

## Peer Review File

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### Reviewer A

In this submission, the authors aimed at evaluating the outcomes and identify the risk factors associated with GIB in patients with AD. This is a retrospective case-control study on patients diagnosed with type A AD who underwent total aortic arch replacement from July 2021 to July 2023. Of the 198 AD patients, 38 (19.2%) developed postoperative GIB (GIB group), with a median interval of 7 days between surgery and bleeding onset. The GIB group exhibited significantly higher mortality, prolonged intensive care unit and extended duration of ventilation compared to the control group (n=160, 80.8%). Logistic regression analysis identified age > 54 years, intraoperative red blood cell transfusion > 600mL and concomitant celiac trunk and superior mesenteric artery hypoperfusion as independent risk factors for GIB. Authors conclude by saying that GIB subsequent to total aortic arch replacement in AD patients is linked to adverse prognosis.

Some comments.

Do not start paragraphs/sentences with abbreviations or numbers.

**Reply:** Thank you very much for your suggestion. We have addressed the suggestion to avoid starting paragraphs or sentences with abbreviations or numbers throughout the manuscript, particularly the line 11 in the Results section and line 8 in the Discussion section.

**Changes in the text:** We have modified the abbreviations or numbers at the beginning of sentences (see Page 8, line 135 & Page 11, line 201).

Abstract. Rephrase it as “post-aortic arch replacement” is mentioned a few times. No need. The reader understands what is said here.

**Reply:** We have made the modifications in accordance with your suggestions (see Page 3, line 42)

What is known and what is new box. Authors confirm “GIB after total arch replacement in patients with aortic dissection is associated with poor prognosis”. This is not new. This is known for ages. Delete this statement from here.

**Reply:** We have addressed your comment and removed the statement 'GIB after total arch replacement in patients with aortic dissection is associated with poor prognosis'

from the revised manuscript. We appreciate your valuable feedback (see Page 4, Highlight box)

Introduction. "...Gastrointestinal bleeding (GIB) is a rare gastrointestinal complication following cardiovascular surgery, with an incidence of 0.4%-1.4% and an associated mortality rate of 18% [5-7] ...". Delete the word "rare" as authors produce here actual data "...0.4-1.4%...". By producing data authors avoid persona interpretations about what "rare" is. Stick to data and not estimates or gut feelings.

**Reply:** Thank you for your suggestion. We have rephrased the sentence as "Gastrointestinal bleeding (GIB) can occur as a complication after cardiovascular surgery, with an occurrence ranging from 0.4% to 1.4% and a linked mortality rate of 18%." (See Page 5, line 61).

Further, on "...Consequently, we hypothesize that the incidence and hazard of GIB following TAAD surgery exceed those associated with routine cardiac procedures..." as they talk about "...and cardiopulmonary bypass (CPB) can trigger a systemic inflammatory response and lead to gastrointestinal ischemia and hypoxia [8], thereby exacerbating the risk and complexity of GIB after TAAD...". They should not hypothesise as it is a fact, known fact, that GIB following TAAD surgery and any other type of surgery increases risk of mortality. This is inappropriately phrased.

**Reply:** We appreciate your valuable suggestion. In response, we have removed the expression of 'hypothesize' from the manuscript (see Page 5, line 68).

Methods. In patients and groups one can read "...Total aortic arch replacement (TAAR) serves as the primary treatment modality for TAAD...". This is not true; it may be true in the authors' opinion but this is not necessarily the opinion of others and this is what can be deducted from the analysis of hundreds of articles available in the literature. This has to be modified and authors must write "...TAAR serves as a modality for TAAD...". In fact, authors confirm "...our study exclusively included TAAD patients who underwent TAAR..." and this is definitely a biased inclusion as authors focus only on a specific group of patients. By definition, it entails the actual fact that not all patients with Type A AD are treated primarily with TAAR. This part of the methods must be rephrased appropriately.

