

Peer Review File

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Round 1

Comment 1: Line 48-49: I am unsure what the authors mean by highest risk of aortic dissection. Do the authors mean highest-risk surgical patients?

Reply 1: We thank the reviewer for this comment asking for clarification. We mean that older patients are more likely to have an acute aortic dissection than young patients. In the lines that follow in the manuscript, we outline statistical figures supporting this statement.

Changes in the text: For clarification, we have changed the text to “[...] *since these patients are significantly more likely to develop aortic dissection.*”

– Page 3, lines 48-49

Comment 2: Line 52-56: I do not think mesenteric ischemia is procedure-related complications after type A repair. It is disease related.

Reply 2: We appreciate the reviewer's comment regarding mesenteric ischemia. We agree that mesenteric ischemia, like acute renal failure, is a disease-related complication, which, however, can be aggravated per- or post-operatively.

Changes in the text: To avoid any misunderstanding, we have removed mesenteric ischemia and acute renal failure from the list of complications. The text now says: “[...] *and may increase procedure-related complications such as stroke, and cardiopulmonary dysfunction.*”

– Page 3, lines 55-56

Comment 3: Line 56-57: Long-term follow-up after TAAD is not sparse. Long-term follow-up on medically managed TAAD is sparse.

Reply 3: We have corrected our original statement accordingly.

Changes in the text: We have modified the text as advised: “The literature on long-term follow-up on medically managed TAAD is sparse.”

– Page 3, line 56-57

Comment 4: Line 60: I would describe "familial disposition to blood clots" as family history of hypercoagulability. Was she on anticoagulation therapy on presentation?

Reply 4: The patient was in anticoagulant therapy with warfarin, which was stopped and reversed with vitamin K during emergent care.

Changes in the text: First, we have changed the first line of the case presentation to “[...] *familial disposition of hypercoagulability* [...]”

– Page 3, line 60

Second, we have added a statement on the emergent procoagulant strategy addressing the patient’s habitual anticoagulant state. The text says: “*The patient had an INR of 3.6 upon presentation, likely due to habitual anticoagulant medication (warfarin). Upon discovering the aortic dissection, the medication was promptly stopped and reversed with phytomenadione to restore a procoagulant effect.*”

– Page 4, lines 83-85

Comment 5: Line 73-74: It is hard to understand the sentence. TTE showed no pericardial effusion, normal valvular function, and preserved cardiac function.

Reply 5: We agree that rephrasing the statement would make it easier to understand.

Changes in the text: We have changed the statement to “Transthoracic echocardiography (TTE) showed no pericardial effusion, no heart valve involvement, and normal left ventricular, hence no signs of myocardial malperfusion were detected.”

– Page 4, lines 75-76

Comment 6: Line 62-77: Authors should focus more detailed descriptions on CT imaging rather than focusing on presentation and symptoms. CT findings should include the location of entry tear, the extent of dissection in accordance with the new STS/SVS, size of true lumen and false lumen, status of false lumen (patent or thrombosed), and presence of malperfusion syndrome. The reason this patient was successfully managed is because there were no malperfusion, small aorta, and no pericardial effusion.

Reply 6: We have added more details on the findings of CT imaging to the revised manuscript.

Changes in the text: We have added the following text: “*Subsequent acute CT imaging revealed a massive (type A4 SVS/STS, DeBakey type 1a) aortic dissection with an entry tear 3 centimeters above the aortic valve. Distal extent 4 centimeters into the descending arc with branch extensions in the brachiocephalic trunk and the right common carotid artery. The false lumen was patent with a cross-sectional size of 26 mm, while the true lumen was 15 mm (Figure 2, Video 1). No radiologic signs of malperfusion syndrome were detected.*”

– Page 4, lines 77-82

Comment 7: Line 80-82: What was the heart rate?

Reply 7: Though the initial electrocardiogram showed slight sinus bradyarrhythmia, telemetric monitoring revealed a markedly higher average frequency range.

