

Peer Review File

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Reviewer A

Comment 1: In the discussion ref (17) the name is mentioned as Ganzalez, but in the list of ref 17. Gonzalez

Reply 1: We are sorry for this mistake and thank you for pointing it out, and we correct it as below.

Changes in the text: in reference and page 8 line 209.

Comment 2: It would be very interesting if you compare the different techniques of anastomosis lines protections and its indications!

Reply 2: Based on our initial experience of bronchus sleeve anastomosis, we recommend that 3-0/4-0 absorbable lines (PDS) or non-absorbable lines (Prolene) be used during bronchus anastomosis. The bronchial membrane should be turned inside out when suturing, and the knots should be placed outside the lumen. Since this part is farthest away from the surgeon, it can only be exposed when the lateral part is open. Hence, if there is a defect, it will be hard to repair after the anastomosis has been closed. To ensure a successful anastomosis, the surgeon should pay extra attention to the direction of suturing and pulling the needle to avoid wrapping the knots. Meanwhile, the surgical assistant should pull the lines with appropriate intensity to avoid the stitching tension to become loose. Some authors recommend interrupted sutures to allow for better size matching, reduce the risk of ischemia in the site of anastomosis, and prevent the loosening and entanglement of the sutures. It is worth mentioning that performing interrupted suture is technically challenging, as it is difficult to perform through a small utility port. As such, a running suture is preferable as it greatly simplifies the technical challenges of the anastomosis and shortens the operation time. In our center, we prefer to use 3-0 PDS lines to perform a running suture, because they would be absorbed within 6 months post operation, and result in a smaller healing scar with less anastomotic stricture.

Changes in the text: in page 6 line 133,134,138,139.

Comment 3: What is your protocol for the bronchoscopic control of these cases?

Reply 3: After bronchial anastomosis, we prefer to strengthen the anastomosis and reduce the risk of fistula formation by embedding and suturing part of the mediastinal pleura around the anastomosis.

Changes in the text: in page 6 line 141 and 142.

Reviewer B

Comment 1: First, please add the IRB approval/ethical committee approval number.

Reply 1: XJTUAF2019LSK-189.

Changes in the text: in page 3 line 81.

Comment 2: The definition of uniportal VATS and multiportal VATS should be written according the two consensus papers (Yan TD, Cao C, D'Amico TA, et al. Video-assisted thoracoscopic surgery lobectomy at 20 years: a consensus statement. *Eur J Cardiothorac Surg* 2014;45:633–9.; Bertolaccini L, Batirel H, Brunelli A, et al. Uniportal video-assisted thoracic surgery lobectomy: a consensus report from the Uniportal VATS Interest Group (UVIG) of the European Society of Thoracic Surgeons (ESTS) [published correction appears in *Eur J Cardiothorac Surg*. 2019 Sep 1;56(3):628-629]. *Eur J Cardiothorac Surg*. 2019;56(2):224 - 229.).

Reply 2: We have modified our contents and references as advised, thank you.

Changes in the text: in page 7 line 172-183.

Comment 3: Besides, the discussion should be improved with a better search of the literature. The limitations section should be improved with a better discussion.

Reply 3: We have added some contents in the part of comment, especially the limitation of VATS sleeve resection, and some references.

Changes in the text: in page 7-8 line 184-187.

Comment 4: About minor points, there are grammars and typos errors in the text. Please thoroughly check the article.

Reply 4: We are sorry for these mistakes and thank you for pointing them out.

Changes in the text: in page 7 line 167-172.

Comment 5: References should be formatted according to the instructions.

Reply 5: We have modified our reference as below, thank you.

Changes in the text: in reference.

Reviewer C

Comment 1: Is this novel?

Reply 1: Sleeve lobectomy was traditionally considered a contraindication to thoracoscopic surgery. However, a growing number of studies have reported on the feasibility of VATS sleeve resection. Nonetheless, thoracoscopic sleeve resection remains a challenging procedure, even in the hands of experienced thoracic surgeons, but it's not the latest technology. A number of small series have shown that in the treatment of malignant tumors of the lung, sleeve lobectomy is the equivalent of pneumonectomy with comparable recurrence rates. Nevertheless, there is no consensus on the selection of the appropriate candidates, the choice of the line or technique of suturing, or how to reduce anastomotic complications in patients undergoing sleeve resection.

Although this was an invited manuscript by the editorial office, so that we can share our initial experiences and techniques for VATS sleeve lobectomy, it also has some educational significance as it discusses the multimodal treatment for stage III NSCLC.

Thank for your great advice. Our colleagues are summarizing the clinical and survival data on sleeve lobectomy between 2009-2019 in our center for further analyses. We would greatly appreciate your constructive feedback on that study as well.

