

## **Case Report**

# **Unusual presentation of pulmonary embolism during intraoperative period**

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## ARTICLE INFO



Keywords: Pulmonary Embolism, thromboembolism

## ABSTRACT

Pulmonary embolism is an emergency and requires great clinical knowledge to diagnose. In this case study healthy patient planned for elective gynaecological surgery(TAH) developed vague symptoms that were not present prior to surgery and no obvious cause was present.

## **Introduction:**

50 year old female patient not a known case of diabetes ,hypertension, COPD underwent total abdominal hysterectomy .Her blood investigations were all within normal range.ECG and xray were also normal. She was given combined spinal and epidural ,oxygen delivered by facemask at 2 litres. Inj midazolam 1mg given intravenously .Her uterus was adherent to the skin due to previous 2 c-sections and it took almost 45 minutes to 1 hour to complete the dissection and to free the uterus from adhesions .Almost 700 ml blood lost during dissection to free the uterus.After one hour of surgery she complained of mild discomfort.She also complained of chest pain ,chest pain was very severe and it was intolerable for her.Breath sounds and heart sounds checked and was found to be normal. Her pulse rate came down to 70 from 90 bpm.Her bp also dropped to 90/70 mm hg from 110/80 mmhg. Cardiologist was called and ecg was taken .Ecg was found to be normal. She was given oxygen via face mask @4litres throughout the surgery and 25 µg i/v fentanyl given .Her saturation

was 92 % throughout the surgery .She was shifted to icu for observation post operatively.At night her saturation dropped to 87 % .Chest xray done and found to be normal. So based on suspicion of PE HRCT chest was done and reported a clot in pulmonary artery.So she was started on anti coagulants. She was discharged after 5 days of hospital stay in a satisfactory condition.

## **Discussion**

Pulmonary embolism is a rare complication in patients undergoing surgical intervention.Its incidence is 0.3 to 30 % in different surgical populations and it is reported highest in orthopaedic patients.Patients with tumors either benign or malignant are at higher risk for pulmonary embolism<sup>1</sup>. The source of PE can be fatty , gaseous, thrombosis or tumor. Fat emboli are common in orthopedic procedures .There are two hypothesized etiopathological mechanisms for this .These are mechanical theory and biochemical theory .In mechanical theory there is physical obstruction of pulmonary vessels by embolised fat particles from fracture sites whereas in biochemical theory release of

free fatty acids will generate an inflammatory response in lungs causing endothelial injury so it explains atraumatic pulmonary fat embolism<sup>2</sup>. Gas embolism is due to air which enters pulmonary vasculature. It is mainly due to iatrogenic causes like central line insertion, positive pressure ventilation<sup>3</sup> and due to surgical procedures or due to trauma<sup>4</sup>.

But in this present case thromboembolism was the cause of PE. Virchow's triad consists of 3 factors responsible for thromboembolic phenomena: hyper coagulability, venous stasis and vessel wall injury (venous endothelial damage)<sup>5</sup>. Patients undergoing gynaecological surgery

are predisposed to thromboembolism. Pelvic masses, gravid uterus, surgically induced hematomas can lead to venous stasis<sup>6</sup>. Vessel wall injury can occur either due to surgical dissection or due to malignant growth of tumor into vascular tissues. In this case 2 risk factors were present one fibroid uterus causing venostasis and second dense adhesions present with uterus and skin leading to massive and prolonged dissection that lasted for about 45 mins to 1 hour. Gynae patients with no evidence of DVT in leg vein, who developed PE showed that pelvic vein thrombi also pose high risk for PE<sup>7</sup>. Preventing PE secondary to proximal vein thrombosis is difficult as most of these thrombi are clinically silent<sup>8</sup>. Patients with major gynaecological surgery for benign disease with age  $\leq 60$  yrs and with no associated risk factors are at moderate risk of thromboembolism. In this case as patient fits into category of moderate risk category for thromboembolic phenomena based on scoring system. As patient was complaining of chest pain primary d/d was acute myocardial infarction but ecg and cardiac enzymes were not suggestive of myocardial infarction and there was no S1Q3T3 pattern, right ventricular strain pattern, atrial fibrillation on ecg suggestive of PE. Based on high clinical suspicion of PE when hrct chest done PE was confirmed. So high clinical suspicion is important in diagnosing PE as in this case. Later on, this patient was started on anti coagulants, stabilised and discharged after 5 days of hospital stay in satisfactory condition. Two scoring systems are used by anaesthesiologists: the Modified wells scoring system and the Revised Geneva scoring system<sup>9,10</sup>.

## CONCLUSION

Gynaecological surgeries for benign or malignant tumors pose high risk of DVT and pulmonary embolism. Each patient undergoing major surgery should be assessed for thromboembolic risk based on scoring systems available and started on thromboprophylaxis based upon risk factors.

Anaesthesiologist should always have high suspicion for diagnosing PE whenever suspected and appropriate work up should be done for the same as massive emboli are fatal and increase morbidity and mortality postoperatively. Any patient complaining of chest pain, low saturation shall be investigated for PE. This can decrease the mortality and morbidity of patients.

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