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A right atrial worm-like thrombus in an elderly patient: is enoxaparine treatment alone sufficient?

Ferhat Ozyurtlu[1], Faruk Ertas[2], Halit Acet[2], Mehmet Zihni Bilik[2]

[1]Department of Cardiology, MD, Diyarbakır Training And Research Hospital, Diyarbakır, Turkey
[2]Dicle Universty Faculty of Medicine Department of Cardiology, Diyarbakır, Turkey

Corresponding author:: Halit Acet
Adress: Peyas mah. 485 sok. Çarkanat-1 sitesi A Blok Kat: 6 No: 25 Kayapınar, Diyarbakır, Turkey
E-mail: halitacet@gmail.com
GSM tel: +90 05053190183
Telephone: +90 412 2523910
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Abstract

A 86-year-old male, with a history of recent thromboembolic stroke, was admitted to our hospital because of sudden dyspnea due to right-heart thrombus and pulmonary thromboembolism. Transthoracic echocardiography revealed floating snake-like thrombus in the right atrium. Because of his cerebral status contraindicated surgical intervention and thrombolytic therapy. medical therapy with only enoxaparin. His clinical and haemodynamic status improved in two days. Follow-up transthoracic echocardiography, performed 2 days after the initiation of therapy revealed complete resolution of the thrombus. Medical therapy can be an alternative to surgical therapy in high-risk patients who have right-heart thrombus and pulmonary thromboembolism. In this report, we present a case, a 86-year-old male patient with floating snake-like thrombus in the right atrium that caused a stroke and treated with only enoxaparin.

Key words: Enoxaparin; Thrombosis; Echocardiography

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Introduction

Free-floating right-heart thrombi can be seen in 4-18% of patients presenting with acute pulmonary embolism (1). Most are found in the right atrium and half have a mobile snake-like structure (2). The presence of a right-heart thrombus increases the risk of mortality compared to the presence of a pulmonary thrombo-embolus alone. Despite this, the optimal management of right-heart thrombo-emboli remains unclear (3).

Case

A 86 year-old male was presented with sudden onset of dyspnea. His medical history was nonsignificant. In physical exam, blood pressure was 101/60 mmHg, pulse rate was 115 beats/min. respiratory rate was 25/min. and his body temperature was 36.5'. Heart sounds were rhythmic and tachycardic. A 2-3/6 pansystolic murmur was heard at the tricuspid focus, and his lung fields were clear. Electrocardiography revealed sinus rhythm with S wave in D1 lead, Q wave and negative T wave in D3 lead. Chest x-ray showed that cardiothoracic ratio was increased. The examination of the neurological system revealed loss of strength in the right lower extremity. Blood analysis showed very high level of D-dimer (3600 ng/ml) (Normal <500 ng/ml) and BNP level of 879 ng/ml (normal <150 ng/ml), troponin I 2,4. In arterial blood gas analysis oxygen saturation was 92%, partial oxygen pressure was 55.3 mmHg and carbon dioxide pressure was 25.6 mmHg. Cranial computed tomography was normal. Transthoracic echocardiography (TTE) revealed dilatation of the right heart chambers (right ventricle diameter was 50 mm) with severe tricuspid valve regurgitation and the systolic pulmonary artery pressure of 70 mmHg,
RV EF was %25 ,septum and lateral wall was hypokinetic. TAPSE was 10 mm measured .
A worm-like right atrial mass free-floating between right atrium and right ventricle was detected on TTE (**Fig.1**). The main pulmonary artery and its branches were clear. Bilateral deep venous thrombosis was found in his lower extremities in venous Doppler ultrasonography. In the referred hospital , thrombus in the right and left pulmonary artery branches has been monitored by contrast-enhanced computed tomography of thorax ,so we didn't repeat the tomoraphy , and ventilation-perfusion scintigraphy were not shot. The laboratory findings and his clinical situation

were consistent with acute pulmonary embolism and stroke. Since, he had no haemodynamic compromise and TTE did not show any thrombus in the main pulmonary artery or its branches, we decided to initiate enoxaparin (1.0 mg/kg twice daily dose) therapy because of his advanced age and recent stroke. We neither considered thrombolytic therapy nor surgery. His clinical and haemodynamic status improved in two days, repeat TTE showed that the thrombus was completely resolved, PABs was 60 mmHg (**Fig 2)**. İn control of arterial blood gas analysis, oxygen saturation was 95%, partial oxygen pressure was 59 mmHg and carbon dioxide pressure was 29 mm Hg. We completed enoxaparin therapy in fifth day and continued with warfarin therapy. When INR (International normalized ratio) was in sufficient levels he was discharged with warfarin treatment.

