

Responses to Reviewers' Comments

Reviewer #1: Devascularization procedures (porto azygos disconnection) have been studied for decades for the treatment of portal hypertension with history of bleeding. In western countries was used as alternative therapeutic choice for patients in which a shunt is not feasible. They have a high rebleeding rate. Explanation of the technique of STPD surgery, is needed. In western countries, treatment of portal hypertension is endoscopic band ligation as first line, with TIPS as a rescue therapy and as a bridge to live transplantation. So, the results of the study are only of value for Asiatic patients. It is important to record and report the rebleeding rate and what are the strategies to treat rebleeding. Also, 30 days mortality for each child group is important to record and report (in all series Child C patients do none than Child A patients).

Response: Thanks for your question. We have revised our manuscript according to your comments as follows.

1. We have explained the technique of STPD surgery as follows (*on page 4, lines 15-17, 21-23*): “Due to the difference of etiology, the treatment of portal hypertension in western countries is mainly shunt insertion, while in Asian countries, especially in China, are mainly devascularization.”; ” However, splenectomy plus traditional pericardial devascularisation (STPD) needs to cut the serous layer and damage the seromuscular layer of the stomach and the esophagus.”
2. The rebleeding rate has been recorded and reported in **Table 3**. The strategies to treat rebleeding has been added as follows (*on page 7, lines 7-9*): For rebleeding patients, we performed drug hemostasis (vasopressin, somatostatin, etc.) or endoscopic ligation. While for severe bleeding patients, surgical treatment was choosed.
3. 30 days mortality is just what the *perioperative* mortality, we have demonstrated them for each Child group as follows (*on page 6, lines 27-28*): 4 patients died due to rebleeding or liver and renal failure during the perioperative period (3 in Child B, 1 in Child C)

Reviewer #2: This is very interesting paper . Author concluded that compared to STPD, SSPD is a simple and easy procedure resulting in less tissue damage. I ask some questions to author.

1. Please state the reason and difference why the frequency of rebleeding in table 3 is 5.88% for S group and 12.94% for T group. Moreover, please tell me the rebleeding site in S group and T group.

Response: The reason and difference has been stated as follows (*on page 8, lines 31-34*): Preserving the paraoesophageal vein and severing only the perforating vein can block reflux of the abdominal oesophagus, lower the portal vein pressure and ensure thorough haemostasis, thus reducing congestion of the gastric mucosa and reducing the occurrence of PHG and then reducing the postoperative rebleeding.

The rebleeding site has been added as follows (*on page 7, lines 4-7*): The number of rebleeding patients was 21 (5.88%) for S group (rebleeding site: 13 in esophageal and gastric vein, 8 in gastric mucosa) and 89 (12.94%) for T group (rebleeding site: 52 in esophageal and gastric vein, 37 in gastric mucosa).

2. Author perform surgical operation for esophageal varix, child A,B and C. Please tell me the surgical indication for esophageal varix in your hospital.

Response: The Child-Pugh grade stated in our manuscript was "Child-Pugh grade at admission", and the second of our inclusion criteria was "PH patients classified as grade A or B according to the Child-Pugh grading criteria or assigned a reduced classification to Child-Pugh grade A or B after liver preservation therapy to attain appropriate surgical indications;". As we all know, preoperative Child C is contraindication for surgery. To emphasize this point, we have revised the second part of the inclusion criteria as follows: "PH patients classified as grade A or B according to the Child-Pugh grading criteria or Child-Pugh grade C at admission assigned a reduced classification to preoperative Child-Pugh grade A or B after liver preservation therapy to attain appropriate surgical indications;" (on page 5, lines 11-14).

3. The major problem after devascularization for esophageal varix is gastric congestion. How about gastric congestion after S group and T group.