Changes in the text: no.

Comment 2: Is there unusual management options? This paper was problematic for me. The patient was staged as IIIb, but never underwent mediastinal staging, and had only 2 rounds of chemo. Many would consider this management not based on any guidelines. For unresectable IIIa/b disease, most would do definitive chemo/xrt. If neoadj therapy was to be considered the standard remains chemo/xrt(modified dose of xrt) or chemo (4 cycles). I do not know of any data to suggest 2 cycles followed by surgery.

Reply 2: Dear reviewer, thank for your valuable advices. There is not one accepted method of treatment for stage III NSCLC. There are multiple controversial opinions on the regimens of choice for neoadjuvant chemotherapy and neoadjuvant concurrent radiochemotherapy, the timing and cycles of induction therapy, the evaluation criteria to assess therapeutic effect, and the inclusion of surgery. So MDT meetings and discussions are important for planning and deciding on the appropriate course of treatment for the patient.

We apologize for not including the results of the PET CT in the previous version of the manuscript. This oversight has been rectified and the relevant details are not presented under the preoperative examination subheading. As per the results of the PET CT scan, the metabolism of right lung tumor based on SUVmax was 9.8, and the metabolism of the subcarinal lymph nodes was slightly increased (SUVmax was 2.8). No metastasis or other metabolic lesions were found. The patient refused to undergo EBUS to determine his lymph nodes status.

The issue you raised, was the same that was pointed out in our MDT discussion, as to whether the SUVmax value of 2.8, which indicates an increase in the metabolism of the subcarinal lymph nodes, could be classified as ipsilateral mediastinal lymph node metastasis (N2). According to the NSCLC guidelines of CSCO (Chinese Society of Clinical Oncology), the MDT team concurred that the tumor in this patient should be classified as single-station non-massive metastases to the mediastinal lymph nodes in N2 stage (short diameter of lymph nodes ≤ 2 cm) with no multi-station lymph node involvement. Clinical TNM stage was cT4N2M0 IIIB, and potentially resectable. Nonetheless, pneumonectomy was not recommended. The full treatment plan for this patient after the MDT meeting was neoadjuvant chemotherapy \pm surgery \pm adjuvant

chemotherapy ± postoperative radiotherapy (Class 2B evidence). At present, there is no high-level evidence to indicate that neoadjuvant chemotherapy followed by surgery would have better outcomes than radical radiochemotherapy in patients with lung cancer. Besides, it is also not proven that neoadjuvant radiochemotherapy followed by surgery has any advantage to neoadjuvant chemotherapy followed by surgery or radiochemotherapy. Hence, we planned to perform two cycles of neoadjuvant chemotherapy, and then finalize the treatment plan on whether the patient should undergo radical surgical resection or radical chemoradiotherapy after evaluating his response to neoadjuvant therapy. As such, it was decided that if the changes observed in the tumor and lymph nodes after neoadjuvant therapy did not satisfy the criteria for curative effect, the patient would undergo concurrent radiotherapy; on the other hand, if the tumor and lymph nodes reduced in size following neoadjuvant therapy, which provided a chance for radical surgical resection, surgery should be the next step. Following surgery, the next step of the treatment was to be finalized based on the pathological outcome of the tumor after the operation, and would have included adjuvant chemotherapy ± radiotherapy.

The chest CT images after neoadjuvant therapy indicated a significant reduction in the size of the tumor with no change in the subcarinal lymph nodes. In the second MDT meeting, most experts supported radical surgery in the form of sleeve resection or pneumonectomy. The patient and his family consented to undergo surgery after being informed of the pros and cons of the procedure. We performed VATS sleeve lobectomy, and the patient recovered well.

In patients with advanced NSCLC, there are no universally accepted criteria for diagnosis and treatment. Hence, the treatment decision is made through discussions among the members of the MDT team and in line with the CSCO NSCLC guidelines, taking into consideration the practical clinical problems and the specifics and clinical significance of each case. The same procedure was adhered to for this case and the treatment plan was finalized by the MDT team and following the CSCO NSCLC guidelines based on practicalities and significance of this clinical situation.

Changes in the text: in page 3 line 63-68.

Comment 3: What is the central message that is unique? After reading the paper, I could not come up with a unifying statement/message for the reader. In revising the paper, I would start with this in mind and work backwards to reconstruct the outline of the paper.

Reply 3: Dear Reviewer, thank you for your comments. We were invited by the editorial office to submit this manuscript as an article of surgical technique video to be published in CCTS journal as a contest topic and to be shared with our international counterparts. The format and relevant requirements of the article are in accordance with the format specified by CCTS for this type of manuscript.

