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Case Report

Interest of Thoracic Ultrasound LUS with Fast Echocardiography POCUS in the Diagnosis of Pulmonary Embolism by Detection of a Free-Floating Atrial Thrombus among a Young Women After Delivery in Private Pulmonology City Medicine; Clinic Experience

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Abstract

Point of care ultrasound POCUS of the lungs, also known as lung ultrasound and heart LUS, has emerged as simple, non-invasive, and real time technique that allows for many cardio-respiratory pathologies [7].

Its advantages include being radiation-free, portable and relatively easy to perform at the bedside, enhancing its utility in various clinical settings.

One of the most severe a complication is a pulmonary embolism, a condition where a blood clot blocks an artery in the lung.

Pulmonary embolism typically occurs during or shortly after the labor and delivery, and may be fatal for the mother if not treated immediately [5].

Free-floating right heart thrombus is a rare phenomenon in the context of acute pulmonary embolism and it is associated with poor outcome.

The prevalence of RHT in the setting of acute pulmonary embolism is 4% - 18% [2].

The increased use of echocardiography has led to an increased detection of right heart thrombi.

However, optimal management of free-floating right heart thrombus remains controversial with no clear consensus.

We present the case of a 33-year-old women 4 weeks postpartum. “Caesarean” who presented to the emergency in city medicine clinic with acute onset dyspnea.

A computed tomography of the chest demonstrated a pulmonary embolism.

A bedside transthoracic echocardiography performed showed a moderately dilated, poorly functioning right ventricle with visible highly atrial mobile thrombus [2].

Anti-coagulation therapy was immediately initiated which resulted in excellent result [3].

Keywords: *LUS; POCUS; Pulmonary Embolism; Free-Floating Atrial Thrombus; Anti-Coagulation Therapy*

Introduction

The free-floating right heart thrombus (RHT) is an extreme medical emergency in the context of acute pulmonary embolism [EP].

Despite the advances in early diagnosis, the management is still very debatable due to lack of consensus.

The overall mortality rate in patients with right heart thrombus has been reported as 28% and as 100% in untreated patients [2].

Despite advances in detection, the optimal therapy for right heart thrombus-in-transit still remains a therapeutic dilemma because prospective randomized controlled studies are scarce [3].

Existing published reports differ in their recommendations for treatment by advocating surgical removal, administration of thrombolytic agents [5], anticoagulation therapy with heparin, or using interventional percutaneous retrieval techniques.

Case Report

We report herein the case of a 33-year-old women she was referred to our emergency city medicine clinic department with a history of 4 week postpartum with caesarean [1], she presented to our center for acute dyspnea that has been increased progressively over the past 6 days with palpitations.

Her past medical history was remarkable for hypertension [1]. On physical examination she had a temperature of 37.4°C, a blood pressure of 120/80 mmhg, a heart rate of 120/minute, a respiratory rate of 32 cycle/minute, and normoxemia at air room [oxygen saturation at 92%]. There were no signs of right ventricular failure. There was a tenderness of the calf muscles. The rest of the physical examination was unremarkable.

As a laboratory test [1], haemoglobin concentration was of 9 g/dl.

Erythrocyte sedimentation rate of 79 mm/l, and C reactive protein "CRP" concentration of 20 mg/l.

Renal and liver function tests was normal.

D-dimers were 1845.

Electrocardiogram showed sinus rhythm tachycardia with no other abnormality.

A diagnosis of "right atrial thrombosis" associated with pulmonary embolism suspected was made It was identified by Fast transthoracic Echocardiography (using machine GE, Vivid T9) with the M5 SC-D probe, in apical four chambers viewer chamber view.

Thoracic Ultrasound has identified an interstitial-cells consolidation [1] "shred sign" with any best involving after antibiotic cure, local pleural effusion.

A medical management consisting of anticoagulation therapy was adopted which resulted in complete dissolution of the thrombus [6].

Figure 1: *Mobile masse floating in the right atrium with not attachment to any atrium structure [1]. The right heart chambers were dilated with any mild valve regurgitation and a normal systolic pulmonary artery pressure.*

Figure 2: *Irregular pleural line, interstitial-cell syndrome; pleural effusion.*

Angiographic computed tomography (CT) of the chest was normal.

