

Peer Review File

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**Reviewer A**

**Comment 1: Surgery time, amount of bleeding, and required time for each position**

Reply 1: Thank you for the overall good impression on our work, and we provided the required information in the revised version.

Changes in the text: The total operative duration was 4.5 hours, in which one hour for VATS bilateral hilar and pericardial releases. (see page 4 line 68)

**Comment 2: Request the submission of a macro photograph of the cross section of the trachea including the resected tumor, rather than the photograph of the anastomotic site covering at the time of surgery.**

Reply 2: Thank you for the comment. However, due to its retrospective nature, we only recorded the preoperative CT image and bronchoscopic finding. Thus, the results of preoperative and postoperative CT and bronchoscopy were supplemented in the revised version.

Changes in the text: CT scan after one month postoperatively showed a good luminal patency in the trachea surrounded by the thymic tissue (see page 5 line 77)

Figure 1. Chest CT (A and B) showed a mass located above the level of the carina, with a 5.5cm×3.0cm×3.0cm in size. Bronchoscopy (C) revealed that a tracheal neoplasm appropriately 7cm below the level of glottis blocked 80% of the cross-sectional area of the trachea.

Figure 4. CT scan in the early postoperative course. (A and B) The trachea was surrounded by thymic tissues, with good luminal patency.

**Comment 3: The patient's condition 1-3 months after surgery should be described.**

Reply 3: We agree. We provided the CT scan of this patient 1 month after operation.

Changes in the text: The further postoperative course was favorable, and CT scan after one month postoperatively showed a good luminal patency in the trachea surrounded by the thymic tissue. (see page 5 line 77)

**Reviewer B**

**The authors describe a case of long segment tracheal resection using VATS assisted pericardial hilar release. I have the following comments:**

**Comment 1: There are several grammatical errors in the manuscript that need to be corrected**

Reply 1: A native English speaker was invited to polish the manuscript.

**Comment 2: Include CT scan and pre and post resection bronchoscopic images**

Reply 2: CT scan after one month postoperatively was provided. The bronchoscopy was not available at present due to the city lockdown.

Changes in the text: The further postoperative course was favorable, and CT scan after one month postoperatively showed a good luminal patency in the trachea surrounded by the thymic tissue. (see page 5 line 77)

**Comment 3: The mass was located 7 cm distal to the glottis, but what was its relation to the carina?**

Reply 3: CT findings revealed a 5.5cm×3.0cm×3.0cm lesion on the posterior wall of the thoracic trachea, just above the level of the carina. We supplemented the preoperative CT and bronchoscopic findings in the revised version.

Changes in the text: CT findings revealed a 5.5cm×3.0cm×3.0cm lesion on the posterior wall of the thoracic trachea, just above the level of the carina. (see page 3 line 35)

Figure 1. Chest CT (A and B) showed a mass located above the level of the carina, with a 5.5cm×3.0cm×3.0cm in size. Bronchoscopy (C) revealed that a tracheal neoplasm appropriately 7cm below the level of glottis blocked 80% of the cross-sectional area of the trachea.

**Comment 4: Was this surgery performed under general anesthesia? How was the patient intubated and ventilated for the procedure? Was a single lumen or double lumen endotracheal tube used? Was the lung isolation used for the VATS procedure? Was carbon dioxide insufflation used?**

Reply 4: This surgery was performed under general anesthesia and a double lumen endotracheal tube was used. The contralateral lung was isolated during the VATS Hilar and Pericardial Release procedure. Carbon dioxide insufflation was not applied.

Changes in the text: Surgery was performed under general anesthesia, with a double lumen endotracheal tube. (see page 3 line 41)

**Comment 5: How was the patient ventilated and oxygenated during the resection? Was cross table ventilation used?**

Reply 5: Cross table ventilation was commenced by use of a surgically placed endotracheal tube when the trachea was incised distal to the lesion.

**Comment 6: Page 3, line 44: The authors state that the left main bronchus was divided. This should be altered to " The left main bronchus was dissected free of the pulmonary artery'**

Reply 6: Thanks for the correction.

Changes in the text: The left main bronchus was dissected free of the pulmonary artery. (see page 3 line 47)

**Comment 7: What kind of laryngeal release was performed? More details of the release maneuver needs to be provided**

Reply 7: Infrahyoid release was performed. Due to the limitation of words count, this maneuver is not described in detail and we think it is normalized in the operation.

Changes in the text: Patient then lied supine and the infrahyoid release was performed through a cervical collar incision. (see page 4 line 58)

**Comment 8: What suture material and size was used for the tracheal reconstruction**

Reply 8: Vicryl suture (4-0 Polylactic acid) was used for the tracheal reconstruction.

Changes in the text: End-to-end anastomosis was performed by interrupted single sutures in the membranous wall and separate single and figure-of-eight sutures in the cartilaginous wall utilizing Vicryl suture (4-0 Polylactic acid). (see page 4 line 66)

**Comment 9: Provide a photo of the resected trachea**

Reply 9: We agree the photo of the resected trachea is necessary; however, due to the retrospective nature of the study, we do not have it at present. So, we provided the postoperative CT scan of this patient in the revised version.

Changes in the text: CT scan after one month postoperatively showed a good luminal patency in the trachea surrounded by the thymic tissue. (see page 5 line 77)

**Comment 10: What did the pathology of the resected specimen reveal? Margin status? Lymph node status?**

Reply 10: The final pathology indicated an adenoid cystic carcinoma (ACC), with no lymph node metastasis. Intraoperative frozen section showed no microscopic involvement of the transected tracheal margins.

