

Pulmonary Embolization of a Right Atrial Mass During Transesophageal Echocardiography: A Case Report

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TRANSÖZOFAJİYAL EKOKARDİYOGRAFI ESNASINDA SAĞ ATRİYUM TROMBÜSÜN-DEN KAYNAKLANAN PULMONER EMBOLİ OLGU SUNUSU

ÖZET

Bu vaka spinal cerrahi sonrası gelişen sağ atriyal trombüsün transözofajiyal ekokardiyografi (TEE) inceleme esnasında embolizasyonunu rapor etmektedir. 50 yaşındaki kadın hasta spinal cerrahi sonrası gelişen senkop atağı nedeniyle ileri tetkik ve tedavi amacıyla yatırıldı. Transtorasik ekokardiyografik incelemede sağ atriyumda hareketli, sağ ventriküle prolabe kitle gözlemlendi. Daha ileri inceleme için aynı seansta hastaya TEE uygulaması planlandı. Özofajiyal entübasyon esnasında hasta ani sıkıntı ve fenalık hissinden yakındı. Hemen yapılan TEE incelemede sağ atriyal kitlenin kaybolduğu tespit edildi. Akut dönemde ve izlemlerinde hemodinamik olarak stabil seyreden hastaya hastane içi dönemde yapılan ventilasyon-perfüzyon sintigrafisinde pulmoner emboli tanısı doğrulandı. Yakın dönemde cerrahi anemnezi olduğundan tromboliz uygulanmayan hasta parenteral heparin ile başarı ile tedavi edilip taburcu edildi. *Türk Kardiyol Dern Arş 2002; 30: 719-21*

Anahtar kelimeler: Sağ atriyal mobil kitle, transözofajiyal ekokardiyografi, pulmoner emboli

Right atrial mobile thrombus is characterized by echocardiographic detection of mobile worm-like thromboemboli in the right atrium, with a high propensity to embolic displacement into the pulmonary circulation. This type of thrombus is associated with a high mortality rate exceeding 60% in untreated patient (1). Their treatment is a medical emergency once the diagnosis is made. Studies have shown the diagnostic superiority of transesophageal echocardiography (TEE) over transthoracic echocardiography (TTE) in the evaluation of right atrial mobile throm-

bus. TEE has been widely regarded as a safe procedure associated with low mortality rates (2). However, esophageal intubation frequently induces coughing and retching which increases right atrial pressure acutely. We report a rare case of pulmonary embolism occurring during TEE examination and it is believed to be related to esophageal intubation.

CASE

A 50-year-old woman was admitted to our hospital for evaluation of syncope. Two weeks before hospitalization, he had spinal surgery. She had prolonged bed rest postoperatively with no prophylactic anticoagulation. One week after the operation she experienced an episode of syncope. On admission she was complaining of fatigue, chest pain and palpitation. She had no known history of atrial fibrillation, malignancy or hypercoagulable state. On physical examination blood pressure was 130/80 mmHg, heart rate was 75 beats/min and irregular, and system findings were normal except left lower limb paresthesia. Her chest x-ray was normal and ECG showed sinus rhythm with frequent atrial premature beats. Routine blood tests were normal except low hemoglobin level (9.7 mg/dl).

The two dimensional TTE showed a mobile mass in the right atrium prolapsing into the right ventricle (Fig 1-2). Right ventricle was dilated (3.1 cm). Pulmonary artery systolic pressure determined from the velocity of tricuspid regurgitation was 58 mmHg. To evaluate the mass and its origin more precisely the patient was prepared for TEE examination at the same session. Before insertion of a multiplane 5.0 MHz TEE probe, pharyngeal anesthesia with lidocaine spray was applied. During insertion of the probe she coughed and retched several times and then complained of sudden distress and dyspnea. TEE show that he right atrial mass previously demonstrated had disappeared (Fig 3). The mass was not seen in the right ventricle or in the pulmonary artery.

