Imaging the prosthetic valve sewing ring thrombosis using real-time three-dimensional transoesophageal echocardiography

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A 56-year-old man was admitted for transoesophageal echocardiography (TEE) evaluation before electrical cardioversion of persistent atrial fibrillation to sinus rhythm. He had undergone mitral valve replacement with a bileaflet prosthetic mitral valve (SORIN prosthetic valve) for rheumatic disease 3 months previously. Inadequate anticoagulation was noted with an INR of 1.7. TEE revealed the presence of thick mobile filamentous fibrin strands attached to the prosthesis sewing ring with a diastolic movement within the prosthesis without obstruction (normal

5 mmHg transprosthetic mean pressure gradient) (Fig. 1 and video 1). Three-dimensional transoesophageal echocardiography showed the presence of a circular thrombus like a crown attached to the whole prosthesis sewing ring protruding between the prosthesis leaflets and the sewing ring (Fig. 2 arrows and video 2) highlighting the presence of sewing ring thrombosis when compared with two-dimensional TEE evaluation of the same image. Considering the presence of non-obstructive thrombosis, a conservative approach with heparin was used.

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Fig. 1 Two-dimensional transoesophageal echocardiography two-chamber view showing the presence of thick filamentous fibrin strands attached on the atrial side of the prosthesis sewing ring (arrows)

Fig. 2 Real-time three-dimensional transoesophageal echocardiography showing the presence of a circular thrombus attached to the whole prosthesis sewing ring

Real-time three-dimensional TEE provided a more comprehensive delineation of prosthetic mitral valve thrombosis, a better visualisation of the thrombus and a better understanding of the relationship between all the structures when compared with two-dimensional transoesophageal echocardiographic images [1].

Reference

1. Moreo A, Lobiati E, De Chiara B, et al. Assessment of mitral prosthetic valve thrombosis by live three-dimensional echocardiography: comparison with transesophageal echocardiography. *Hear Vessel*. 2007;22(4):287–9.