

### Transcatheter Closure of Aorto-left Ventricular Tunnel in a Symptomatic Infant

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#### Introduction:

Aorto-left ventricular tunnel (ALVT) is a rare malformation. Depending on the size, it results in early and severe left ventricular volume loading and heart failure. Surgery is the treatment of choice, but catheter closure may be considered in limited-resource settings.

**Methods and Results:** A 2 month old female infant (weight 3.0 kg) presented with symptoms of severe heart failure. Clinical and echocardiographic evaluation confirmed a large ALVT, measuring 9mm at the aortic end, and 6.5mm at the LV end, with a minor constriction (minimum diameter 6.0mm) proximal to the LV opening. The LV and ascending aorta were markedly dilated. In view of the patient's poor clinical condition, transcatheter closure of the ALVT was attempted. Under general anaesthesia, and following a bolus (50units/ kg) of heparin, the defect was crossed retrogradely from the right femoral artery using a 4F MP catheter. An extrastiff guidewire (260 cm long; Cook USA) was advanced into the ventricle, followed by a 6F Amplatzer delivery sheath (St.Jude, USA). Manipulating the guidewire in the LV resulted in ventricular fibrillation, requiring DC cardioversion. Subsequently a 6/6 Amplatzer ADO II device (St.Jude, USA) was delivered to the defect. In the absence of ECG changes suggesting coronary artery compression, the device was released. An immediate improvement in the diastolic blood pressure was noted. The patient was discharged from hospital 48 hours later, and has continued to show clinical improvement at follow-up of 2 months. Follow-up echocardiography shows no residual shunt, and mild, central, aortic valve regurgitation.

#### Conclusions:

In selected cases, in the absence of safe surgical options, catheter closure of symptomatic ALVT should be considered.

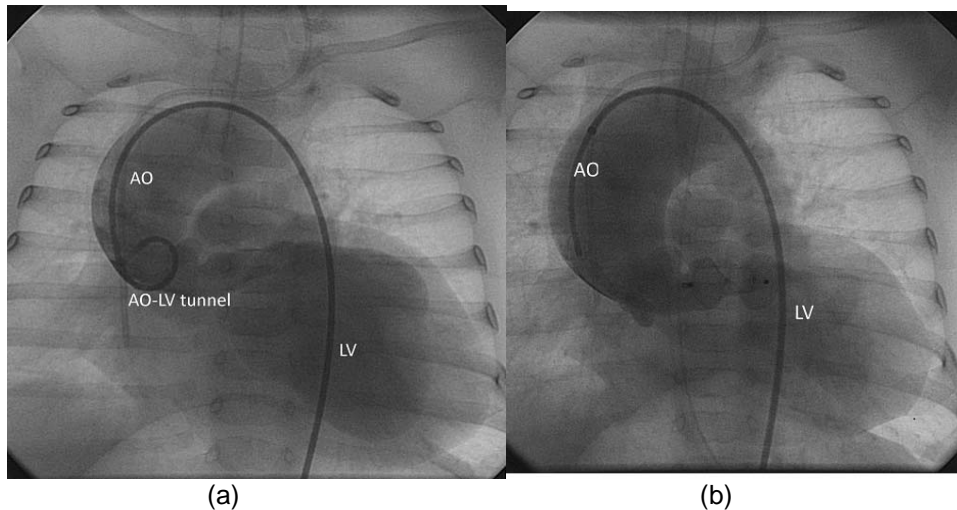


Figure1: (a) Aortography in anteroposterior projection showing the large aorto-LV tunnel, (b) Aortography after device closure of the tunnel.