She was admitted to coronary care unit with a diagnosis of acute pulmonary embolism. She was in distress, dyspneic and tachypneic. Her blood pressure was 90/60 mmHg, pulse rate 120 beat/min. While taking 6 L/min nasal oxygen, oxygen saturation was 88%. Because of recent history of spinal surgery fibrinolysis was not undertaken. She was

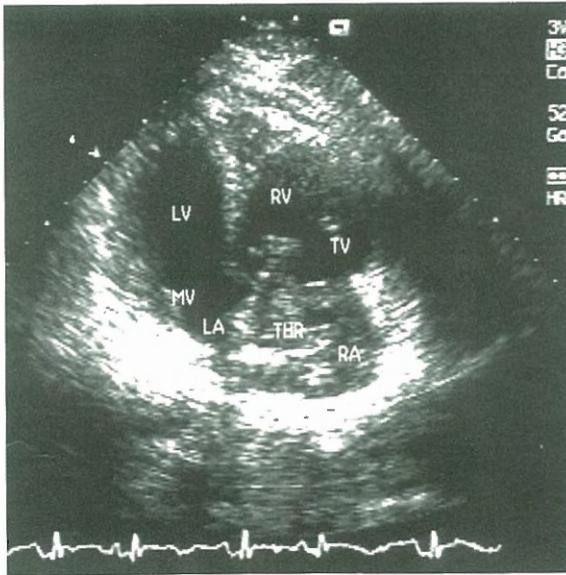


Figure 1. TTE image of free floating thrombus in the right atrium protruding into the right ventricle

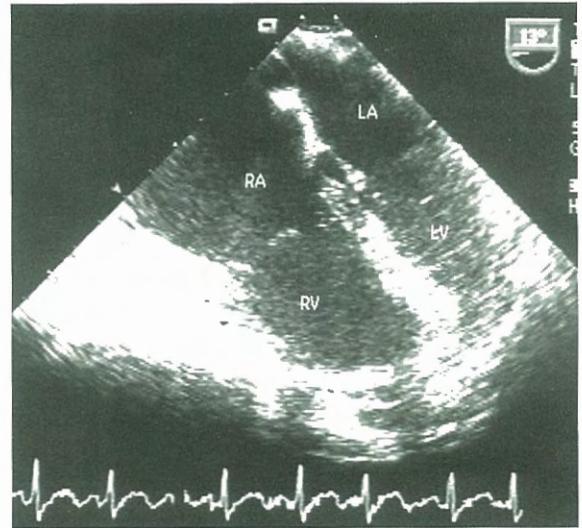


Figure 3. TEE view of the same patient after embolization

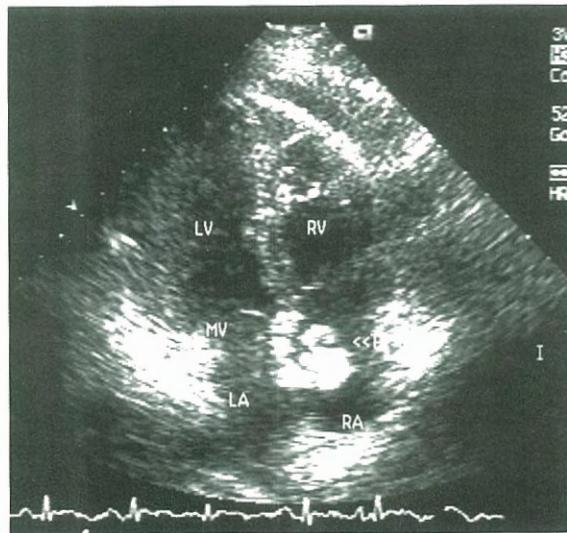


Figure 2. TTE view of right atrial thrombus

treated immediately with intravenous heparin. The clinical pictures and blood gases improved rapidly. Lung scan showed massive right sided mismatched defects consistent with pulmonary embolism (Fig 4). Lower limb Doppler and radionuclide venography were negative for deep vein thrombosis. To search for other causes of right atrial mobile thrombus protein C and S, antiphospholipid antibodies (anticardiolipin, lupus anticoagulant) were studied and were found to be within normal ranges. The mass in the right atrium was deemed to be a thrombus because of its association with surgery and complete clinical recovery with anticoagulation.

The patient was discharged on warfarin with no complication and recurrence. At six months she was asymptomatic and physical examination was unremarkable.

DISCUSSION

Right-sided cardiac thromboemboli or pulmonary emboli-intransit represent an unusual disease process with high morbidity and mortality. These right atrial mobile thrombus are in transit from the legs to the pulmonary arteries and thus are a form of venous thromboembolic disease (3). They can embolize at any time necessitating emergency treatment once the diagnosis is made. The most common clinical manifestations of pulmonary embolism are: dyspnea (92%), tachycardia (80%), syncope (44%), cardiac arrest (22%), and shock (20%) (4). In this patient the first echocardiographic findings are in concordance with pulmonary hypertension which can be due to recurrent subclinical pulmonary embolism.

