

Echocardiography in diagnosing a coronary fistula

Clinical Case Portal

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Case Report

We describe a case of coronary fistula, diagnosed by clinical exam and transthoracic echocardiography.

Patient history prior to current observation :

We present the case of an eight years old girl, with no history of cardiac disease and asymptomatic, who was referred to our clinic for the investigation of a cardiac murmur, discovered by chance on a routine medical exam.

Clinical findings on admission, evolution and outcome :

The patient was asymptomatic. Clinical exam revealed a continuous loud murmur, along the left sternal edge. No other abnormalities were found on examination. The **ECG** showed sinus rhythm at 100 beats/min, ORS axis at + 750, Sokolow – Lyon index of 49 and prominent, deep and narrow Q waves in V5, V6, DI. On the **chest x-ray** the cardiac index was 0,6; pulmonary blood flow was slightly increased.

The **transthoracic echocardiography** revealed an unexpected, unusual structure with apparent echo-free content projected at upper level of left atrium, in parasternal long axis view (fig. 1). It was a long structure, with short diameter about 13 mm (fig. 2) and abnormal turbulent flow at color Doppler mapping (fig. 3). Parasternal short axis view showed a circular echo-free space at the same superior level of LA (fig. 4), with the same size (diameter = 13 mm) and abnormal color flow signal (a turbulent “mosaic” aspect) – fig. 5. . A continuous systolic-diastolic signal was acquired in Doppler PW in this area (fig. 6). A small change in transducer position revealed the channel origin from the aorta, at the usual origin of left main coronary artery (fig. 7). A continuous flow velocity signal with maximal velocity in systole was registered, non typical for coronary flow (fig. 8).

A **MRI** was performed and a fistulous trajet was visualized in transversal and longitudinal projection, between aorta and right atrium (fig. 9).

Cardiac catheterism confirmed the presence of left-to-right shunt; the pulmonary to systemic ratio (QP/QS) was calculated as 1,63. There was high oxygen saturation in RA compared to superior and inferior vena cava, identifying the place of shunt drainage (fig. 10). Selected injection in left coronary artery showed a fistulous channel following initially the course of circumflex artery (proximal) and afterwards the way to the receiving chamber: the right atrium.

Clinical evolution

We proposed the closure of the fistula by transcatheter coil embolisation. Girl’s parents refused the procedure.

Conclusion

We chose to present this case because of the rarity of this congenital coronary anomaly and the importance of echocardiography in positive and differential diagnosis. The origin and the course of the fistula was traced by TTE (combining 2D with Doppler spectral and color flow mapping). Thus, we differentiated coronary fistula by a coronary artery aneurism or a congenital aorto-left atrium tunnel. Complementary investigation (MRI, coronarography and cardiac catheterization) allowed to establish the drainage site and possibility of therapeutical approach.

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Fig. 1 :

[Coronary fistula - TTE - parallax](#)



Fig. 2 :

[Coronary fistula - TTE - parallax](#)



Fig. 3 :

[Coronary fistula -TTE-parallax-2D-colour flow](#)



Fig. 4 :

[Coronary fistula - TTE - 2D- parallax](#)



Fig. 5 :

[Coronary fistula-TTE-parsax-2D-colour flow](#)

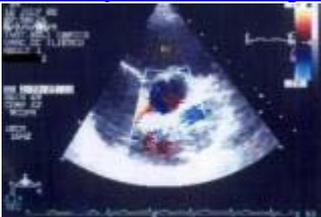


Fig. 6 :
[Coronary fistula - TTE - PWD](#)

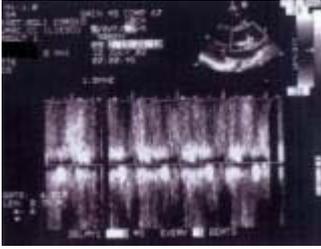


Fig. 7 :
[Coronary fistula-TTE-parsax-2D](#)

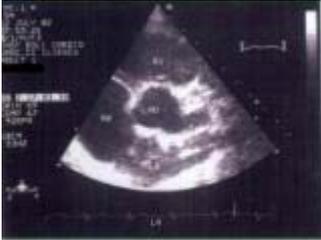


Fig. 8 :
[Coronary fistula-TTE-PWD](#)

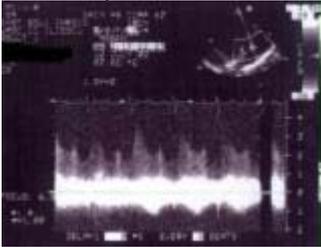


Fig. 9 :
[Coronary fistula-MRI-longitudinal view](#)

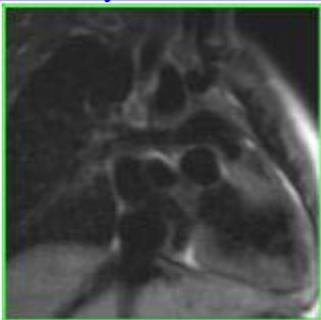


Fig. 10 :

Coronary fistula-scheme

