.

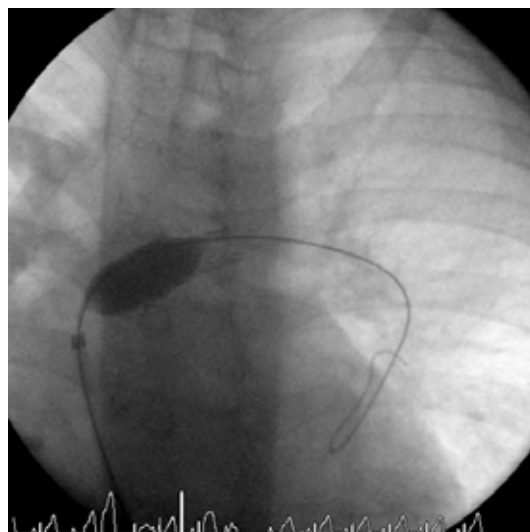


Fig 4
Picture of proximal stent flaring following implantation in LAO 15°, caudal 20°.



Fig 5
Angiogram after stent implantation in LAO 15° , caudal 20° showing relief of stenosis.



Fig 6
Picture of stent after deployment in LAO 20° , caudal 20° projection.

Result: Specific modulation of the AndraStent stent morphology was possible to achieve an optimal anatomic result with excellent hemodynamic pressure relief. Together with the added benefits of the chromium-cobalt technology as well as the semi-open cell design, placing the stent in a angulated part of pulmonary vessels seems easily achievable.

