

Intraoperative Pulmonary Embolism: A Case Report and Management Approach in Orthopedic Surgery

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Abstract: Pulmonary embolism (PE) is a life - threatening complication that can occur during surgical procedures, particularly in orthopedic surgeries. This case report describes a 23 - year - old male who developed intraoperative pulmonary embolism during tibial intramedullary nailing under spinal anesthesia. The patient presented with sudden hemodynamic collapse, which was promptly managed with cardiopulmonary resuscitation (CPR), ventilation, and medical intervention following ACLS protocol. Diagnosis was confirmed through CT pulmonary angiography (CTPA), and the patient was treated with anticoagulation therapy and thrombolytics. Early recognition and immediate management were critical in ensuring a favorable outcome. This case highlights the importance of vigilance in anesthetic management to prevent fatal complications.

Keywords: Pulmonary embolism, orthopedic surgery, intraoperative complications, anticoagulation therapy, anesthesia management

1. Introduction

Pulmonary embolism is when a clot in another part of body moves through bloodstream and becomes lodged in blood vessels of lung. It is the most serious and life threatening clinical presentation of VTE, and difficult to diagnose.¹ Incidence of Pulmonary embolism ranges from 0.3% to 30% with highest incidence in orthopaedic patients. The European Society of Cardiology suggests that the best diagnostic strategy to confirm or exclude PE is to combine clinical assessment, plasma D - dimer measurement and CTPA.² The approach is focussed on timely identification, haemodynamic, respiratory support, reperfusion therapy by thrombolysis or thrombectomy.

2. Case Report

A 23year old male with A/H/O RTA diagnosed to be as left leg both bone midshaft fracture posted for tibia IMIL nailing. He had soft tissue injury around Left eye and history of LOC for 5 mins but no history of vomiting, ENT bleed, seizure, diplopia.

PAE - Patient was ASA1 and all routine investigations were normal. NCCT brain, CT facial skeleton, CT orbit showed soft tissue swelling and edema.

Patient shifted to OT, standard monitors attached, IV access secured and vitals recorded were normal. Under aseptic precautions Spinal Anaesthesia administered with 0.5% hyperbaric Bupivacaine 2.6ml with 60micrograms of Buprenorphine as additive in midline sitting position. 25 minutes post spinal, under C arm, manipulation of the fracture done. Patient had GTCS and froth started dripping from angle of mouth with HR - 30bpm, BP - not recordable, saturation - 70% and vitals deteriorating noted. Immediately Inj atropine 0.6mg 2 doses given, secretions suctioned, Bag Valve Mask ventilation started and later patient intubated with endotracheal tube and connected to ventilator, by another 15 - 20 seconds patients vitals not recordable. Patient

revived within another 30 seconds of CPR given as per ACLS protocol. IV Inj Midazolam 2mg, IV Inj Thiopentone 250 mg, IV Inj levitricetam 500mg in 100ml NS, IV Inj Hydrocort 100mg, IV Inj Atracurium 25mg given and shifted to ICU. Later CT - PA done showed partial filling defect in right lung middle lobe, bilateral lungs lower lobe segmental arteries represent PULMONARY EMBOLISM. HRCT thorax showing consolidation in bilateral posterior lower lobe. Inj Enoxaparin (1mg/kg/12hr) 0.4ml SC, antibiotics, Inj Streptokinase 2.5lakh units titrated over 30 mins followed by 1 lakh unit/hr over 12 - 24hr started. Vitals monitored and stable, patient extubated in evening and put on supplemental oxygen. After 4 days patient discharged with Tab Rivaroxaban 15mg BD and Tab Methyl Prednisolone.

Patient readmitted for surgery, started LMWH shifted to UFH. GA administered for procedure and uneventful. Postop day2 patient discharged.



3. Discussion

Risk factors for pulmonary embolism include major surgery, prolonged surgery >4 hrs, acute stroke/central venous catheterization, major trauma, metabolic syndrome, malignancy, prior DVT, pregnancy, severe sepsis, prolonged immobilization, CHF, OCP's. prophylaxis of low risk by

early mobilization, in moderate to high risk - LMWH 2 hours before surgery, In our case manipulation of trauma site being the main cause. Diagnosis confirmed by CTPA. Initial management includes stop surgery or any manipulation of trauma site, 100% oxygen supplementation with continuous monitoring, place patient in head down and left lateral position. IV fluids 500ml RL, keep MAP>65mmHg, analgesia with morphine 5 - 10mg IV. Definitive treatment include Thrombolytic therapy, Anticoagulant therapy, surgical or catheter embolectomy.

4. Conclusion

Intraoperative pulmonary embolism is a rare but potentially life threatening complication occurring in orthopaedic surgeries. Early diagnosis and management is crucial for preventing life threatening complications. High vigilance is necessary in the Anesthetic management of these patients.

References

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