

Peer Review File

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Response to reviewer A

Comment 1: Why did you perform a full sternotomy? All of your lesions were in the upper/mid third of the trachea and a partial split should suffice.

Reply 1: For us, this technique is also a newly developed procedure. Therefore, when performing this procedure, the choice of full sternotomy is based on the experience and preference which is comfortable for the operator. Up to now, in our experience with this procedure, we agree with the reviewer's suggestion that partial splitting of the sternum can meet the surgical requirements and reduce trauma. We are also considering using partial sternotomy in subsequent procedures.

Changes in the text: We agree with the comment, we have re-wrote the sentences regarding the incision in the revised manuscript as the following: “a midsternal incision or a partial splitting of the sternum was made for this procedure according to operator’s experience and preference as described elsewhere” (see Page 5, Line 183-185).

Comment 2: Why harvest a myocutaneous flap? A pedicled muscle-flap could be enough.

Reply 2: In the cases we have treated, most of them had significant esophageal defects or strictures, requiring the use of a myocutaneous flap to reconstruct approximately half of the circumference of the esophageal wall. During this process, we aim to utilize the skin as a substitute for the mucosa to provide protection function.

Changes in the text: Thank you for reviewer’s comments, we have added a brief description as follows: “This allows the skin to serve as a substitute for mucosa, providing protection against infection and acid.” (see Page 6, Line 219-221).

Comment 3: As you described, a major drawback of your approach is the necessity of tracheal transection. Do you have any personal experience in TEF reconstruction with dedicated grafts (like decellularized autologous tissue) buttressed with muscle flaps via right thoracotomy?

Reply 3: In fact, from our current experience, although the surgery requires cutting the trachea, there have been no complications related to the tracheal anastomosis after the surgery. The relative tracheal narrowing caused by the surgical procedure has not significantly affected the patient's quality of life. Tracheal complications are a consideration for us, but they have not become a disadvantage. We are concerned that tracheal complications may occur after the cases increased, but there is no such problem at present. We have tried various surgical methods in the past, including direct repair, muscle flap reinforcement, pericardial flap reinforcement, or mesh reinforcement, etc. Our surgical experience is similar to the literature reports, these surgical methods are effective, but there are disadvantages such as the difficulty of operating through the right chest, a high recurrence rate after surgery, a high incidence of anastomotic

complications, and a high mortality rate. Therefore, we developed this surgical procedure in the process of seeking safer and more effective surgical methods.

Changes in the text: Thank you for reviewer's comment, we have added a more discussion regarding this question as following: "Tracheal anastomosis complications are another concern for us. Although none of the patients have experienced at the current stage, we are concerned that tracheal complications may occur after the cases increased. We believe that a tension-free airway anastomosis and well blood supply protection can reduce this risk, however, we have only three cases here, and a larger sample sizes and longer-term studies are needed to observe and verify the safety." (see Page 9, Line 322-327).

Comment 4: Did you rely on endo-sponges for anastomotic leak treatment?

Reply 4: This technique has not yet been implemented in our center. And the two cases of fistula formation we described are both very small pits, antibiotics and drainage can achieve satisfactory effects. The anastomotic site can quickly heal through the ongoing inflammation and fibrosis in a short period of time.

Changes in the text: We deeply appreciate the reviewer's suggestion and we have added a brief description as follows: "The two cases of esophageal anastomotic leakage we described were suffered from very small pits, which difficult to detect by esophagogram and gastroscopy. Applying methylene blue could be helpful in diagnosis. After drainage and antibiotics, the anastomotic leak healed well through the ongoing inflammation and fibrosis, and no other serious complications were observed." (see Page 9, Line 317-321).

Comment 5: Two of your patients had TEF due to complications after mechanical ventilation. This has (fortunately) become very rare, especially after early tracheostomy. Could you elaborate on the causes for TEF in these patients?

Reply 5: Thank you for reviewer's suggestion. As suggested by reviewer, we have added the suggested content to the manuscript in the case presentation part.

Changes in the text: We have added more details to describe the cases in "Case presentation" part. (See Page 4, Line 129 to Page 5 Line 176).

Response to reviewer B

Comment 1: First, in the title please indicate the three cases and the successful treatment or the prognosis of these cases.

Reply 1: Thank you to the reviewer for pointing out this problem. According to the reviewer's comment, we have made the corresponding modifications to the title.

Changes in the text: We have re-wrote the title in the revised manuscript as the following: "Successful repair of acquired intrathoracic nonmalignant tracheoesophageal fistulas using Thoracoacromial artery perforator flap through a midsternal incision approach: a report of three cases".

Comment 2: *Second, the abstract needs some revisions. The background needs to briefly analyze the limitations of available surgical treatments for acquired TEFs and why the authors' new surgical treatment is effective and safe. In the case presentation, please describe the basic clinical characteristics of the three cases such as sex, age, and clinical diagnoses and how these patients were followed up. The conclusion is overstated since this is only a case report and the follow up period is relatively short. The authors need to tone down the current conclusion.*

Reply 2: We deeply appreciate the reviewer's suggestion. According to the reviewer's comment, we have revised manuscript as follows.

