Reviewer A

The authors describe a retrospective data analysis from their treated cohort of type A aortic dissections and pursue the hypothesis that sarcopenia is associated with survival after surgical treatment. The idea appears is identified to be capable of estimating survival using a simpler preoperative measurement of the psoas muscle thickness/hight (PMTH).

The aim and idea of the study is understandable however some major concerns may arise:

• In my opinion, the classification based on literature data that define a cut-off value in cirrhosis patients. Why do the authors think that such value is also valid for dissection patients? Wouldn't it be better to define an own cut-off value? What would be the cut-off value fir predicting survival in your cohort? This is of high interest to the cardiothoracic readership.

Reply 1: Thank you for the reviewer's comments. There are several reasons for us to choose the cutoff value determined based on literature data. One, psoas muscle thickness/height<16.8 mm/m have been well validated as perfect indicators of sarcopenia. Sarcopenia was originally proposed in recognition of a clinical condition of a substantial loss of muscle mass and function observed with aging. There is a bidirectional association between sarcopenia and CVD. Sarcopenia can lead to the chronic inflammatory state, malnutrition, and decreased physical activity observed in cardiac patients are precursors to a catabolic state, leading to accelerated muscle loss and development of sarcopenia. Therefore, the aim of this study is to investigate the relationship between sarcopenia and the prognosis of patients with acute type A aortic dissection. Second, for different diseases, the cutoff value of PMTH varies. The study on sarcopenia in patients with cirrhosis is the most extensive, with the majority of cutoff values being 16.8 mm/m, 8.44 mm/m in women and 8.85 mm/m in men who undergoing hemodialysis, and 17.5mm/m in patients undergoing biliary tract cancer surgery. We have attempted to define a new cutoff value through ROC analysis. The analysis results indicate a cutoff value of 15.68 mm/m for predicting mortality. However, only 57 patients had a PMTH below 15.68 mm/m. This would result in a significant difference in sample size between the two groups, affecting the reliability of further propensity score matching. We believe that setting the cutoff value at 16.8 mm/m is more reasonable. Third, a study comparing the one-year efficacy of open and robot-assisted radical esophagectomy, with a cutoff value of 16.8 mm/m for sarcopenia[1].

Changes in the text: We have added some explanation on the manuscript. (see Page 11, line 15)

• The reviewer is also interested in the correlation of PMTH with the age of the patient. Is this correlation high? Age is in your multivariate analysis also a valid predictor. The authors may need to make sure why PMTH instead of age is of advantage, since just looking up the age is even far easier than measuring the psoas muscle thickness on CT scans.

Reply 2: We thank the reviewer for their valuable input. We greatly appreciate the reviewer's interest in the correlation between PMTH and patient age. In our multivariate analysis, age indeed stands as a valid predictor. However, we acknowledge the reviewer's query regarding why PMTH was chosen over age. While age is a more readily accessible parameter, we opted

to study PMTH because it may offer additional insights into the overall health and nutritional status of patients, which could be crucial for prognosis assessment. We further conducted subgroup analysis on age to determine the association between PMTH and age, as well as its impact on prognosis outcomes (see Table 4). There was no significant difference in the relationship between PMTH and 1-year survival among different age groups (interaction p = 0.586). We will articulate this point clearly and provide corresponding explanations in the revised manuscript.

Changes in the text: We have added some explanation on the manuscript. (see Page 7, line 6; Page 8, line 22)

• The reviewer may suggest to elaborate more about the mechanistic und possible hypothesis why sarcopenia leads to reduced survival rates? What is the authors idea for this. The readers might benefit from an abstract in the discussion. Also increased rates of renal failure at low PMTH need some mechanistic considerations.

Reply 3: Thank you for your valuable suggestions. We have taken into account the need for a more detailed elaboration on the mechanistic and possible hypothesis regarding how sarcopenia leads to reduced survival rates, and have addressed this in the discussion section. Additionally, we have included an abstract within the discussion to enhance the readers' understanding of the key points. Furthermore, we have provided detailed mechanistic considerations regarding the increased rates of renal failure at low PMTH. We believe that these additions will significantly enhance the quality and comprehensiveness of the manuscript. Thank you for guiding us in improving our work.

Changes in the text: We have added some explanation on the manuscript. (see Page 10, line 11; Page 11, line 19)

• There are minor grammar problems in the text; e.g. "On univariate analysis, the PMTH value was significantly associated with 118 higher mortality (HR 2.86 [95% CI 1.12-8.99]). And remained an independent predictor of 119 survival after adjusting for multivariable analysis (HR 2.73 [95% CI 1.15-8.78])." Do these sentences not belong together? Other similar problems were identified.

Reply 4: thank you for your review of the manuscript. You pointed out some grammar issues, such as the lack of connection between the two quoted sentences. We will revise these issues to ensure better coherence between sentences and paragraphs in the manuscript, enhancing its fluency and logic. Thank you once again for your valuable feedback, and we are committed to making the necessary revisions to improve the quality of the paper.

Reviewer B

1. Abstract
  P= **.02** => P= 0.02
Please use this form of decimals throughout the text.
Reply: Revised as suggested.

2. Please define HR and CI when they first appear in the abstract.
Reply: Revised as suggested.

3. Some references are outdated. Please ensure all references are up-to-date by including literature published within the past year.

Reply: Revised as suggested.

4. Please add labels for the y-axes of Figure 2B.

Reply: Revised as suggested.

5. Please use the correct form of decimals in Tables. For example, ".035" should be "0.035".

Reply: Revised as suggested.