Discussion

In this report, we present an elderly patient with mobile, worm-like right atrial thrombus leading to pulmonary embolism. Worm-like thrombi are extremely mobile and results in poor prognosis, with a 45% mortality rate (4). There is no clear consensus regarding to the therapeutic choice. Although surgical embolectomy is a frequently proposed treatment, Pierre-Justin et al. (5) showed in a prospective study that thrombolytic theraphy with t-PA appeared to be rapidly effective in most patients, resulting in complete resolution of the thrombus.

After enoxaparin treatment, thrombus was not observed in control echocardiography. Distal embolization or complet resolution of thrombus could be two reasons for this result. We thought complete resolution of thrombus after enoxaparin as the reason . If there was an embolized thrombus (as can be seen from echocardiographic image there is a large thrombus) a significant clinical and echocardiographic changes would be seen. But our patient was improved clinically and pulmonary arterial pressure was decreased.

In this case, we used only enoxaparin (1.0 mg/kg twice daily dose) therapy because of the patient's advanced age and presence of stroke. With this strategy we aimed at avoiding complications caused by thrombolytics. Fixed-dose low-molecular-weight heparin treatment is effective and as safe as dose-adjusted intravenous unfractionated heparin (UFH) for the initial treatment of nonmassive pulmonary embolism (PE)(6-8). Enoxaparin or UFH are similar to usual

regimens and does not seem to have affected recurrence, and it is unlikely that the use of enoxaparin to treat PE could have been the cause as the percentage of recurrence was not significantly different with enoxaparin and UFH treatment. The results agree with those already published and we consider enoxaparin to be a safe, effective initial treatment for patients with PE (9).

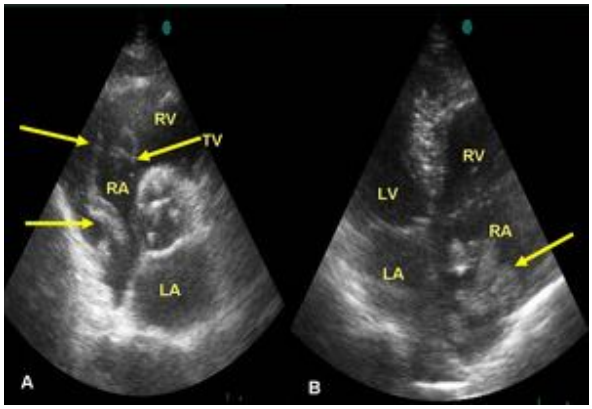

Fig.1: Modified short axis (**1A**) and Apical four-chamber (**1B**): Worm-like thrombus floating in the right atrium (arrows)

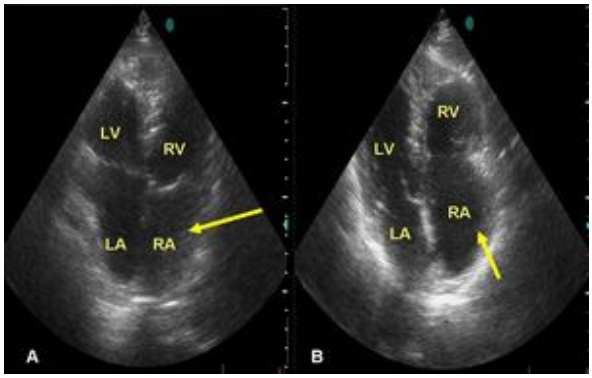

Fig. 2. Resolution of the free-floating thrombus.

RA: right atrium, RV: right ventricle, LA: left atrium, LV: left ventricle. TV: Tricuspid valve

The thrombus is indicated with an arrow.

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