Utility of transthoracic echocardiography in characterizing proximal protrusion of a coronary stent

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Case presentation

A 71-year-old lady presented with chest pain 2 weeks following deployment of a drug-eluting stent (Promus 3.0 × 28 mm) to an ostial right coronary artery (RCA) stenosis at another institution.

Coronary angiography with attempts to engage the RCA was difficult. The angiographic appearance (see Supplementary data online, Video file S1) was suggestive of probable protrusion of the previously deployed stent proximally into the aorta. Non-selective contrast injection with the catheter placed immediately overlying the proximal stent struts (Figure 1A) suggested protrusion of the RCA stent into the right coronary cusp (Figure 1A and B). Transthoracic echocardiography (TTE) was performed to further characterize the stent position. This demonstrated an immobile echodensity extending into the right coronary cusp in the parasternal short-axis view (Figure 1C), consistent with the diagnosis of a protruding aorto-ostial stent. The right (*) and non-coronary (**) aortic leaflets appeared to open normally (Supplementary data online, Video files S2 and S3), and colour-Doppler imaging (not shown) did not show evidence of leaflet pathology. Given this clear characterization of the stent on TTE, it was elected to manage the patient conservatively.

Cardiac computed tomography supported the diagnosis (Figure 1D), though did not provide additional anatomical information.

Aorto-ostial coronary stent protrusion may not be easily appreciated angiographically. In this case, TTE allowed an estimation of the degree of stent protrusion, and defined the lack of involvement between stent and adjacent valve leaflets, thus guiding the decision to undertake a conservative management approach.

Panel A. Non-selective contrast injection demonstrating stent protrusion (arrowhead) into the right coronary cusp (arrows).

Panel B. Stent protrusion (arrows) is clearly seen beyond the tip of the angiography catheter.

Panel C. Short-axis transthoracic echocardiogram demonstrating stent protrusion (arrowhead) into the aortic sinus. Right (*) and non-coronary (**) aortic leaflets are seen.

Panel D. Corresponding computed tomography image confirming aorto-ostial stent protrusion (arrow). AO, aorta; RV, right ventricle; RA, right atrium; LA, left atrium.

Supplementary data

Supplementary data are available at European Journal of Echocardiography online.