Changes in the text: Endoscopic biopsy was performed and laser treatment was used to recanalize the airway. The biopsy pathology confirmed a diagnosis of adenoid cystic carcinoma. (see page 3 line 39)

The specimen was sent for frozen section, which demonstrated microscopic clearance of tumor in the cut margin. (see page 4 line 62)

**Comment 11: Was a drainage tube placed? If so, when was it removed?**

Reply 11: Yes. One drainage tube was placed in the respective thoracic cavity after VATS releases. Additionally, another two mediastinal drains were placed at the site of tracheal anastomosis. The thoracic tubes were removed on postoperative day 2, and the mediastinal drains on postoperative day 7.

Changes in the text: Subcarinal lymph nodes were removed, and one drainage tube was placed. (see page 4 line 49)

Another chest drain was placed in the right thoracic cavity. (see page 4 line 56)

The thymus and surrounding tissues were used to cover the anastomotic site, and two mediastinal drains were placed at the site of tracheal anastomosis. (see page 4 line 67)

The two thoracic drainage tubes were removed on postoperative day 2, and the mediastinal drains on postoperative day 7. (see page 4 line 74)

**Comment 12: How is post-operative surveillance being performed?**

Reply 12: Chest CT was performed on one month postoperatively, before adjuvant

radiotherapy. Bronchoscopy was also planned but was not available since our city was locked down due to covid-19 pandemic. Therefore, we provided the postoperative CT scan in the revised version.

**Comment 13: The authors claim this technique may be superior to thoracotomy. This cannot be claimed from just one case. This requires a case series to claim.**

Reply 13: We agree it is too urgent to claim this conclusion based on one case report. Therefore, we rephrase the conclusion.

Changes in the text: Therefore, bilateral hilar release via VATS could be safely performed, avoiding the potential complications related to thoracotomy, thus could be considered as an alternative method to reduce the anastomotic tension in the setting of long-segment trachea resection. (see page 6 line 100)

**Comment 14: Why did the authors not just perform the hilar release through the median sternotomy? This would have avoided the VATS procedures all together? I see an advantage of performing VATS hilar release if only a collar incision is being used for the tracheal resection, but, since you were going to perform a median sternotomy, the left and right hilar releases could have just been performed from the midline. I dont see an advantage to bilateral VATS when a median sternotomy is being performed anyway.**

Reply 14: We thank the reviewer for the question. Indeed, hilar release can be performed through the median sternotomy, but its effect of release is inferior to the VATS procedure, because the posterior hilum can hardly be approached through the median sternotomy. As stated in our report, the main bronchus should be dissected free of the pulmonary artery, which is very hard to complete from an anterior approach. As stated in a recent review by Douglas J. Mathisen, although access to either hilum can be achieved through median sternotomy, intrapericardial release via transpleural approach is difficult due to the heartbeats and the right atrium obstructing visualization (Ann Cardiothorac Surg 2018, 7:293-298). Traditionally, bilateral hilar releases have been in the purview of the thoracotomy. Our study provided an alternative approach with less trauma and comparable effect on hilar and pericardial releases.

Changes in the text: Bilateral hilar and pericardial releases were traditionally achieved via thoracotomy, but it has rarely been indicated due to the extensive trauma and longer recovery time. Although access to either hilum can also be achieved through median sternotomy, intrapericardial release via transpleural approach is difficult due to the heartbeats and the right atrium obstructing visualization. (see page 5 line 83)

### **Reviewer C**

**The authors present a case report of long-segment tracheal resection through a sternotomy, with bilateral VATS hilar release. The report will add to the literature as there are few case reports of using VATS for this procedure. A few comments:**

**Comment 1: Can the authors comment on why the patient was mechanically ventilated post-operatively? This isn't done as a standard at other large airway**

**institutions.**

Reply 1: We thank the reviewer for the comment. The patient was mechanically ventilated post-operatively because the tidal volume was not good enough after assessment by our anesthesiologist, just for safety consideration. It could be due to a long anesthesia period and an inadequate recovery from anesthesia.

**Comment 2: Only some of the figures have anatomic labels - all should be labelled as they're not entirely clear.**

Reply 2: We revised the figure to make it more readable.

**Comment 3: The authors should comment further on why it's beneficial to do the VATS procedures, rather than doing the hilar releases through the sternotomy.**

Reply 3: We agree. Indeed, hilar release can be performed through the median sternotomy, but its effect of release is inferior to the VATS procedure, because the posterior hilum can hardly be approached through the median sternotomy. As stated in our report, the main bronchus should be dissected free of the pulmonary artery, which is very hard to complete from an anterior approach. Also, as stated in a recent review by Douglas J. Mathisen, although access to either hilum can be achieved through median sternotomy, intrapericardial release via transpleural approach is difficult due to the heartbeats and the right atrium obstructing visualization (*Ann Cardiothorac Surg* 2018, 7(2):293-298). Traditionally, bilateral hilar releases have been in the purview of the thoracotomy. Our study provided an alternative approach with less trauma and comparable effect on hilar and pericardial releases.

Changes in the text: Bilateral hilar and pericardial releases were traditionally achieved via thoracotomy, but it has rarely been indicated due to the extensive trauma and longer recovery time. Although access to either hilum can also be achieved through median sternotomy, intrapericardial release via transpleural approach is difficult due to the heartbeats and the right atrium obstructing visualization. (see page 5 line 83)