Changes in the text: no.

Comment 4: There are numerous typographic and grammatical errors.

Reply 4: We are sorry for these mistakes and thank you for pointing them out, and we corrected them.

Changes in the text: in page 1-12.

Reviewer D

Comment 1: It is recommended to add background knowledge or literature related to sleeve lobectomy after neoadjuvant therapy in the introduction

Reply 1: We have added some contents in the part of introduction, thank you for your excellent advice.

Changes in the text: in page 2 line 52-54.

Comment 2: There is no positioning content in Anesthesia, positioning, and port placement;

Reply 2: In our manuscript, page 4 line 90-95 showed the details of anesthesia, positioning, and port placement.

Changes in the text: no.

Comment 3: What is the diagnosis method for lymph node metastasis under the carina?
There is no evidence of lymph node enlargement on CT images;

Reply 3: Thank you for pointing out this oversight. The results of the PET CT revealed increased metabolism in the tumor in the right lung (SUVmax: 9.8) and slightly increased metabolism in the subcarinal lymph nodes (SUVmax: 2.8). No other metabolic lesions were found. The patient refused to undergo EBUS examination. We apologize for not including such important details in the first version of the manuscript. The details have been added in the revised manuscript as part of the clinical summary. Changes in the text: in page 3 line 63-68.

Comment 4: The basis of T4 in the diagnosis of cT4N2M0 is not described. Stage IIIb is downgraded after neoadjuvant treatment. Whether the surgical indication should be based on before or after neoadjuvant is still controversial;

Reply 4: Dear reviewer, thank you for your comments. As shown on the chest CT and bronchoscope results the tumor had invaded the right main bronchus. So, we clinically classified it as T4. After neoadjuvant chemotherapy, chest CT indicated that the tumor had significantly reduced in size with no change in the subcarinal lymph nodes. In the MDT discussion, most experts agreed on radical surgery as the next step of treatment (sleeve resection or pneumonectomy). So we performed VATS sleeve lobectomy, and the patient recovered well. In advanced stage III NSCLC, there are no universally accepted criteria for diagnosis and treatment. Hence, we followed the CSCO NSCLC guidelines, but also took into consideration the clinical practical problems and the specifics and clinical significance of this case.

Changes in the text: no.

Comment 5: In the case of this study, the frozen diagnose during the operation was not described;

Reply 5: Thank your excellent advice. We described the frozen diagnose was negative margine in the video, but not in the article. We added this content as below.

Changes in the text: in page 6 line 128,129.

Comment 6: English needs polish

Reply 6: We are sorry for those mistakes and thank you for pointing them out, and we corrected them.

Changes in the text: in page 1-12.

Reviewer E

Comment 1: Select minimally invasive indication: This case T4N2M0 belongs to stage IIIB tumor, and good results have been obtained after immunotherapy. Through surgical remedial treatment, can open thoracic achieve a better prognosis? Minimally invasive sleeve surgery is an absolute indicator for relatively early tumors of intraductal type/atelectasis type. Is it appropriate for this case? Open thoracic surgery has better visual field, operation, and thoroughness than thoracoscope. Especially for patients with advanced tumors, thorough treatment should be the first choice rather than minimally invasive.

Reply 1: Dear reviewer, I agree with your opinion. Open surgery has many advantages, and is the basis for thoracic surgery, especially in complex and difficult operations as it provides better risk control and reduces the chance of mistakes. Numerous studies on major lung resection, although mostly retrospective, have shown several advantages of thoracoscopic surgery over thoracotomy. Recently, a randomized controlled study reported the benefits of thoracoscopic surgery as reduction in postoperative pain and better quality of life with a minimally invasive approach. Sleeve lobectomy has traditionally been considered a contraindication for thoracoscopic surgery, however a growing number of studies have reported on the feasibility of VATS in sleeve resections in patients with advanced NSCLC. Advances in surgical techniques, intraoperative airway management, postoperative care, and induction therapies allow for aggressive tumor resection with acceptable morbidity and mortality in these patients, who were once considered inoperable and treated with only chemoradiotherapy. So we believe that a diagnosis of stage III NSCLC and neoadjuvant therapy are not absolute contraindications for video-assisted thoracoscopic surgery.

Changes in the text: no.

Comment 2: Visual field and resolution: the resolution is not clear enough, the visual field is too close, and the elaboration of operations such as lymph node dissection needs to be further enhanced.

Reply 2: Thank you for your excellent advice, this video was 720P, field of vision was not very clear, we would continue to improve techniques of thoracoscopy operation, emphasis on dissection of lymph nodes.

Changes in the text: no.