

# Flail tricuspid valve with torrential regurgitation caused by papillary fibroelastoma

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A 51-year-old male patient was admitted to our hospital with chest tightness, palpitation, and edema of both lower extremities. Transthoracic echocardiography showed flail tricuspid valve (TV) with torrential regurgitation, right ventricular dilation, and dysfunction (Fig. 1A–D, **Suppl. Video S1**). Furthermore, an echodense structure at the tips of the flail leaflet was identified as ruptured papillary muscle or chordae tendineae, which was thought to be the cause of torrential regurgitation (Fig. 1A, B). Transesophageal echocardiography confirmed tricuspid dysfunction and increased echodensity at the edge of the TV (Fig. 1E, F). The patient underwent tricuspid surgery. Intraoperative exposure of the TV showed a small mass on the cuspid-chordal junction of the anterior leaflet and involved chordae tendineae (Fig. 1G). Valve repairment was tried and failed during the procedure. Fi-

nally, a tricuspid bioprosthesis was implanted. The patient tolerated the procedure well. A pathological assessment of the resected mass determined it to be an unexpected papillary fibroelastoma (Fig. 1H).

Cardiac papillary fibroelastoma (CPF) is a rare primary benign tumor typically located on leaflets of the valve. Most CPF is asymptomatic and is incidentally found by autopsy. Typical echocardiographic features include a small, mobile mass with a pedicle attached to the leaflets. In this case, the neoplasm mimicked ruptured papillary muscle or chordae tendineae and had failed to be diagnosed by echocardiography. The challenge is that the mass was tiny and not easily identified as a neoplasm. This highlights the possibility of CPF is rare and a cause which severely affects tricuspid function, even in the absence of a significant mass on echocardiography.

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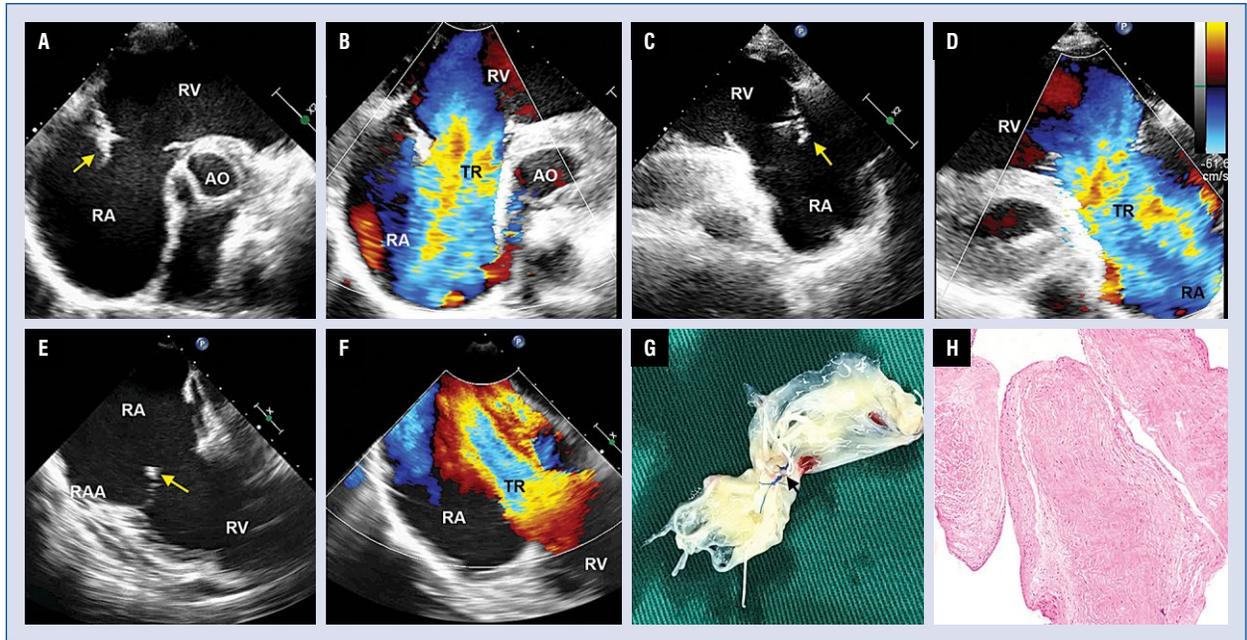
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**Figure 1.** Echocardiographic, intraoperative, and histopathological images. Transthoracic and transesophageal echocardiography shows the flail tricuspid valve and an echodense structure at the tips of the flail leaflet (yellow arrows) (A, C, E). The corresponding color Doppler images reveal the torrential regurgitation (B, D, F). Intraoperative photograph of the removed tricuspid valve and a tiny mass involving chordae (black arrow) (G). Histopathological examination in hematoxylin and eosin stain at 200 magnifications shows multiple avascular connective tissues surrounded by a single layer of endothelial cells (H); AO — aorta; RV — right ventricle; RA — right atrium; RAA — right atrial appendage, TR — tricuspid regurgitation.