

## Anesthetic Management of Patient with Mediastinal Tumor Posted for Thoracotomy and Tumor Excision

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### Abstract

**Introduction:** Mediastinal tumor are uncommon entity they present a major anesthetic challenges due to major airway and vascular compression.

**Case Report:** A 60yr, old diagnosed with posterior mediastinum tumour at C7 level. Airway assessment revealed mallampatti class IV. Blood investigations were within normal limit. Pulmonary function test revealed mild obstructive disease. CT shows lesion in posterior mediastinum extending to right IJV with complete thrombosis displacing trachea and thyroid. Triple lumen CVP line was secured. Difficult intubation trolley with tracheostomy set was kept ready. Routine monitoring, left radial artery cannulation done. Patient was Preoxygenated, Premedicated and Induced. 37F Left Double lumen tube was inserted and tube position confirmed with paediatric fiberoptic bronchoscope. Patient was hemodynamically stable in the intraoperative period. Patient was reversed and extubated uneventfully.

**Conclusion:** Mediastinal tumor resection surgery is a very complicated and requires a team effort anesthesiologists, surgeon and intensivist. A thorough pre-operative assessment of the patient should be done before the conduct of anesthesia to avoid the complications due to posterior mediastinal mass.

**Keywords:** Thoracotomy, One-Lung Ventilation, Mediastinal Tumor.

**Key Messages:** Anesthetic management of patient with mediastinal tumor posted for thoracotomy and tumor excision requires a double lumen ET tube for lung isolation and decrease in lung atelectasis. In this case a 60 year old male presented with mild symptoms and we highlight the usage of one lung ventilation in patient with posterior mediastinal tumor.

## Introduction

Mediastinal tumors are though, an uncommon entity are now a days increasingly being recognized and scheduled for tumor excision. The perioperative care of these patients possess many challenges to the anesthesiologists. These are related to many concerns including mediastinal masses, related to adjoining structures, airway management and perioperative analgesic.

Here we report the successful anesthetic management in patient with posterior mediastinum posted for thoracotomy and neck dissection.

## Case Report

A 60 year old male with complaints of cough and dysphagia to the OPD. He was diagnosed to have tumor in posterior mediastinum probably malignant. The patient had no history of dyspnea, chest discomfort, headache, visual disturbances and altered mentation. On examination, patient was not tachypnic, RS and CVS examination was normal. All the hematological and biochemical examination results were within normal limits. Contrast enhanced CT of thorax showed a 3x3x5 lesion in the superior aspect of posterior mediastinum on the right side which was abetting the oesophagus right IJV thrombosis were noted. Pulmonary functions tests were done and spirometry and no compression on trachea noted. On day of surgery.

18G IV access was secured on the left upper limb. Under aseptic precautions triple lumen central line was placed in right femoral vein. For management of intra and post operative analgesic 18G epidural catheter was inserted at T7-T8 intervertebral space. A correct placement was confirmed by giving test dose of 2% Inj. lignocaine with adrenaline 3cc. All standard monitors were connected pulse oximeter, NIBP, ECG-5 lead and Capnograph. A 20G catheter was placed in left radial artery for IBP monitoring and ABG analysis.

The patient had no signs and symptoms of tracheobronchial obstruction. Patient was premedicated with Inj. glycopyrrolate 0.2mg, and Inj.fentanyl 100 mcg. Preoxygenated with 100% oxygen. Pt was induced with Inj. Propofol 120 mg. After confirming the easiness of bag mask ventilation neuromuscular blockade was achieved with 100 mg Inj. succinylcholine 100 mg. Patient was intubated with left sided 37F double lumen tube using a Macintosh laryngoscope and correct placement of tube was confirmed with pediatric fibreoptic bronchoscope and fixed in place.

Initially patients both lungs were ventilated

with O<sub>2</sub>:N<sub>2</sub>O-40:60 and Isoflurane 0.4%. After the patient was put to position, 1 lung ventilation was initiated. The left lung was ventilated with o<sub>2</sub>:n<sub>2</sub>O-50:50, neuromuscular blockade was maintained with 1mg inj.vecuronium. Epidural analgesia was initiated with 0.125% 8ml of Inj. Bupivacaine.

The surgery lasted for 7 hours and no intra-operative complications were noted. A frozen section biopsy was done and reported as malignancy of epithelial origin. Tumour was debulked and right ICD was placed. At the end of surgery double lumen was exchanged with 8.5mm ID cuffed portex ET tube. ABG analysis was done during one lung ventilation and after resumption of bilateral ventilation and report was normal. The patient was extubated after confirming complete reversal from neuromuscular blockade.

The patient was shifted to ICU for post-operative care and management. Epidural analgesia was continued. The patient did not require any assisted ventilation. Patient was discharged 2 weeks after the surgery.

## Discussion

Mediastinal masses are known to be a nightmare for anesthesiologists.<sup>2</sup> Its clinical presentations and associated problems depend on the size, location, and pathology of the mass and the thoracic structures affected by the mass. Posterior mediastinal masses predominantly produce effects on the spinal cord and rarely cause airway problem and neuromuscular blockade.<sup>1</sup> Compression of airway or cardiovascular structures in patients with mediastinal masses may be due to mass effect dependent on patient position and there may be dramatic improvement or deterioration after repositioning, therefore it is important to know pre-operatively the position in which the patient is most comfortable and experiences least symptoms of airway obstruction. This may occur following decrease in chest wall tone associated with neuromuscular blockade.<sup>2</sup>

Decreased cardiac output and blood pressure even with effective ventilation is a risk in mediastinal mass due to the compression of the great vessels and right atrium. Others have suggested that, with positive pressure ventilation blood volume shifts from intrathoracic to the extra thoracic space leading to hypotension<sup>3</sup>

Lung isolation is commonly used because of the ease of surgical exposure, good access to the target, and prevention of contamination caused by hemorrhage or infection. The most common

method of adult one lung ventilation features the use of a double lumen ET tube.

DLTs provide the anesthesiologist with the capability to suction either lung independently while maintaining isolation, as well as the advantage of maintaining a cuff inflated for sustained protection. Ultimately, a DLT optimizes the management of a patient on OLV, allowing troubleshooting of challenges such as oxygenation, ventilation, and contamination without compromising the protection of the non-diseased lung.<sup>5</sup>

### Conclusion

Mediastinal tumor resection surgery is a very complicated and requires a team effect-anesthesiologists, surgeon and intensivist. A thorough pre-operative assessment of the patient should be done before the conduct of anesthesia to avoid the complications due to posterior mediastinal mass.

**Conflict of Interest:** NIL

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