

Peer Review File

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Reviewer A

The paper is well planned, considering the exponential growth of the RATS at this time and in the coming years.

Comment 1

I missed an assessment regarding the quality of the lymphadenectomy since a significant percentage of the cases analyzed are thymomas. Especially considering that lymphadenectomy has a decisive influence on the correct staging of these tumors.

Reply 1: Thank you for your comment. Since only cT1N0M0 cases are indicated for endoscopic surgery at our institution, lymphadenectomy is not routinely performed. Therefore, we added the sentence in the methods section.

Changes in the text: We have modified our text as advised (see Page 8, line 119-121).

Reviewer B

It seems to me an interesting work a priori, but I consider that the work needs an in-depth review:

Comment 1

- In the abstract, the Methods section should be more explicit.

Reply 1: Thank you for your recommendation. As you indicated, we amended the sentences to explain clinicopathological features and perioperative outcomes in detail in the Methods section of the abstract.

Changes in the text: We have modified our text as advised (see Page 3, line 40-45).

Comment 2

- The conclusions are flimsy, and are only supported in a very relative way from the data; as expressed by the authors, gives the impression that they are conclusive findings.

Reply 2: Thank you for your comment. As you indicated, we added the sentence to mention the possibility of RATS mediastinal tumor surgery in the conclusion section.

Changes in the text: We have modified our text as advised (see Page 17, line 281-284).

Comment 3

- In the Highlight Box it is stated: “however, most comparisons of robot- and video-assisted thoracic surgery have not involved mediastinal surgery”. This statement is not true, since mediastinal surgery together with lung resection are the types of resection that the publications on RATS mainly focus on. The authors may want to refer to surgery of any mediastinal compartment, since most studies focus on the anterior mediastinum.

Reply 3: Thank you for your recommendation. As you indicated, we amended the sentences to emphasize that this study covered all areas of the mediastinum in the Highlight Box and the Introduction.

Changes in the text: We have modified our text as advised (see Page 5 and Page 6, line 78-80).

Comment 4

- The patients are recruited between 2014 and 2022, but it is not specified how each observed group is distributed over time. It is possible that the majority of RATS patients are more recent, and those who have undergone previous VATS, which could imply a bias.

Reply 4: Thank you for your comment. As you indicated, most RATS patients were more recent, but no one had undergone previous VATS in the RATS group. In addition, VATS group have no one who had undergone previous thoracic surgery in the same way. Considering improvements in medical technology over time, there might be a possible advantage in the RATS group.

Changes in the text: We have modified our text as advised (see Page 7, line 96 and Page 12, line 190 and Page 13, line 196-199).

Comment 5

- The distribution of lesions in the different mediastinal compartments does not present statistically significant differences; however, in the VATS group there is a considerably higher number of patients with involvement in the middle mediastinum, and especially posteriorly. Although there is no statistical significance, this may also condition the results in terms of the duration of the interventions.

Reply 5: Thank you for your comment. As you indicated, the distributions of lesions in the different mediastinal compartments might have affected the perioperative outcomes, including operative time.

Changes in the text: We have modified our text as advised (see Page 12, line 190 and Page 13, line 200-203).

Comment 6

- The collected cases submitted to combined resection of adjacent tissue are very few; this fact can also significantly bias the result, even if it is statistically significant. The authors even use it as an argument that highlights the greater difficulty of the interventions of the RATS group, using the questionable data in an apparently manipulative way.

Reply 6: Thank you for your comment. As you indicated, the number of the cases with complicated resection of surrounding tissue was small in both groups. A statistically significant difference was shown for this factor, but the result could be an accidental error.

Changes in the text: We have modified our text as advised (see Page 12, line 180-182).

Comment 7

- There is an important difference between board-certified surgeons in one group and another; the authors also make a study subgroup of patients operated only by board-certified surgeons, but the fact referred to may bias the general data of the study.