**Reply:** Thank you very much for your suggestion, we acknowledge the issue with our expression and have made appropriate modifications in the manuscript. We appreciate your guidance.

**Changes in the text:** We have changed the expression to "Total aortic arch replacement (TAAR) serves a treatment modality for TAAD." (See Page 6, line 81).

Results. The mean age of the whole cohort and that of the individual groups is quite low for dissection patients. Which is the actual age range? This must be disclosed other than that standard deviation of the mean. This gives the reader a better view of the managed population. Any exclusion due to age?

**Reply:** Thank you for your constructive suggestion, it provides valuable insights into our study. We did not exclude any patients based on age, as we believe this could introduce potential bias into our conclusions. The overall age range for our cohort was 27-77 years, with the GIB group ranging from 30-73 years and the control group from 27-77 years.

**Changes in the text:** We have supplemented this detailed age information in the Results section (see Page 8, line 127, 129 & 130).

Which was the interval between onset of symptoms and surgery? This is always an important factor that is seldom addressed.

**Reply:** Thank you for your valuable suggestion. We have incorporated information regarding the interval between the onset of symptoms and surgery in our revised manuscript. For the GIB group, the average interval was  $1.3 \pm 2.3$  days, and for the control group, it was  $1.1 \pm 1.9$  days. No statistically significant difference was observed between the two groups.

**Changes in the text:** We have supplemented the interval between onset of symptoms and surgery in the Results section (see Page 8, line 133) and *Table 1*.

How is mild/moderate and severe bleeding defined? This is not done and this is a must in the methods section. With an appropriate, clear and transparent definition, the readership will understand well.

**Reply:** Thank you for your suggestion. We recognize the significance of providing a clear definition for bleeding severity in the Methods section. As per your inquiry, we would like to highlight that a detailed definition has been explicitly included in the Methods section of our manuscript. The categorization of the GIB group, based on clinical manifestations and bleeding severity according to guidelines, is outlined as follows: 1. Mild: black stools, no bloody gastric juice/stools, no significant hemoglobin (Hb)/hematocrit (HCT) decline, estimated bleeding volume 50-250mL; 2. Moderate: coffee-colored/bloody gastric contents exceeding 250mL, hematemesis/bloody stools, estimated bleeding volume 250-400mL; 3. Severe: persistent hematemesis/bloody stools, cold/clammy extremities, heart rate > 100 beats/min, systolic blood pressure < 90 mmHg, Hb < 70g/L, estimated bleeding volume > 400mL. We hope this clarifies the location of the definition in our manuscript, and we appreciate your thorough review (see Page 7, line 102-107).

One can also read "...Not all underwent emergency gastroscopy...". The question now is why? If not, all underwent emergency gastroscopy, there may be some criteria to do it or not do it. This has to be well addressed in the methods section. Define well the criteria for emergency gastroscopy. If authors state "not all", then they must produce the actual data. This is mandatory as in the way endoscopy/gastroscopy is presented in the results section, it is not easy to understand why and how many.

**Reply:** We appreciate the insightful comment regarding the criteria for emergency gastroscopy. In our revised methods section, we have elucidated that the decision for emergency endoscopic examination is made in collaboration with gastroenterologists, considering factors such as severity of bleeding, response to conservative measures, and hemodynamic stability.

**Changes in the text:** In the Methods section, we have added the procedural details and emergency endoscopy examination criteria followed at our institution for patients with GIB (see Page 7, line 108-114). In the Results section, we have rephrased the sentence as "Seven patients (18%) underwent emergency endoscopy due to massive bleeding and ineffective medication." (See Page 9, line 150)

The authors refer to the Stanford classification of dissection, which is fine. However, the specific group of patients presented here had a complication such as GIB. Then, as it is known that these patients had specific risk factors and that GIB is related with malperfusion, it is also of importance and interest that authors disclose the Penn Classification status to understand the level of preoperative malperfusion these patients may have. In fact, one of the factors identified on binary logistic regression analysis is, precisely, malperfusion of the celiac axis. If there is bowel malperfusion before surgery, it is clear that the chances of having GIB are much higher than when there is no malperfusion. Nothing new then.

