A 63-year-old woman with an acute stroke of unknown origin was referred to our hospital for further diagnostic evaluation. Contrast-enhanced ECG-gated 64-slice spiral computed tomography depicted a well-defined, pedunculated, mobile, spherical lesion (density 52 ± 19 Hounsfield units) attached to the lateral papillary muscle of the mitral valve. The lesion showed a relatively homogenous inner structure with a slightly curled outer margin (Panel A). ECG-gated magnetic resonance imaging exhibited a solid lesion with intermediate signal intensity on both T1- and T2-weighted spin-echo sequences (Panel B). Transthoracic and multiplane transesophageal echocardiography also demonstrated a spherical solid structure within the lateral papillary muscle, confirming the computed tomography and magnetic resonance imaging findings (Panel C). Dynamic computed tomography files, cine magnetic resonance imaging, and colour-coded Doppler echocardiography demonstrated a slight insufficient mitral valve. Surgery was performed and because of the extensive attachment of the tumour on the papillary muscle, a reconstructive procedure was not possible so that the complete subvalvular apparatus and the mitral valve had to be resected (Panel D) and a mechanical heart valve prosthesis was implanted. The gross pathological specimen appeared as a translucent, gelatinous mass. Histological examination revealed a benign tumour with multiple papillary fronds of different size that consisted of an acellular matrix surrounded by a single layer of endothelial cells, leading to the definite diagnosis of papillary fibroelastoma.

Panel A. Contrast-enhanced ECG-gated 64-slice spiral computed tomography demonstrated a well-defined, pedunculated, spherical mass (arrow) located in the lateral papillary muscle of the mitral valve.
Panel B. ECG-gated magnetic resonance imaging. T2-weighted fat suppression spin-echo sequence showing a solid lesion (arrow) with intermediate signal intensity.
Panel C. Multiplane transesophageal echocardiography depicting a spherical echogenic structure (arrow) within the lateral papillary muscle.
Panel D. Intraoperative photograph showing the resected tumour attached to the papillary muscle of the mitral valve.