Response: Preoperative diagnosis of esophageal and gastric varices usually requires gastroscopy. However, we generally instruct the patient to review once every month after the operation, but the main examinations are liver function and HBV quantification. Considering the cost and the risk of rebleeding caused by operation, we did not routinely perform gastroscopy in the postoperative review. In addition, a considerable number of patients underwent postoperative review in other hospitals or to the Department of infectious diseases. However, gastroscopy is an important examination for the diagnosis of gastric congestion. Therefore, the data of gastric congestion after operation in two groups can not be completely obtained.

4. From the point of PHG in admission, S group is 33.05%, T group is 25%. Please comment about the postoperative PHG in S group and T group.

Response: Preoperative diagnosis of esophageal and gastric varices usually requires gastroscopy. However, we generally instruct the patient to review once every month after the operation, but the main examinations are liver function and HBV quantification. Considering the cost and the risk of rebleeding caused by operation, we did not routinely perform gastroscopy in the postoperative review. In addition, a considerable number of patients underwent postoperative review in other hospitals or to the Department of infectious diseases. However, gastroscopy is an important examination for the diagnosis of PHG. Therefore, the data of PHG after operation in two groups can not be completely obtained.

Reviewer #3: Since M.A. Hassab proposed his operation in 1964, a number of its modifications have been developed. In addition, the addition of the Hassab's operation with endoscopic methods significantly increased its effectiveness. Indeed, unlike the Sugiura-Futagawa procedure, Hassab's operation devascularizes only the extramural vessels; intramural vessels are not treated. Thus, endoscopic injection sclerotherapy or endoscopic variceal band ligation is needed for embolization of the intramural vessels and venous network. The modification of the Hassab's operation proposed by the authors is known to me. Now and when I read about her before I was surprised by the unique results obtained. In this connection, I am interested in how to explain the greater effectiveness of the proposed modification than the original Hassab's operation in the incidence rates of esophagogastric variceal rebleeding and portal vein thrombosis. The present study has

some limitations, which are pointed out by the authors. I would also like to see a schematic representation of the proposed Hassab's operation modification.

Response: Thanks for your question. We have revised our manuscript according to your comments as follows.

1. The explanation of the greater effectiveness of the proposed modification than the original Hassab's operation in the incidence rates of esophagogastric variceal rebleeding and portal vein thrombosis has been stated as follows (*on page 8, lines 31-37 and page 9, lines 1-2*): Preserving the paraoesophageal vein and severing only the perforating vein can block reflux of the abdominal oesophagus, lower the portal vein pressure and ensure thorough haemostasis, thus reducing congestion of the gastric mucosa and reducing the occurrence of PHG and then reducing the postoperative rebleeding. Using a suture and not cutting the muscle layer minimise injury to the wound and reduce blood oozing during the operation. Additionally, the operative time is shortened significantly by simplifying the operation, thereby reducing the liver burden caused by the procedure. In the dynamic balance of two systems of coagulation and anticoagulation, liver plays an important regulatory role^[18]. Therefore, better liver function can reduce portal vein thrombosis.
2. A schematic representation of our operation has been performed as **Figure 1**, which cited in the *Operative procedures* (*on page 5, lines 25*). Details are as follows:

