Rapid pannus formation: a rare cause of mitral stenosis following successful mitral valve repair

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A 70-year-old female with symptomatic severe functional mitral valve regurgitation (Panel A) underwent successful mitral valve repair utilizing a Carbomedics 34-mm flexible annuloplasty ring with trivial residual regurgitation postoperative (Panel B). Pre-discharge transthoracic echocardiogram showed a mean gradient of 3 mmHg at 60 bpm (Panel C).

The patient presented with recurrent exertional dyspnoea 7 months later. Transthoracic echocardiography showed trivial mitral regurgitation, but a high resting mitral inflow gradient of 10 mmHg at 70 bpm (Panel D) which increased during supine bicycle stress echocardiography to 25 mmHg (Panel E) at peak heart rate of 126 bpm with concomitant rise in pulmonary artery systolic pressure from 43 mmHg at rest to 75 mmHg at peak exercise, explaining the recurrent symptoms. She was referred for redo mitral valve surgery after failing medical management.

Intraoperative transoesophageal echocardiography showed extensive tissue ingrowth encroaching into supravalvular mitral inflow orifice, extending far over the annuloplasty ring (Panel F, arrow), causing significant stenosis of the mitral valve orifice (Panel G, arrows). During surgery, extensive tissue ingrowth was noted over the top of the mitral annuloplasty ring, consistent with a large ledge of pannus (Panel H, arrow). The mitral valve was replaced with a Hancock II 27-mm porcine bioprosthesis (Panel I; Supplementary data online, Video S1). Pathology confirmed fibrous tissue with chronic inflammation consistent with pannus.

Pannus formation after annuloplasty ring mitral valve repair is extremely rare and typically diagnosed many years after surgery. Rapid pannus ingrowth should be considered in the differential diagnosis when a patient presents with a progressive increase of the mitral inflow gradient early after successful mitral valve repair.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.