

Peer Review File

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Reviewer Comments

Reviewer A

In this manuscript, the authors conducted a narrative review regarding the role of reconstructive microsurgeons in liver transplantation. I would like to suggest a few things to improve the manuscript.

Comment 1: The authors seem to focus too much on the technical aspects of arterial reconstruction. I think they should also mention the indications and outcomes of microsurgery and its comparison with arterial reconstruction using surgical loupes. Although they mentioned the indications or outcomes in the INTRODUCTION, a more appropriate way is to describe them in the RESULTS because this manuscript is a review manuscript. They should review the reported outcomes more comprehensively.

Reply 1: Thank you for the suggestion. We have done a review of articles comparing arterial reconstruction using surgical loupes and operative microscope. We have added this data in the main body section as suggested. We have also included a new table for the comparison.

Changes in the text: Pages 12 and 13, Lines 215 to 234.

Comment 2: The authors mentioned some technically-demanding cases such as vessel size mismatch or short vessel stump. I would like the authors to discuss re-anastomosis for hepatic arterial thrombosis or re-transplantation cases.

Reply 2: Thank you for the suggestion. We have included a separate discussion on the scenario when recipient hepatic artery is not suitable for reconstruction and the strategies to overcome this. These strategies can be applied in the setting for re-anastomosis for hepatic arterial thrombosis or re-transplantation cases.

Changes in the text: Pages 9 and 10, Lines 158 to 176.

Comment 3: Also, I want the authors to discuss cases with a graft with multiple

arteries.

Reply 3: We have included a segment on strategies to deal with graft with multiple arteries as suggested.

Changes in the text: Pages 10, 11, 12, Lines 179 to 213.

Comment 4: Figure 2 needs a closer view.

Reply 4: We have included a close-up view of Figure 2 and named it Figure 2B.

Changes in the text: Under Figure 2.

Comment 5: Figure 3 needs annotations.

Reply 5: We have annotated Figure 3.

Changes in the text: Under Figure 3.

Reviewer B

The authors present a narrative review of the use of microsurgical technique in hepatic artery reconstruction during liver transplantation. The scope of the article was focussed on practical tips for successful hepatic artery anastomosis. Overall, the review was concise and instructive. The following are some comments/questions for the authors to consider:

Comment 1: The use of the second assistant can be eliminated with the use of a Thompson Liver retractor (or similar) system - have the authors any experience with this?

Reply 1: Thank you for the question. In our experience, we have always employed a second assistant to help with retraction during the microsurgical phase as we believe that it is more dynamic compared to a self-retaining retractor.

Changes in the text: Nil

Comment 2: suction hooked to a 5 French feeding tube can be placed beneath a cottonoid to keep the field dry and optimize visualization.

Reply 2: Thank you for the suggestion. This is an excellent idea. We have included this in our revised manuscript under the main body, subsection "Positioning".

Changes in the text: Page 9, Line 144 to 146.

Comment 3: Suturing is often timed with patients breathing where suture bites are taken in between breaths.

Reply 3: Thank you for the comment. We absolutely agree regarding this. We have actually discussed this in the main body section in the original manuscript under the subsection “Movement during microsurgical anastomosis”.

Changes in the text: Nil

Comment 4: is there a role for multi-disciplinary review of the case (anesthesia, microsurgeon, transplant surgeon, radiology) 1 to anticipate technical challenges and optimize conditions for a good hepatic artery reconstruction?

Reply 4: Thank you for the comment. We absolutely agree regarding this. We have included this comment on multi-disciplinary review of the case under the main body section, under the subsection “Technical considerations for anastomosis success”.

Changes in the text: Pages 7 and 8, Lines 112 to 118.

Comment 5: could the authors elaborate of how to deal with vessel lie? Depending on the anatomy and size of liver, sometimes the donor and recipient vessels can be at a vertical angle. how do they deal with this?

Reply 5: Thank you for the question. We believe that the main surgeon should be prepared and adept in performing the microsurgical anastomosis in any vessel lie. Furthermore, the first assistant, who may have a better angle or position, may also perform the microsurgical anastomosis as an additional measure. We have added this information into the main body, under the subsection “Positioning”.

Changes in the text: Page 8, Lines 134 to 138.