A short-lived valvular mass

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A 53-year-old male came to our outpatient clinic for a routine examination. He was operated in 2000 for aortic and mitral valve replacement; both were St Jude bileaflet prostheses, 27 and 33 mm Ø, respectively. He was strictly asymptomatic, having no abnormal physical findings.

A routine cardiac ultrasound was performed. The cardiac function and the haemodynamic parameters of the two prostheses were normal. However, the presence of an isoechoic, hypermobile image was noticed, appearing briefly in protosystole in all-imaging planes (Panel A). A three-dimensional study confirmed a small mass, 1.7 × 0.9 cm, clearly visible between the two valves (Panel C, red arrow), but quickly disappearing, after a mere 85 ms (Panel B).

The patient was asymptomatic, afebrile, with normal blood results, including therapeutic INR (INR = 3.3). Blood cultures were negative. We hypothesized that loose chordae might create the image, but the native mitral valve had been completely removed during the surgery and there was no prosthetic dysfunction evident.

Surprisingly, a computed tomography showed perfectly normal mechanical valves without any mass (Panels D, E, and F; Ao, aortic prosthesis; Mi, mitral prosthesis). We therefore performed a second ultrasound focusing on the region in question to obtain a high temporal resolution. This time we could clearly see a cluster of microbubbles (Panel G), forming and quickly dissolving. This explained the rapid disappearance of the image. Tridimensional ultrasound could not distinguish between individual bubbles, instead rendering a tissue-like image.

Spontaneous echocardiographic microbubbles associated with prosthetic bileaflet valves occur at the inflow zone, at the time of valve closing or opening and can be mistaken for a mass.

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