

Peer Review File

Article information: <https://dx.doi.org/10.21037/med-22-37>

Reviewer Comments

This paper summarizes several aspects of the anesthetic management of presumably adult patients with a mediastinal mass. They provide very good recommendations with respect to preoperative evaluation of patients to ensure that there is no hemodynamic compromise. Mention of a preoperative echocardiogram to ensure that there is no cardiac compression or pericardial effusion would be helpful.

Comment 1: There is no mention of the utility of 80:20 heliox. Helium has a lower density than air and so increases airflow in compressed airways.

Response 1: I agree with the reviewer that Heliox is known to improve airflow in a narrow airway and would be effective in facilitating ventilation in patients with anterior mediastinal mass. The use of Heliox in patients with mediastinal mass has been described in awake patients who are spontaneously ventilating. The administration of Heliox through the common anesthesia machine is not recommended and a special anesthesia machine with Heliox capability is needed for safe delivery of Heliox in an anesthetized patient. I am not aware of literature describing Heliox as a carrier gas during jet ventilation. Rigid bronchoscopy is associated with air leak and can cause room air contamination if Heliox is used.

Comment 2: It should also be mentioned that sugammadex should be available in the event that unexpected reversal of neuromuscular blockade is indicated. Case reports and case series report adverse events associated with the use of paralysis.

Response 2: I agree with the reviewer however Sugammadex is not widely available and is not the standard of care in many practices.

Comment 3: It is not clear that a change in the anesthetic management in this patient population is needed. Anesthetic deaths have occurred in patients with a mediastinal mass. Adverse events are less likely to occur if patients are not intubated and are kept spontaneously breathing.

Response 3: The argument for muscle relaxation and mechanical ventilation is to facilitate the procedure and provide adequate ventilation with good oxygenation and carbon dioxide elimination compared to the shallow rapid ventilation commonly found in patients spontaneously ventilating under general anesthesia. Additionally, frequent airway obstruction by instruments used during rigid bronchoscopy or the need for one lung ventilation makes muscle relaxation and controlled ventilation a preferred option if considered safe.

Specific comments:

Comment 4: Line 3: I believe you left out “Mass” from the title.

Response 4: Mass has been added.

Comment 5: Line 21-25: Consider breaking this into two or three sentences.

Response 5: requested changes have been made.

Comment 6: Line 45: Would waking the patient up not come before initiation of ECMO? I tend to think of ECMO as a last resort option, so this wording may be confusing.

Response 6: Insertion of the lines needed for ECMO before induction of anesthesia followed by institution of ECMO post induction and intubation has been described in the literature as a method to avoid post induction respiratory and hemodynamic collapse.

Comment 7: Lines 47-50: Grammar, rewrite for clarity.

Response 7: Requested changed made.

Comment 8: Line 50-53: I think it would be sufficient to say, “case series and case reports do not comprise the highest level of scientific evidence”.

Response 8: Requested changes made.

Comment 9: Lines 90-100: Please limit use of quotations throughout the review unless absolutely necessary.

Response 9: I appreciate the comment. The quotation was intended to show the original author's thought process and to leave the interpretation of the argued concept to the reader.

Comment 10: Line 202: Introduce the “LMA” acronym here if you plan to say LMA in the rest of the review.

Response 10: requested changes were made.

Comment 11: Line 223: Please define PEEP.

Response 11: requested changes were made.

Comment 12: Line 243: You have already defined PIF and PEF at line 214.

Response 12: requested changes were made.

Comment 13: Line 284: It would be helpful to describe more fully the source of central airway compression in this study. Was it from a mediastinal mass? Is it applicable to this discussion?

Response 13: requested changes were made.

Comment 14: Line 368: You mention anterior mediastinal mass; however, you have not specifically mentioned the location of other mediastinal masses during the review. I suggest you define all masses as anterior or describe where a mass is when describing a study.

Response 14: requested changes were made.

General comments:

Comment 15: This is a very interesting look at where these recommendations come from and how these new studies may challenge this dogma. Given the somewhat complex pathophysiology described, figures illustrating the respiratory changes would be helpful, along with a table/figure of your suggested airway management in patients with anterior MMs.

Response 15: figure and table are present in the reviewed literature.