Answering Reviewers

Round 1

Reviewer #1:

Where is the list of abbreviations?

The abbreviations list has been added in the "Supplementary Material - Revised and English-edited manuscript with track changes" between the conclusion section and the acknowledgements.

Why is conclusion written twice?

Sorry for the typo error, it has been corrected.

Reviewer #2:

We thank the reviewer for generously offering the time and expertise in providing feedback for our paper.

Page 2: To highlight the rare variations that RSLT may not come with LGB and determine whether ligamentum teres (LT) or gallbladder location is reliable to predict PVA.----------→ “variations” should be “variation” here.

It has been revised in response to the reviewer's comments.

Page 2: “**METHODS: RESULTS:**” It’s not adequate to use a present tense for all in these sections. Simple past tense and other relevance tenses were required for the presentation and description.

It has been revised by a professional English language editing company in response to the reviewer's comments.

Page 3: In particular, RSLT is highly correlated with a high interverional risk morbidity feature,----------→ “interverional” should be “interventional”.

It has been revised in response to the reviewer's comments.

Page 4: Contrast-enhanced abdomen CT studies were performed using a Philips iCT family CT scanner or Siemens Somatom Sensation 16 Slice CT. ---------→ Philips iCT

family CT scanner ? 16 Slice CT ? please check (CT examination protocol , etc) and make sure of them.

It has been revised in response to the reviewer's comments.

Page 4: We retrospectively reviewed 71,822 contrast-enhanced multidetector computed tomography (MDCT) examinations performed in Department of Radiology, Veterans General Hospital between September 2018 and September 2021 but excluded repeat cases and patients who had major hepatobiliary surgery.-------→ 71,822 contrast-enhanced multidetector computed tomography (MDCT) examinations in one hospital? Which was not consistent with the authors from different hospitals of this study.

Two of the co-authors, Yen Chou and Ho-Hsian Yen, made contributions to the manuscript during their tenure at Taipei Veterans General Hospital. We have included a note in the Authors section acknowledging their affiliation, and we have also revised the Materials and Methods-Patients section. Please refer to the "Supplementary Material - Revised and English-edited manuscript with track changes" for further details in response to the reviewer's comments.

Page 5: the RSLT presented in this study were recognized by the round ligament (or LT) notch directly connected to the umbilical portion of the portal vein that derives from the right portal branches (Figure 3-4). -------→ “derives” or “derived”?

It has been revised in response to the reviewer's comments.

Page 5: (Figure 4) whereas the cases other than these types were classified following Carmen G and Mostafa Atri et al. [12].------→ Carmen G and Mostafa Atri et al. [12]

It has been revised in response to the reviewer's comments.

Page 5: First, we compare PVA prevalence based on GB locations and refer to it as Test A since GB location and PVA are often indicated as highly correlated in prior studies [11]. ------→ “studies” may be “study”; the reference may be omitted.

It has been revised in response to the reviewer's comments.

Page 5 and 6: Statistical analysis: Simple past tense and other relevance tenses were required.

It has been revised by a professional English language editing company in response to the reviewer's comments.

Page 6: Also, PVA types in our cases are consistent with previous studies [13] i.e. Overall, trifurcation-type PVA is the most common anomaly while “independent right lateral type” PVA as defined by Shindoh et al. [2] ------→ references should not be used in the “Results”.

It has been revised in response to the reviewer's comments.

Page 8: As shown in Table 4, a total of 22 patients of RSLT and typical LT are matched based on propensity score where basic demographics and GB location are well balanced with the SMDs less than 0.2 between the two groups [20]. ------→ reference should not be used in the “Results”.

It has been revised in response to the reviewer's comments.

Page 6--8: Results: Simple past tense and other relevance tenses were adequate.

It has been revised by a professional English language editing company in response to the reviewer's comments.

Page 6: performed with SPSS, version 25.0. (SPSS Inc., Chicago, IL, USA)-----→ “Chicago, IL,” is not correct.

It has been revised in response to the reviewer's comments.

Page 15: Figure 2. TEST B RSLT n=8518-------→ This section should be reformatted.

I apologize for the confusion caused by my previous expression of the cohort retrieval results in Figure 2. I have revised the figure to make it easier to understand.

