Isolated cleft of the posterior mitral valve leaflet assessed by real-time 3D echocardiography

Fente mitrale postérieure mise en évidence par échographie cardiaque 3D

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An asymptomatic two-year-old boy was referred for the evaluation of a soft holosystolic murmur. The electrocardiogram was normal. Transthoracic two-dimensional echocardiography showed normal left ventricle dimensions and function. The number and location of the papillary muscles were normal. The mitral regurgitation originated through the cleft (Fig. 1 video 1). Whereas the cleft was not well distinguished with two-dimensional echocardiography, three-dimensional echocardiography allowed distinct visualization of the cleft (Fig. 2 video 2), which was clearly bisected in two equal parts.

Isolated cleft of the posterior mitral valve leaflet is a very rare congenital anomaly that causes mitral regurgitation. Cleft of the posterior leaflet was described in isolation or in association with other anomalies of the mitral valve apparatus, such as papillary muscle malrotation, accessory mitral valve leaflet, mitral valve prolapse, chordae rupture and cleft of the anterior mitral valve leaflet. As in this report, the cleft is usually seen within segment P2 but can occur at any segment of the posterior leaflet. Mitral regurgitation is severe in 50% of cases. Surgical repair, with direct suturing of the cleft edges or pericardial patch repair is the technique of choice when mitral regurgitation is significant. As
Figure 1. A. Apical four-chamber view showing an eccentric mild mitral regurgitation jet. B. Regurgitation jet through the posterior leaflet of the mitral valve is seen on Doppler colour views.
AL: anterior leaflet of the mitral valve; PL: posterior leaflet of the mitral valve.

Figure 2. A. Cleft of the posterior mitral valve leaflet seen on three-dimensional echocardiographic view. The cleft is seen from the left atrium. Leaflets are divided into three segments according to Carpentier’s classification. The cleft is seen within segment P2. The posterior leaflet is bisected into two equal parts. B. Three-dimensional echocardiographic view shows the "V"-shape of the cleft seen from the left ventricle.
AL: anterior leaflet of the mitral valve; PL: posterior leaflet of the mitral valve.

mentioned in this report, a simple follow-up is possible when patients have no symptoms and trivial-to-mild regurgitation.

Conflict of interest statement
None.

Appendix A. Supplementary data
Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2010.08.003.