

CASE REPORT

Massive Pulmonary Embolism In A Postpartum Case Of Caesarean Section - A Case Report

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ABSTRACT

Introduction The overall incidence of acute pulmonary embolism is 0.004% per year¹; among post-partum women, the incidence of venous thromboembolism is approximately 3 to 7 every 10,000 deliveries, which is 15 to 35 times that of females of the same age who are not pregnant². Venous thromboembolism contributes to 20% of pregnancy-related mortalities. The highest risk is in the puerperium³. Thrombolysis is standard of care in pulmonary thromboembolism with shock and right ventricular hypokinesia⁴⁻⁷, however, immediate post-operative state compels conventional treatment. Patients do well with anticoagulation and proper supportive treatment as illustrated in this case.

Case report We report a case of a 34-year old female who developed sudden onset breathlessness while walking on the 2nd post-operative day of an uneventful caesarean section. She was dyspneic, cyanosed and in hypotension. CXR was normal, ECG showed S1Q3T3 pattern, and d-dimer was raised. CTPA revealed features of pulmonary embolism. Thrombolysis was contemplated but was abandoned in view of recent surgery. She received anticoagulation with Heparin (and later warfarin) and supportive care including intravenous fluids, oxygen and Dopamine and Dobutamine. She improved and was discharged after 10 days on warfarin anticoagulation.

Conclusion Breathlessness in a patient in the post-operative period or pregnancy should lead to the possibility of pulmonary thromboembolism. PTE with hypotension or RV hypokinesia has a high mortality, merits thrombolysis plus anticoagulation. But patients with contraindication to thrombolysis should receive anticoagulation and standard supportive care. *JMS 2016; 19(2):e1-e7*

Keywords- PTE (pulmonary thromboembolism), DVT (deep vein thrombosis), CTPA (computed tomography pulmonary angiography).

Introduction

The overall incidence of acute pulmonary embolism is 0.004% per year, and the reported incidence has increased with the use of spiral computed tomography (CT). The most common etiology of acute pulmonary embolism is deep vein thrombosis (DVT). Approximately 79% of pulmonary embolism patients have a history of DVT, and 50% of patients with DVT are diagnosed with pulmonary embolism. During pregnancy, the incidence of venous thromboembolism has been reported to be 5 to 12 per 10,000 pregnancies, which is 7 to 10 times the incidence found in females of the same age who are not pregnant¹. The incidence of DVT in each of the three trimesters is similar. Among post-partum women, the incidence of venous thromboembolism is approximately 3 to 7 every 10,000 deliveries, which is 15 to 35 times that of females of the same age who are not pregnant². Venous thromboembolism contributes to 20% of pregnancy-related mortalities. The highest risk is in the puerperium³.

Case Report

We report a case of a 34 year female who was brought to A & E SKIMS, Srinagar for complaints of sudden onset Breathlessness while walking. It was

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associated with sweating and was not relieved by rest. There was no history of chest pain, or trauma, nor was there any family or past history of Deep Vein Thrombosis or Pulmonary Thromboembolism. The patient was in post-partum state and had delivered a baby by caesarean section 2 days ago. On examination, patient was conscious and oriented. Her pulse was 124/minute, BP=80/60 mm Hg, Temperature=37.2 ° C, Respiratory Rate (RR)=30 breaths per minute, SpO2=74% while breathing room air. She was cyanosed. JVP was not raised. Chest examination was unremarkable. CVS showed normal S1 and S2 with S3 Gallop. Abdominal examination revealed healthy wound site. CNS examination was unremarkable.

Chest X-ray was normal. ECG showed sinus tachycardia, S1Q3T3 pattern, and T-wave inversion in anterior leads. CTPA was done which revealed features of Pulmonary embolism involving right main pulmonary artery and its ascending and descending branches and dilated right atrium and right ventricle. Echocardiography showed dilated RA and RV with RV hypokinesia. D-dimer was raised (2906.9 ng/ml). Trop-T was positive. Doppler Ultrasound of lower limbs was normal. ANA, Anti-phospholipid antibodies were negative. Protein C, Protein S, Anti-Thrombin 3 were normal. Factor V Leiden mutation was absent. Rest of the baseline and other investigations were normal.