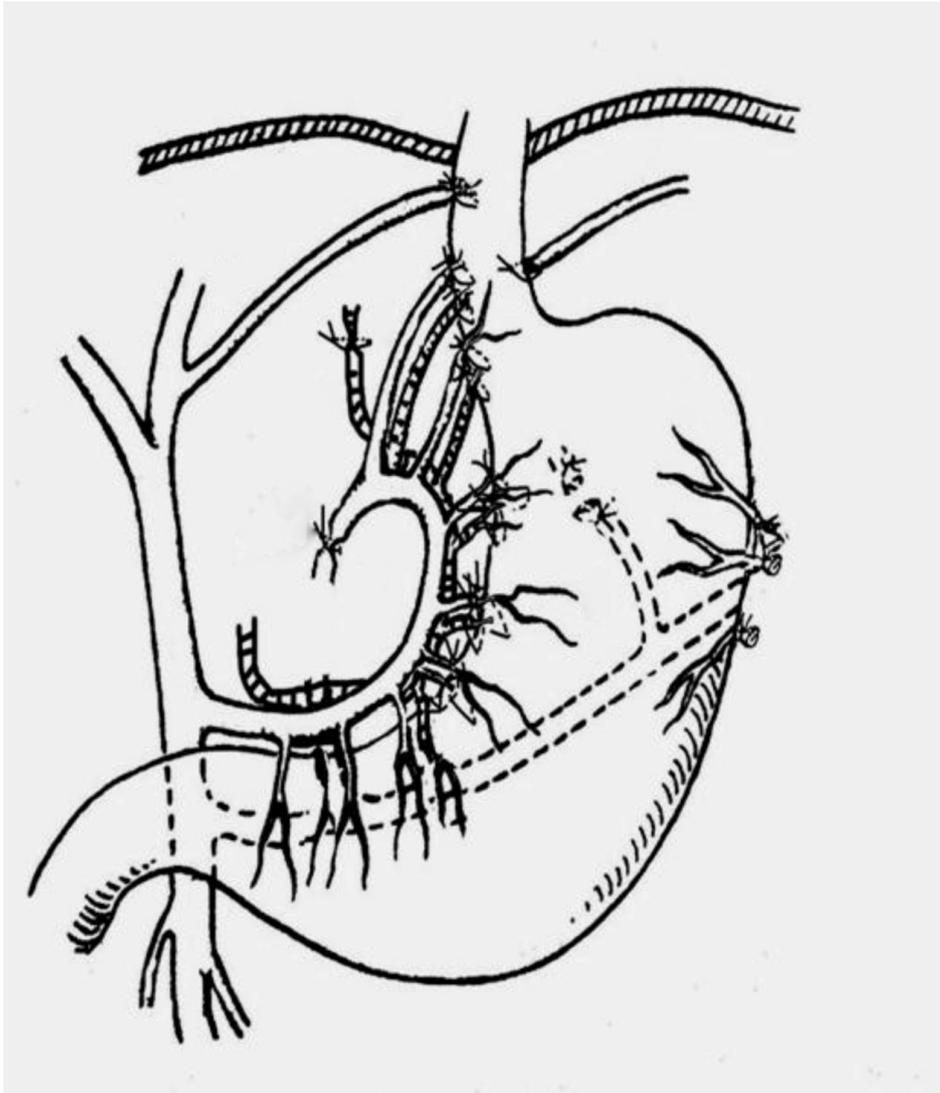


Figure 1 Schematic diagram of splenectomy plus simplified pericardial devascularisation (SSPD).

Reviewer #4: Please, correct the spelling of anatomical structure. Discuss the value of surgery in Portal Hypertension, and relation between thrombocytopenia and risk of thrombosis. Compare the proposed technique of pericardial devascularization with the Sugiura procedure. An anatomical schema of your technique would better explain its originality.

Response: Thanks for your question. We have revised our manuscript according to your comments as follows.

1. We have corrected the spelling of anatomical structure one by one and used language editing services provided by the biomedical editing company of **Nature Publishing Group Language Editing**: <http://languageediting.nature.com>

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Manuscript title: Comparison of simplified and traditional pericardial devascularization combined with splenectomy for the treatment of portal hypertension

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2. The value of surgery has been discussed as follows (*on page 8, lines 21-25*): Surgery is the main treatment for PH in patients with cirrhosis^[14]. Liver transplantation appears to be the most effective treatment for PH. However, the considerable lack of liver donors and high medical costs limit its broad clinical application. Therefore, SPD has become the most commonly used method to treat PH^[15,16]. STPD can achieve a remarkable curative effect by maintaining prograde portal flow and protecting liver function and haemostasis^[17].
3. "Greater thrombocytopenia corresponds to a higher risk of thrombosis^[21]." in our manuscript should be "Greater thrombocytopenia corresponds to a higher risk of thrombosis^[24]". It's our

spelling mistakes. I have revised it (on page 9, lines 28-29).

