

CHAPTER 4

ANESTHETIC PRINCIPLES OF AIRWAY MANAGEMENT AND INTUBATION, DOUBLE LUMEN TUBES



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INTRODUCTION:

The anesthetic principles of airway management in thoracic surgery begin with the preoperative evaluation of the patient. A balance should be sustained between perioperative surgical factors, anesthetic agents as well as postoperative recovery management and pain control. Patients undergoing thoracic surgery often require one lung ventilation. This chapter aims to give information about airway management and selective double lumen tube ventilation.

PREOPERATIVE AIRWAY EVALUATION:

Mallampati class, interincisor distance, sternomental and thyromental distance, mandibular protrusion, neck hyperextension are the main components of evaluation for the airway-related variables. Upper lip bite test has a high sensitivity and specificity for preoperative prediction [1]. In a recent Cochrane systematic review, sensitivity in Mallampati test was 0.53, specificity was 0.80, whereas sensitivity in upper lip bite test was 0.67 and specificity was 0.92 [2]. Ultrasound is a new, non-irradiating and inexpensive point-of-care tool that can be easily accessed in operating rooms [3]. It can be used for determining tracheal tube size, confirmation of tracheal tube location,

identification of cricothyroid membrane or prediction of post-extubation stridor [4].

Patients requiring one lung ventilation often have a variety of underlying pulmonary diseases. Therefore, evaluation of anatomical airway integrity as well as evaluation of respiratory capacities will allow appropriate preparation for the planning of anesthesia management. Reduced basal functions due to effusions, consolidations and atelectasis may prone patients susceptible to hypoxemia during the procedure, requiring high level of oxygen. The presence of any bullae in the non-operative lung may provide clues for patients who are more likely to develop pneumothorax in the perioperative period. Tumors should be evaluated for the presence of any paraneoplastic syndrome because their presence may affect the management of anesthesia.

Patients undergoing lung resection need additional tests to estimate the risks associated with lung resection outside of age. The most common tests used for such an evaluation are FEV1 (forced expiratory volume-one second) and DLCO (diffuse capacity of the lungs for carbon monoxide). Preoperative low FEV1 (<60%) is one of the strongest predictors of postoperative complications [5]. DLCO is another factor that determines postoperative morbidity and the risk of pulmonary complications in pulmonary resections.

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CONCLUSION:

Anesthetic principles of airway management begin in the preoperative period. The most common method for one lung ventilation is placement of double lumen tubes. Videolaryngoscopes, optical stylets and distal video camera embedded tubes facilitate tracheal intubation and increase the success rate in airway management during thoracic surgery.

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