Diagnosis of Pulmonary Embolism with hypotension was made and patient

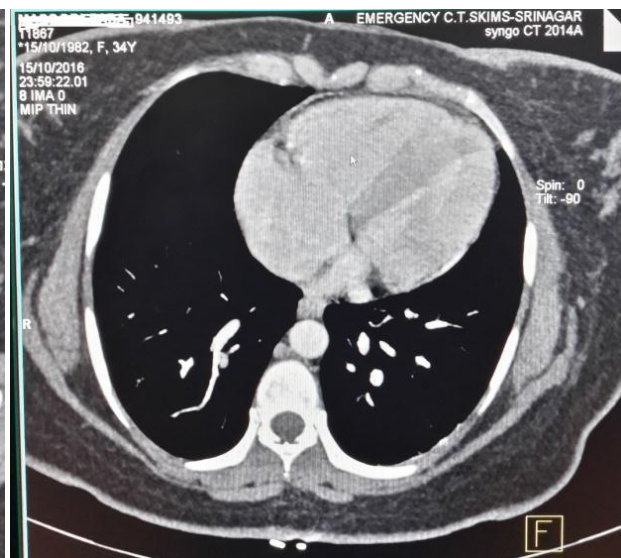
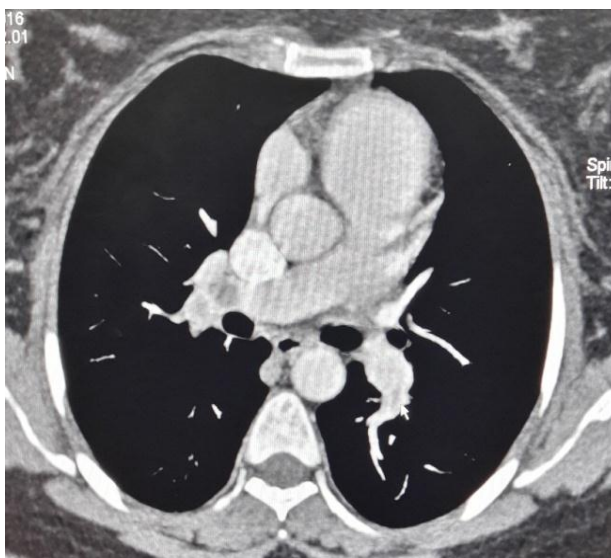
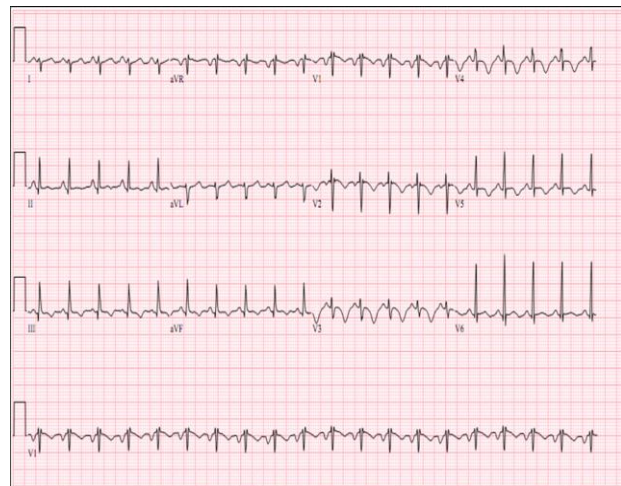
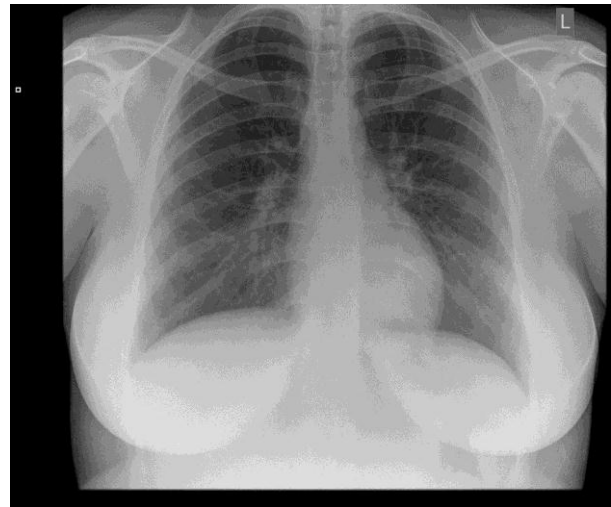
| Hb (gm/dl) | TLC ($\times 10^3$ /ml) | PLT ($\times 10^3$ /ml) |
|---------------|-----------------------------|-----------------------------|
| 10.1 | 12.9 | 273 |

