Reviewer 1(ID: 02465209): Very interesting paper.

No comments to authors.

Reviewer 2(ID: 02573214): In this manuscript the authors evaluated the characteristics of left-sided colorectal perfusion in elderly patients with angiography. They described a good number of clinical cases with interesting results. The study was conducted with methodological rigor and originality.

No comments to authors.

Reviewer 3(ID: 04743986): An admirable observation study highlighting the importance of left colon perforation. ***Find the enclosed manuscript with a few comments.***

As the reviewer suggestion, we revised the language in detail.

Reviewer 4(ID: 05194798): This manuscript is an observational study that retrospectively evaluated the characteristics of inferior mesenteric artery (IMA) in 154 elderly patients using angiography. The authors classified the characteristics, bifurcation, and distribution of IMA into 4 different categories, and assessed the collateral circulation. Furthermore, the authors demonstrated that the IMA perfusion region was independently associated with the comorbidity of atherosclerosis, IMA atherosclerotic lesion, branching pattern, collateral circulation and marginal artery integrity using univariate regression analyses. This study was conducted well, and the methods used are appropriate. The data are presented clearly. In general, this is a well-written paper that presents interesting data. The results will be of interest to clinicians in the field. ***However, the following major and minor issues require clarification. I hope these comments will be helpful for improving this manuscript.***

We are very grateful for the constructive suggestions from the reviewer. Following reviewers' suggestions, we have provided the missing information and modified our manuscript. As listed below, we have point-by-point addressed all the concerns.

Major

__1. The authors stated that atherosclerotic changes or abnormally dilated ex-collateral arteries could be a risk factor for poor perfusion or ischemia of left-sided colon. The authors should discuss the correlation between such changes and the prevalence of ischemic colitis if some literatures can be referenced.__

Thanks for the constructive suggestion. Ischemic colitis is most commonly caused by insulting to the small vessels supplying the colon, including atherosclerosis and complication of vascular and bowel surgeries. The risk factors of ischemic colitis were present in all cases of ischemic colitis included with age greater than 60, diabetes, hypertension, atherosclerosis and other factors. For the prevalence of anatomic considerations, the left part of the colon seems to be affected by ischemic colitis in 75%-80% of cases because of the incomplete vascular anastomosis at Griffith's point, which could just demonstrate the correlation between such changes and the vessel characteristics, and we already added this part into the discussion as your suggestions.(P14L16-P15L2)

Except that, because the left-sided colon has bilateral blood perfusion, if IMA has atherosclerotic lesion, the SMA could compensate the perfusion and no ischemic sign occurred. Hence, there have been few articles on the correlation between atherosclerotic changes and the prevalence of the ischemic colitis. Only reports showed the colonic ischemia following surgery for sigmoid colon and rectal cancer, the prevalence was 0.83%-2% with high ligation of IMA.[1,2] And after abdominal aortic aneurysm (AAA) with endovascular (EVAR) or open repair, the ischemic colitis is 1.4-5.6% with IMA ligation or sealed by stent-graft. Those are not included in the manuscript.

Ref.

1 Park MG, Hur H, Min BS, Lee KY, Kim NK. Colonic ischemia following surgery for sigmoid colon and rectal cancer: a study of 10 cases and a review of the literature. International journal of colorectal disease 2012; 27(5): 671-675

2. Tsujinaka S, Kawamura YJ, Tan KY, Mizokami K, Sasaki J, Maeda T, Kuwahara Y, Konishi F, Lefor A. Proximal Bowel Necrosis after High Ligation of the Inferior Mesenteric Artery in Colorectal Surgery. Scandinavian Journal of Surgery 2012; 101(1): 21-25

3. Miller A, Marotta M, Scordi-Bello I, Tammaro Y, Marin M, Divino C. Ischemic Colitis After Endovascular Aortoiliac Aneurysm Repair: A 10-Year Retrospective Study. Archives of Surgery 2009; 144(10): 900-903

4. Lee KB, Lu J, Macsata RA, Patel D, Yang A, Ricotta JJ, Amdur RL, Sidawy AN, Nguyen B-N. Inferior mesenteric artery replantation does not decrease the risk of ischemic colitis after open infrarenal abdominal aortic aneurysm repair. Journal of Vascular Surgery 2019; 69(6): 1825-1830

2. The authors analyzed the association between clinical features or IMA characteristics and hemoperfusion region of the IMA using univariate regression analyses. The authors should also perform multivariate analyses to clarify the associated factors objectively.

Thank you for the advising. As the reviewer's suggestion, we added the multivariate analysis to clarify the associated factors objectively. The results showed that the integrity of the marginal artery and compensation of the collateral circulation, such as the aLCA and the arc of Riolan, were independently associated with the hemoperfusion region of the IMA. In addition, the type IV IMA pattern could be negative factors for IMA hemoperfusion, with a p value equal to 0.05. (P9L22-P10L10 and Table 2)

3. Please discuss the availability of 3D-CT angiography for preoperatively evaluating the perfusion of the left colorectum in the clinical setting.

Thank you for the advising, as the reviewer's suggestion, we discussed the usage of 3D-CT angiography for preoperatively evaluating the perfusion: Due to the narrow view under laparoscopy, vascular bifurcation and variations could to be misidentified and injured, which may cause severe complications, such as massive bleeding and bowel ischemia. Therefore, it is required to be aware of the length, branching, pattern and the surrounding position of IMA preoperatively, 3D-CT angiography could provide the helpful information to determine the optimal ligation level of the IMA, which can precisely estimate the difficulties of the surgery and make individualized operational strategies.(P15L6-9)

Minor

1. The authors should replace "Figure 2" with "Figure 3".

We already changed the order of Figure 2/3 and Figure legends.(P23L4-20)

2. (P9L16) Please insert "respectively" after "1.9%".

We insert "respectively" after 1.9% in P9L16.(P9L16)

3. (P12L1) Those results of 3D-CT angiography were not in the present study.

Sorry for confusing the meaning of the sentence, we delete "in the present study". Because it means our results of IMA classification are consistent with the previous results by 3D-CT angiography. (P11L22-P12L1)

4. (Figure 2) The authors should replace "Type A-D" with "Type I-IV".

We already replace Type A-D in Figure and manuscript.(Figure 2)