

October 7, 2014

Dear Editors,

Re: ESPS Manuscript NO: 12452

Title: Coronary stenting with cardiogenic shock due to acute ascending aortic dissection

Authors: Yuichi Hanaki, MD, Kazuhiko Yumoto*,MD, PhD, Seigen I, MD, Hajime Aoki, MD, Tomoyuki Fukuzawa, MD, Takahiro Watanabe, MD, Kenichi Kato, MD.

Name of Journal: *World Journal of Cardiology*

Please find attached a revised version of our manuscript "Coronary stenting with cardiogenic shock due to acute ascending aortic dissection", which we would like to resubmit for publication as a case report in *World Journal of Cardiology*.

The reviewer's comments were highly insightful and enabled us to greatly improve the quality of our manuscript. In the following pages are our point-by-point responses to each of the comments of the reviewers.

Revisions in the text are shown using red letter for additions and our manuscript were already edited by American Journal Experts. The certification letter was also attached.

We hope that the revisions in the manuscript and our accompanying responses will be sufficient to make our manuscript suitable for publication in *World Journal of Cardiology*.

We shall look forward to hearing from you at your earliest convenience.

Yours sincerely,

Kazuhiko Yumoto, MD, PhD.

Department of Cardiology

Yokohama Rosai Hospital

3211 Kozukue-cho, Kohoku-ku, Yokohama, Kanagawa, Japan

E-mail: kyumoto@db3.so-net.ne.jp

Response to the general

Format has been updated and corrected.

- a) Author contributions have been added.
- b) Core tip has been added.
- c) Format of report has been modified to comply with the World Journal of Cardiology's requirements a "comments" section has been added following the discussion section.
- d) PMID and DOI numbers are provided in references.
- e) Fax and telephone number were added.

Reviewer number 1 (Reviewer code: 00227470)

We thank the reviewer for consider reviewing our manuscript and raising positive comments.

Comment 1: What was the operation; Bentall or only ascending aorta replacement? Was a vascular prosthesis used?

Author response 1: Thank you for your helpful comments. The operation comprised an aorta replacement with a vascular prosthesis. According to your advice, we have added the following sentences in the "Case Report" section of the manuscript: "Ascending aortic replacement with an interposition vascular prosthesis graft was performed; coronary artery bypass grafting, which included the left internal thoracic artery (LITA) to the distal portion of the LAD and a saphenous vein graft (SVG) to middle portion of the LCX, was performed at the surgeon's discretion." (page 5 line 5)

Comment 2: Please describe NYHA class and patency of the grafts at follow-up.

Author response 2: Based on these important points, we have included

information regarding the follow-up status and bypass patency in the “Case Report” section. “The physical status at the one-month follow-up visit was characterized as New York Heart Association class 1 despite a high concentration of brain natriuretic peptide (400 pg/mL: normal range < 20 pg/mL).” (page 5 line 15) and “The SVG was patent; however, the LITA revealed shrinkage as a non-functional bypass.”(page 5 line 20)

We believe that incorporating your advice has improved the manuscript. Thank you again for your helpful suggestions.

Reviewer number 2 (Reviewer code: 00252373)

We thank the reviewer for consider reviewing our manuscript and raising positive comments.

Comment 1: Please clarify if aortic dissection was repaired with just interposition tube graft or valve-sparing root replacement/Bentall.

Author response 1: We thank the reviewer for the suggestions, which have enabled us to improve the manuscript. In accordance with the Reviewer’s comment, we have added the following sentences in the “Case Report” section of the manuscript: “Ascending aortic replacement with an interposition vascular prosthesis graft was performed; coronary artery bypass grafting, which included the left internal thoracic artery (LITA) to the distal portion of the LAD and a saphenous vein graft (SVG) to the middle portion of the LCX, was performed at the surgeon’s discretion.” (page 5 line 5).

Comment 2: If the Bentall was performed was any difficulty encountered during translocation of left coronary button?

Author response 2: We did not perform the Bentall operation. Therefore, there were no difficulties in the operative procedures regarding the translocation of the left coronary button.

Comment 3: Please include a table summarizing similar case reports to provide an overview of existing literature on the subject.

Author response 3: Thank you for your helpful suggestion. We have included a table that summarizes the previously published case reports. We believe that the table will help readers to comprehensively understand the literature.

Thank you for your encouraging comments and suggestions. We believe that incorporating your advice has improved our revised manuscript.

Reviewer number 3 (Reviewer code: 00726770)

We thank the reviewer for consider reviewing our manuscript and raising positive comments.

Comment: Would be also interesting to know what is the systolic function of the patient after his discharge and blood tests.

Author response: Thank you for your comment. We have included the systolic function of the patient at the one-month follow-up visit, as well as the blood test results. "The TEE demonstrated reduced antero-septal wall motion; however, the overall ejection fraction recovered to 50%." (page 5 line 17) "The physical status at the one-month follow-up visit was characterized as New York Heart Association class 1 despite a high concentration of brain natriuretic peptide (400 pg/mL: normal range < 20 pg/mL)." (page 5 line 15)

Thank you again for taking the time to share your constructive feedback.

