

First Round Peer Review

Reviewer A

Comment 1: Thank you for the opportunity to review. The manuscript is long and confusing as the message is not clear - is it the advantages of robotic esophagectomy or use of ICG in esophagectomy (open, MIE or robotic). I recommend evidence-based literature review of advantages of robotic in esophagectomy (something other authors did already) or the application of ICG in robotic esophagectomy (perfusion, lymph node mapping and Chyle leak). The manuscript is long and redundant.

Reply: Thank you for this critical comment. We have worked to significantly decrease the length of the manuscript. In addition, we have only described studies that specifically include robotic techniques, to focus our work on the application of ICG in robotic esophagectomy.

Changes in the text: All sections of the results have been shortened. In addition, each sub-section has been focused to only include ICG in the robotic platform. The following was added or expanded in each respective section:

Location of Anastomosis: “Egberts et al. describe their fully robotic technique in 75 patients, which includes administration of fluorescing indocyanine green in order to identify a potential deficiency in perfusion of the gastric tube, allowing for gastric tube length adaptation as needed (23). Similarly, both Potscher et al. and DeLong et al. illustrate their experience with the robotic system, explaining the use of fluorescence in their identification of vascular anatomy and creation of the gastric conduit and esophagogastric anastomosis, highlighting the ease, feasibility and technical advantages that come with the robotic system (24, 25). Lastly, Hodari et al. evaluated 54 patients who underwent robotic-assisted Ivor Lewis esophagectomy who utilized indocyanine green and the FireFly Fluorescence Imaging system to evaluate real-time perfusion. Ultimately, 3 patients developed a leak but the team hypothesized that the use of ICG to evaluate real-time perfusion improved outcomes as they were able to consistently identify a demarcation zone of perfusion on the esophageal remnant and tip of esophageal mucosa, guiding their suture placement (26).”

Quantitative Measures of Perfusion: “Slooter et al. prospectively evaluated 84 patients who underwent Ivor Lewis or McKeown esophagectomy, many of whom were performed as robotic-assisted. This group determined that time between ICG injection and tip enhancement was predictive for anastomotic leakage with a cut-off value of 98 seconds (specificity 98%, sensitivity 17%, PPV 50%, NPV 91%) (27).”

Nodal Mapping & Dissection: “Hosogi et al. evaluated 15 patients who underwent robotic-assisted esophagectomy with the use of ICG, identifying 80% of patients with ICG-positive lymph node basins along the right recurrent laryngeal nerve and 73% of patients along the left

recurrent laryngeal nerve. All ICG-positive lymph node basins were ultimately found within the mesotracheoesophagus (39).”

Identification of Anatomy:” Jardinet et al. successfully applied these techniques in robotic-assisted esophagectomy by inserting an intralymphatic needle in an inguinal node and injecting ICG after mobilization of the inferior pulmonary ligament. This not only identified the thoracic duct, but did so with less time for set-up, more rapid fluorescence, and longer signal duration, as compared to prior studies that did not utilize the robotic platform (46). Similarly, Barbato et al. and Varshney et al. both utilized ICG in 18 and 21 patients, respectively, with identification of the thoracic duct in all patients in the robotic setting (47, 48).”

Reviewer B

Comment 1: The authors conducted a narrative review of intraoperative fluorescence imaging in esophagectomy and its application to the robotic platform. Most of the contents are regarding intraoperative fluorescence imaging in conventional non-robotic esophagectomy, and robotic application was discussed little. The general structure needs to be reconsidered.

Reply: Thank you for your careful review of our manuscript. As described above in response to reviewer #1, we have worked to only describe studies that include robotic techniques to focus on work on the specific application of ICG in robotic esophagectomy.

Changes in the text: Please refer to our changes listed above in response to comments from reviewer #1.

Second Round Peer Review

Reviewer A

Comment 1: The manuscript lacks novelty despite revision. The heading of location of the anastomosis lacks any valid data as to how robotic ICG dictates the location of the anastomosis.

Reply: Thank you for this important comment. We believe that our manuscript adds to the current literature as a review of the capabilities of fluorescence imaging specifically in the robotic platform.

We appreciate that the heading “Location of Anastomosis” does not correspond to the text. It has been changed as below.

Changes in the text: The heading and use of the phrase “Location of Anastomosis” has been changed to “Creation of Anastomosis”.

Comment 2: The quantitative data for robotic ICG does not exist and cannot rely on recommendation timing.

Reply: Thank you for this clarifying point. We agree that there is little data on quantification, but we were able to include a valuable study from Slooter et al. which addresses this. Due to the lack of data, which focuses more on qualitative, rather than quantitative evaluations, the header and corresponding language has been changed as below.

Changes in the text: The heading and use of the phrase “Quantitative Measures of Perfusion” has been updated to “Qualitative and Quantitative Measures of Perfusion”.