

## Peer Review File

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### Reviewer A

This manuscript is written with the employed workflow described in a synthetic manner, sometimes too inaccurate. The described data have been obtained from a proper sample size and analyzed with a proper statistical approach and the results are interesting, at all even if some other articles are available regarding the efficacy and safety of VATS surgery. Overall, the main topic of this manuscript according to our expertise could represent a useful tool and confirm the effectiveness of VATS surgery.

Reply: Thanks for your advice. We have carefully checked the language, description about methods, results in tables/figures and etc. All changes were highlighted in the revised version.

### Reviewer B

It's my pleasure to review this article, focusing on long term outcomes with efficacy of current VATS, comparing open thoracotomy approaches. I think that several concerns will be issued.

1. Since 2006, lung cancer staging of early cases seems to be modified from 7th to 8th TNM that additional descriptions may be required.

2. The authors included Stage III, comparing to prior study, but no mention were seen about the exclusion of neoadjuvant cases. When if the authors have intended to emphasize the extended role of VATS, neo/adjuvant and/or radiation strategies, and additional outcomes should be stated. When if, no neoadjuvant cases were included in this study, some discussions may be helpful on role of upfront VATS for Stage III, comparing to I-II diseases.

Q. Short-term surgical and survival outcomes were well described, but there were no descriptions of recur sites or metastatic patterns despite long-term cohort. Focus on recurrence dataset or procedures (reoperation/chemo-radiotherapy) seems will be more informative for long term efficacy of VATS.

Q. Line 183~188 seems not required due to repetitive sentences as method section. Instead, line 201~ can be placed in the front section of discussion, and Line 188~192 can be placed to the conclusive section.

Q. In line 223~ 224, does author means more station 11-13 dissection during VATS caused prolonged air leak, even though harvested LNs were more found in the preserved parenchyma in the VATS specimen?

Q. Authors already commented that causes of more expenses of VATS was due to more usage of staplers. Recently, regardless of staplers, usage of other cost-related sealants or developing instruments also may be another factor, but they might help to reduce hospital stay. Moreover, same VATS procedures with materials also can be employed in hybrid VATS or conversion

cases. Actually,

another viewpoint on cost issues can be drawn, considering rational numbers of staplers, surgical glue and covering sheets usage, which might decrease postoperative air leakage and duration of hospital stay finally.

Q. Underlying disease (other cancers or cerebrovascular history) data with **cancer-specific survival** outcome will be more valuable for accurate survival outcomes of VATS in cohort database study.

Q. In table 3, squamous carcinoma will be placed below adenocarcinoma, as Table 1.

Reply: Thank you very much for your suggestions, which extremely helpful for our article. I will respond to each of them one by one.

1. Since the introduction of the 8th edition TNM staging system in 2017, our hospital has consistently employed this edition for staging. Therefore, we have used the 8th edition TNM staging throughout the entire manuscript. Thank you for your reminder. we will emphasize this point once again.
2. Thank you for your reminder. We will include data on patients receiving adjuvant therapy.
3. Thank you for your reminder. We will include data on descriptions of recur sites or metastatic patterns
4. We will make the necessary adjustments accordingly.
5. Your suggestion is indeed very accurate. Our hasty speculation without data support was a mistake on our part. We have reconfirmed that there is no fewer N1 lymph node dissections in thoracotomy compared to VATS, so we will remove this immature speculation.
6. Our description in this section is indeed lacking. We will rewrite this passage to improve clarity and accuracy.
7. Thank you for the reminder. We will supplement the data comparing LCSS before and after matching.
8. We will make the necessary adjustments accordingly.

Changes:

1. Line82-83: add “8th edition of TNM staging system:”
2. Table 1: add the proportion of patients receiving adjuvant therapy
3. Table3 and line 171-172: add descriptions of recur sites or metastatic patterns
4. line 201~ can be placed in the front section of discussion, and Line 188~192 can be placed to the conclusive section.  
Line 222: delate “This was probably due to more N1 (station 11-13) lymph node dissection (harvested more lymph nodes in the preserved pulmonary parenchyma).”
5. Line 231 rewrite: “However, in China, VATS has no advantage in terms of surgical costs because of relatively lower hospitalization costs but more expensive surgical consumables.” To “In China, VATS is not more cost-efficient than is open surgery because of the use of staplers and other cost-related sealants or developing instruments, despite their potential to shorten hospital stays. This is attributed to the health care insurance system in China, which significantly reduces hospitalization costs, making them far lower than the costs of consumables..”

6. Line 169 and line 179 we add LCSS of patients
7. We combine table 1 and 3, table 2 and 4.

### **Reviewer C**

In this manuscript, the authors try to compare the difference from oncological and surgical point of view between VATS and open surgery.

In my opinion this is an old theme in thoracic surgery, and the efficacy of VATS over open surgery, also for advanced NSCLC, is already demonstrated; however, this paper represent a large cohort of patients from a 10-year surgery experience, so congratulations to the authors.

I have just two questions and curiosities:

The first one, in the VATS group you reported a 4% conversion rate, but you didn't mentioned the reasons of conversions; was this related to any intraoperative complications? (major or minor bleeding); or was it related to technical surgical difficulties? (infiltration of bronchovascular structures, lymphnodes?)

I think you may add this important data.

The second question is about hospital costs. You said that they were higher in the VATS group, unless the length of stay was much lower; have you got any explanation apart from the use of mechanical devices? Because otherwise it seems that performing open surgery is more convenient from an economical point of view.

Reply: Thank you for your advice. It has been very helpful for our article. We have revised the article according to your suggestions.

Changes:

1. We add reasons of conversions in table 2
2. Line 223 rewrite: "However, in China, VATS has no advantage in terms of surgical costs because of relatively lower hospitalization costs but more expensive surgical consumables." To "In China, VATS surgery does not offer cost advantages compared to open surgery, primarily due to the usage of staplers and other cost-related sealants or developing instruments, despite their potential to shorten hospital stays. This is attributed to the healthcare insurance system in China, which significantly reduces hospitalization costs, making them far lower than the costs of consumables."