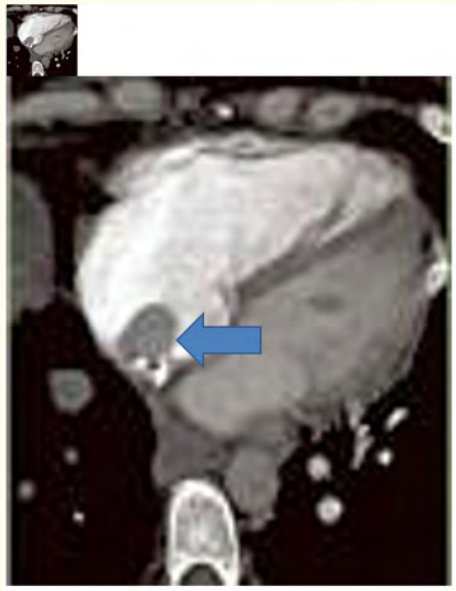

Figure 3: *Floating thrombus in the right heart angio TDM chest.*

Involving

Thrombus size has substantially decreased [1]. No cardiac masse was detected by echocardiography with a best involving of the lung consolidation.

At five months follow up, a complete resolution of the thrombus in the right atrium Two weeks later, symptoms has completed resolved [4].

Figure 4

Figure 5

Figure 6: *Normal systolic pulmonary artery.*

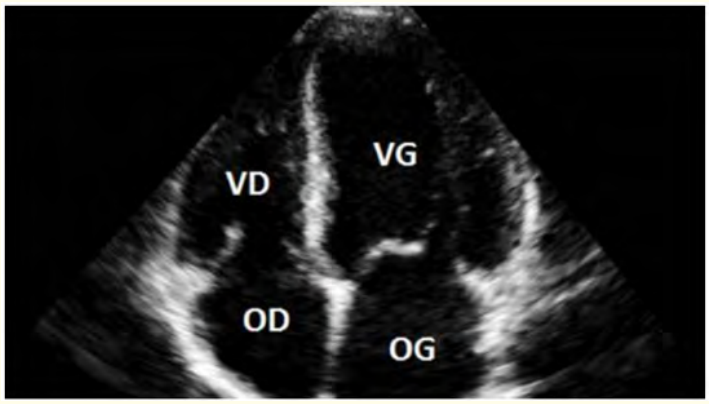

Figure 7: *Disappearance of the right heart thrombus.*

Discussion

The main cause in most cases of postpartum pulmonary embolism is a blood clot that has formed in a deep vein, also known as a venous thrombosis, a blood clot. This clot travels through the bloodstream and becomes trapped in one of the blood vessels in the lungs.

Pregnancy and the post-partum period are times of hypercoagulability, increasing the risk of pulmonary embolism better quantification of risk factors can help target women who are most likely to benefit from postpartum; thromboprophylaxis with heparin [6].

In front this argument bundle:

- Age, young women post-partum (4 weeks delivery) Immobilization, chest pain, dyspnea, sinus rhythm tachycardia-dimers++++, sao_2: 92%.
- Right atrial thrombosis with interstitial-cell consolidation, right pleural effusion [4].
- The diagnosis was later confirmed by CT angiography.
- Therapeutic options include anticoagulation therapy alone [5].

Conclusion

Pulmonary embolism is one of cardiovascular and pulmonary emergencies.

It may be present as a fatal complication of an extremity venous thrombosis, nevertheless, its early diagnosis is considered crucial for an immediate treatment, and its probabilistic diagnostic approach necessitates a correlative combination of the clinical, laboratory and the Imaging data for starting a specific treatment algorithm.

The thoracic ultrasound was mainly used for detection of pleural effusion, and it had gained popularity in the diagnosis of cardiac diseases with a special concern in the emergency settings.

The thoracic ultrasound could suggest the diagnosis of PE [7], by the presence of one or more typical pleural-based hypo echoic lesions that could be associated with a pleural effusion or not. The prevention of pulmonary embolism is an essential factor to minimize its fatal complications.

This case is the first report from our Adelkader and Yasmina pulmonology clinic Biskra describing right heart thrombus (RHT) without pulmonary embolism that was successfully treated with anticoagulation therapy [7]. Such extreme medical emergency highlights the importance of urgent transthoracic ultrasound heart-lung in the diagnosis of right heart thrombus.

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