

**Interventional therapy of stenotic pulmonary arteries in adult patients with mechanical pulmonary valve prosthesis**

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**Introduction:** There is a growing population of patients with congenital heart defects who require repetitive surgery for right sided cardiac lesions including pulmonary valve replacement. In some, mechanical valve replacement is performed. Stenosis of peripheral pulmonary vessels may occur in these patients too and interventional therapy may be indicated.

**Methods:** We report our experience in 3 patients with a mechanical valve in pulmonary position and a supravalvular pulmonary pathology in whom we have performed the interventions across the mechanical valve without complications. We continuously used a long sheath, which holds the mechanical valve open during the procedure, as a leaflet protection. All balloons were retracted into the long sheath and distal to the mechanical valve.

**Results:** 23 year old female patient who underwent mechanical aortic and pulmonary valve replacement for repair of a common arterial truncus showed a significant paravalvular aortic leak and subaortic stenosis of the right pulmonary artery just behind the ascending aorta. The paravalvular leak was closed and the RPA-stenosis was treated by primary stenting using a 34 mm CP stent with a Mullins balloon 14 mm x 40 mm.

A 25 year old male with Tetralogy of Fallot (TOF) had a 21mm SJM mechanical valve placed in pulmonary position after multiple previous surgeries including three conduit exchanges. A significant stenosis of the right pulmonary artery was detected and dilated several times using a VACS III(18 mm x 40 mm) balloon.

The 21 year old male with pulmonary atresia and ventricular septal defect had undergone multiple operations, finally resulting in the implantation of a 21 mm SJM mechanical valve in pulmonary position. There was a gradient of 50 mm Hg between the RV and distal MPA due to supravalvular stenosis closely after the mechanical valve. The supravalvular stenosis was then successfully dilated by using a (18 mm x 30 mm) Mullins balloon.

Angiographic and echocardiographic function of the pulmonary valve was unchanged and excellent without malfunction after the procedure.

**Conclusions:** Interventional therapy of pulmonary vessels is feasible in patients with mechanical valves in pulmonary position. The procedure can be performed safely by using the technique described.