| Coagulogram | |
|-------------|------|
| Aptt | INR |
| 28/24 | 1.12 |
| 97/24 | 1.19 |
| 35/24 | 2.03 |

| Urea | Creatinine | Ca | Na | K ⁺ |
|------|------------|-----|-----|----------------|
| 35 | 0.87 | 9.2 | 139 | 4.1 |

| Bil | AST | ALT | ALP | Albumin |
|-----|-----|-----|-----|---------|
| 39 | 25 | 29 | 166 | 3.6 |

| Blood culture | Urine culture |
|---------------|---------------|
| Sterile | Sterile |



was treated with intravenous fluids, supplemental oxygen, Dopamine and Dobutamine and intravenous Heparin (5000U loading dose followed by 1000U/hour). Heparin was later switched to warfarin after a 2 day overlap. The patient was not thrombolysed in view of recent surgery. The patient's condition improved gradually and was weaned off Dopamine/Dobutamine and Oxygen. She was discharged after 10 days in a stable and symptom free condition on warfarin anticoagulation maintaining INR between 2 and 3. Follow up ECHO after one month of anticoagulation showed normal sized right heart chambers.

Discussion

In pregnancy, there is an alteration between prothrombotic and anticoagulant factors that increases fibrin deposition and decreases fibrinolysis, resulting in a procoagulant state. In the third trimester of pregnancy the flow velocity in the lower limb is reduced by approximately 50%,⁸ and 50% of DVT in pregnancy are associated with inherited or acquired thrombophilia⁹. In approximately 50% of patients with a hereditary thrombophilia, the initial thrombotic event occurs in the presence of an additional risk factor such as pregnancy, oral contraceptive use, orthopedic trauma, immobilization, or surgery¹⁰.

Clinical impression tends to be nonspecific for acute PE because many of the symptoms and signs of acute PE are common among patients without PE which include dyspnea, chest pain, cough, hemoptysis, tachpnea, tachycardia, rales, s4 gallop, shock¹¹.

For diagnosis of PTE numerous algorithms using various combinations of diagnostic tests have been devised; the most commonly used include clinical assessment, D-dimer and CTPA. In patients with high pre-test probability or D-dimer >500 ng/ml, CTPA is done. Pre-test probability is calculated using well's criteria as high or low. Advantages with CTPA include its accuracy with >90% sensitivity and >96% specificity, rapidity and its ability to find the alternate cause of patients symptoms¹²⁻¹⁹. Other ancillary tests that aid in the diagnosis of pulmonary embolism include Arterial Blood Gas (ABG) analysis²¹, Brain Natriuretic Peptide (BNP)^{18,19} and Troponin²⁴⁻²⁸ levels. ECG may reveal sinus tachycardia, S1Q3T3 pattern, right ventricular strain, new incomplete Right Bundle Branch Block (RBBB)²⁹; Chest X-ray (CXR) may be normal or may show pleural effusion, atelectasis^{30,31}.

Regarding the patient in our case, pre-test probability of pulmonary thromboembolism was high and D-dimer was also raised, so CTPA was done which confirmed pulmonary embolism. The patient had hypotension and Echocardiography (ECHO) showed dilated right atrium (RA) and right ventricle (RV) with RV hypokinesia. This was an indication for thrombolysis²⁰, but, patient was not thrombolysed in view of recent surgery viz caesarean section. In the postpartum period, we found only four reported cases of PE in which thrombolysis was used. Bleeding complications were described in all four of these cases³²⁻³⁵. The patient in our case received anticoagulation (Heparin/

warfarin) plus supportive care including intravenous fluids, oxygen and pressor support. Patient improved and was discharged in a stable and symptom-free condition. She was advised to continue anticoagulation. Follow up ECHO after one month of anticoagulation showed normal sized right heart chambers.

Conclusion

Breathlessness in a patient in the post-operative period or pregnancy should lead to the possibility of pulmonary thromboembolism. PTE with hypotension or RV dyskinesia has a high mortality, merits thrombolysis plus anticoagulation. But patients with contraindication to thrombolysis should receive anticoagulation and standard supportive care.

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