Peer Review File

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Reviewer #A

Q1.

1. In case 4 which used iv ICG to identify metastatic tumors, could author elaborate more, such as the sensitivity/specificity of this method, and the indication, e.g. metastasis from for sarcoma or carcinoma.

Reply 1.

Thank you for pointing this out. Currently, we could only identify pulmonary metastases from hepatoblastoma using ICG in the throax. While we have identified all cases in our experience, there were no reports of sensitivity or specificity of tumor identification. We have provided this information in the discussion section as below (Page 12, Line 9).

While a large uptake of ICG was reported in pulmonary metastases such as hepatoblastoma, ICG uptake is generally recognized to be nonuniform in pulmonary metastases from other organs.

Q2.

2. Transthoracic localization with ICG is also a popular method. I suggest including this approach in addition to trans-bronchial method.

Reply 2.

Thank you for your kind comment. We have also shown the transbronchial method called ICG-VAL-MAP. We focused on the preoperative transbronchial lung marking methods using ICG in Cases 5 and 6 (Page 9, Line 18 to Page 11, Line 11)

Q3.

3. What is the difference between blue dye+contrast VALMAP and ICG VALMAP?" Does ICG improve the accuracy?

Reply 3.

Thank you for your important suggestion. Although VAL-MAP is a useful method to identify tumor location using indigo carmine dye + contrast agent as an injection solution, it has certain drawbacks.

The disadvantage is that it can result in unclear markings in emphysema cases or in cases with strong anthracosis. To overcome these problems, ICG-VAL-MAP was developed with the addition of ICG and contrast agent as an injection solution, which makes the markers more visible both in preoperative CT images and real images during surgery. This is an improvement over the conventional VAL-MAP. Therefore, ICG-VAL-MAP is more accurate in marking. We have described these points in Cases 5 and 6 (Page 10, Line 4 to Page 11, Line 6).

Q4

4. In plane identification during segmentectomy, what is the difference between ICG perfusion method and inflation/deflation method? Which one is more close to "true" plane, which is identified by "electrocautery along PV branch" method.

Reply 4.

The inflation/deflation method identifies intersegmental plane based on whether the area is ventilated or not, while ICG identifies based on whether the blood flow is there or not. This is the difference between the two methods. We can identify the intersegmental plane by the both two methods when the borders are clearly visualized, and no one knows for sure which method is more accurate. However, in the inflation/deflation method, it is often experienced that the border is obscured due to the air across the intersegmental plane through the ‘Korn holes’ in the peripheral airways. ICG, on the other hand, can provide a more accurate borders as long as the ligations of corresponding vessels are correct. Overall, we believe that ICG is more accurate than budding area line delineation.

Q5.

5. The topic is "Fluorescence in thoracic surgery". What about the application of ICG in other thoracic surgery, such as mediastinal or esophageal surgery?

Reply 5.

In the esophagus, ICG is used to prevent the complication of chylothorax during esophagectomy, which is performed for identifying the thoracic duct (9). In the mediastinum, although the identification of the location of mediastinal tumors or lymph node metastases is attempted, these methods remain in the basic experimental stage and have not yet been used in daily practice (10, 11). We have added these sentences in the discussion section (Page 12, Line 9 to Page 12, Line 13).

Reviewer #B

The authors are dealing with all the latest techniques of fluorescence-guided surgery performed in

recent lung surgery, and these are well represented in each case. It is well organized in general and explained so that each technique can be well understood through case. Just one suggestion, in the title, lung surgery seems to be better than thoracic surgery.

Reply

Thank you for your kind comment. In JVS or other journals, the cardiothoracic field is often classified as adult heart, congenital heart, and general thoracic surgery. In this article, I would like to use the title "Fluorescence-guided thoracic surgery," because we have also discussed fluorescence-guided surgery in the esophageal and mediastinal fields.