**Reply:** Thank you for your valuable suggestion. We have supplemented the Penn classification information below. It can be seen that there is no significant statistical difference in the distribution of Penn classifications between the two groups. The inclusion of data related to concomitant celiac trunk and superior mesenteric artery hypoperfusion in our manuscript was based on the radiological findings from preoperative CT angiography (CTA). It's important to note that these patients did not exhibit significant branch ischemic manifestations such as abdominal pain or intestinal necrosis before surgery. Nevertheless, we observed a correlation between the preoperative CTA findings and the occurrence of postoperative gastrointestinal bleeding (GIB). This signifies the relevance of monitoring and preventing GIB in the treatment process of these patients with abnormal preoperative CTA manifestations.

Penn classification	GIB group	Control group	P
Aa (%)	31 (81.6)	142 (88.8)	0.462
Ab (%)	5 (13.2)	12 (7.5)	
Ac (%)	1 (2.6)	5 (3.1)	
Abc (%)	1 (2.6)	1 (0.6)	

Surprisingly, authors do not dedicate a word to mortality in this results section. They further go in the discussion section to tell "...TAAD has been known for its high mortality and morbidity...". Nothing new, too. Then, as authors dedicated time to complications, morbidity, such as GIB, then it is mandatory in any surgical paper on any kind, to present actual data on mortality (30-day and in-hospital). Authors must clearly state this in the main text of the results section and present the actual cause of death of the patients and postmortem examination data, too. DO NOT refer the readership to table 2 with this regard. Mortality IS A MAJOR part of the business and must be appropriately addressed here in the main text of the results section.

**Reply:** We have compared the mortality differences between the two groups in the results section. Following your valuable suggestion, we have supplemented information on the causes of death for these deceased patients in the results section.

**Changes in the text:** We have added the detailed information regarding the causes of death for 15 deceased patients (see Page 9, line 138).

Discussion. If authors state "...with a mortality rate of 32% [11] ..." and they quote reference 11, they must definitely produce their actual data on this. Mandatory, and well reported.

**Reply:** Thank you for your valuable suggestion. We have revised the manuscript according to your feedback, providing a more precise presentation of the mortality data associated with gastrointestinal complications in Type A aortic dissection.

**Changes in the text:** We have supplemented relevant information and revised it to "A comprehensive review by Roberto et al incorporated data from 35 papers, covering 151,652 cardiac surgery patients over the past 30 years. The review found that gastrointestinal (GI) complications occurred, on average, in 1.21% of cardiac surgery cases, with an associated mortality rate of 32%." (See Page 12, line 213)

Line 190 "...which is consistent with our findings...". Yes, but, which findings...?

**Reply:** We appreciate the constructive feedback from the reviewer. We have revised the manuscript to include a specific mention of our finding regarding the heightened risk of gastrointestinal bleeding in patients with concomitant celiac trunk and superior mesenteric artery hypoperfusion. This addition provides clarity and strengthens the

association between visceral malperfusion and adverse outcomes in our study.

Changes in the text: We have revised it to “Our study also found a heightened risk of GIB in patients with concomitant celiac trunk and superior mesenteric artery hypoperfusion, further supporting the association between visceral malperfusion and adverse outcomes.” (See Page 14, line 256).

Line 197 “...Close monitoring of postoperative stool or gastric contents is essential in such patients...”. Yes, but how close is “close”? No definition, no data. The same for “meticulously”, in line 198.

