

Answering Reviewers

Question of reviewer #1:

1. the text came for some extend redundant and could be more precisely and focused especially in case presentation and discussion.

Answer:

In this paper, some redundant words have been deleted and some contents have been added in the discussion.

2. The discussion lack of important literature reviews on ECMO uses in OR and how it is widely increased as promising concept.

Answer:

A review of the use of ECMO in the operating room has been added in the discussion section.

“The ECMO technique is widely used in conventional lung transplantation and complex tracheobronchial surgery^[1], but there are few reports of pneumonectomy in which one-lung ventilation cannot be maintained^[2]. This kind of operation can use single-point intubation and low-flow vv-ECMO, which provides good respiratory support and hemodynamic support, ensures the safety of perioperative patients and is easy to perform^[3]. Although ECMO can provide temporary support for lung function, we should also take into account that if patients cannot withdraw from ECMO after surgery, lung transplantation may be the only choice for their survival. For example, palliative treatment for life-conscious patients without conditional transplantation is also faced with complex ethical issues^[9].”

Question of reviewer #2:

1. This is a case report

Answer: Yes

2. Several factors influence the outcome of this management. Please discuss these.

Answer:

Factors that may affect the outcome of treatment include poor surgical skills, which can lead to complications such as bleeding and pneumothorax; a large scope of pneumonectomy, which can cause respiratory failure; poor respiratory management during surgery, which can lead to postoperative pneumonia; excessive infusion, which leads to pulmonary edema; and improper management of ECMO, which can lead to infection, hypoxia, thrombosis and so on^[7].

3. Please add the limitations and the disadvantages of the ECMO-assisted thoracoscopic lower lobe subsegmental resection.

Answer:

The limitations and shortcomings of this operation are as follows: the conventional operation requires pulmonary collapse, and a protective pulmonary ventilation strategy is implemented during this operation to maintain a positive end-expiratory pressure of 5-10 cmH₂O. Additionally, after the change in pulmonary blood flow, the boundary between pulmonary subsegments cannot be distinguished by the conventional method of pulmonary expansion, which brings new

difficulties and challenges to resection of the focus.

4. What is the new knowledge of the article?

Answer:

The multidisciplinary treatment MDT provided maximum medical optimization for surgical anesthesia in this case; the combined protocol of total intravenous anesthesia, VV-ECMO mode, goal-directed fluid therapy, perioperative pulmonary protection and rehabilitation, and multimodal analgesia provided adequate protection for the patient's perioperative treatment.

5. Please recommend to the readers “How to apply this knowledge?”.

Answer:

The ECMO technique is widely used in conventional lung transplantation and complex tracheobronchial surgery^[1], but there are few reports of pneumonectomy in which one-lung ventilation cannot be maintained^[2]. This kind of operation can use single-point intubation and low-flow vv-ECMO, which provides good respiratory support and hemodynamic support, ensures the safety of perioperative patients and is easy to perform^[3]. ECMO provides opportunities for many complex thoracic surgeries, but its perioperative management difficulties should not be underestimated, such as bleeding, infection, thrombosis, hypoxemia and other complications^[6]. Although ECMO can provide temporary support for lung function, we should also take into account that if patients cannot withdraw from ECMO after surgery, lung transplantation may be the only choice for their survival. For example, palliative treatment for life-conscious patients without conditional transplantation is also faced with complex ethical issues^[9]