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# Management Options (Algorithms) for Mediastinal Masses Presenting with Impending Airway Obstruction

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**Abstract**

Mediastinal masses can have varied presentations or may even remain silent till very late. There is paucity of literature on acute presentation and management of patients with unrecognised mediastinal masses in the emergency or critical care set up. In patients with impending airway obstruction, standard medical management fails to improve the condition and definitive airway management with positive pressure ventilation may worsen the condition further. A cardiothoracic surgeon opinion should be sought early and femoral vessels may be cannulated prophylactically. Facilities for institution of life support or ECMO2 (extra-corporeal membrane oxygenation) is desirable in intensive care units caring for patients with mediastinal masses. This article depicts the algorithm for management of acute respiratory distress due to hitherto undiagnosed airway-compressing mediastinal masses.

**Keywords:** Mediastinal mass; Airway obstruction; Positive-pressure ventilation; Extra-Corporeal Membrane Oxygenator; Intensive care

**Abbreviations:** ECMO: Extra-corporeal Membrane Oxygenation; CTVS: Cardio-Thoracic Vascular Surgeon; DLT's: Double Lumen Tubes

## Introduction & Discussion

Mediastinum is one of most the enigmatic areas of the human body with several important vital structures and its pathology can be equally riveting [1]. Malignant masses present more frequently with symptoms of invasion, compression, obstruction or sometimes, paraneoplastic features. Even though there are several articles and studies on anaesthetic management of mediastinal masses, there is paucity of literature on emergency management of acute presentation of mediastinal masses. An intra-thoracic or extra-thoracic airway obstruction by a large mass can be rapidly fatal, especially under anaesthesia [2]. The major precautions [3] which need to be taken include maintaining spontaneous respiration, passage of definitive airway (by awake fibre-optic intubation) distal to the site of airway compression, positioning adjustments, avoidance of muscle relaxants till the confirmation of correct tube placement and immediate availability of rigid bronchoscopy and cardio-pulmonary bypass.

Positive pressure ventilation in the face of unrelieved mechanical airway obstruction can be disastrous. The availability of a standby cardiopulmonary bypass can be made possible only in an operation theatre environment. Extra-corporeal membrane oxygenation (ECMO) [4] is a recent and promising addition to the armamentarium of emergency life support systems available in select centres for such life-threatening scenarios. It can be used as a temporising measure till the patient is stabilised and prepared for surgery, after a definitive CTVS (cardio-thoracic vascular surgeon) opinion. The patients' femoral vessels should be cannulated early for allowing rapid initiation of ECMO. Fibre-optic bronchoscope, different sized double lumen tubes (left and right sided DLT`s) and bronchial blockers (BB) [5] must also be readily available for emergency airway management in the ICU. The following two flow charts or algorithms depict the rapid downhill course of acute presentation of mediastinal masses (Figure 1) and the purported emergency management of these patients (Figure 2).

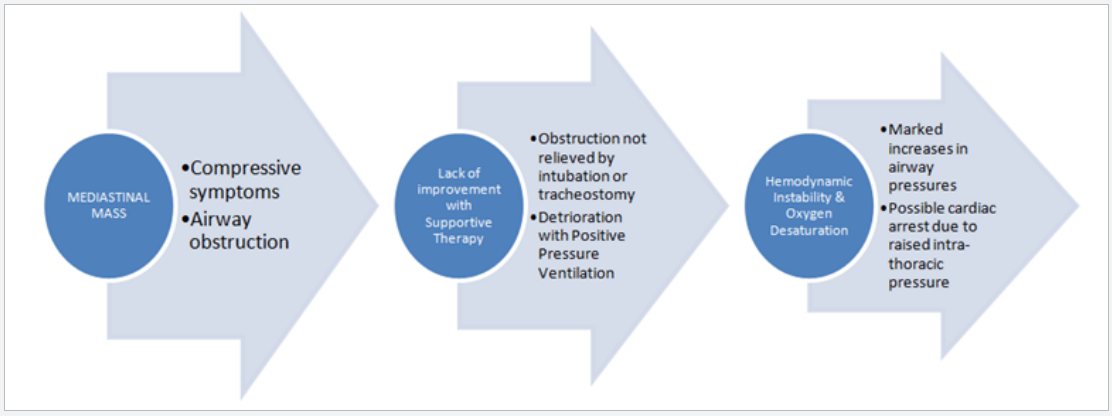


**Figure 1:** Flowchart depicting unrelieved airway obstruction due to Mediastinal Masses and Clinical deterioration with Positive Pressure Ventilation.

