Assessment of Thrombus Burden by Serial Three-Dimensional Live Transesophageal Echocardiography in a Patient with Prosthetic Mitral Valve Thrombosis: Letter to the Editor

Protez Mitral Kapak Trombozu Olgusunda Trombüs Yükünün Seri Gerçek Zamanlı 3 Boyutlu Transözofageal Ekokardiyografi Eşliğinde Değerlendirilmesi

Ozan Mustafa GÜRSOY,[a]
Süleyman KARAKOYUN,[a]
Mehmet ÖZKAN[a]

[a]Department of Cardiology,
Kartal Koşuyolu Heart Training and Research Hospital, İstanbul

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This case and likes of this were presented in company with serial three-dimensional live transesophageal echocardiography as a verbal abstract by me and it was gained "young investigators" second prize to us in European Society of Cardiology (ESC) Congress 2011, Paris.

Yazışma Adresi/*Correspondence:*
Ozan Mustafa GÜRSOY
Kartal Koşuyolu Heart Training and Research Hospital,
Department of Cardiology, İstanbul, TÜRKİYE/TURKEY
m.ozangursoy@yahoo.com

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A 40 year-old female patient who had mitral valve replacement (MVR) with 27-mm St Jude Medical 4 years ago was admitted to cardiology department with exertional dyspnea. On admission, international normalized ratio was 1.5. Transthoracic echocardiography revealed a mean mitral transvalvular gradient of 12 mm Hg and a mitral valve area of 1.5 cm² with normal left ventricular systolic function. Two-dimensional transesophageal echocardiography (2D-TEE) delineated two distinct thrombi located on both of the hinges, but subsequent real-time three-dimensional transesophageal echocardiography (RT-3D TEE) allowed us to see the total thrombi located on entire valve ring (Figure 1A and B). She was treated with prolonged low-dose infusion of thrombolytics (25 mg tissue plasminogen activator for 6 hours; 2 episodes) which resulted in resolution of symptoms. Serial TEE evaluation permitted visualization of the regression of thrombi (Figure 2A and 2B) until 2D TEE findings was unremarkable and RT-3D TEE depicted a

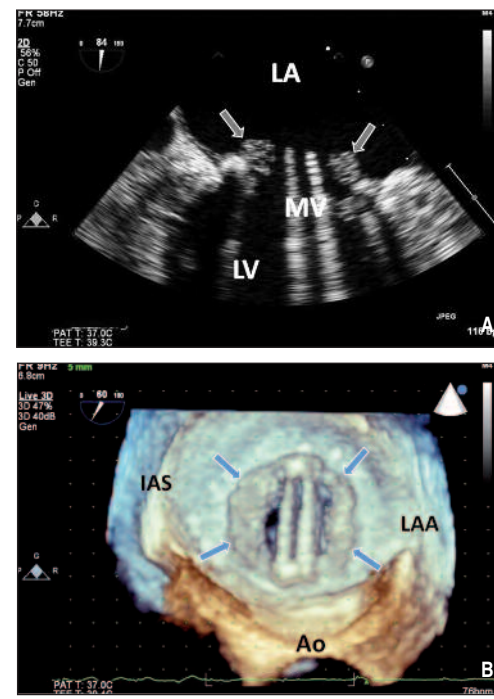

FIGURE 1: Obstructive prosthetic mitral valve thrombosis (see arrows) delineated by 2D **(A)** and RT-3D TEE from atrial side **(B)**. Ao: Aorta; IAS: Interatrial septum; LA: Left atrium; LAA: Left atrium appendix; LV: Left ventricule; MV: Mitral valve.
(See color figure at http://www.turkiyeklinikleri.com/journal/cardiovascular-sciences/1306-7656/)