**Reply:** We acknowledge the reviewer's point regarding the need for specific details on monitoring frequency. In our study, 'close monitoring' entails checking postoperative stool or gastric contents at least every 4 hours for the initial 24 hours, followed by regular assessments every 6–8 hours thereafter. We have also replaced 'meticulously' with a more concrete recommendation to regularly measure hemoglobin levels and coagulation-related indicators at least every 4-6 hours during the perioperative period. We believe these refinements provide a clearer framework for clinical practice (see Page 15, line 276).

The limitations are quite strong, especially when it comes to the lack of endoscopy in all patients. This renders the submission in the weak side.

**Reply:** Thank you for your insightful comments. We added the following statement: ‘The absence of endoscopy in a substantial portion of patients is a notable limitation that may affect the overall robustness of the study’ (see Page 16, line 299).

Conclusions. “...abnormalities in gastrointestinal perfusion...”. This means “malperfusion”, right? If this is so, write it in full.

**Reply:** Thank you for your inquiry. In our study, we acknowledge the presence of anatomical features on preoperative aortic CTA, such as significant narrowing or false lumen perfusion, which may suggest potential blood supply impairment to the celiac trunk or mesenteric arteries. However, it's important to note that these patients do not exhibit preoperative ischemic symptoms; rather, we are exploring the predictive value of these radiological features for postoperative gastrointestinal bleeding. While 'malperfusion' typically implies the occurrence of ischemia, our focus is on preoperative anatomical characteristics without evident ischemic symptoms. We hope this clarification better aligns with the nuances of our study, and we appreciate your insightful review.

Tables. Table 1, replace “cigarette” by “smoking”.

**Reply:** Thank you for your suggestion. We have replaced 'cigarette' with 'smoking' in

Table 1 as recommended (see Table 1).

Table 2, replace “prognosis information” by “Morbidity and mortality”.

**Reply:** Thank you for your suggestion. We have replaced 'prognosis information' with 'Morbidity and mortality' in Table 2 as recommended (see Table 2).

## **Reviewer B**

I appreciate the opportunity to review your manuscript entitled "Gastrointestinal bleeding risk factors in type A aortic dissection after aortic arch replacement" submitted to the Journal of Thoracic Disease. The study, which focuses on outcomes and risk factors associated with gastrointestinal bleeding (GIB) in patients undergoing total aortic arch replacement for type A aortic dissection (38/198 Patients between July 2021 and July 2023), is both interesting and relevant, particularly for cardiac and vascular surgeons.

However, I have some concerns that require clarification and additional information for a fuller understanding of the study:

In the classification of BID (lines 71-76): How was blood loss from bleeding estimated and what methods were used to assess this parameter?

**Reply:** Thank you for your constructive suggestions. We have addressed the method used for estimating blood loss in the classification of GIB severity in the Methods section. We categorized the GIB group based on clinical manifestations and bleeding severity according to guidelines, specifying the criteria for mild, moderate, and severe bleeding, including the estimated bleeding volumes for each category (see Page 7, line 101-107).

I am concerned about the high frequency of BID reported after aortic arch replacement. Why wasn't endoscopy performed in all patients with suspected gastrointestinal bleeding, especially in the moderate and severe BID groups?

**Reply:** We appreciate the reviewer's concern and acknowledge the importance of endoscopic evaluation in patients with suspected gastrointestinal bleeding. In our clinical practice, we adopt a collaborative approach with gastroenterologists to assess the severity of bleeding. The decision to perform endoscopy is based on a thorough evaluation of the clinical scenario, considering factors such as the response to conservative management, hemodynamic stability, and the overall risk-benefit profile. Emergency endoscopic examination is prioritized, particularly in cases of severe bleeding or when conservative measures do not yield significant improvement despite



active resuscitation.

**Changes in the text:** In the Methods section, we have added the procedural details and emergency endoscopy examination criteria followed at our institution for patients with GIB (see Page 7, line 108-114).

Line number 105: Why did 2 patients with moderate bleeding and 8 patients with severe bleeding die without undergoing emergency gastroscopy? Could you shed more light on this?

