

Sudden Preoperative Bronchospasm: A fatal complication!

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Case Report

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Abstract

Bronchial asthma is a reversible reactive airway disease amenable to treatment. It can be controlled on preoperative medication with beta-2 agonists (aerosol inhaler or nebulization and oral medication), theophylline derivatives and steroids (inhalers). We present a known case of bronchial asthma, well controlled on medication preoperatively and posted for elective laproscopic cholecystectomy. Immediately on transfer to the O.T (operation theatre) table, she developed severe acute bronchospasm with sudden oxygen desaturation, followed by loss of consciousness and bradycardia. Immediately, the patient was intubated with a portex 7 mm cuffed tubes under vision by direct laryngoscopy. But the patient was not able to be ventilated, neither by a bag nor by the ventilator. Mechanical ventilation of the patient was not possible, with no chest rise or fall. The bag felt very tight and the airway pressures were extremely high. The chest was silent on auscultation. Unfortunately, the patient could not be revived, even with simultaneous cardiac resuscitation. This case highlights that even well controlled bronchial asthma patients can develop uncontrolled sudden bronchospasm which can be fatal, if ventilation of a tight chest becomes impossible.

Keywords: Bronchial asthma; Bronchospasm; Tight chest; Ventilation; Fatal

Introduction

Bronchial asthma is a reactive airway disease which can cause several complications in the perioperative period, if not well controlled. Gentle handling of the airway, adequate pre-oxygenation, proper optimization of chest condition, avoidance of triggers of bronchospasm and, availability of equipment and drugs for resuscitation are pre-requisites for successful management of such patients. We hereby present a rare case of fatal preoperative bronchospasm in a known asthmatic patient where the patient could not be ventilated, despite successful intubation and maximal efforts at resuscitation.

Case Description

A 40 year old, ASA grade 2, Mallampati class 1, female patient was posted for elective laparoscopic cholecystectomy under standard general anesthesia. On preoperative evaluation, she was a known case of bronchial asthma, well controlled on salbutamol (beta-2 agonists) and steroid inhalers as well as sustained-release deriphylline tablets daily. On the morning of surgery, she had taken her usual dose of asthma medications and her chest was clear. Apart from mild anxiety, the patient did not have any other complaints on the day of surgery. As soon as the patient was wheeled into the operation theatre, she developed sudden respiratory distress and loss of consciousness.

Intravenous (I.V) cannula was secured, 100% oxygen was given and monitors were applied immediately. There was oxygen desaturation along with bradycardia. Immediately, patient was given mask ventilation with 100% oxygen. I.V hydrocortisone 200mg, I.V dexamethasone 8mg, subcutaneous terbutaline, intravenous Atropine 0.6mg and magnesium sulphate 1 gm slow I.V was given. The chest was silent on auscultation and desaturation was continuing. Immediately, patient was intubated with a cuffed 7mm portex endotracheal tube under vision with direct laryngoscopy (single attempt) and gentle airway handling. But the patient was not able to be ventilated, neither by a bag nor by the ventilator. Despite trying our level best to mechanically ventilate the patient with 100% oxygen, there was no chest rise or fall. The bag felt very tight and the airway pressures were extremely high. On gentle passage of a sterile suction catheter through the endotracheal tube, there was no obstruction and no secretions were suctioned out. Adrenaline was also given through the endotracheal tube (ETT). Salbutamol inhaler puffs were also given through the ETT. Intravenous glycopyrrolate 0.2mg (anticholinergic) was also administered. Simultaneous cardiac resuscitation was done as the patient developed cardiac arrest, including chest compressions (Cardiopulmonary Resuscitation) and I.V Adrenaline (1mg given thrice every 5 minutes). Unfortunately, the patient could not be revived, despite continuous CPR. A postoperative chest X-ray done in the intensive care unit did not reveal any pneumothorax or pulmonary edema.

Discussion

This case highlights that even well controlled bronchial asthma patients can develop sudden severe bronchospasm [1], which can be fatal if ventilation of a tight chest becomes impossible. The main causes of sudden severe preoperative bronchospasm include: anaphylaxis [2] or allergies, airway obstruction, pneumothorax [3], pulmonary edema, pulmonary embolism, inspissated secretions or previously uncontrolled reactive airway disease. All these causes

were excluded in our case. There was no history of recent croup/upper respiratory tract infection and no anesthetic drug or antibiotic was given to the patient before the event. There was no obstruction to the endotracheal tube, as the suction catheter had a smooth passage through it. No thick or frothy secretions were suctioned out. All possible drugs which are known to be helpful in reactive airway disease like terbutaline, magnesium sulphate, adrenaline, lidocaine, steroids and beta-2 agonists were given to relieve bronchospasm. The chest tightness and the inability to mechanically ventilate [4] the lungs despite proper intubation resulted in oxygen desaturation followed by cardiac arrest. We must always keep this uncommon cause of bronchospasm in mind while dealing with bronchial asthma patients. Adequate O.T preparedness to handle such untoward incidents must also be geared up for prompt action. Elective cases with reactive airway disease should be first optimized before taking up for anesthesia and surgery. Triggers of bronchospasm and allergens must be avoided at all costs. Control of anxiety and other co-morbid conditions must be done meticulously.

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