

# IMAGES

in  
PAEDIATRIC  
CARDIOLOGY

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## **Use of interventional catheterization before surgery in an adult with univentricular heart**

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### **Brief Images**

A 17-year-old male with univentricular heart, had a right Blalock-Taussig shunt 6 years ago and one year later, also had a left shunt after an occlusion of the first shunt. He was admitted because of the increasing cyanosis and dyspnea (class III of New York Heart Association). His oxygen saturation was 74% and his hematocrit was 70%. Echocardiography showed a single right ventricle, L-malposition of the great vessels, severe pulmonary stenosis and normal pulmonary arteries with good ventricular function and no aortic obstruction. There was stenosis of the left blalock-taussig shunt. Angiography confirmed pulmonary valve stenosis (figure 1) and stenosis of the left Blalock-Taussig shunt (figure 2) with occlusion of the right shunt. Prior to surgery, the patient was taken to the catheter laboratory and a stent (14mm long) was positioned in the Blalock-Taussig shunt (figure 3). Dilatation of valvular pulmonary stenosis was performed with a 12mm balloon (figure 4). After interventional catheterization the oxygen saturation increased to 86%, the hematocrit decreased to 47%, the mean right ventricular systolic pressure decreased from 75 to 38 mmHg and angiography showed good flow across the reconstructed shunt.

A single ventricle constitutes about 0.5–1% of all congenital heart diseases.<sup>1</sup> Cardiac catheterization is needed to evaluate abnormalities accompanying this malformation such as coarctation of the aorta, pulmonary artery distortion, high pulmonary resistance and abnormal collateral vessels.<sup>2</sup> This case report shows that interventional catheterization can be planned and performed in conjunction with appropriate palliative surgery in patients with univentricular heart. The recurrence of the symptomatology in our case is related to stenosis of the left Blalock-Taussig shunt and the occlusion of the right shunt. Treatment by interventional catheterization has allowed improvement of the patient's quality of life with a considerable improvement of the dyspnea. This case underlines the ability of this approach to give the same functional benefit as do other, more radical long-term palliative procedures.

Figure 1 Angiography showing pulmonary valve stenosis prior to balloon inflation.

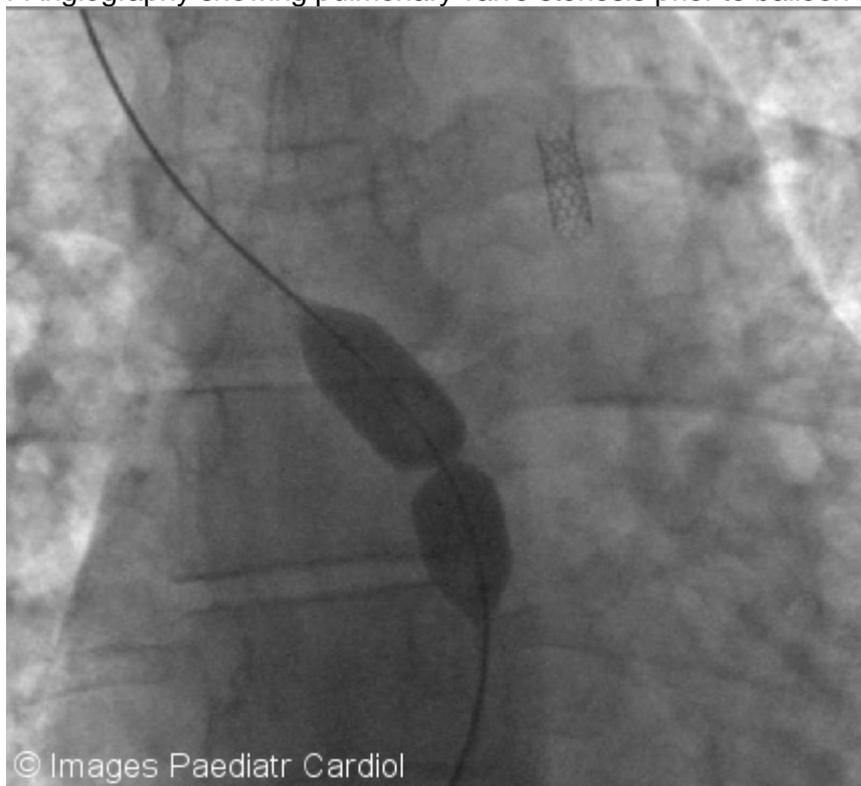
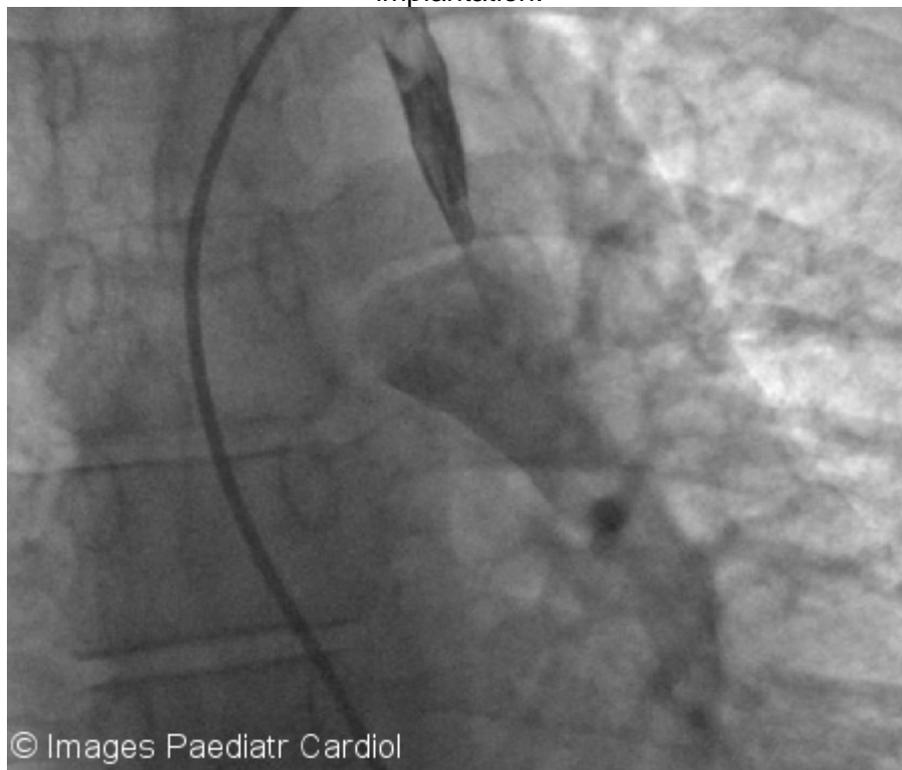


