Peer review file

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Reviewer A

Comment 1: The authors should reference STROBE when it is first mentioned.

Reply 1: Thank you for the comment. We have referenced STROBE when it is first mentioned in the revised manuscript.

Changes in the text: We revised the sentence as "The following article is presented in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting checklist." (see Page 6, Line 86–88 in the "Introduction" section). And we added the reference about STROBE.

Comment 2: The respiratory complication, I assume was the patient who stayed the longest. Why do the authors think this occur? Could it have been related to ECMO?

Reply 2: Thank you for the comment. We have made it clear that the patient who underwent postoperative respiratory failure suffered severe chronic obstructive pulmonary disease (COPD) before admission. And we considered that the respiratory complication was related to the patient' s COPD, but not VV-ECMO.

Changes in the text: We have modified Table 1 by adding the comorbidity of the patient in Case 1. And we have modified the sentence as "Postoperative complications were observed in 2 cases (Table 3), including respiratory failure treated by mechanical

ventilation in Case 1, which was caused by preoperative severe chronic obstructive pulmonary disease (COPD), and chylothorax in Case 5." (see Page 11, Line 175-178 in the "Results" section).

Comment 3: Surgical resection is not typically the standard of care for the treatment of lymphoma. Can the authors provide additional details?

Reply 3: Thank you for the comment. Tracheal resection and reconstruction for lymphoma was performed in Case 7 in our manuscript, which was an emergency case. The patient was transferred to our center due to the sudden life-threatening hypoxemia, and the surgery was performed immediately. Therefore, we could not provide details about the lymphoma, such as preoperative PET/CT images or histological examination by biopsy. Meanwhile, bronchoscopy has been performed before admission in another center, and we could not provide the bronchoscopy images with high quality. From the patient's preoperative CT images, the trachea was observed to be almost completely obstructed by the tumor.

Changes in the text: We revised the sentences as "In Case 7, the patient was admitted due to sudden life-threatening hypoxemia, and the trachea was observed to be almost completely obstructed by the tumor from the computed tomography images." (see Page 10, Line 165-167 in the "Results" section).

Reviewer B

Comment 1: The goal of the study should be clarified more precisely in the last paragraph of the introduction.

Reply 1: Thank you for the kind comment. We have described the goal of the study more precisely in Introduction in the revised manuscript.

Changes in the text: We revised the sentence as "This study sought to describe the use of VV-ECMO for respiratory support during tracheobronchial surgeries at our center." (see Page 6, Line 84-86 in the "Introduction" section).

Comment 2: The results section should be shortened as some data from tables are repeated in the text.

Reply 2: Thank you for the kind suggestion. The Results section have been shortened as suggested.

Changes in the text: We have modified the Results, and we deleted the sentence "The pathological diagnoses consisted of squamous cell carcinoma (n=4), mucoepidermoid carcinoma (n=1), lymphoma (n=1) and schwannoma (n=1)." (see Page 9, Line 131-133 in the "Results" section), and the sentence "All the patients were transferred into the surgical intensive care unit (SICU) after the surgery, and the median SICU stay was 5 days (range: 1-28 days)." (see Page 11, Line 172-174 in the "Results" section), and sentence "The median duration of drainage was 8 days (range: 6-21 days). The median hospital stay was 11 days (range: 7-46 days)." (see Page 11, Line 178-179 in the "Results" section).

Comment 3: It might be interesting to know what is the percentage of patients with extensive tracheal, carinal or proximal bronchial lesions who had surgery under conventional or jet ventilation at Shanghai Chest Hospital during this period.

Reply 3: Thank you for this comment. We have reviewed all the surgeries for tracheal, carinal or proximal bronchial lesions. From August 2006 to August 2021, totally there were 495 patients receiving tracheal or carinal surgeries at Shanghai Chest Hospital, including 393 cases of tracheal resection (79.4%) and 102 cases of carinal resection (20.6%). Among them, there were 463 cases using conventional cross-field ventilation (93.5%), 16 cases using high frequency Jet ventilation (3.2%) and 16 cases using ECMO (3.2%, 9 cases of VA-ECMO and 7 cases of VV-ECMO).

