

A Rare Cause of Pulmonary Edema

Sir,

Pulmonary edema is a well-known postoperative complication with many etiological factors.^[1,2] We report here a rare cause of pulmonary edema that occurred in the postoperative period in a young patient.

A 20-year-old male patient of the American Society of Anesthesiologists (ASA) 1 status underwent modified radical mastoidectomy under general anesthesia. Anesthesia was induced with fentanyl, propofol and vecuronium and intubated with 8.5 mm cuffed endotracheal tube (ETT). Anesthesia was maintained with oxygen and nitrous oxide (50:50). Dexamethasone 8 mg and ondansetron 4 mg were given intraoperatively. The duration of surgery was 2 h. Intraoperatively, the vitals remained stable. Extubation was uneventful.

The postanesthesia care unit (PACU) stay was also uneventful and the patient was shifted to the ward after 6 h. A few hours later, the patient started desaturating. On examination (O/E) patient was restless, tachypneic and saturation was 80% on room air. The patient had bilateral crepitations on auscultation. The patient's blood pressure (BP) was 220/110 mmHg and heart rate (HR) was 100-120/min. Abdomen examination revealed a distended bladder. Bladder catheterization was done immediately. The patient was shifted to the intensive care unit (ICU) and noninvasive ventilation was started. Diuretics were given. A chest radiograph (CXR) was taken. The patient's BP gradually normalized. Within 1 h, the patient became comfortable; his chest was clear on auscultation and BP came down to 110/80 mmHg. Noninvasive ventilation (NIV) was stopped. His vitals remained stable thereafter. Echocardiography was normal. Next day, the patient was shifted to general ward.

The patient's history was again obtained from attenders who denied prior comorbidities. The drug chart ruled out anaphylactic reactions and blood transfusion reactions. The fluid chart showed no fluid overload but the patient did not void since the start of surgery. (approx. 10 hours).

The etiology of postoperative pulmonary edema is multifactorial. It is more common in patients with preexisting heart diseases. Fluid overload resulting in left ventricular dysfunction would probably be the most common sequence and some of these patients would likely have suffered myocardial infarction or renal failure. Anaphylaxis due to antibiotics, anesthetic drugs, and latex allergy can also manifest

as pulmonary edema. Other causes include head injury, hyponatremia, adrenal tumors, sepsis, pneumonitis, etc. The basic understanding of the pathophysiology and appropriate therapeutic interventions is essential for its successful treatment.^[1,2] Negative pressure pulmonary edema (NPPE) is an important cause of postoperative pulmonary edema. Type I NPPE develops immediately after the onset of acute airway obstruction. Type II NPPE develops after the relief of chronic upper airway obstruction (big tonsils, hypertrophic adenoids, or redundant uvula).^[3]

Our patient was young with no cardiac or renal problem. Type 1 NPPE was unlikely as the perioperative period till PACU stay was uneventful. Type 2 NPPE also seemed unlikely because the patient did not have any chronic airway obstruction. Drug and fluid chart checking ruled out anaphylactic reactions, blood transfusion reactions and fluid overload.

The possible reason seems to be sympathetic overactivity due to bladder distension. Sympathetic overactivity had caused increased BP, leading to acute left ventricular failure and pulmonary edema.

It is known that bladder distension in the postoperative period can cause restlessness, tachycardia, and hypertension. This is the first case reported regarding acute left ventricular failure due to sympathetic overactivity caused by bladder distension.

**Khaja Mohideen Sherfudeen, Senthil Kumar Kaliannan,
Pavan Kumar Dammalapati**

Department of Anaesthesiology, Kauvery Hospitals, Trichy, Tamil Nadu, India

Address for correspondence: Dr. Khaja Mohideen Sherfudeen,
No. 1, K.C Road, Tennur, Trichy - 620 017, Tamil Nadu, India.
E-mail: khaja.sherfudeen@gmail.com

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