**Reply:** Thank you very much for your suggestion. We have supplemented information on deceased patients in the results section. In the GIB group, there were 10 fatalities, with 7 cases attributed to multiple organ dysfunction syndrome (MODS) induced by infection, 1 case to hemorrhagic shock, and 2 cases to non-infectious MODS. Among these, 2 patients with mild/moderate bleeding and 5 with severe bleeding died without undergoing emergency endoscopic examination. All 7 patients experienced cessation of bleeding after interventions such as fasting, gastric acid suppression, and administration of coagulation factors. However, they ultimately succumbed to infectious MODS, indicating that GIB was not the primary cause of death. Therefore, emergency endoscopic examination was not performed as bleeding had ceased in these cases.

**Changes in the text:** We have added the detailed information regarding the causes of death for 15 deceased patients (see Page 8, line 138).

Please clearly state the number of patients in each BID group according to the classification.

**Reply:** Thank you very much for your suggestion. In the revised manuscript, we have clearly stated the number of patients in the GIB group according to the bleeding severity classification: mild (13 cases), moderate (13 cases), severe (12 cases) (see Page 9, line 146).

Lines 120-121: How was hypoperfusion diagnosed on preoperative CT scans: False Lumen blood supply doesn't mean a Hyperperfusion, otherwise the Severe Stenosis: can you please here more specify: Stenosis!/? Indicate whether lactate blood monitoring was performed in patients diagnosed with hypoperfusion.

**Reply:** Thank you very much for your suggestion. We highly appreciate your input, and indeed, the diagnosis of intestinal hypoperfusion should not solely rely on preoperative CTA findings but should be complemented with the patient's clinical presentation and laboratory results (such as lactate levels). For patients who already exhibit preoperative signs of intestinal hypoperfusion, such as abdominal pain, intestinal ischemia, or elevated lactate levels, our center typically refrains from immediate total arch



replacement surgery. Instead, we involve the interventional or gastrointestinal surgery team to assist in reconstructing intestinal blood supply or managing intestinal necrosis. In fact, none of the 198 patients showed evident clinical manifestations of abdominal ischemia (e.g., abdominal pain or intestinal necrosis) before the surgery. A routine preoperative lactate measurement was performed for aortic dissection patients, and there was no significant difference in preoperative lactate levels between the GIB group and the control group ( $1.4\pm 0.8$  vs.  $1.4\pm 0.5$  mmol/L,  $P>0.05$ ). Besides, we have added the definition of “stenosis” as “In this study, hypoperfusion was defined based on CTA findings, specifically the presence of false lumen blood supply or severe stenosis ( $>70\%$ ) in the celiac trunk/superior mesenteric artery.” in Method section. We trust that this additional information enhances the comprehensiveness of the manuscript.

**Changes in the text:** We have added the definition of "stenosis" in the Methods section (see Page 7, line 97), and in the Results section, we have included the preoperative blood lactate levels of the patients (see Page 10, line 160 and Table 3).

Provide details of the perioperative plan to restore perfusion in patients with hypoperfusion and why?

**Reply:** In our center, the surgical plan is formulated based on the patient's clinical presentation and anatomical features. If preoperative CTA indicates mesenteric artery hypoperfusion with concurrent signs of visceral ischemia, intervention or surgical procedures are performed simultaneously to alleviate the hypoperfusion. In cases where preoperative CTA suggests false lumen blood supply or severe stenosis in the gastrointestinal vessels without a concurrent decrease in intestinal wall enhancement or clinical manifestations of visceral ischemia, the decision for intervention is made by weighing the risks and benefits. In such cases, we closely monitor the patient's clinical presentation during the perioperative period, simultaneously optimizing fluid resuscitation and minimizing the use of vasoconstrictors to ensure adequate organ perfusion.

Specify the timing of aortic surgery from the time of diagnosis of aortic dissection. In addition, detail the type of aortic cannulation used, especially in patients with hypoperfusion.

