Peer review file

Comment 1: The methods paragraph only exists in the abstract. In the Methods paragraph, you don´t explain what kind of studies were evaluated and how, which database were used, etc.

Reply 1: Eligible studies were identified by searching the PubMed databases up to May 2020. We considered studies as eligible for inclusion if they were associated with thoracic surgical technology for lung cancer. Review articles, retrospective studies and case reports were included. However, as a review article, the abstract should be unstructured. We have rewritten the abstract according to the reviewer's suggestion.

Changes in the text: We have modified our text as advised. (see Page 4-5, line 46-78)

Comment 2: As for the bibliography, most of the articles are from 15 years ago or more, especially the articles about 3-D glasses and 3D surgery and their applications in thoracic surgery. The illustrations and references are not appropriate and necessary.

Reply 2: As reviewer suggested that most of the articles are from 15 years ago or more, we have revised the whole paper and made great changes with updated citations mostly published within 5 years.

Changes in the text: We have modified our text as advised. (see Page 23-29, line 829-934)

Comment 3: No revolutions in terms of ideas or concepts specially for the last party: future development.

Reply 3: Considering the reviewer's suggestion, we have added some potential future directions about the field of surgical technology like custom-designed light detection and ranging (LiDAR) scanner, electromagnetic navigational localization, 3D reconstruction and the combination of 5G to further enhance the surgical system. For RATS, another possible improvement may lie in the virtual haptic feedback for robotic surgeons.

Changes in the text: We have modified our text as advised. (see Page 21, line 667-678)

Comment 4: The questions are not clear so the results are not clear.

Reply 4: To make the topic clearer, we have rewritten the title "Technique Developments and Revolutions in Video-Assisted Thoracoscopy" to "Video-assisted thoracoscopy for lung cancer: who is the future of thoracic surgery?". When it comes to the conclusion, we propose that the glass-free 3D VATS system and RATS system have potential to be the mainstream approaches for future minimally-invasive thoracic surgery, with great economic and social benefits.

Changes in the text: We have modified our text as advised. (see Page 20, line 649-655)

Comment 5: The abstract is not informative and intelligible to readers not working in the specific area.

Reply 5: We have rewritten the abstract according to the reviewer's suggestion to make

it more informative and read more smoothly. We briefly introduced the history of lung cancer surgery, discussed current surgical technologies and put forward potential future directions in the abstract.

Changes in the text: We have modified our text as advised. (see Page 4-5, line 46-78)

Comment 6: The organization of the paper is not sound and writing clear.

Reply 6: We are ashamed for our unsatisfactory article structure and thank you very much for your suggestions. We spent a lot of time, after we received your email, working through the paper and made great changes marked in red in the manuscript to improve the organization of the paper. Also, to make it brief and clear, we deleted some relatively unnecessary paragraphs since they are not essential to the contents.

Changes in the text: Since the modifications are so many that we do not enumerate them.

Comment 7: It is necessary to look at the status of thoracic surgery. The paper will not impact the specialty. They should have focus on one topic; for instance, evolution on Video-system from 2D to 3D: what is the next step? The authors should change their publication strategies with refocusing on one topic: 3D imaging, Robotic platform with a complete and well-structured reviewed.

Reply 7: To make it more informative and instructive, we changed the objective to "Video-assisted thoracoscopy for lung cancer: who is the future of thoracic surgery?" We then reviewed the history of lung cancer surgery, discussed current surgical technologies and put forward potential future directions. Also, we have reorganized the introduction of each techniques in order to have a complete and well-structured review for them.

Changes in the text: Since the modifications are so many that we do not enumerate them.

Comment 8: Consideration should also be given to the spread of robotic surgery in Europe for thoracic surgery.

Reply 8: We have searched the PubMed databases up to May 2020 for eligible studies. But there are relatively few studies devoted to the spread of robotic surgery in Europe for thoracic surgery. It's a pity that our study is lack of it. However, it may be partially compensated by the application of robotic surgery worldwide and introduction of innovative surgical robots in the future.

Comment 9: It is difficult to understand that the recent rise of Uniportal VATS as a surgical technique has not been reviewed.

Reply 9: We are very sorry for our negligence of uniportal VATS. We added the application, clinical effectiveness and learning curve of uniportal VATS. Also, we anticipate that as the robotic system evolves at a staggering pace, uniportal robotic thoracic surgery will be more and more widely applied in the years to come.

Changes in the text: We have modified our text as advised. (see Page 9-10 and 19, line 200-212 and 633-636).