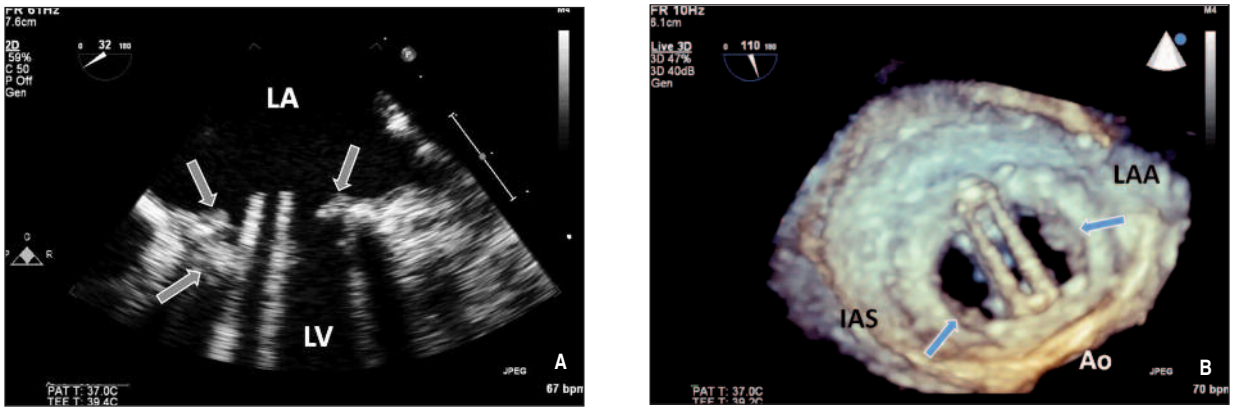

FIGURE 2: Regression of thrombus burden (see arrows) under thrombolysis delineated by 2D **(A)** and RT-3D TEE **(B)**.

Ao: Aorta; IAS: Interatrial septum; LA: Left atrium; LAA: Left atrium appendix; LV: Left ventricule.

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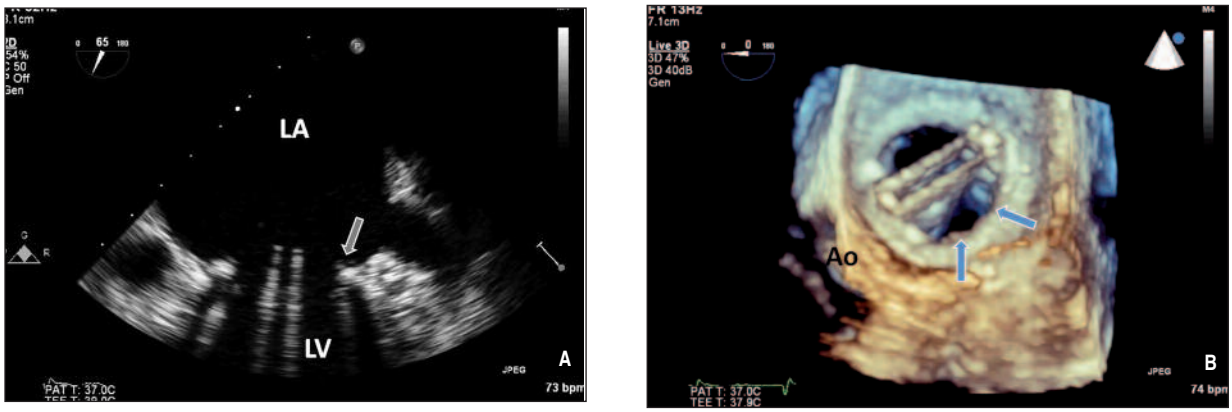

FIGURE 3: Ring located nonobstructive prosthetic valve thrombosis (see arrows) after administration of 2 episodes of tissue plasminogen activator delineated by 2D **(A)** and RT-3D TEE **(B)**.

Ao: Aorta; LA: Left atrium; LV: Left ventricule.

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strip-like thrombi located on one-quarter of the valve ring (Figure 3A and 3B) which might still pose a risk for thromboembolism. The patient was discharged with effective-dose anticoagulation.

Prosthetic heart valve replacement has been associated with life-threatening complications including prosthetic valve thrombosis (PVT).[1-4] 2D TEE has been world-wide used in diagnosis and guidance of management of PVT such as thrombolytic therapy.[3] However, with the use of 2D TEE, the total thrombus burden may be underestimated, and even some nonobstructive cases may be missed.[5] RT-3D TEE has emerged as a fantastic complementary tool in assessment of PVT providing 'en face' surgical views, especially in mitral position.[2,4,5] The exact localization, number, size and shape of thrombi may be clearly depicted by RT-3D TEE. Also the evolution of thrombi during anticoagulation or thrombolytic therapy may be precisely evaluated.

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