

RIGHT ATRIAL THROMBUS WITH BILATERAL PULMONARY THROMBOEMBOLISM; A CASE REPORT

BİLATERAL PULMONER TROMBOEMBOLİZM İLE BİRLİKTE SAĞ ATRİYAL TROMBÜS; VAKA SUNUMU

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ÖZET

Pulmoner tromboemboli (PTE), tipik olarak alt ekstremiteden ilerleyen bir trombüsün neden olduğu pulmoner arterdeki tıkanma ile karakterize, mortalitesi ve morbiditesi yüksek bir klinik tablodur. PTE nadir olarak sağ atriumda trombüs (ATr) ten de kaynaklanabilir, ya da ATr ile birlikte bulunabilir. ATr'nin iki türü vardır: tip A ve tip B. Tip A trombüs; Derin venöz sistemden kaynaklanırlar ve serbest yüzer yapıları nedeniyle kolayca embolize olurlar. Tip B trombüsler; Sağ atriyum duvarına sabitlenirler, embolize edilmeleri daha zordur ve trombolitik tedaviye daha az duyarlıdırlar. Erken tanı koyulup uygun tedavi edilmezlerse hem PTE hem de ATr ölümcül olabilir. Bu yazıda bilateral yüksek riskli PTE, ATr ve popliteal vende trombüs olan bir olgu sunulacaktır.

Anahtar kelimeler: Pulmoner emboli, Venöz tromboemboli, Transtorasik ekokardiyografi, Bilgisayarlı tomografi anjiyografi

ABSTRACT

Pulmonary thromboembolism (PTE) is a clinical condition with high mortality and morbidity, characterized by occlusion in the pulmonary artery caused by a thrombus typically advancing from the lower extremity. Rarely, PTE may also be caused by thrombus (ATr) in the right atrium, or may coexist with ATr. There are two types of ATr: type A and type B. Type A thrombi originate from the deep venous system and are easily embolized due to their free-floating nature. Type B thrombi are anchored to the right atrium wall, are more difficult to embolize, and are less sensitive to thrombolytic therapy. Both PTE and ATr can be fatal if not diagnosed early and treated appropriately. In this article, a case with bilateral high-risk PTE, ATr and popliteal vein thrombus will be presented.

Key words: Pulmonary embolism, Venous thromboembolism, Transthoracic echocardiography, Computed tomography angiography

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Introduction

Pulmonary thromboembolism (PTE) is a clinical condition characterized by occlusion in the pulmonary artery, typically caused by a thrombus advancing from the lower extremity. The incidence of PTE is reported to be 60-120/100,000 annually. Although the incidence of PTE is low, it is a disease with high mortality and morbidity (1).. Therefore, it is very important to diagnose PTE without delay and provide appropriate treatment in patients with PTE clinic and risk factors.

It is known that PTE risk factors include immobilization, malignancy, oral contraceptive use, previous orthopedic surgery history, etc. Rarely, PTE may also be caused by thrombus (ATr) in the right atrium, or may coexist with ATr (2). The incidence of ATr is not clearly known. Because there is a high probability that many asymptomatic patients cannot be diagnosed (3). ATr may originate from the distal region of the body, but it usually occurs due to iatrogenic reasons such as cardiac pacemaker and central venous catheter insertion (4). In this article, a case with bilateral high-risk PTE, ATr and thrombus in the popliteal vein will be presented. We think that these three rare clinical associations will contribute to the literature.

Case Presentation

A 87-year-old female patient was admitted to the emergency room with complaints of shortness of

breath and hemoptysis. It was learned that she had hypertension and Alzheimer's disease in her medical history. At the time of admission, blood pressure was 70/40 mmHg and heart rate was 126/min. The patient had tachypnea and respiratory distress. Electrocardiography revealed sinus tachycardia and right bundle branch block. Arterial blood gas analysis revealed hypoxia and hypocarbia (SO₂: 75% and pCO₂: 30 mmHg). The patient was diagnosed with acute pulmonary embolism, as filling defects in both pulmonary arteries were detected on computed tomography (Figure 1C, 1D). In Doppler ultrasonography requested for the lower extremity; acute thrombus formation was observed in the right popliteal vein. In transthoracic echocardiography (TTE) performed to evaluate heart functions; left ventricular ejection fraction: 60%, moderate tricuspid regurgitation and systolic pulmonary artery pressure were 76 mmHg. Additionally, right ventricular dilatation and multiple free ATr were detected. (Figure 1A, 1B). For treatment, the patient was administered 100 mg tPA for 2 hours. There were no complications after the treatment. At the next TTE performed 24 hours later; it was determined that there was no thrombus in the right atrium (Figure 2A, 2B). In thorax computed tomography angiography; there was no thrombus in bilateral pulmonary arteries (Figure 2C, 2D). The patient's general condition improved within a week and she was discharged with oral anticoagulant treatment.

