

1 Dear Editors and Reviewers:

2 Thank you for your letter and for the reviewers' comments concerning our
3 manuscript entitled "Imaging misdiagnosis and clinical analysis of significant hepatic
4 atrophy after bilioenteric anastomosis: A case report" (Manuscript NO:87555). Those
5 comments are all valuable and very helpful for revising and improving our paper, as
6 well as the important guiding significance to our researches. We have studied comments
7 carefully and have made correction which we hope meet with approval. Revised portion
8 are marked in yellow in the paper.

9 The main corrections in the paper and the responds to the reviewer's comments
10 are as following:

11 Responds to the reviewer's comments:

12 Reviewer #1:

13 1. Response to comment: How to avoid bile peritonitis caused by displacement of the
14 drainage tube tip during and after surgery?

15 **Response:** The patient developed peritonitis symptoms 3 days after PTCd,
16 and reexamination of CT suggested that the tip of the drainage tube may have
17 penetrated the liver. The patient did not have abdominal pain within 3 days, which may
18 be related to the caudate lobe of intrahepatic bile duct filled with stones, the change of
19 drainage tube position after walking, and then bile leakage.

20 Due to the dilation of the bile duct in the caudate lobe, accompanied by the
21 presence of stones and fibrotic changes in the liver tissue, the act of piercing becomes
22 more challenging and risky. Ultrasound-guided puncture images reveal that the catheter
23 tip has been successfully inserted into the intrahepatic bile duct. However, it is
24 important to note that the catheter may shift due to increased activity or coughing,
25 potentially resulting in perforation of the bile duct and hepatic envelope. Consequently,

it is advisable to exercise caution and avoid inserting the catheter too deeply in such cases, as this can mitigate the occurrence of chemical peritonitis to a certain extent. So far, no similar cases have been reported.

2. Response to comment: Why hepatectomy for a severe hepatic atrophy-hypertrophy complex should be performed? Please provide a detailed description.

Response: Without surgical intervention, it is unlikely that her anastomotic stenosis and recurrent acute cholangitis can be effectively alleviated or cured. Additionally, the shrunken left and right liver is susceptible to cancer, necessitating surgical removal. However, in cases where only intrahepatic bile duct drainage is performed, it has been found to effectively alleviate acute cholangitis. Palliative measures such as percutaneous transhepatic puncture sinus lithotripsy and lithotomy can address intrahepatic bile duct stones, but surgical resection remains the only viable option for removing the atrophied liver.

We have already mentioned the above comments in the discussion section, and have been marked in yellow.

Finally, thanks again for your comments.

Reviewer #2:

1. Response to comment: In abstract, it was difficult for me to understand the highlight of this paper. Please revise the abstract to clarify the highlight of this paper.

Response: Thank you very much for your comments and suggestions, we have revised the abstract part to highlight the key points of the paper.

BACKGROUND:

The occurrence of long-term bilioenteric anastomotic stenosis can readily induce liver atrophy and hyperplasia, thereby causing significant alterations in the anatomical and morphological aspects of the liver. This condition significantly hampers the accuracy of preoperative imaging diagnosis, while also exacerbating the complexity of surgical procedures and the likelihood of complications.

CASE SUMMARY:

A 60-year-old female patient was admitted to the hospital presenting with recurring epigastric pain accompanied by a high fever. The patient had a history of cholecystectomy, although the surgical records were not accessible. Based on preoperative imaging and laboratory examination, the initial diagnosis indicated the presence of intrahepatic calculi, abnormal right liver morphology, and acute cholangitis. However, during the surgical procedure, it was observed that both the left and right liver lobes exhibited evident atrophy and thinness. Additionally, there was a noticeable increase in the volume of the hepatic caudate lobe, and the original bilioenteric anastomosis was narrowed. The anastomosis underwent enlargement subsequent to hepatectomy. As a consequence of the presence of remaining stones in the caudate lobe, the second stage was effectively executed utilizing ultrasound-guided percutaneous transhepatic catheter drainage (PTCD). Following the puncture, three days elapsed before the drain tip inadvertently perforated the liver, leading to the development of biliary panperitonitis, subsequently followed by pulmonary infection. The patient and her family strongly refused operation, and she died.

CONCLUSION:

The hepatic atrophy-hypertrophy complex induces notable alterations in the anatomical structure, thereby posing a substantial challenge in terms of imaging diagnosis and surgical procedures. Additionally, the long-term presence of hepatic fibrosis changes heightens the likelihood of complications arising from puncture procedures.

2.How can the clinicians prevent imaging misdiagnosis of significant hepatic atrophy after bilioenteric anastomosis?

Response: We have made a summary and analysis of this case, and the specific contents are as follows.

In our case, the abdominal enhanced CT and MRI before the first operation failed to accurately diagnose the anatomical structure of the hepatobiliary system. The

main reasons are as follows: first, the patient had severe atrophy of the left and right liver, completely lost the normal liver shape, and the caudate lobe had compensatory hyperplasia, which significantly exceeded the original volume; At the same time, the hepatic vein in the caudate lobe was also significantly enlarged, which caused the radiologist to mistakenly diagnose it as hepatic vein. Secondly, the patient's hepatic atrophy-hypertrophy complex was closely related to the previous surgical history. However, detailed medical records were not obtained and no significant evidence or guidance was provided to the diagnosing physician. Thirdly, MRCP imaging is based on water distribution; in this patient, anastomotic stenosis compromised visualization, and the presence of filled bile duct stones obscured visualization of the intrahepatic biliary system.

We have already mentioned the above comments in the discussion section, and have been marked in yellow.

3.It may be better to show the results of blood test in a Table.

Response: Thank you very much for your suggestion. We have put the laboratory test results in Table 1

4.References should be listed according to posting rules.

Response: We have listed the references as requested

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper.

We appreciate for Editors/Reviewers' warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestion.

104 Best regards,

105 Zongding Wang