The number of cases of "right-sided gallbladder" is n=8156. The grouping is calculated in Test A. The number of cases of "ligamentum teres in typical location" is n=8158. The grouping is analyzed in Test C. The data and the statistical analysis are correct

Please refer to the Figure 2 in "Supplementary Material - Revised and English-edited manuscript with track changes" for further details in response to the reviewer's comments.

Page 16: Figure 3: In the figure (A) , “round” should be “Round”.

It has been revised in response to the reviewer's comments.

Expressions of percentile and sex in the table 1-4 should be consistent.

It has been revised in response to the reviewer's comments.

Reviewer #3: This paper may have some anatomical importance for surgeons. However, it does not appear to have much clinical value despite the fact that the authors indicate that some anatomical variations are "alarming features for hepatobiliary intervention". My main concern after reading this paper was how could the Authors have reviewed retrospectively in a short time (let's suppose 6 months) 71822 CT scan and then selected 8552 CT scan images suggesting anatomical variations regarding right-sided ligamentum teres, portal venous anomalies (PVA) and left-sided gallbladder? I doubt that 8552 CT scan images can be reviewed in some months without proper planning and the right resources, such as hundreds of radiologists or the use of sophisticated AI-assisted software. As a matter of fact, there are several AI-assisted software available that can help review CT scan images in a short period of time. These tools use algorithms to identify regions of interest and can help to highlight any potential anatomical variations regarding the right-sided round ligament of the liver, portal vein, and left-sided gallbladder location. Google's DeepMind or Zebra Medical Vision are some examples of AI-assisted software. What was the protocol you followed when setting up your system research among thousands of CT scan? In reviewing such a huge number of images, what protocol did you use to standardize the review process? Were all radiologists trained to look for all anatomical variations using homogeneous search criteria in a short time? This information is crucial. How was each CT scan prioritized for a possible presence of anatomical variation? How was the workload assigned to the radiologists team? For each radiologist, how many CT scans were assigned? What was the timeline given to each expert and how was it completed? The 8552 CT scans were stored in what type of database? Doubtful images were always discussed among radiologists? Could you give us some indication of the time required for each radiologist to examine each case and the mean time to review difficult cases? Could you tell us the overall time required to carefully review 8552 CT scans?

We thank the reviewer for generously offering the time and expertise in providing feedback for our paper. In the following section, we offer responses to their comments and concerns.

1. We did not use any artificial intelligence (AI) software in our study.

2. We carefully reviewed CT scans from 2018 to 2022, over a period of nearly five years, along with regular morning meetings for teaching and multidisciplinary discussions on liver

transplantation. Six radiologists spent approximately 3 hours per week (6-8 minutes per case) on this task. It was not completed within six months. Our focus was specifically on annotating the locations of the ligamentum teres hepatis and gallbladder, not all anatomical variations.

3. The diagnostic criteria for ligamentum teres hepatis and gallbladder variations are described in detail in the "Image interpretation" section. We followed the diagnostic criteria proposed by Shindoh et al. to classify right-sided ligamentum teres (RSLT) and major portal venous anomalies (PVA). The location of the gallbladder (GB) was defined by its long axis position relative to the umbilical fissure (LT notch) and the main hepatic vein (MHV) of the liver.

4. We used oblique axial multiplanar reformation (MPR), oblique coronal MPR, and maximum-intensity projection (MIP) images to help us distinguish difficult portal vein ramifications and cases involving PVAs. These images were processed with the commercially available GE ADW 4.6 CT workstation.

Round 2

Some specific concerns: Page 1: Of the title: The first letter of each word of "A large scale, propensity score-matched study" should be capital. Page 2: Of Keywords: "left-sided gallbladder ;" should be "Left-sided gallbladder;". Page 4: "Scans were acquired in the venous phase by using a SmartPrep protocol," should be "Scans were acquired in the portal venous phase by using a SmartPrep protocol,"." Some specific concerns: Page 1: Of the title: The first letter of each word of "A large scale, propensity score-matched study" should be capital. Page 2: Of Keywords: "left-sided gallbladder ;" should be "Left-sided gallbladder;". Page 4: "Scans were acquired in the venous phase by using a SmartPrep protocol," should be "Scans were acquired in the portal venous phase by using a SmartPrep protocol,"

Answers: Thank you for your comment. I have revised all of the issues in response to the reviewer's comments.