Studies have shown the diagnostic superiority of TEE over TTE in the evaluation of right atrial mobile thrombus (5). TEE is a safe procedure with very low complication rates (2). However, in certain clinical conditions such as in right atrial mobile thrombus it can be deleterious. There are three cases of pulmonary embolization associated with TEE examination. Shah et al.(6) reported that one patient with this situation suffered from increased hypoxemia, hypotension and bradycardic arrest during TEE examination. An autopsy showed a large thrombus in the main pulmonary artery. Cavero et al.(7) reported a patient with right atrial mobile thrombus suffering from progressive dyspnea, cyanosis and cardiac arrest. The writers presumed that the mass has frag-

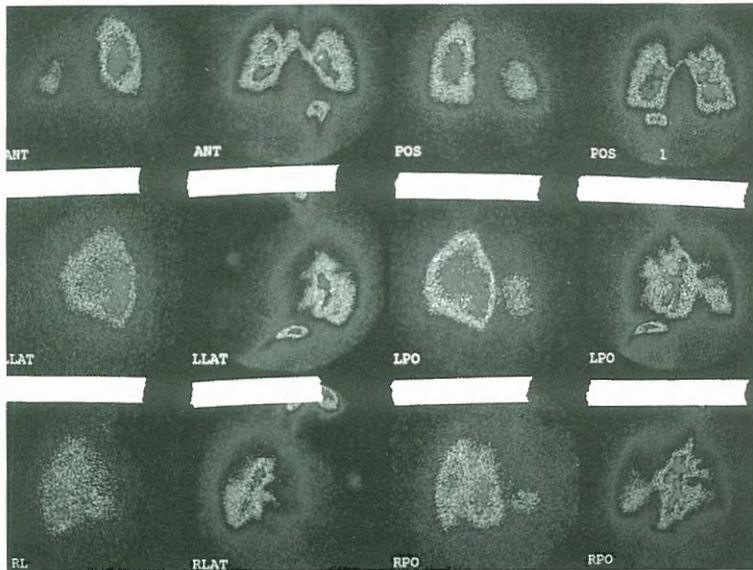


Figure 4. Ventilation-Perfusion scan showing large perfusion defects in right lung segments

mented during esophageal intubation with the TEE probe. Kwak et al.⁽⁸⁾ reported a case with pulmonary fibrosis and the mobile right atrial masses which one of them was noted to embolize during TEE.

There is a potential danger of hemodynamic and mechanical changes during the procedure. Esophageal intubation provokes gag reflex resulting in retching and coughing. This causes rapid increase in right atrial pressure. This complication may occur, despite proper sedation. The semi-invasive nature of the process may increase sympathetic nervous system activity, which increases heart rate and myocardial contractility increasing transvalvular gradient and facilitating fragmentation and embolization.

Unlike the previous reports the clinical course and the outcome of our patient was good. This is presumed to be due to the absence of associated disease and prompt initiation of medical treatment. We do not have follow up echocardiography of the patient, we do not know if pulmonary hypertension subsides after the primary event.

We conclude that although TEE is a safe procedure there is a potential risk in patients with right atrial mobile thrombus and should only be performed only if TTE is non-diagnostic.

REFERENCE

1. Chapoutot L, Tassigny C, Nazeyrollas P et al: Pulmonary embolism and thrombi of the right heart. Arch Mal Coeur Vaiss 1995;88:1723-8
2. Werner G, Raimund Erbel, Wolfgang Kasper, et al: Safety of transesophageal echocardiography, A multicenter survey of 10,419 examinations. Circulation 1991;83:817-21
3. Chartier L, Bera J, Delmez M, et al: Free floating thrombi in the right heart. Circulation 1999;99:2779-83
4. Casazza F, Agostoni O, Mandelli V, et al: The cardiologist facing pulmonary embolism: The experience of 160 cases of acute cor pulmonale. Ital Heart J 2000;1:520-6
5. Reeder GS, Khandheria BK, Seward JB, et al: Transesophageal echocardiography and atrial masses. Mayo Clin Proc 1991;11:1101-9
6. Shah Cp, Thakur RK, Ip JH, Xie B, et al: Management of mobile right atrial thrombus: a therapeutic dilemma. J Card Surg 1996;11:428-31
7. Cavero M, Cristobal C, Gonzalez M, et al: Fatal pulmonary embolization of a right atrial mass during transesophageal echocardiography. J Am Soc Echocardiogr 1998;11:397-8
8. Kwak K, Mosher S, Willis C, et al: Witnessed embolization of right atrial mass during transesophageal echocardiography. Chest 1999;115:1462-4