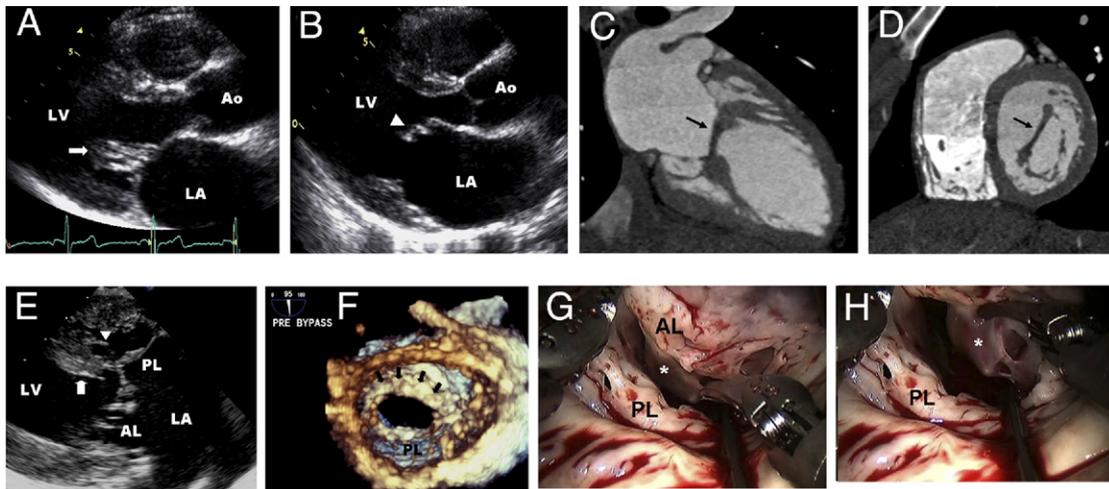


IMAGES IN CARDIOLOGY

Multi-Imaging Assessment of the Congenital Mitral Arcade

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A 25-year-old female with heart failure diagnosed in infancy presented with progressive exertional dyspnea. Transthoracic echocardiography revealed severe mitral regurgitation and thickening of the mitral valve and subvalvular apparatus (**A**, arrow), with apparent "hockey-stick" diastolic deformity of the anterior mitral leaflet (AL) (**B**, arrowhead) suggestive of rheumatic involvement. The patient was referred for surgery. Electrocardiography-gated cardiac computed tomography performed for pre-operative coronary artery evaluation unexpectedly demonstrated elongated papillary muscles connected along the free edge of the AL by a bridge of abnormal tissue (**C** and **D**, arrows, [Online Videos 1](#) and [2](#)), with restricted AL mobility. Intraoperative transesophageal echocardiography showed similar findings with elongated papillary muscle in direct continuity with the AL (arrow, **E**) and thick, shortened cordae between the papillary muscle and the posterior leaflet (PL) (arrowhead, **E**, [Online Video 3](#)) with formation of an anterior fibrous arcade on 3-dimensional left ventricular (LV) perspective reconstruction (**F**, arrows). Robot-assisted minimally invasive surgery confirmed anomalous mitral arcade with direct continuity of both anterolateral (*, **G**) and posteromedial (*, **H**) papillary muscles with the AL. The native valve was replaced with a mechanical prosthesis and the patient recovered uneventfully.

Anomalous mitral arcade is rare (1) and can be confused with rheumatic mitral disease on transthoracic echocardiography (2). The high spatial resolution of computed tomography combined with multiplanar 4-dimensional images can reveal anatomic and functional details of the mitral apparatus, thus suggesting the correct diagnosis. Ao = aorta; LA = left atrium.

REFERENCES

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