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# When the Appendage is Clear: A Giant Left Atrial Roof Thrombus

## Apandiksin Temiz Olduğu Durumda: Sol Atriyum Tavanında Dev Bir Trombüs

**CASE IMAGE**
OLGU GÖRÜNTÜSÜ

A 50-year-old woman with a history of hypertension presented with progressive exertional dyspnea (New York Heart Association class III) and worsening palpitations for one month. Electrocardiography revealed atrial fibrillation (AF) with a ventricular rate of 117 bpm. Transthoracic echocardiography demonstrated normal left and right ventricular size and function (left ventricular [LV] ejection fraction 55%), mild mitral, aortic, and tricuspid regurgitation, and severe rheumatic mitral stenosis (mitral valve area 1.4 $cm^2$; peak gradient 18 mmHg; mean gradient 11 mmHg). Biatrial enlargement, an estimated pulmonary artery systolic pressure of 45 mmHg, and a minimal (6 mm) pericardial effusion adjacent to the LV inferolateral wall were also noted. In addition, a well-circumscribed heterogeneous mass with internal echolucent areas was identified at the roof (superior wall) of the left atrium (LA). The mass was round to ovoid, exhibited broad-based mural attachment without a pedunculated stalk, demonstrated limited mobility throughout the cardiac cycle, and did not prolapse into the mitral valve (Figure 1A, Video 1). Transesophageal echocardiography

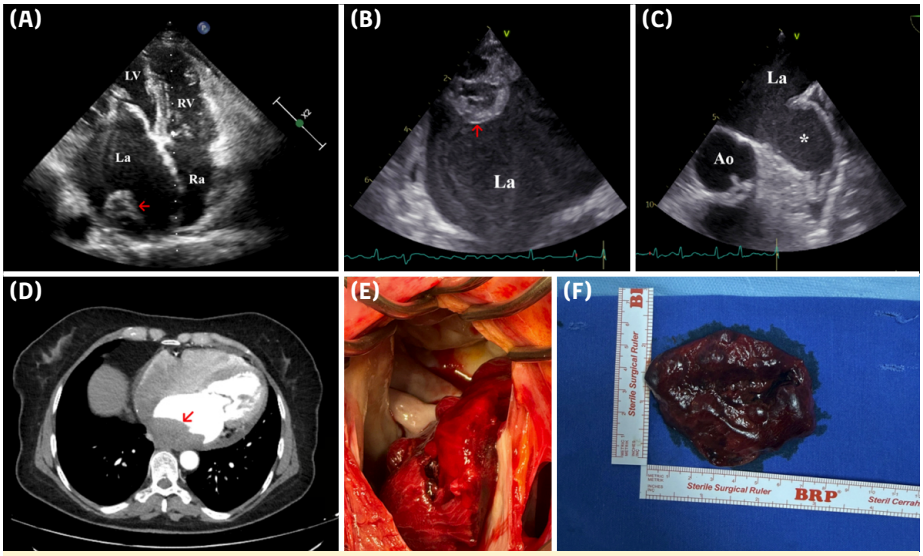



**Figure 1. Multimodality imaging of a giant left atrial (LA) roof thrombus. (A) Transthoracic echocardiography showing a well-circumscribed heterogeneous mass (red arrow) at the left atrial roof with broad-based attachment and no mitral prolapse. (B and C) Transesophageal echocardiography demonstrating: (B) a markedly dilated LA with dense spontaneous echo contrast (SEC) and a large roof-adjacent mass (red arrow) lacking a pedunculated stalk, with focal internal lytic areas; (C) a dilated left atrial appendage (asterisk) with dense SEC; however, no definite thrombus or sludge is observed. (D) Contrast-enhanced computed tomography revealing a non-enhancing hypodense mass (red arrow) arising from the LA roof without wall invasion or extracardiac extension. (E) Intraoperative view of the giant thrombus arising from the LA roof. (F) Gross specimen of the excised thrombus showing a large, dark-red organized mass.**

**Ao, Aorta; LA, Left atrium; LV, Left ventricle; RA, Right atrium; RV, Right ventricle.**

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(TEE) confirmed a markedly dilated LA with dense (grade 3–4) spontaneous echo contrast (SEC) and a large heterogeneous mass adjacent to the atrial roof. The lesion showed broad-based contact with the atrial wall, lacked a definite stalk, and had limited mobility. Focal internal lytic areas suggested partial organization or internal degeneration (Figure 1B, Video 2). The left atrial appendage (LAA) was dilated and exhibited dense SEC; however, no definite thrombus or sludge was identified (Figure 1C, Video 3). Contrast-enhanced chest computed tomography revealed a well-defined hypodense intracavitary mass measuring 76 × 62 × 36 mm arising from the LA roof. The lesion demonstrated no contrast enhancement during the arterial phase and contained small calcifications. It appeared markedly hypoattenuating compared with the contrast-opacified atrial cavity and showed no evidence of atrial wall invasion or extracardiac extension (Figure 1D). In the context of severe rheumatic mitral stenosis, AF, and marked atrial enlargement, the imaging constellation (absence of contrast enhancement, lack of a pedunculated attachment, broad-based mural contact, and low attenuation relative to the opacified blood pool) strongly favored the diagnosis of a giant LA thrombus over a primary cardiac tumor, particularly atrial myxoma. The patient underwent successful surgical thrombectomy with complete removal of the mass (Figures 1E and 1F) and implantation of a mechanical mitral valve prosthesis. The postoperative course was uneventful, with no neurologic complications.

Left atrial thrombus formation in rheumatic mitral stenosis (MS) with AF has traditionally been associated with the LAA. However, prior studies have demonstrated that in advanced MS, thrombus distribution frequently extends beyond the appendage, with a substantial proportion arising within the left atrial cavity itself. This reflects the presence of a diffuse thrombogenic milieu driven by severe atrial enlargement, chronic blood stasis, and impaired intra-atrial flow dynamics, rather than an isolated appendage-related phenomenon. In the present case, multimodality imaging, including dedicated TEE evaluation of the LAA in multiple planes, demonstrated no definite thrombus or sludge within the appendage despite dense SEC. In contrast, a giant, well-organized thrombus was identified along the atrial roof, highlighting the heterogeneous spatial distribution of thrombogenesis in advanced rheumatic disease. Rather than representing a purely unexpected localization, this case illustrates the extreme end of atrial remodeling, in which thrombus formation may occur at sites of relative flow stagnation within the atrial body and roof. Accordingly, the principal clinical message is not limited to the absence of appendage thrombus, but rather emphasizes that comprehensive multimodality assessment of the entire LA, including both appendage and non-appendage regions, is essential in high-risk valvular AF. This approach is particularly important for accurate diagnosis, differentiation from cardiac tumors, and appropriate therapeutic planning.

**Ethics Committee Approval:** This is a single case image, and therefore ethics committee approval was not required in accordance with institutional policies.

**Informed Consent:** Written informed consent was obtained from the patient.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

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**Video 1.** Transthoracic echocardiography showing a well-circumscribed heterogeneous mass with internal echolucent areas at the left atrial roof, with broad-based attachment and no mitral prolapse.

**Video 2.** Transesophageal echocardiography demonstrating a markedly dilated left atrium with dense spontaneous echo contrast and a large roof-adjacent mass lacking a pedunculated stalk, with focal internal lytic areas.

**Video 3.** Transesophageal echocardiography demonstrating a dilated left atrial appendage with dense spontaneous echo contrast; however, no definite thrombus or sludge is observed.