**Reply:** We have incorporated information regarding the interval between the onset of symptoms and surgery in our revised manuscript. For the GIB group, the average duration was  $1.3\pm 2.3$  days, and for the control group, it was  $1.1\pm 1.9$  days. No statistically significant difference was observed between the two groups. All patients, upon confirmation of TAA diagnosis, undergo immediate emergency surgical intervention to mitigate the risk of rupture. Additionally, following your suggestion, we have provided details on the type of aortic cannulation used in both groups. In the GIB

group, 32 cases utilized a transesophageal echocardiography-guided aortic arch cannulation, and 6 cases employed axillary artery cannulation. In the control group, 140 cases utilized transesophageal echocardiography-guided aortic arch cannulation, and 20 cases employed axillary artery cannulation. There were no statistically significant differences between the two groups in terms of the type of aortic cannulation used.

**Changes in the text:** We have added the detailed information about the timing of aortic surgery from the time of diagnosis and the type of aortic cannulation used (see Page 8, line 133, *Table 1* & Page 10, line 170, *Table 3*).

Line 150: Specify the medication therapy and on line 151 explain why only 7 patients from the entire BID cohort underwent endoscopy or haemostasis.

**Reply:** We appreciate the insightful comment regarding the criteria for emergency gastroscopy. In our revised methods section, we have elucidated that the decision for emergency endoscopic examination is made in collaboration with gastroenterologists, considering factors such as severity of bleeding, response to conservative measures, and hemodynamic stability.

**Changes in the text:** In the Methods section, we have added the procedural details and emergency endoscopy examination criteria followed at our institution for patients with GIB (see Page 7, line 108-114).

In summary, the manuscript requires major revisions to address these concerns and provide additional clarity. I believe that addressing these points will significantly strengthen the scientific rigour and impact of your study. I look forward to reviewing the revised manuscript.

### **Reviewer C**

Thank you very much for the opportunity to review this interesting study on Gastrointestinal bleeding after type A repair, this issue is probably link to malperfusion syndrome related to descending aortic dissection. I think you must discuss this point in the introduction.

**Reply:** Thank you for your suggestion. We have added this statement into the Introduction (see Page 5, line 66).

Can you introduce in the introduction the different techniques to treat type A aortic dissection: hemiarch repair, partial arch, frozen elephant trunk and total and the different risk and morbimortality associated with each technique. Indeed, total aortic arch repair is not the most common technique used in cardiac center.

**Reply:** Thank you very much for your constructive suggestion. We have noticed that you also brought up a similar point in your last comment. In response to your suggestion, we have briefly added the introduction of different surgical approaches for Type A aortic dissection in Introduction section and further expanded on the risks and benefits associated with these techniques in the Discussion section (see Page 5, line 53 & Page 11, line 201).

The method section is clear and well written.

**Reply:** Thank you for your positive feedback on the clarity and writing quality of the methods section. We appreciate your constructive review.

The results are impressive with many patients treated by total aortic arch repair at the acute phase, can you add in the method section the gold standard in your center to treat these patients and the total number of patients treated for a type A aortic dissection during the same period.

**Reply:** Thank you very much. In our center, the Sun's procedure (total arch replacement with the frozen elephant trunk (FET) technique) is the standard approach for treating complex TAAD. From July 2021 to July 2023, a total of 204 patients in our center underwent this procedure.

For the 10 deaths, could you detail? Pre and post CTA analysis? major or moderate bleeding? Delay of death? Cause of death?

**Reply:** Thank you very much. We have added specific information about these deceased patients in the Results section. In the GIB group, there were 10 fatalities, with 7 cases attributed to multiple organ dysfunction syndrome (MODS) induced by infection, 1 case to hemorrhagic shock, and 2 cases to non-infectious MODS. Additionally, in these 10 cases, one patient (57-year-old female) died of hemorrhagic shock two days postoperatively due to severe coagulation dysfunction. Postoperative completion of aortic CTA scan was not performed for this patient. Two patients died postoperatively on days 4 and 6, respectively, due to non-infectious MODS. The remaining patients, on average, died 31 days postoperatively due to infectious MODS. The remaining 9 patients showed good postoperative results on aortic CTA, but 7 of them experienced severe pulmonary infections.