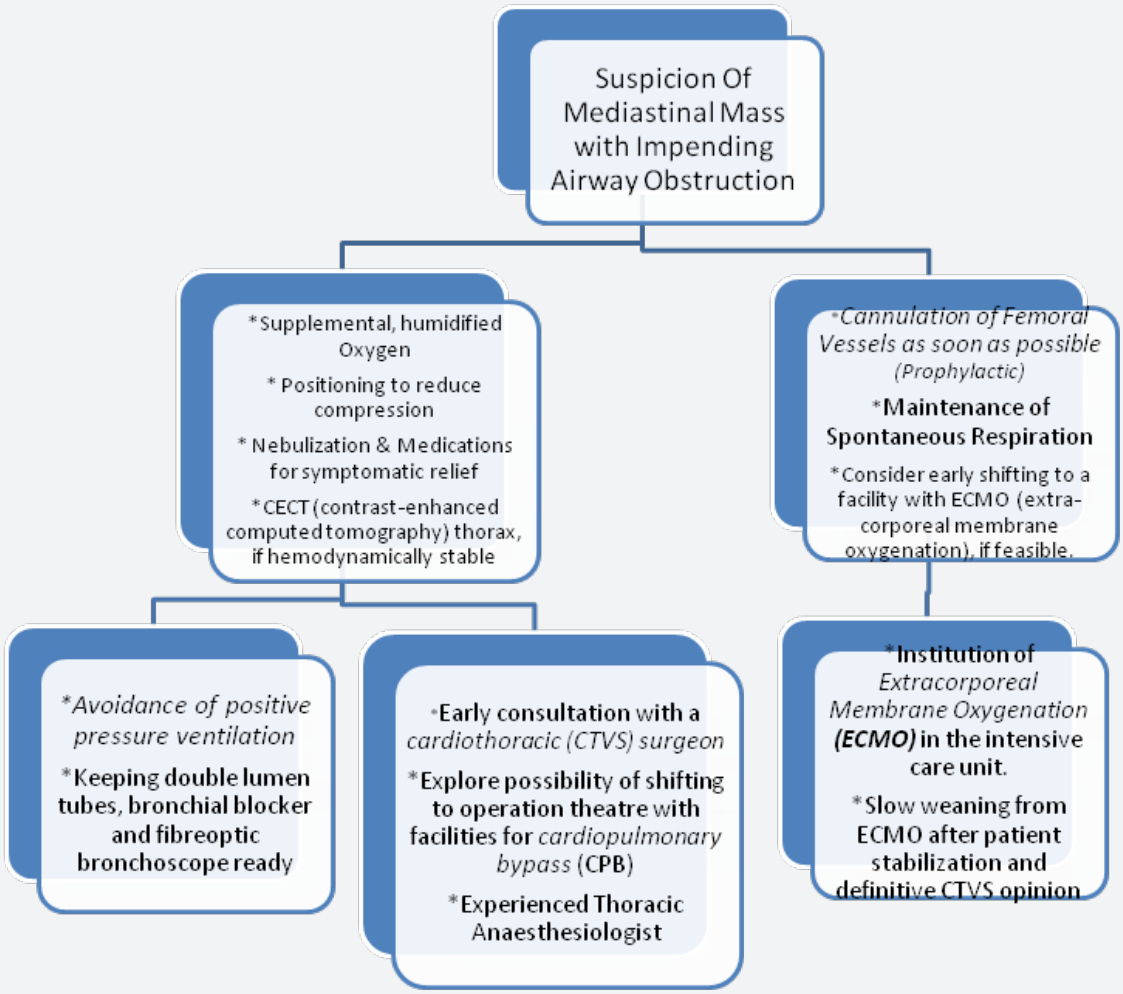


**Figure 2:** Algorithm demonstrating the Management of Mediastinal Masses in the Emergency and Intensive Care Unit.

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