Reviewer number 4 (Reviewer code: 02141286)

We would like to express our appreciation for your extremely thoughtful suggestions.

Comment 1: It is unclear whether the dissection of the aorta was missed diagnosed as there was no presentation of the echocardiogram before coronary angiogram. The echocardiogram is more important to display rather than the ECG.

Author response 1: We thank the Reviewer for this pertinent comment. We completely agree with the Reviewer's opinion regarding the important role of the echocardiogram. We examined the findings of the transthoracic echocardiogram (TEE) described in Case Report page 3 line 27, and we could not identify the existence of the aortic flap, aortic valve regurgitation, or pericardial effusion suggested by the type A acute aortic dissection. In our case, we missed the correct diagnosis using TEE in the emergency room because the aortic dissection was localized to a limited region in ascending aorta and the patient was obese, which limited the visual field. We quoted the limitation of TTE and inserted the following in the discussion: "TTE is also useful; however, it is a limited screening technique for the quick diagnosis of TAAD because of the unavoidable operator dependency, reduced image resolution, and limited field of view [12]." (page 6 line 13)

Comment 2: The literature in the field is not cited.

Author response 2: We thank the Reviewer for this important comment. In accordance with the Reviewer's suggestion, we have quoted references, including the Reviewer's suggested articles. We have summarized the previously published case reports to clarify the differences in the diagnostic

modalities and the timing of surgery. The table includes the case reports that the Reviewer indicated, with the exception of the iatrogenic acute aortic dissection with LMCA occlusion cases. We believe that this comprehensive table has significantly improved our manuscript.

Comment 3: The case report suggests that one can wait to repair a type A dissection once one has stented the coronary artery which needs impression to be corrected.

Author response 3: Thank you for this important comment. We do not intend to suggest that one can wait to repair a type A aortic dissection once a successful stenting to left main coronary artery has been performed. We also recognize the surgical repair as the only curative treatment for type A aortic dissection. However, a hemodynamically unstable patient might not be rescued by surgery because of the moribund condition and irreversible myocardial ischemia. A percutaneous intervention may provide a stable condition for the surgical procedure, particularly in difficult cases of diagnosis in an emergency department.

Comment 4: The figures are not clearly labelled and the legend needs to clarify the letters in each figure.

Author response 4: We agree with these comments. In accordance with the Reviewer's comments, we have edited and added the legend and labels that correspond to each figure.

Comment 5: The stenting of a coronary artery in patients with aortic dissection is already well recognized. The literature needs to be quoted and discussed.

Author response 5: We thank the Reviewer for this important suggestion. We would like to emphasize the efficacy of intravascular ultrasound usage in crisis

situations. In accordance with the Reviewer's suggestion, we have cited previously published case reports and summarized these references in a table. We believe that the table is comprehensible and comprehensive regarding the previous case reports. It clarifies the differences in each case, for example, the diagnostic modalities, the timing of the correct diagnosis, the duration between stenting and surgery, and the outcome. We appreciate that the Reviewer recommended several important articles. Two articles that the Reviewer indicated involved iatrogenic complications. In our case report, we focused on type A acute aortic dissection and excluded iatrogenic aortic dissections, such as those induced by a catheter. We apologize that these articles recommended by the Reviewer were excluded; however, these cases were caused by an iatrogenic factor.

Thank you again for your valuable comments regarding our manuscript. We trust that the revision improved the quality of our manuscript.

Reviewer number 5 (Reviewer code: 00608588)

We thank the reviewer for the positive comments on our work.

Comment: The patient underwent "preventive CABG". As this is not typical treatment of patients with patent coronary arteries this should be discussed widely.

Author response: Thank you for your helpful suggestion. Perioperative stent thrombosis is a serious complication even after successful stenting, which is associated with a significant increase in mortality. The complication is caused by premature antiplatelet therapy discontinuation and a surgery-induced prothrombotic situation. "Preventive CABG" has an insurance role when stent

thrombosis occurs in the perioperative term. However, unless stent thrombosis has occurred, a bypass graft would be non-functional, such as in our case. We have summarized the previously published case reports in the Table. In these series, “preventive CABG” occurred in only one case. Thus, the efficacy of “preventive CABG” remains unclear. The term “preventive CABG” is confusing; thus, we have deleted “preventive” and changed this phrase to “coronary artery bypass grafting” in the Case Report” section. (page 5 line 6)

We have added the following sentences in the Discussion section: “In contrast, perioperative stent thrombosis is a serious complication that is associated with a significant increase in mortality, particularly in LMCA stenting. This complication is caused by antiplatelet therapy discontinuation and a surgery-induced prothrombotic situation. DAPT is necessary after coronary artery stenting, particularly in the acute phase.” (page 7 line 8) and “The addition of CABG is encouraging even after successful recanalization with stenting during the preparation for stent thrombosis after aortic surgery ^[3]. The optimal timing of surgical repair, the duration of DAPT and the efficacy of CABG addition after coronary artery stenting have not been established.” (page 7 line 20)

We thank the Reviewer again for valuable comments.