Why Not all underwent emergency gastroscopy?

**Reply:** Thank you very much. In our revised methods section, we have elucidated that the decision for emergency endoscopic examination is made in collaboration with gastroenterologists, considering factors such as severity of bleeding, response to conservative measures, and hemodynamic stability.

Changes in the text: In the Methods section, we have added the procedural details and emergency endoscopy examination criteria followed at our institution for patients with GIB (see Page 7, line 108-114).

have any patients had additional TEVAR?

**Reply:** None of the patients included in our study underwent additional TEVAR.

Please add a subsection radiological analysis with more details for CTA description and please define SMA and CT hypoperfusion in method section.

**Reply:** Thank you very much for your suggestion. We have incorporated the relevant expressions into the manuscript (see Page 7, line 97).

Binary logistic regression section is a mix of results and method section, please modify.

**Reply:** We have made appropriate modifications based on your suggestions (see Page 8, line 120 & Page 10, line 180).

Do you think the elevated preoperative creatinine level in GIB group could be link to malperfusion syndrome? and the malperfusion syndrome with acute mesenteric ischemia in these cases could explain the postoperative GIB? Can you discuss this point?

**Reply:** Thank you very much for your suggestion. We acknowledge your viewpoint, and in the revised manuscript, we have included a discussion on the correlation between elevated preoperative creatinine levels and GIB (see Page 14, line 250).

Do you think a more aggressive management for malperfusion syndrome with TEVAR at day 1 or during the surgery could improve the survival of these patients? please discuss this point.

**Reply:** Thank you for your valuable suggestion. We agree with your perspective, and based on your recommendation, we have modified the manuscript to discuss the possibility of more aggressive management for malperfusion syndrome, such as the consideration of TEVAR at day 1 or during the surgery.

Changes in the text: We have added the content in the Discussion section (see Page 14, line 259).

Can you discuss the different techniques to treat type A aortic dissection and the different risk and benefits associated with each technique.

**Reply:** We have added a discussion on the risks and benefits of different treatment approaches for Type A aortic dissection. Thank you again for your suggestions.

Changes in the text: We have added the content in the Discussion section (see Page 11, line 201).

## Reviewer D

Your work is very interesting, I have initially reviewed the detailed report on gastrointestinal bleeding in TAAD patients.

P5 Line111: Please provide the DIC status of patients. How was the status of false lumen?

**Reply:** Thank you for your suggestion. In fact, there was one patient in the bleeding group with a suspected case of disseminated intravascular coagulation (DIC). However, the patient's condition progressed rapidly, and a definitive diagnosis could not be established. Other patients in the GIB group did not exhibit obvious signs of DIC during gastrointestinal bleeding.

In the perioperative period of TAAD, GIB is believed to be associated with several risk factors including ischemia, DIC, inflammation, and stress. While you have elaborated extensively on ischemia, it would be beneficial to further discuss the other risk factors.

**Reply:** We have incorporated relevant content in the discussion section. Thank you for your suggestion.

**Changes in the text:** We have added the content in the Discussion section (see Page 13, line 226).

The hypothesis is that SMA revascularization preceding central aortic repair alleviates gastrointestinal ischemia. Are there any cases in your study that involved SMA revascularization? If not, considering the potential benefit, prioritizing SMA revascularization could potentially reduce the frequency of GIB.

**Reply:** Thank you very much for your suggestion. We have added the relevant expressions into the manuscript.

**Changes in the text:** We have added the content in the Discussion section (see Page 14, line 259).

Keep up the great work.