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CASE REPORTS

Cardiac thrombus growth without D-dimer elevation in atrial fibrillation–mediated cardiomyopathy

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A 69-year-old man with persistent atrial fibrillation (AF) was referred to our hospital because of dyspnea and palpitation. Transthoracic echocardiography revealed reduced left ventricular (LV) function with LV ejection fraction (LVEF) of 34.6%. Brain natriuretic peptide (BNP) was elevated (703.5 pg/mL), but D-dimer level was 0.6 μg/mL which was below the age-adjusted D-dimer cut-off threshold (age [years] × 0.01 ug/mL) [1]. We planned to perform catheter ablation; however, after more than 1 month of anticoagulation therapy with apixaban, computed tomography angiography showed left atrial appendage (LAA) thrombus (Fig. 1A). Consequently, we postponed the procedure and changed apixaban (5 mg twice daily) to dabigatran (150 mg twice daily); however, 1 week later, transesophageal echocardiography revealed enlargement of the thrombus (Fig. 1B). After another week, magnetic resonance imaging showed growth of the LAA thrombus, a new LV thrombus, and acute cerebral infarction in the frontal lobe (Fig. 1C–E); D-dimer level (0.6 μg/mL) remained below the age-adjusted D-dimer cut-off threshold. Thrombectomy

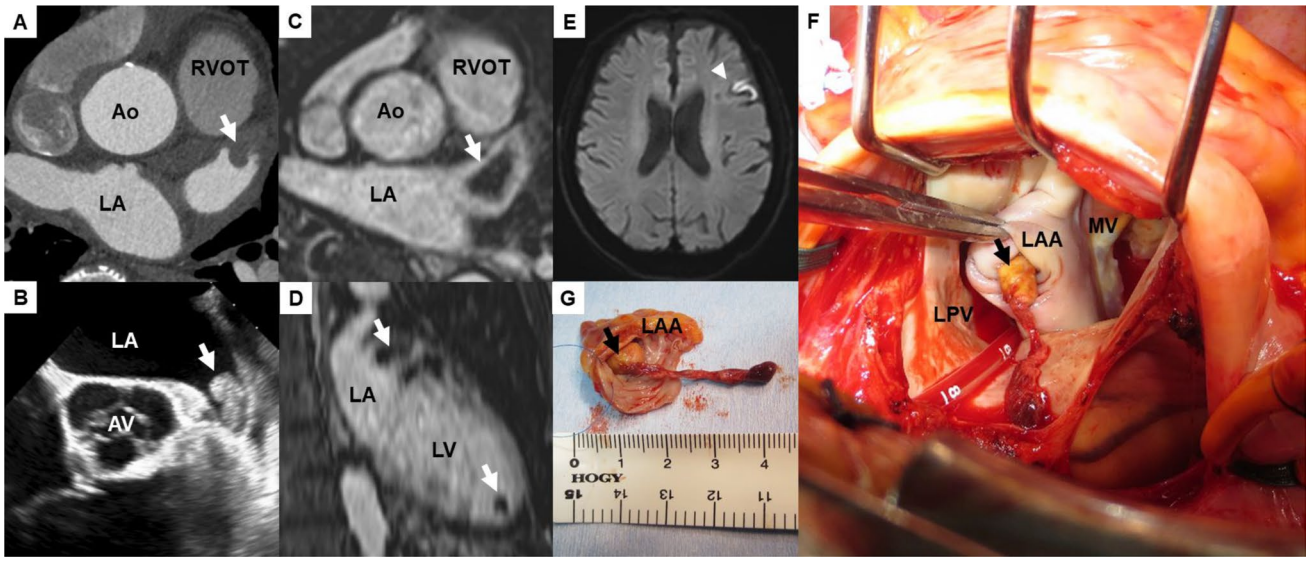

Fig. 1 **A** Computed tomography angiography. **B** Transesophageal echocardiography. **C**–**E** Magnetic resonance imaging. **F** and **G** Intraoperative findings. White and black arrows, cardiac thrombus; white arrowhead, acute cerebral infarction

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and appendage resection were performed with maze procedures (Fig. 1F, G). Pathological examination revealed that the thrombus was composed primarily of fibrin. Three months later, the patient maintained sinus rhythm, BNP level decreased to 40.8 pg/mL, LV function recovered almost to normal (LVEF of 59.4%), D-dimer level was 0.7 μg/mL, and no new thrombi were observed. Plasminogen level was 98% (reference range 80–130%).

Although D-dimer elevation was reported as highly sensitive for atrial thrombus in AF, this case highlights its limitations and the necessity for the combined use of other image modalities for the evaluation of cardiac thrombi.

Reference

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