4. An anatomical schema of our operation has been performed as **Figure 1**, which cited in the ***Operative procedures*** (on page 5, lines 25). Details are as follows:

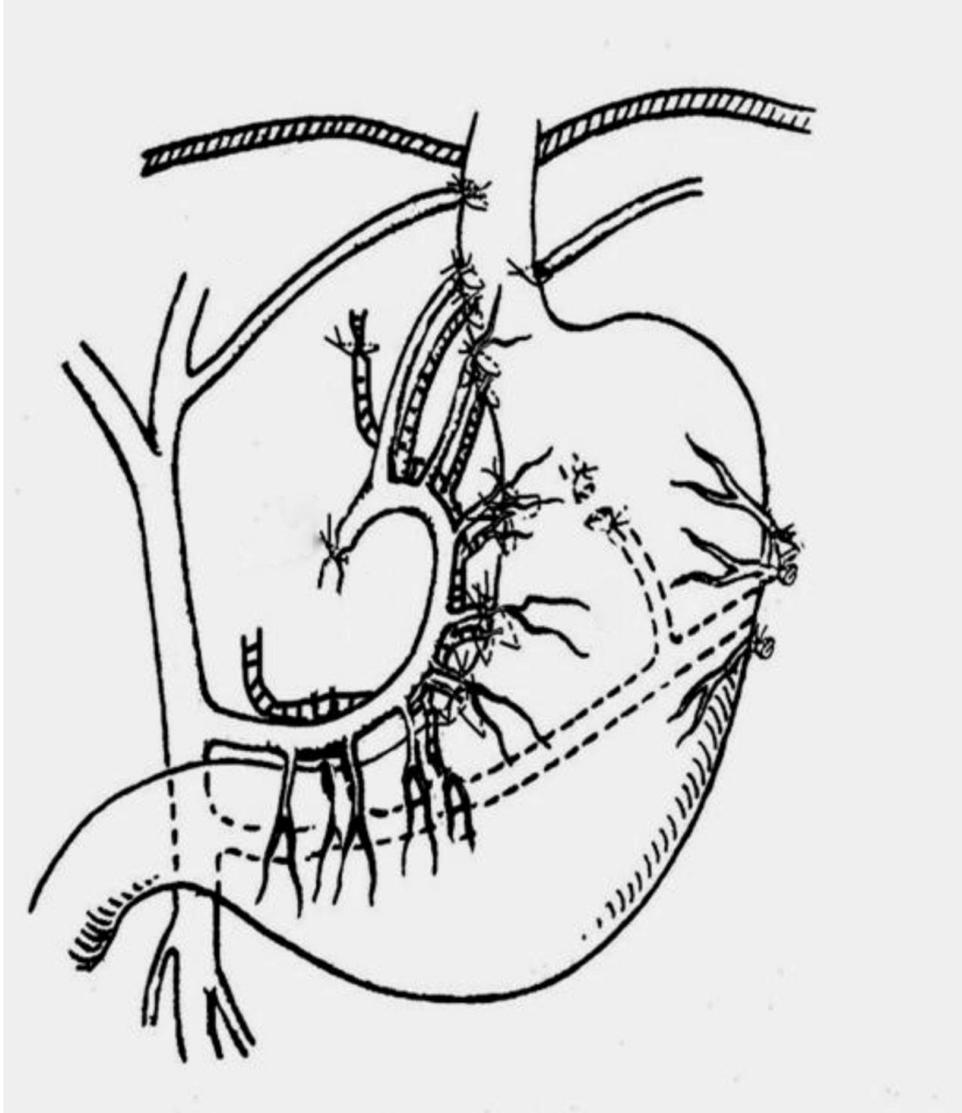


Figure 1 Schematic diagram of splenectomy plus simplified pericardial devascularisation (SSPD).