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Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 20756-Revised manuscript.docx).

Laparoscopic versus Open Partial Colectomy in Elderly Patients: Insights from the ACS NSQIP Database

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Thank you very much for having our manuscript reviewed. We very much appreciate the effort of the editorial board as well as all of the reviewers

The reviewers have offered many valuable comments, which have allowed us to expand and clarify the manuscript. We believe they have really helped us to improve the quality of this paper. Our responses to the reviewers are below:

Reviewer 1 (Number- 71753):

The article performs a large review over an interesting matter in colorectal tumor resection in elderly patients and observed better results with the use of laparoscopic than open surgery approaches. There are grammar and syntax errors in the manuscript.

The manuscript has been revised to improve the grammar and remove any syntax errors.

Reviewer 2 (Number – 70915):

This is a large database-based study comparing the outcomes of the laparoscopic and open approaches of colorectal surgery. The conception of the study is simple but the results are robust and well-backed by the rather straightforward method. I recommend publication of the study after proper response to some minor comments:

We thank the reviewer for these kind words.

Abstract – Results: … were done with open. The word technique or approach should be added

This has been changed to "the open approach".

Abstract – Conclusions: in the absence of other reasons, elderly patients… please define the reasons; this is too vague to be in the conclusions.

We appreciate these comments. We have slightly modified the abstract to say "in the absence of specific contraindications". This has been expanded further at the end of the manuscript. In general we believe

most contraindications are relative and not absolute, and in the end will be the surgeon's decision. However, we have added some examples by including this paragraph:

> "Of course, each patient and each situation needs to be evaluated individually. In some cases there might be specific reasons why an open approach might be preferable, such as extensive prior surgery, a large mass or phlegmon, or surgeon comfort level. However, in the absence of specific contraindications our study showed better results with a laparoscopic approach."

Introduction (line 3): lower cost instead of less expensive.

This has been corrected to "lower cost".

Introduction: "One problem with using … two groups." This paragraph should be incorporated in the Discussion section instead of the Introduction.

This section has been clarified. We have modified the portion in the introduction to help explain what the purpose of this study. While there have been some other studies using large databases such as the ACS NSQIP database, they have a weakness in that the two groups are inherently different. Using propensity matching is given as the reason for performing this study, and **the fact that is was done** is therefore included in the introduction section.

In the methods section we have expanded on **how** we did the propensity matching. This is put into the methods section as an entire paragraph with the heading "Propensity Matching".

Discussion: the authors do not suggest reasons why surgical site infections after laparoscopic colorectal surgery are fewer than the open approach.

This has been added in, along with an additional reference:

> "The reasons for lower SSI with the laparoscopic approach might include reduced blood transfusions, reduced wound contact with the colon[27]"

Reviewer 3 (Number -3004150)

This manuscript described laparoscopic colectomy for colon cancer in elderly patients using the American College of Surgeons - National Surgical Quality Improvement Program (ACS NSQIP) database. However, numerous similar reports have been published before, and this study might be questioned whether providing great significant information for current practice in treatment of patient with colon cancer or not.

We agree that there are similar studies but all are either single institution studies or meta-analyses. Our study is the largest single study based on a well validated, national database. In addition other studies that are not randomized have the disadvantage that there is a high risk for selection bias. By adding in propensity matching into our study, we have significantly decreased this risk, and our results are therefore much more robust.

We have included a paragraph to make these advantages more explicit:

> "All of these small sample size studies and meta-analyses concluded that LC is safer and has better short term outcomes. Our analysis based on a large well validated ACS NSQIP database replicates these findings in a very large database of patients and confirms the benefits of the minimally invasive approach. More

importantly, our study employed propensity matching to make sure the groups of patients were similar pre-operatively, and still found the same results."

Reviewer 4 (Number – 3442149)

In this original article the authors analysed data of 27,604 consecutive patients older than 65 years retrospectively, which were underwent laparoscopical or open partial colectomy between 2005 and 2011. Primary outcome variables were post- operative complications, length of hospital stay and mortality. The authors performed multivariate analysis to determine risk factors for increased mortality in elderly patients. They also used the propensity score to ensure similar pre-operative comorbidities. The article is overall well-written and nicely structured. However, I have some major concerns addressed below. The investigated topic is obviously timely and relevant, but the presented original data do not substantially extend the presently available insight into the subject of debate.

We appreciate the comments, and will address the concerns below.

Major concerns:

1. They didn't separate between the indication for operation, if it was benign or malign, which is an important differentiation for optimal treatment and outcome.

This data has been added from the database, and incorporated into Tables 1 and 2 under the heading "Indication".

2. Most limitation of the study is a lack of description of initial resectability, a lack of a description of the proportion of patients with malignancy as well as insufficient details regarding intra-operative handling.

3. The author didn't describe the surgical procedures, surgical management improved over the years, they included patients from 2005 till 2011 where they all operated the same way.

4. The authors should perform further analysis to show putative differences in the patient collectives.

5. As post- operative complications were the primary outcome of the analysis, the Clavien- Dindo Classification could be used as a reliable and representative compelling tool for quality assessment.

We appreciate the above 4 questions, and are answering them all together here. The nature of the ACS NSQIP database is that the data is entered by many institutions across the country. Our analysis of this can only examine the data that has been recorded. As such, it is impossible to evaluate differences in operative handling or changes in surgical technique. In addition the complications are recorded, but there is no information about individual complications and their severity, and it is impossible to classify them according to Clavien-Dindo.

While this may be a limitation, it is one that is inherent to any large database study, and is unavoidable. We have added a paragraph about this in the limitations section.

> "In addition, we are only able to analyze the data that has been recorded. For example we can only group the patients into colectomies based on which part of the colon was removed, but any differences in surgical technique have not been recorded. And in terms of complications we have access to the number of complications in each category, but the severity of each complication (e.g. Clavien-Dindo classification) is not available. Nonetheless, the extremely large size of the database allows for many of these deficiencies to not impact on the

results. It is unlikely that the complications in one group were all severe while the complications in the other group were all minor."

Minor concerns: 1. Typesetting, grammar/style and spelling should be revised to some degree, especially within the discussion part.

The manuscript has been revised throughout to correct for grammar and spelling mistakes. Thank you.

Once again, thank you for reviewing our manuscript and for the opportunity to submit this revision. We appreciate the opportunity to publish in World Journal of Gastroenterology.

Sincerely yours,

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