Reply 7: Thank you for your comment. As you indicated, we intended to adjust the bias, but this may have resulted in a bias. We compared patient characteristics limited to cases performed by board-certified surgeons between VATS and RATS groups. As a result, significant differences were found only in age, combined resection of adjacent tissue, and histology as well as the result of patient characteristics enrolled in this study.

Changes in the text: We have modified our text as advised (see Page 11, line 166-167) and made Table 4.

Comment 8

- In the group of interventions performed by board-certified surgeons, it is very striking that the difference in intervention time between VATS and RATS is statistically significant for all approaches. However, when stratified by unilateral or bilateral approach, there are no significant differences between VATS and RATS, neither for unilateral approaches nor for bilateral accesses.

Reply 8: Thank you for your comment. As you indicated, it was unexpected that there was no significant difference not only in the bilateral approach cases but also in the unilateral approach cases regarding intervention time, even though the difference in intervention time between VATS and RATS is statistically significant for all approaches.

This may be due to the result that the VATS group tended to have more bilateral surgeries when limited to cases performed by board-certified surgeons, although the difference was not significant.

Changes in the text: We have modified our text as advised (see Page 15, line 259-Page 16, line 263).

Comment 9

- It is very striking that the published evidence indicates a longer intervention time for RATS; instead, the authors find the opposite from the work they present, In section 4.4 Explanations of findings, the authors justify it by means of a possible explanation, however, I do not see clearly if they account for all the time of use of the operating room, including the preparation of the robot, or only what is intervention as such (they speak of console time and open/closed chest time, lines 100-101).

Reply 9: Thank you for your question. The operative time referred to in this paper is the sum of console time, open/closed chest time, and roll-in/roll-out time of the robot. Therefore, we amended the sentence in the methods section.

Changes in the text: We have modified our text as advised (see Page 7, line 106-107).

Comment 10

- Between lines 192 and 198 the authors refer to the RATS application in lung cancer surgery; It is of collateral interest, because the article deals with surgery of the mediastinum.

Reply 10: Thank you for your comment. As you indicated, these parts were collateral interest. Therefore, we deleted these sentences and amended the reference number.

Changes in the text: We have modified our text as advised (see Page 13, line 212-Page 14, line 218).

Reviewer C

The manuscript entitled “Robot-assisted thoracic surgery versus video-assisted thoracic surgery for mediastinal lesions” is meaningful for the readers. The authors clarified that RATS is superior to VATS in the point of operation time and hospital stay.

However, it is true that it is just one institution study and the limited number of enrolled patients as the author referred. Furthermore, it is a limited study for limited evaluations, and I agree with further studies in the near future.

I point out several points to be revised as follows.

Comment 1

• Hopefully, I would like to add the description of quality for the patient such as postoperative pain following RATS mediastinal surgery. it should be referred in the Discussion session.

Reply 1: Thank you for your comment. As you indicated, we retrospectively investigated the degree of pain, Numerical Rating Scale (NRS), in both groups and the data for the cases since August 2017 were obtained. NRS on the postoperative day 1 was obtained for 80 patients in the VATS group and 39 in the RATS group, and NRS before discharge for 73 patients in the VATS group and 37 in the RATS group. Regarding NRS on the postoperative day 1, the median score was 2 (0-10) for VATS and 1 (0-6) for RATS, showing significant difference ($P=0.001$). Regarding NRS before discharge, the median score was 1 (0-7) for VATS and 0 (0-5) for RATS ($P=0.27$).

Changes in the text: We have modified our text as advised (see Page 16, line 268-278).

Comment 2

• In the Patient's characteristics, there were some differences such as age, histology, and surgeon category. The author should refer to the effects possibly caused by them.

Reply 2: Thank you for your recommendation. As you indicated, these factors could play a role in operative time. Therefore, we amended the sentence referring to the effect of these differences.

Changes in the text: We have modified our text as advised (see Page 12, line 178-180).