Left atrial fibrous band, an unexpected mechanism of mitral regurgitation

R. Bruce Irwin*, Matthias Schmitt, and Simon Ray

Department of Cardiology, Northwest Heart Centre, University Hospitals of South Manchester, Wythenshawe Hospital, Southmoor Road, Manchester M23 9LT, UK

* Corresponding author. Tel: +44 1619987070, Email: rbirwin@hotmail.com

A 75-year-old gentleman, who had undergone CABG surgery 18 years previously, reported increasing dyspnoea. Transthoracic echocardiography revealed a posteriorly directed jet of moderate mitral regurgitation (MR), reported to be of functional origin (Carpentier classification IIlb). Transoesophageal echocardiography revealed an unexpected structure traversing the left atrium (LA), attaching to the anterior mitral leaflet (Panel A1). Posterior leaflet motion was slightly restricted; however, retraction of the anterior leaflet into the LA was prominent, with consequent regurgitation (Panels A1 and A2; see Supplementary material online, Video S1). Live 3D imaging allowed complete visualization of the structure, demonstrating connection between A2 scallop and the atrial roof (Panel B, (AV, aortic valve position); see Supplementary material online, Video S2). Additionally, anterior leaflet retraction was emphasized to be the principal mechanism of coaptation failure, with visible tension invaginating the atrial roof in systole (Panel C, arrowed; see Supplementary material online, Video S3). The possibility of a retained LA catheter from previous surgery was considered; however, cardiac magnetic resonance imaging confirmed no extra-cardiac extension, and no signal drop-out associated with the structure (Panel D, arrowed; see Supplementary material online, Video S4). Appearances were in keeping with a left atrial fibrous band. Subsequent supine bicycle echocardiography established no significant increase in MR with exercise. With satisfactory exercise tolerance, further surgical intervention was not felt justified.

Autopsy data suggest the prevalence of left atrial bands to be approximately 2%. Associated mitral valve dysfunction is exceedingly rare, and the subject of a very few case reports. Interestingly, the mechanism of MR, with restriction of leaflet motion above the annular plane, does not sit comfortably into the established categories of Carpentier’s classification.

Supplementary data
Supplementary data are available at European Journal of Echocardiography online.

Conflict of interest: none declared.