Peer Review File

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Reviewer A

Dear authors, thank you for giving me the opportunity to review your technique. Your case illustrates the anterior approach for a left upper lobectomy in a patient with a fused fissure. The video is illustrative and dissection is properly performed. However, I personally don't see something new or relevant. This approach has been already described by Decaluwe et al (Interact Cardiovasc Thorac Surg. 2015 Jul;21(1):2-7. Thoracoscopic tunnel technique for anatomical lung resections: a 'fissure first, hilum last' approach with staplers in the fissureless patient). This article was even not quoted.

Reply: Thank you for taking time out of your busy schedule to give us your valuable feedback. We agree with the reviewer's comments. As the reviewer suggests, we have added the sentence in the Discussion section as follows (p11, line 174-176): Moreover, a previous report discussion postoperative courses demonstrated that the fissure first technique was feasible and not inferior to the hilum first technique regarding. Moreover, we have cited Decaluwe's report as reference No. 8.

Reviewer B

COMMENT 1

Both in the text and the video, much more time is spent on mediastinal lymph node dissection. The authors never really laid out how the approach to the fissure is relevant to lymph node dissection and vice-versa. This leads to confusion when reading the introduction. The authors mention 3 « techniques » and I initially expected these to be 3 alternative ways to address a fused fissure. But in fact, these are actually 3 « steps » in the operation, two of them dealing with lymph node dissection. There is no apparent link between the « 4L posterior first » technique, the « anterior #7 » technique, and the issue of the fused fissure. If there is, the authors, did not address it.

In my opinion, the authors have a choice to make. Is their objective dealing with a fused fissure, or describing their technique of mediastinal node dissection?

Including both results in a paper that is superficial and at times confusing. I think it would be helpful to focus on one specific topic and draft the manuscript accordingly.

Reply 1: Thank you for taking time out of your busy schedule to give us your valuable feedback. As the reviewer suggests, we have changed the title of this paper as follows: Novel thoracoscopic lymph node dissection techniques for left upper lobectomy with a fused fissure. Moreover, we have highlighted the description of the lymph node dissection in the Introduction section as follows (p4, lines 56-60): In addition, performing a hilar LND in a conventional manner in the case of an incomplete fissure is may be difficult. Both hilar and mediastinal LND are essential procedures during surgery for NSCLC. Therefore, in cases of fused fissure, it is vital to achieve both a safe lobectomy and precise systematic LND.

COMMENT 2

Regarding the anterior approach to the fissure, there is nothing particularly novel about the authors' technique. A high quality tutorial is always welcome, however I do not think that the paper meets this standard. One would have expected the authors to discuss advantages, disadvantages, pitfalls, and alternative techniques. They mention hilum first - fissure last vs hilum last - fissure first techniques, but really do not elaborate on the differences between the two and do not make a convincing case for their particular technique.

Reply 2: Thank you for your important advice. According to this advice, we have addressed the sentences in the Discussion as follows (pp10-11, lines 163-176): The hilum first technique, where the hilar structures are dissected before dividing the fissure, is a so-called "fissureless technique", and is considered a useful procedure to reduce postoperative air leakage. In this method, processing may be initiated from the anterior hilar in the following sequence: 1) upper PV, 2) anterior PA (A1+2a+3), 3) apical PA (A1+2b), 4) left upper bronchus, 5) posterior PA (A1+2c), 6) lingular PA (A4+5), and 7) fissure. However, the hilum first technique may be inappropriate for patients with adherent or infiltrating hilar lymph nodes. We do not consider this technique to be oncologically appropriate because it is likely to compromise the hilar lymph nodes. On the other hand, the fissure first technique enables the operator to view the entire hilar lymph node, similar to a situation with a complete fissure, and allows the hilar LND to proceed in a conventional manner. Moreover, a previous report discussion postoperative courses demonstrated that the fissure first technique was feasible and not inferior to the hilum first technique regarding.

COMMENT 3

I commend the authors on their technique of mediastinal lymph node dissection, which is well executed and presented in the video. Really, the way the manuscript and video are presented, I would consider this the centerpiece of their paper. I found the anterior approach to the No 7 nodes particularly interesting and I think it is very well illustrated. Initially I had a bit of trouble understanding the exposure and the fact that the operative field followed the plane along the proximal vein stump and pericardium down to the subcarinal space while the bronchus is being retracted towards the 12 O'Clock position. Once I understood this, I found the technique very interesting indeed. Perhaps the authors could help along the viewer's orientation a bit more?

Reply 3: Thank you so much for your kind comments. We agree with the reviewer's comments. As the reviewer suggests, we have re-edited around 7:05 of the video (Video 1) to make the viewer's orientation clearly.

COMMENT 4

What is that retractor that the authors are using at around 9:40 of the video? Anything to watch for or be mindful of (keeping in mind that the artery and its branches are completely exposed at this point)?

