

Aortic-Left Ventricular Tunnel

Clinical Case Portal

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Case Report

A 27 years old female began to complain of tiredness and shortness of breath after pregnancy. Transthoracic and Transoesophageal echocardiography disclosed an echo free space anterior to the aorta near the emergence of the right coronary artery.

A diagnosis of aortic left ventricular tunnel was made.

Surgery was performed. There was no significant residual aortic regurgitation. The patient is well, in NYHA class I after 2.5 years of follow up.

Patient history prior to current observation :

The patient, a 27 years old female, had a longstanding history of heart murmur, which had been investigated in France during infancy. No treatment had been proposed at that time and the results of the investigations were not available.

She had been asymptomatic until recently, (2 years ago); when following pregnancy she began to complain of tiredness and shortness of breath.

On examination she had bounding peripheral pulses and a harsh diastolic murmur was audible along the left sternal edge.

There was cardiomegaly on the chest x- rays, and left ventricular hypertrophy on the ECG.

Clinical findings on admission, evolution and outcome :

Transthoracic echocardiogram (fig. 1, fig. 2) showed a small cavity anterior to the aorta close to the pulmonary artery where there was diastolic flow.

The left ventricle was dilated (62 mm in diastole and 39 mm in systole) with preserved LV function.

Transoesophageal echocardiography disclosed an echo free space anterior to the aorta near the emergence of the right coronary artery (fig. 3, fig. 4).

In a 120° oblique plane (fig. 5) the connections of the cavity to the aorta and left ventricular outflow tract were very well visualised.

In a more oblique (135°) plane (fig. 6), aortic regurgitation through the tunnel was demonstrated.

In a longitudinal plane the connection of the paraaortic cavity to the ascending aorta was observed.(fig. 7)

A diagnosis of aortic left ventricular tunnel was made.

The angiographic image could be confused with a rupture of an aneurysm of the sinus of Valsalva.

MRI of the heart was also performed and the images were similar to those obtained by echocardiography.

Clinical Evolution

Surgery was performed using extracorporeal circulation as the patient was symptomatic and already had a dilated left ventricle. The tunnel was excised, closing the connections to the aorta and left ventricle, leaving the right coronary artery connected to the aorta. The aortic valve was not touched.

No immediate complications occurred. There was no significant residual aortic regurgitation. The patient is well, in NYHA class I after 2.5 years of follow up.

Conclusion

The unusual features of this case are the very late diagnosis, the fact that the patient remained asymptomatic for so long, and that she had a full term pregnancy without significant complications. The differential diagnosis is with an aneurysm of the sinus of Valsalva and a coronary artery fistula. Although the right coronary artery emerged from the tunnel, (that did not originate above the sinus of Valsalva), our diagnosis was maintained. Other authors have recently used the same classification in similar conditions.

References

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2. Sreeram N, Franks R, Arnold R, Walsh K. Aortic - left ventricular tunnel: long - term outcome after surgical repair. *J Am Coll Cardiol* 1991; 17:050-5.
3. Randó AS, Bai.ón R, Cutillas M, et al. Túnel aortoventricular izquierdo. Consideraciones clínicas y quirúrgicas. *Rev Esp Cardiol* 1993; 46:116-8.

Video 1 :

[Aortic-Left Ventricular Tunnel TTE - PLAX](#)



Video 2 :

[Aortic-Left Ventricular Tunnel_TTE - PSAX](#)



Video 3 :

[Aortic-Left Ventricular Tunnel TOE - SAX Aortic valve](#)



Video 4 :

[Aortic-Left Ventricular Tunnel TOE - 120° recording](#)



Video 5 :

[Aortic-Left Ventricular Tunnel TOE - Aneurysmal cavity](#)



Video 6 :

[Aortic-Left Ventricular Tunnel TOE - 135° Tunnel visualisation with Doppler](#)



Video 7 :

[Aortic-Left Ventricular Tunnel TOE long axis - Connection of the tunnel cavity with the aorta](#)