Changes in the text: We have added the sentences, "The data of 495 patients who underwent tracheobronchial surgeries for lesions involving the trachea, carina, or proximal bronchus at Shanghai Chest Hospital from August 2006 to August 2021 were retrospectively reviewed. Of the 495 patients, 463 underwent cross-field intubation (93.5%), 16 underwent HFJV (3.2%), and 16 underwent ECMO (3.2%)." (see Page 7, Line 92-95 in the "Methods" section).

Comment 4: In a classic way, the discussion should start by a short paragraph summarizing the results of the present study.

Reply 4: Thank you for the comment and suggestion. We have revised the Discussion section. The Discussion in our manuscript started by a paragraph about the airway management in tracheobronchial surgeries. And the results of the study were discussed

in the following paragraphs, namely the indications for establishing VV-ECMO, and the evaluation of safety and effectiveness of VV-ECMO.

Changes in the text: We have revised the Discussion section (see Page 12-16, Line 184-268 in the "Discussion" section).

Comment 5: Indications for using VV-ECMO in thoracic surgery are well-defined in the discussion section (from line 179 to 200). In general, the authors should add tracheobronchial transplantation as a potential indication. In addition, the interest of VV-ECMO has been recently demonstrated also for high-risk rigid bronchoscopy. In our opinion, the following reference should be added: Martinod E et al. Elective extra corporeal membrane oxygenation for high-risk rigid bronchoscopy. Thorax 2020 Nov;75(11):994-997.

Reply 5: Thank you very much for this kind comment and suggestion. We have added high-risk rigid bronchoscopy as potential indications in the "Discussion" section. But as we have not found the references supporting VV-ECMO assisted tracheobronchial transplantation, we did not add tracheobronchial transplantation as a potential indication.

Changes in the text: We have added the sentence "In addition, a study by Martinod et al. showed that VV-ECMO was well tolerated in patients requiring rigid bronchoscopy and who were at risk of respiratory failure or bleeding." (see Page 14, Line 232-234 in the "Discussion" section).

Comment 6: It might be interesting for readers to provide one figure showing imaging and bronchoscopic views for each case.

Reply 6: Thank you for the kind suggestion. We have provided all the patients' bronchoscopy images except for the patients in Case 6 and Case 7. In these two emergency cases, the patients were performed with bronchoscopy examination before admission in another center. Therefore, we could not provide the bronchoscopy images with high quality.

Changes in the text: We have provided all the patients' bronchoscopy images except for the patients in Case 6 and Case 7 (see Figure 1, Figure 2 and Figure 4).

Comment 7: The quality of Figure 2 should be improved.

Reply 7: Thank you for your kind suggestion. We have improved Figure 2 as suggested.

Changes in the text: We have replaced the "Figure 2" with a new figure (Figure 3 in the revised manuscript).

Reviewer C

Comment 1: Thank you so much for giving me to check your article. Your article is about the useful of VV-ECMO due to tracheobronchial surgery for oxygenation during operation. Your article focused on good points for VV-ECMO about tracheobronchial surgery.

But I have some opinions,

1. Some articles about useful of VV-ECMO has already reported for thoracic surgery, especially tracheobronchial surgery.

2. All of your case were great clinical results compared to previous reports, but you inducted no new ingenuity, new opinion or using new methodologies with previous knowledge for VV-ECMO.

Your article is just case series or experiences to use VV-ECMO for tracheobronchial surgery without new knowledges.

If you performed new methods to improve prognosis due to tracheobronchial surgery, your article was acceptable I think.

Reply 1: Thank you for your comments. Actually, there have been several cases series about VV-ECMO assisted tracheobronchial surgeries, which was reviewed in our manuscript and listed in Table 4. However, the indications for establishing VV-ECMO in our study were different from those in other previous articles, which mainly included emergency cases or cases receiving neoadjuvant therapy. And we also summarized the perioperative and survival outcomes in our study, which were much considerable. Therefore, we still hope our revised manuscript could be considered for publication in JTD.

Changes in the text: No change was made.