Reply 4: Thank you for making an important point. We agree with the reviewer's comments. As the reviewer suggests, we have addressed the following sentences in the Anterior #7 dissection technique section (p9, lines 146-148): we lift the LMB and the stump of the left upper PV using a thread and specially modified muscle retractor that may be inserted through a 15 mm incision.

COMMENT 5

The authors mention ischemia of the bronchial stump as a possible consequence of their dissection technique. This seems like a very important issue. How have they documented this? Have they had any related postoperative complications? (BPF, empyema)?

Reply 5: Thank you for making an important point. We agree with the reviewer's comments. As the reviewer suggests, we have addressed the sentences in the Discussion section as follows (pp11-12, lines 186-194): we reported that the #7 LND was a

significant predictive factor of postoperative ischemic change in the bronchial stumps, which could cause bronchopleural fistulas. In addition, reports showed that metastasis to #7 lymph node concomitant metastasis to the hilar or superior mediastinal nodes was rare in cases of tumors in the right upper lobe and left upper division . Accordingly, we omitted dissection of the #7 lymph nodes in cases with left upper division. However, in the case of left lingular division, we dissected the #7 lymph nodes from the ventral side. During that procedure, we did not dissect between the dorsal side of the trachea and the esophagus in an effort to preserve the BA and prevent bronchopleural fistulas.

COMMENT 6

There is a « typo » in the title of the video (« with »).

Reply 6: We thank the reviewer for pointing this mistake. We have edited the video file, and the title page has been deleted. Therefore, this has been corrected.

COMMENT 7

Around 6:45 of the video: suggest identifying the vein to show that this is the structure being dissected.

Reply 7: Thank you for your suggestion. As the reviewer suggests, we have edited the video file, and the title page has been deleted. Around 6:05 of the re-edited video (Video 1), we have added a scene and commentary dissecting the upper PV.

Reviewer C

The surgeon provided us with a method of resection of the left upper lung without pulmonary fissure. The author freed the anterior and posterior hilum, opened the fissure with Staples, and then performed lobectomy. On the one hand, it increases the risk of surgery, because operations closer to the pulmonary artery can easily injure the pulmonary artery and cause bleeding; on the other hand, it increases the operation time, which may affect the patient's postoperative recovery. In our clinical knowledge, we also encounter patients with pulmonary fissure hypoplasia undergoing left upper lung resection, which can be approached from the anterior hilar. The order of processing hilar structures is: vein-(A3+A1+2a)-(A1+2b)-Bronchus-(A1+2c)-(A4+5)-fissure, this treatment method reduces the risk of surgery and saves the time of surgery.

Reply: Thank you for taking time out of your busy schedule to give us your valuable feedback. We agree with the reviewer's comments. We have addressed the sentences in the Discussion section as follows (p10, lines 163-171): The hilum first technique, where the hilar structures are dissected before dividing the fissure, is a so-called "fissureless technique", and is considered a useful procedure to reduce postoperative air leakage. In this method, processing may be initiated from the anterior hilar in the following sequence: 1) upper PV, 2) anterior PA (A1+2a+3), 3) apical PA (A1+2b), 4) left upper bronchus, 5) posterior PA (A1+2c), 6) lingular PA (A4+5), and 7) fissure. However, the hilum first technique may be inappropriate for patients with adherent or infiltrating hilar lymph nodes. We do not consider this technique to be oncologically appropriate because it is likely to compromise the hilar lymph nodes.

Reviewer D

In general, this video introduces a more effective method of dealing with fused fissure, which is worthy of promotion and learning. Compared with the commonly used front-to-back one-way method, the final method of dealing with pulmonary fissure has its advantages and practicality.

Reply: Thank you for taking time out of your busy schedule to give us your valuable feedback.

COMMENT 1

When processing the hilar structure, will the lymph nodes be removed one by one for a clearer visual field exposure?

Reply 1: Thank you for making an important point. We have tried to avoid removing the hilar lymph nodes one by one and dissect them en bloc with the resected lung. Around 7:05 of the re-edited video (Video 1), we have showed a scene of the hilar lymph node dissection.

COMMENT 2

The inversion of the video picture will decrease the audience's adaptability.

Reply 2: Thank you for making an important point. We agree with the reviewer's

comments. However, in the confronting upside down monitor setting, each person obtains a correct view of the surgical field without mirror images. Therefore, we have addressed the sentences in the Surgical techniques section as follows (p7, lines 102-105): The thoracoscopist must keep the scope in a horizontal position to ensure that surgical field mirror images do not occur. Each person obtains a correct view of the surgical field when viewing the confronting upside down monitor setting.

COMMENT 3

The fluency of operation needs to be strengthened. Some operations with scissors can be replaced with electrocoagulation hooks to improve fluency."

Reply 3: Thank you for your important advice. According to this advice, we would like to further improve our surgical techniques. At present, we are using of different instruments for the right person like the right place. Therefore, we have added the sentences in the Surgical techniques section as follows (p6, line 98): with scissors, electrocautery, or other surgical energy devices