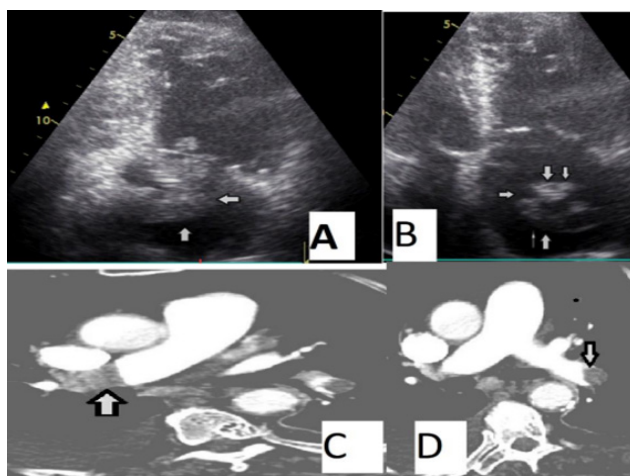


Figure 1. A, B ; The echocardiographic image demonstrates right atrial thrombus. C,D ; the computed tomography image demonstrates both pulmonary arteries thrombus

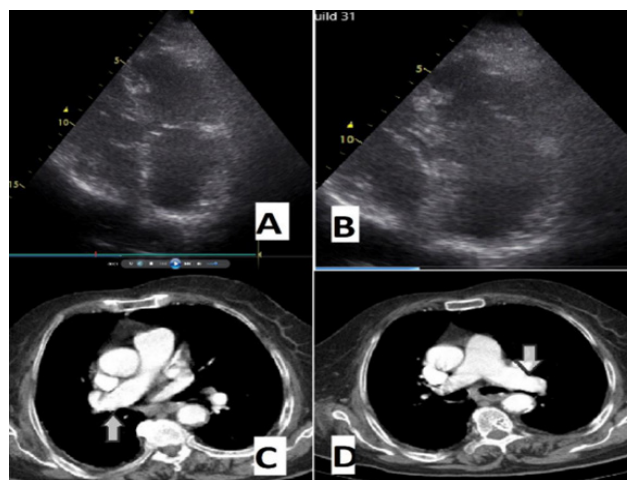


Figure 2. A, B ; The echocardiographic image demonstrates after treatment right atrium. C, D; the computed tomography image demonstrates after treatment both pulmonary arteries

Discussion

Venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and PTE, is a common medical condition affecting more than a quarter of a million patients each year in the United States (5). VTE; it is a common cardiovascular disease associated with significant morbidity, including painful leg swelling, chest pain, shortness of breath, and even death. Long-term complications include recurrent VTE, postpulmonary embolism syndrome, chronic thromboembolic pulmonary hypertension, and postthrombotic syndrome (6, 7).

It is reported in the literature that ATr is generally iatrogenic and, more rarely, may be associated with PTE. In addition, ATr may be a result of VTE or may cause PTE formation (1). There are two types of ATr: type A and type B. Type A thrombi originate from the deep venous system and are easily embolized due to their free-floating nature. Type B thrombi are anchored to the right atrium wall, are more difficult to embolize, and are less sensitive to thrombolytic therapy (8). Transthoracic ECHO and transesophageal ECHO have diagnostic value for both ATr and PTE. In addition, thorax computed tomography angiography is the gold standard examination in the diagnosis of PTE. Both VTE and ATr patients can be effectively treated with thrombolytic drugs (1).

Although less than 10% of the source of PTE is the right heart; the mortality rate in patients with free ATr is between 21% and 44%. The mortality rate of untreated patients approaches 80-100%. When the ATr source is iatrogenic, the risk of pulmonary thromboembolism increases by 40% (9). Therefore, early diagnosis and treatment of ATr and VTE in VTE patients is critical.

In the patient in this case report; DVT, ATr and high-risk PTE are seen together. The patient appears to have type A ATr. The source of PTE may be DVT or ATr. Both the patient's PTE and ATr were effectively treated with tPA. This case is one of the rare cases in the literature where non-iatrogenic VTE and PTE occur together.

Conclusion

Although ATr is usually due to iatrogenic reasons, it can also be seen in VTE patients. Therefore, it is important that VTE patients be evaluated

by clinicians for fatal right atrial thrombus, if possible.

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Conflict of interest

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