Changes in the text: We have added the following text to the manuscript: “*However, subsequent telemetric heart rate monitoring revealed a frequency range between 60 and 110 bpm.*”

– Page 4, lines 71-73

Comment 8: Line 92: Did authors not get repeat CT scan prior to the discharge? Rapid enlargement of the aorta happens in the initial few weeks.

Reply 8: No, we did not get repeat CT imaging prior to discharge. This decision was made by the cardiothoracic surgical team on the basis that any subacute CT findings would be inconsequential because the patient was already deemed unfit for surgery. Instead, it was decided that repeat CT imaging would be performed at 1 month if the patient survived conservatively.

Changes in the text: We have added the following text to the manuscript: “No repeat CT imaging was made prior to discharge, the reason being that any subacute CT findings would be management inconsequential due to the patient’s surgical noncandidacy. Instead, it was decided that repeat CT imaging and outpatient control would be performed 1-month post-discharge.”

– Page 5, lines 99-102

Comment 9: Line 78. The extent of aortic dissection seems not extensive. Also, comorbidities are very common for an old person. What were the pulmonary function and renal function? What was the frailty score?

Reply 9: We agree that comorbidities are common for an old person. We have added information on the patient’s clinical frailty, pulmonary function, and renal function.

Changes in the text: We have added the following text: “*The patient had a clinical frailty score (CFS) of 6, indicating moderate frailty. The patient’s pulmonary function, with arterial blood gas and pulse oximetry, was normal, and renal function was, similarly, within the normal range (plasma-creatinine ~0.8 mg/dL).*”

– Page 4, lines 86-88

Comment 10: Line 113-115: Ascending TEVAR is not commonly performed or usual practice. The problem is the delivery system length, available stent graft size and the ascending aorta itself is short. The way authors describing is misleading.

Reply 10: We thank the reviewer for this comment. We agree that TEVAR is an uncommon surgical solution to aortic dissection, mostly for otherwise inoperable patients with optimal anatomical conditions and pathological morphology.

Changes in the text: To avoid any misunderstanding on the use of TEVAR for aortic dissection, we have removed the following text in the revised manuscript: “*Due to the low invasiveness of EVAR, it increasingly presents an attractive treatment option. However, patients with aortic-coronary bypass, aortic valve insufficiency, lack of a proper sealing zone, or connective tissue disorders are not candidates for EVAR (9).*”

Comment 11: L123-126. The reference #16 is not a review - multicenter study.

Reply 11: We thank the reviewer for catching this error.

Changes in the text: We have changed the text to “[...] *a recent retrospective multicenter study argued [...]*”

– Page 6, lines 134-135

Comment 12: L146-150: The reason for successful medical management should include the size of the aorta and no malperfusion.

Reply 12: Successful medical management of acute aortic dissection does indeed also depend on aortic cross-sectional area and that cardiac perfusion has been preserved.

Changes in the text: We have added the following texts to the manuscript. First, it says: “*Likewise, the initial echocardiographic assessment detected no valvular or coronary involvement, and no cardiac malperfusion, further reducing the risk.*”

– Page 7, lines 159-161

Second, it says: “*Despite the possibility of retrograde expansion (22), these factors, including a small aortic cross-section, favor a more low-risk, conservative treatment strategy for containing the dissection than surgery.*”

– Page 7, lines 161-163

Round 2

Reviewer A

Comment 1: Kindly consider changing "has" to "have" on page 6, line 121.

Reply 1: We thank the reviewer for catching this error – It has been fixed in the revised manuscript.

Changes in the text: “Although there have been great innovations in operative [...]”

– Page 6, line 123

Reviewer B

Comment 1: Why was this patient on warfarin?

Reply 1: We have detailed the clinical indications for warfarin in the revised manuscript.

Changes in the text: “The patient had an INR of 3.6 upon presentation, likely due to habitual anticoagulant medication (warfarin), which had been initiated prophylactically due to the estimated thromboembolic risk associated with atrial fibrillation and prior pulmonary emboli (CHA₂DS-VASc = 6).”

– Page 4, lines 83-86