



Aortic regurgitation in rheumatoid arthritis: an uncommon presentation

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A 46-year-old woman with treated rheumatoid arthritis (RA) was referred to Cardiology Department due to symptomatic, non-syncopal, ventricular tachycardia episodes. On physical examination, a diastolic heart murmur on left sternal border, compatible with aortic regurgitation (AR), was described, without signs of heart failure or joint damage. Basal electrocardiogram showed sinus rhythm and right bundle branch block (BBB) and during tachycardia wide QRS complexes, with left BBB morphology and inferior axis. Transthoracic and transesophageal echocardiograms showed a tricuspid aortic valve (AV) with a large, non-mobile sub-AV mass, adherent to right coronary cusp (RCC) and membranous interventricular septum, leading to leaflet immobilization on diastole, causing eccentric, severe AR jet, impinging on anterior mitral valve leaflet (Fig. 1A–D; Videos 1–5); the left ventricle had normal dimensions and ejection fraction. Cardiac magnetic resonance findings were consistent with a

non-fatty, fibrous, non-vascularized mass (Fig. 1E, F; Videos 6, 7). At surgery, RCC was thickened and immobilized by a 20 mm mass (Fig. 1G); non-coronary cusp was also involved and AV replacement with a mechanical valve performed. On histopathology, the valve and fibrous mass showed an inflammatory infiltrate, with a granuloma being found (Fig. 1H), without signs of neoplasm or microorganisms, a lesion characteristic of rheumatoid nodule. The clinical and imaging presentation turns this into a unique case: in most reports, leaflet retraction is the mechanism for valvular insufficiency in RA; here, a large inflammatory mass leads to cusp immobilization. This underscores the need to recognize RA as an etiology of heart valve disease, even when mechanism seems unusual.

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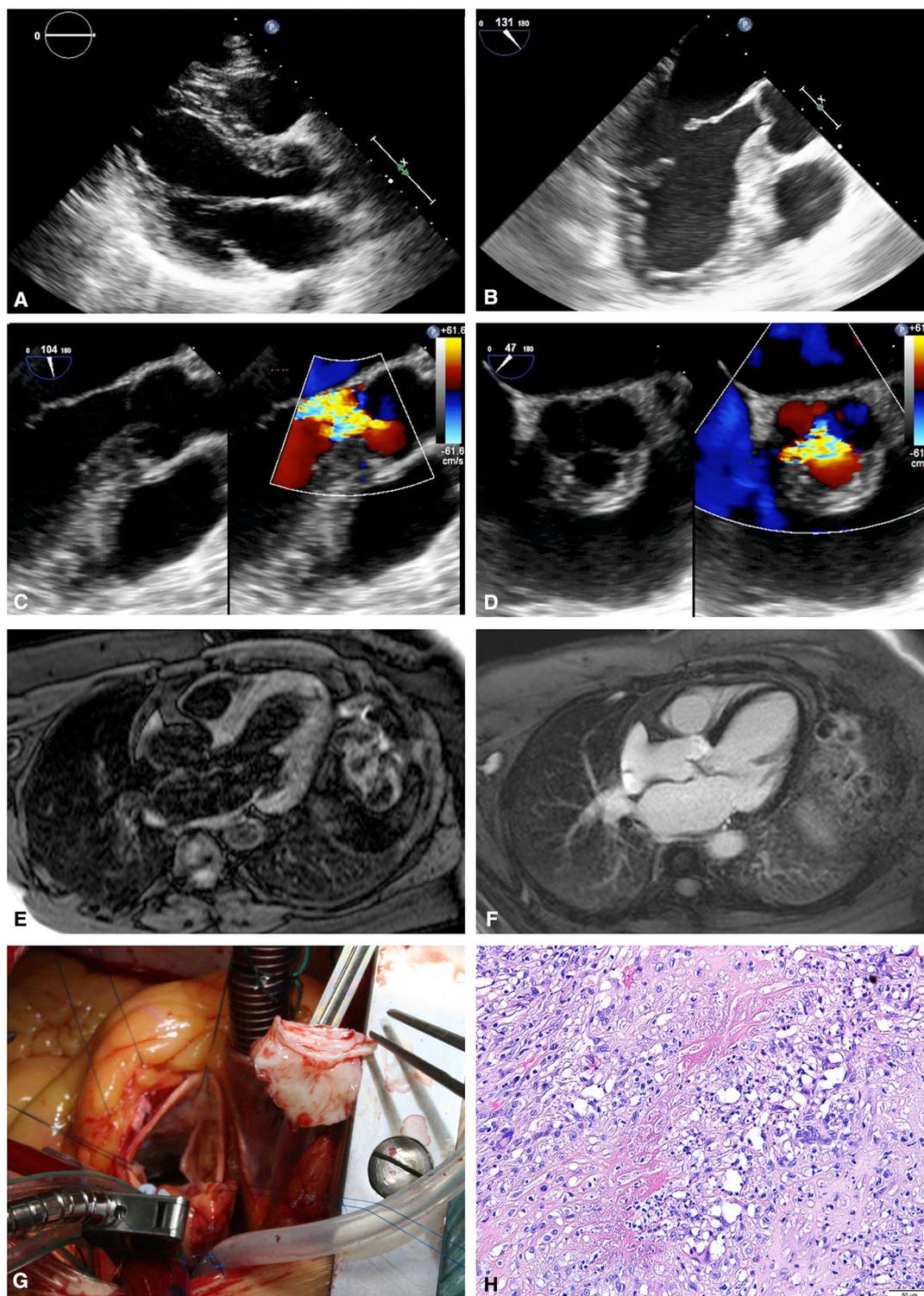


Fig. 1 **A** Sub-aortic valve mass, adherent to right coronary cusp (RCC) and membranous interventricular septum, on transthoracic echocardiogram (TTE), parasternal long-axis view (PLAX). **B** Sub-aortic valve mass on transesophageal echocardiogram (TEE), long-axis view. **C** Severe aortic regurgitation jet on colour flow Doppler, on a TEE long-axis view. **D** Severe aortic regurgitation jet on colour flow Doppler, on a TEE short-axis view. **E** Mass tissue characterization on cardiac magnetic resonance (CMR), with enhancement on a

T2-weighted, fat suppression sequence, compatible with a non-fatty structure. **F** Mass tissue characterization on CMR, with late gadolinium enhancement, compatible with a fibrous structure. **G** Intraoperative findings, with a 20 mm, fibrous sub-aortic valve mass, adherent to right coronary cusp. **H** Histopathology, showing heart valve with abundant lymphoplasmacytic inflammatory infiltrate, and a necrobiotic granuloma with multinucleate giant cells