Figure 2 Angiography showing left Blalock-Taussig shunt stenosis before stent implantation.



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Figure 3 Angiography after deployment of a stent in the left Blalock-Taussig shunt.

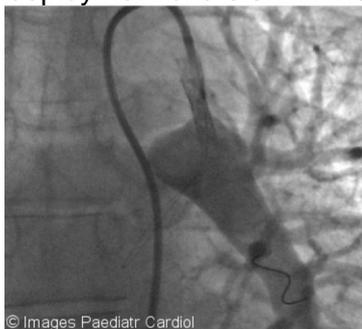
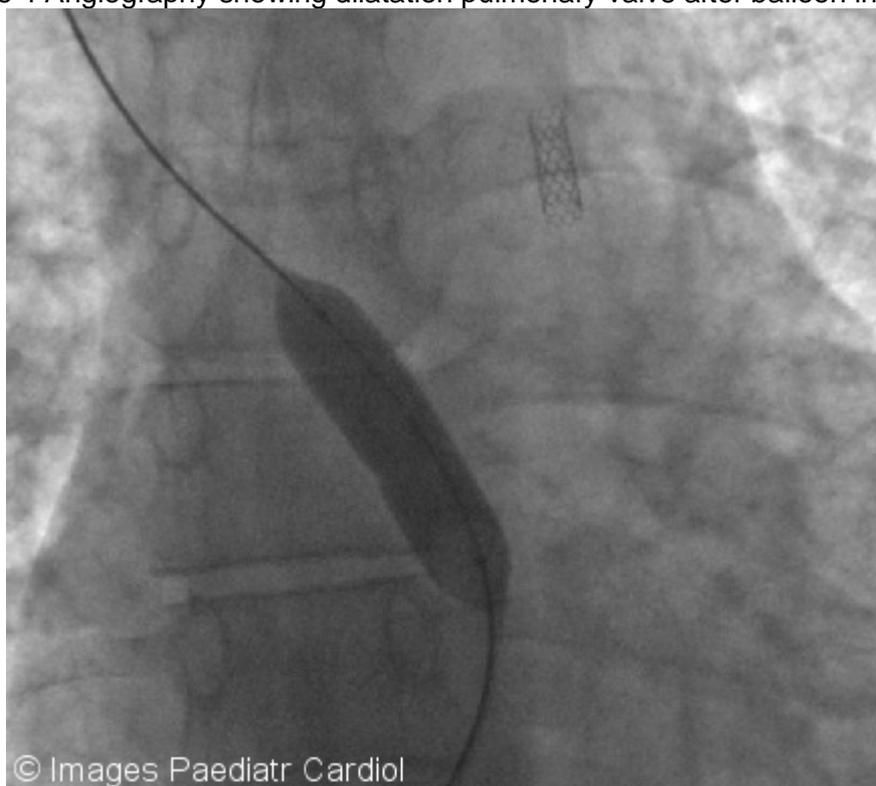


Figure 4 Angiography showing dilatation pulmonary valve after balloon inflation.



## References

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2. Nakanishi T. Cardiac catheterization is necessary before bidirectional Glenn and Fontan procedures in single ventricle physiology. *Pediatr Cardiol.* 2005;26:159–161.[PubMed: 15868324]

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