Peer Review File

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Reviewer A:

Thank you for the opportunity to review your manuscript about the trajectory and current situation of PLDRH in single center experience. As a representative high volume center facility of PLDH, we received a systematic review of the introduction of PLDH, the transition of procedures, and the results. It also includes efforts and recommendations for the standardization and generalization of PLDRH in the future, and I think the content is very well organized. On the other hand, I think it is necessary to correct a few points about the contents of the review, so please consider the following correction points.

1) It states that a PLDRH learning curve of 50-80 cases is necessary, and team efforts including bench surgery are important. In addition, although you mentioned that you should not be limited to a single surgeon, what are your thoughts on the balance between the actual number of people in the team and the proficiency and years of experience of the surgeons who perform the surgery? Also, is the part by part method used in the surgical process?
In order to popularize the introduction of pure laparoscopy in donor surgery,
It seems that the hurdle is still high, but what are your thoughts on that point?
Reply A 1): Thank you for your valuable comment. Typically, the actual number of people involved in PLDH is five, including the surgeon, first assistant, scopist, scrub nurse, and circulating nurse. The surgical process for a donor hepatectomy is usually performed by one surgeon fully, rather than using a part-by-part method. However, for training purposes, there are instances where the part-by-part method is used with a senior surgeon providing guidance.
PLDH is a novel technique and can present challenges, especially without mentorship or assistance from experienced PLDH surgeons. However, based on the feedback from our juniors who have observed numerous PLDH cases, they have expressed feeling more familiar and confident with PLDH compared to conventional open donor hepatectomy. We believe that by sharing knowledge and experiences of PLDH through papers, videos, and proctorship, the barriers to adopting PLDH will diminish over time.

2) It seems that the introduction and indications for PLDH are gradually spreading, but if you compare the rate and situation of the introduction of laparoscopic surgery in LDLT donors in other countries and facilities, it will be more informative as a review.
Reply A 2): Thank you for your wonderful opinion; we truly appreciate it. While we would love to explore the rate and situation of the introduction of laparoscopic surgery, the focus of this particular review was to present our experience and examine the evolution and progression of PLDH by reviewing our previous papers. For a

comprehensive comparison and analysis of laparoscopic surgery adoption, a different study design would be required, including the inclusion of numerous papers from other centers.
We value your suggestion and acknowledge its significance. To address the broader comparison you've highlighted, we plan to work on another future review that specifically considers multiple centers and their experiences with laparoscopic surgery introduction. By doing so, we hope to provide a more comprehensive and informative analysis.

3) Regarding biliary tract complications, the manuscript states that there were many biliary tract complications on the recipient side, and the reason for this was multiple bile duct openings. It seems that preoperative MRCP and intraoperative ICG are used, and the surgery is performed with due consideration given to safety, but I would like to hear your opinion as a measure to reduce the complication rate. Is the introduction of new techniques and technologies necessary to reduce biliary complications?
Reply A 3): Thank you for providing us with your valuable feedback on our study. We genuinely appreciate your insights and observations. As you mentioned, our previous research has indeed shed light on a higher occurrence of biliary complications on the recipient side, which can be attributed to extended warm ischemic time and multiple bile duct openings. To address these concerns, we are actively working on implementing strategies to minimize warm ischemic time and are also introducing external biliary drainage in high-risk patients.
We fully acknowledge the significance of incorporating advanced techniques and technologies that offer a clearer view of biliary anatomy without the need for extensive dissection around the bile duct, as is typically required for ICG cholangiography. These advancements not only have the potential to streamline the process but also offer the added benefit of providing a spatial relationship between the artery and portal vein, which can be incredibly advantageous.
Moreover, we understand the importance of adopting new narrow, concise, and intact clips, as they can potentially ensure sufficient length of the bile duct in the graft side. Even a small difference of 0.5mm can significantly contribute to reducing biliary complications.

Changes in the text:
In light of your valuable input, we have incorporated the following sentences in the "Discussion" section (see line 267-273):

"Furthermore, advanced techniques and technologies that offer a clearer view of biliary anatomy without the need for extensive dissection around the bile duct, as typically required for ICG cholangiography, would be very helpful. These advancements would also offer the added benefit of providing a spatial relationship between the artery and portal vein, which can be incredibly beneficial. Additionally, the adoption of new narrow, concise, and intact clips can potentially ensure sufficient length of the bile duct in the graft side, where 0.5mm matters, and this could significantly contribute to the

reduction of biliary complications."

4) Please consider describing the details of complications of grade 3 or more in the Clavien-Dindo classification in the description of P8, L244-246.
Reply A 4): Thank you for your input. Based on your suggestions, we have revised the sentence to enhance its clarity and readability (see line 254-259):

Changes in the text:
"After analyzing the recipients, it was found that the rates of other complications of grade 3 or more, including intra-abdominal bleeding, intra-abdominal fluid collection, wound problem, hepatic artery problem, portal vein problem, hepatic vein problem, cardiac problem, pulmonary problem, gastrointestinal problem, bone problem, neurologic problem, and sepsis, were comparable across the groups. However, the PLDRH group exhibited higher rates of both early and late biliary complications (38)."

