Leaflet migration in an aortic bileaflet mechanical prosthesis

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A 41-year-old man was referred to the emergency department for transient atypical chest pain. Six years before presentation, he underwent concomitant aortic and mitral mechanical valve replacement for a bicuspid aortic valve regurgitation and a regurgitating mitral valve prolapse. A significant paravalvular leak of the 21 mm SJM Masters Series Hemodynamic Plus aortic prosthesis (St. Jude Medical, USA) was surgically repaired with sutures supported by Teflon pledgets 1 year before presentation.

Cardiac auscultation revealed a 4/6 harsh protomesosystolic and a 2/6 soft protodiastolic murmur, best heard at the aortic area. The echocardiographic work-up showed severe transprosthetic aortic regurgitation (Panel A), with holodiastolic flow reversal in the descending aorta (Panel B). Cinefluoroscopy (Panel C and see Supplementary material online, Video) raised the suspicion of leaflet migration, confirmed during emergent surgery. The subsequent CT scan localized the fractured leaflet in the right common iliac artery (Panels D and E) and the larger fragment could be surgically removed the next day (Panel F). The St. Jude Medical postmarket investigation revealed no material defect and the cause of the leaflet fracture and dislodgement remains unknown, although an overstress of the carbon material by some external force applied during the previous intervention is the most likely hypothesis.

Leaflet migration is an extremely rare complication of new generation mechanical prostheses, which nonetheless should be suspected in case of acute prosthetic valve dysfunction.

Supplementary material is available at European Heart Journal online.