Changes in the text: 1) In the background, we have added a brief description: "However, in recent studies, the difficult-to-ignore early complications of surgical treatment can be as high as 62.5%. Among them, esophageal stricture occurring in 42% - 54% of patients, anastomosis leakage occurs at a rate of 22.7% - 26%, and the mortality rate can be as high as 29.4%. Here, we introduce our innovative experience repairing acquired TEFs with a thoracoacromial artery perforator flap, in which provides a clear surgical field of view, reliable reconstruction, and no serious complications during the perioperative period and no mortality or complications were observed within 180 days after the operation." (See Page 2, Line 43-49)

2) In the case presentation, we have added more details of the basic clinical characteristics of the cases (See Page 4, Line 129 to Page 5 Line 176).

3) In the Follow-up and outcomes part, we have added a brief description as follows: "At 6 months postoperatively, all patients underwent evaluations that included medical history assessment, physical examination, chest CT scan, bronchoscopy, and gastroscopy." (See Page 7, Line 253-256)

4) In the conclusion part, we deleted the statement: "...is an effective surgical treatment" and limited the conclusion to the current cases. (See Page 10, Line 364&367)

Comment 3: *Third, in the introduction of the main text, the authors need to analyze the reasons for relatively high risk of postoperative mortality and complication morbidity in available treatments and what the knowledge gap is on the efficacy and safety of the new treatment strategy.*

Reply 3: We are grateful for the suggestion. As suggested by the reviewer, we have added more details to the manuscript in the introduction.

Changes in the text: we have added the suggested content in the introduction part. (See Page 3, Line 76-84, 86-91, 99-104)

Comment 4: *Fourth, in the case presentation, the authors need to briefly review the health status or clinical characteristics of these cases, since the health status is*

associated with the treatment outcomes and therefore is important. Please also describe the follow up details and measurements of efficacy and safety and prognosis outcomes.

Reply 4: Thank you for underlining this deficiency. We have added more details in the case presentation and follow up part.

Changes in the text: 1) In the case presentation, we have added more details of the basic clinical characteristics of the cases (Page 4, Line 129 to Page 5 Line 176).

2) In the Follow-up and outcomes part, we have added more detailed regarding follow up (See Page 7, Line 253-256)

***Comment 5:** Fifth, in the discussion please analyze the limitations of this case report such as small sample and the relatively short duration of follow up and provide comments for further research work to generalize the new surgical treatment. In addition, three cases cannot be a case series in the main text.*

Reply 5: We are extremely grateful to reviewer for pointing out this problem. We have added more discussion according to the comment and we deleted the “case series” in text.

Changes in the text: We have added more discussion on page 9, line 324-327 and We deleted the “case series” in text (See Page4, Line18)

***Comment 6:** Finally, please consider to review and cite several potentially related papers: 1. Boybeyi-Turer O, Soyer T. Tracheoesophageal fistula after esophageal atresia repair: recurrent, missed or acquired. Curr Chall Thorac Surg 2022;4:26. 2. Yang G, Xian L, Zhao W, Huang C, Liang X, Sun Y, Yang S, Liu W, Bi X, Liang F, Wang M, Chen Y, Lu Y. Surgical treatment for acquired tracheoesophageal fistula complicated with tracheal stenosis using endoscopic liner cutter staplers: a case report. Curr Chall Thorac Surg 2021;3:41.*

Reply 6: We are grateful for the suggestion. The relevant literatures provided are very helpful, and we have included them in our citations.

Changes in the text: We have added the necessary references in the manuscript. See the References part on Page 16.

Response to reviewer C

1. Title

1) “Fitulas”: Please correct this typo.

Successful repair of acquired intrathoracic nonmalignant tracheoesophageal fitulas using Thoracoacromial artery perforator flap through a midsternal incision approach in three cases: a case report

Response: Thank you for underlining this typo, we have corrected it.

2) It is suggested to change the title as “Successful repair of acquired intrathoracic nonmalignant tracheoesophageal **fistulas** using thoracoacromial artery perforator flap through a midsternal incision approach: **a report of three cases**”.

Response: Thank you for the suggestion, we have revised the title accordingly.

2. The authors mentioned “studies...”, while only one reference was cited. Please revise.

*Anatomic **studies have** demonstrated that a constant thoracoacromial artery perforator is present in the septum between the clavicular and sternocostal heads of the pectoralis major muscle. The territory of the TAPF extended up to the fourth intercostal space inferiorly, and the mean length of the vascular pedicle was 7.1 cm (18).*

Response: Thank you for underlining this deficiency. We have change “studies have” to “a relevant anatomic study has”.

3. Table 1

Should it be “Patient 3”? Please check and revise.

Variables↵	Patient 1↵	Patient 2↵	Patient 2↵
Age (years)↵	40↵	58↵	63↵

Response: Thank you for underlining this deficiency. It should be 3 and we have checked and revised.