5) What about anatomical variance that should be noted when performing PLDH? Please consider a clearer statement of the exclusion criteria. Also, have you not done posterior segment graft by laparoscopically?
Reply A 5): Thank you for your valuable feedback. We have added the sentences in the "Main body" section as below (see line 114-120):

Changes in the text:
"Since March 2016, we have fully embraced the use of ICG cholangiography and ICG demarcation method, eliminating any absolute contraindication for PLDH in cases involving left liver, right liver, or left lateral section grafts, with or without reduction. The conventional open approach was only employed when the patient or their family specifically chose this technique after receiving informed consent and understanding the novelty of PLDH. Additionally, in cases of variant grafts such as right anterior, right posterior, or trisection grafts, the conventional open technique was utilized."

6) With PLDH, WIT is expected to be extended until the graft is removed. Do you have any comparison results with conventional open?
Reply A 6): Thank you for your comment. In our previous comparative study, we found that the PLDRH group had a longer total operation time, as well as longer time to remove the liver and warm ischemic time (12.3 vs. 3.7 min; P<0.001) compared to the conventional open donor right hepatectomy (*Hong SK, et al. Ann Surg. 2022;275:e206-212*). Similarly, we also demonstrated statistically longer warm ischemic time in pure laparoscopic donor left hepatectomy compared to conventional open donor left hepatectomy [11 (10-16) vs. 4 (2-7) min; P<0.001] in our previous work (*Hong SK, et al. Liver Transpl. 2020;26:370-378*).

Reviewer B:

good review, well written and informative for colleagues interested in setting a minimally invasive laparoscopic hepatobiliary/living donor practice

the sentence at line 89-90 is not clear and should be re-written
Reply A 6): Thank you for your warmful comment. We have edited the sentence as below (see line 94-96):

Changes in the text:
“It is important to acknowledge that this approach poses technical challenges and raises concerns about donor safety. As such, including the MHV in the liver graft requires careful consideration.”

Reviewer C:

I know that SNUH is one of the famous institute performing PLDH. The standardization of PLDH is concisely described, however, the authors have to compare themselves with studies from other institute, especially, operative technique (Ex. Glissean approach and individual approach, ICG fluoresence and direct cholangiography, stapler and clipping for biliary tract, Pringle and non-Pringle, etc) . Furthermore, current usual set-up
Reply C: We value your suggestion, and we recognize its importance. In response to your feedback, we are planning a future review that will specifically delve into the experiences and detailed techniques of PLDH from multiple centers to provide a more comprehensive and informative analysis.
In the present review, we would love to describe our PLDH technique and setup to the best of our abilities. We believe that individual approach is crucial for donor hepatectomy, and as mentioned in the "Main body," we employ ICG cholangiography and the clip and cut technique. While the Pringle maneuver was not routinely performed, it was utilized in cases of significant bleeding during parenchymal transection or when persistent oozing obstructed achieving a clear surgical field, even if the bleeding wasn't substantial.
Regarding the surgical setup, we strategically placed four monitors in front of the operator: one displaying simultaneous vital signs, another showing preoperative MRCP, a laparoscopic monitor for the operator's reference, and a monitor for the ICG near-infrared fluorescence camera. Additionally, a second laparoscopic view monitor was positioned on the right side of the donor for easy access by both the assistant and the scopist.

Changes in the text (see line 204-207):
“The Pringle maneuver was not routinely performed. It was only utilized in cases of significant bleeding during parenchymal transection or when persistent oozing hindered the achievement of a clear surgical field, even in situations where the bleeding was not substantial.”
“Altogether, regarding the surgical setup, we strategically place four monitors in front

of the operator: one displaying simultaneous vital signs, another showing preoperative MRCP, a laparoscopic monitor for the operator's reference, and a monitor for the ICG near-infrared fluorescence camera. Additionally, a second laparoscopic view monitor is positioned on the right side of the donor for easy access by both the assistant and the scopist."

Reviewer D:

This is an article reporting the experience with laparoscopic donor hepatectomy at a national transplant center in south Korea. Although the data is impressive, the structure and goal of the article is unclear.

1. Is this a Review article or Original article? Have the 654 cases been reported elsewhere? Please discuss these 654 cases in the abstract if the goal of this paper is to report results of those cases.

Reply D1: Thank you for your valuable comment. We appreciate your feedback and understand that the absence of explicitly mentioning "review" in the title may have led to confusion. To address this concern, we've now revised the title to "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression." This revision aims to provide clarity about the nature of the article.

Changes in the text 1 (see line 2-3): Title has been updated to: "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression."

2. Alternatively, if this is a review, please follow the Prisma guidelines and register this systematic review on PROSPERO.

Reply D2: Thank you for your insightful review. We carefully reviewed the Prisma guideline, and as per your suggestion, we have now updated the title to "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression."

Regarding PROSPERO registration, we made an effort to register the review; unfortunately, we were informed that reviews that have already commenced data extraction or have completed it are not eligible for inclusion in PROSPERO. We acknowledge the importance of registering reviews on PROSPERO at the design stage to ensure compliance for future review articles.

Changes in the text 2 (see line 2-3): Title has been revised to: "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression."

3. I do not understand Figure 1, is it suppose to report the results of the 654 patients with outcomes and complications? Or is it really just to to show the evolution of this technique over the years.

Reply D3: Thanks for your feedback. We understand that not mentioning this article as a review in the title may have caused confusion about Figure 1. Its purpose was to demonstrate the progression of the pure laparoscopic donor hepatectomy (PLDH) technique over time. We've revised the title to "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression" to clarify its nature.

Changes in the text 3 (see line 2-3): Title has been revised to: "Insights from Seoul National University Hospital's experience: A systematic review of pure laparoscopic donor hepatectomy progression."