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Case report

Perioperative management of massive hemoptysis during flexible bronchoscopy: Case report☆

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ABSTRACT

Flexible bronchoscopy is a diagnostic or therapeutic procedure with a low incidence of complications (0.08–6.8%). Bleeding after transbronchial biopsy is a rare complication (0–2.8% of the cases), usually resulting in minor bleeding that resolves with local measures. There is no clear definition of massive hemoptysis and due to the low incidence of this condition, there are no practical guidelines for the treatment of this complication that may be catastrophic. This case discusses the occurrence of massive hemoptysis during a transbronchial biopsy under flexible bronchoscopy, including a literature review on perioperative management.

Manejo perioperatorio de hemoptisis masiva durante la realización de fibrobroncoscopia: Reporte de caso

Palabras clave:
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Broncoscopia
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RESUMEN

La broncoscopia flexible es un procedimiento diagnóstico o terapéutico con baja incidencia de complicaciones (0.08% – 6.8%). El sangrado por biopsia transbronquial es una complicación rara (0-2,8% de los casos), suele ser leve y resuelve con medidas locales. No existe una definición clara de hemoptisis masiva y por su baja incidencia no hay guías de práctica clínica para el tratamiento de esta complicación que puede ser catastrófica. Presentamos un

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caso de hemoptisis masiva durante la realización de una broncoscopia flexible más biopsia transbronquial y revisamos la literatura acerca del manejo intraoperatorio.

Introduction

Flexible bronchoscopy is one of the most frequent procedures used in the diagnosis and/or treatment of the airway and parenchymal lung disease. The incidence of complications is 0.08–6.8%.[1–7]

Mild bleeding is a complication that presents one or two days after the procedure and resolves spontaneously. It is more frequent in patients receiving antiplatelet or anticoagulant therapy, or with coagulopathy. Bleeding during transbronchial biopsy occurs in up to 2.8% of the cases and usually resolves with local measures (frozen saline solution).[1]

Intravenous and/or local anesthetic agents inhibit the cough reflex and increase the risk of respiratory depression. The volume of bleeding in the airway alters the ventilation/perfusion ratio and increases the risk of hypoxemic respiratory failure.[8]

There is no precise definition of massive hemoptysis with volumes between 100 ml and 1000 ml in 24 h,[9–12] and it has been suggested to use the level of functionality affected as a result of bleeding.[11] Some authors include in the definition the need for blood products, hypoxemic respiratory failure, and/or hemodynamic instability, inter alia.[12–16]

As a result of the low incidence of massive hemoptysis, there are no practical clinical guidelines on the management of the condition during bronchoscopy.[17] We present a case of massive hemoptysis following flexible bronchoscopy transbronchial biopsy.

Case report

34-Year old patient with a history of HIV and non-compliant to medical therapy is being treated for meningeal cryptococcosis. The patient presents with respiratory symptoms with signs of alveolar occupation in the chest images and suspect opportunistic microorganism infection. The patient is scheduled for flexible bronchoscopy (FBC), bronchoalveolar lavage, and transbronchial biopsy. Functional class II/IV (NYHA scale). The physical examination rendered no positive findings and the clotting times and CBC were normal.

Basic monitoring and hemodynamic behavior are shown in Fig. 1. The induction of anesthesia was done with fentanyl (150 μg [IV]), propofol (150 mg IV), and succinylcholine (50 mg IV), with placement of laryngeal mask # 5. Maintenance with continuous infusion of fentanyl and propofol.

When undergoing a transbronchial biopsy (Fig. 1) the patient presents with bleeding and subsequent desaturation, bradycardia, and hypotension. Atropine 1 mg IV and Etilefrine 3 mg IV were administered. The catheter was placed in the radial artery. A left dual lumen tube was placed blindly and checked with fluoroscopy. 2 cc were administered to the pneumoplugger (hemoptysis prevents visualization using the fibrobronchoscope); protective one-lung ventilation was initiated (based on patient's body weight) with subsequent SpO_2 77% and FiO_2 100%. Alveolar recruitment maneuvers were initiated, H_2O airway pressure 57 cm, two-lung ventilation was then started with tidal volume 475 ml, respiratory rate 20,

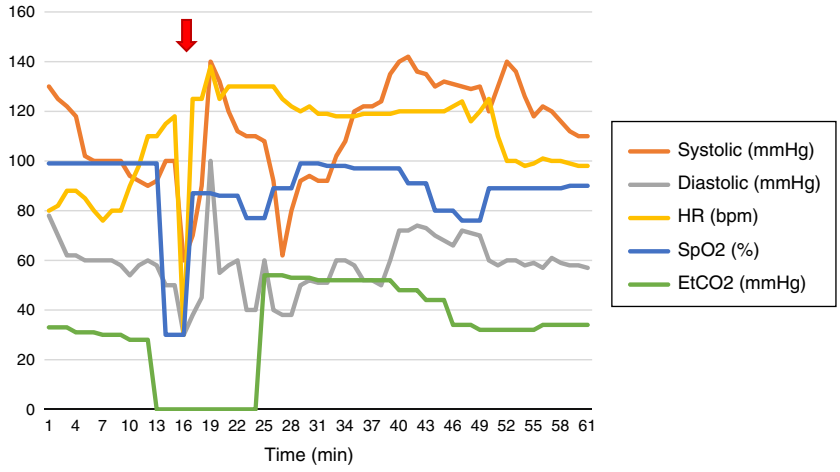

Fig. 1 – Hemodynamic performance during the procedure. Red arrow: start of bleeding following transbronchial biopsy and placement of left double lumen tube. HR: heart rate, SpO_2: peripheral oxygen saturation, $EtCO_2$: end tidal CO_2.
***Source*: Medical record (informed consent).**