

Peer Review File

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Review comments:

1. There is a discrepancy in the manuscript regarding whether the initial aneurysm was limited to CIAs only or CIAs and IIAs as well as aorta. Please check and clarify throughout.
 - We have clarified that the initial aneurysm was a contiguous 3.6cm infra renal abdominal aortic aneurysm, 3.3cm left common iliac aneurysm, 3.6cm right common iliac, 3.7cm left internal iliac aneurysm, 3.0cm right internal iliac aneurysm
 - Changes in text: we have included these facts and specified the initial anatomy in throughout the text including lines 17, 24-26, 50-52, 81-82, 174-175

2. Need to see F/U CT scans after initial admission after percutaneous drainage and also after the re-admission 8 months later. This will add more credibility to the case report.
 - There were no follow up CT scans after percutaneous drainage during initial or second admission. During the first admission, clinical improvement after drainage of the abdomen was considered enough clinical evidence at that time to infer resolution of the aneurysm
 - Changes in text: There was no follow up CT abdomen done after percutaneous drainage as clinical improvement were based on physical exam and patient's condition (Lines 45-46)

3. You mention pelvic aneurysms after 8 months re-admission - what do you mean by that?

- I have clarified to specify that pelvic aneurysm refers to the distal abdominal aortic aneurysm, bilateral common iliac aneurysm, bilateral internal and external iliac aneurysms all of which were contiguous and measured up to 23cm together
- Changes in text: Eight months later, the patient returned to the ED with lower abdominal pain radiating to the back and non-bloody diarrhea for one day. CT of abdomen and pelvis revealed bilateral expanding pelvic aneurysms composed of distal abdominal aortic aneurysm, bilateral common iliac aneurysms, bilateral internal and external iliac aneurysms that occupied almost half of the abdominal cavity measuring up to 23cm on the left side with associated moderate hemoperitoneum concerning for rupture. (Lines 48-52)

4. Were there IIAs initially and if yes what was done to it/them if BL?

- We have clarified that initially there were internal iliac artery aneurysms bilaterally. We have speculated regarding incomplete vascular obliteration/lack of ligation during initial surgery however we lack operative details to confirm it. Based on our interventions, we were able to interpret/speculate that the lack of bilateral internal artery ligation resulted in retrograde filling of the bilateral external iliac artery and aortic bifemoral resulting in the massive aneurysmal disease that eventually led to our patient's demise.
- Changes in text: We infer that our patient, and in accordance to prior reported cases, had an incomplete vascular obliteration or lack of internal iliac artery ligation during initial surgical repair allowing for the development of collateral vessels and retrograde flow into the aneurysm over the course of several years^{3,16}. Over time, extrinsic compression led to vascular stasis and eventual femoral artery thrombus formation directing our patient to seek

emergent medical attention for life-threatened limb. However as stated previously, we lack the operative details to confirm any details regarding the initial surgical repair. In regards to the initial surgery it was surgeon preference to perform aorto-bifemoral bypass as opposed to aorto-biiliac graft during initial surgery. We can infer that the purpose was to exclude/bypass the iliac arterial system (common and internal iliac artery) from systemic circulation since this comprised the severe aneurysmal disease. Based on interventions done during hospitalization related in this paper, we can also deduce that the internal iliac artery was not ligated (either properly or at all) and only the external iliac artery was ligated. (Lines 99-124)

5. Please elaborate on the statement on line 79-80. Also, there is not need to discuss so much about CIA aneurysms and incidence etc in the discussion as this manuscript is not about initial management of CIA/IIA aneurysms. Please revise and concise the discussion.

- We have elaborated on the statement in 79-80 and provided clarity.
- Changes in text: Spontaneous rupture is a complication of abdominal aneurysms that carries mortality rates as high as 33% for endovascular and 50% for surgical repair⁷.

(Lines 88-89)

- Changes in text: we have made the discussion more concise by removing some information about the initial management about CIA/IIA aneurysms.

6. Life long surveillance for open aneurysm repairs is not required as is suggested to detect one such complication. However if there were untreated IIA aneurysms in this patient during initial surgery then surely that needs regular follow-up. The most important missing

information about what was done to the distal aorta (assuming that the initial aneurysms were only CIA and IIA and not aortic) as well as IIAs and BL EIAs is missing and needs to be explored. Also, not clear why the patient had aortobifem and not aorto-biliac graft during initial surgery. Clearly you can't change that but that needs discussion. The main reason for this complication most likely is improper initial surgery so needs discussion.

- The authors agreed with this review and we also speculate that a possible reason for the progression of disease seen in our patient is related to the lack of internal iliac artery ligation during the initial surgical intervention. In our case, we lack operative details to confirm it. We suggest that in open surgical repairs where surgical details cannot be fully confirm, surveillance imaging should be perform for early detection of untreated or progression of initial disease. Based on our interventions, we were able to interpret/speculate that the lack of bilateral internal artery ligation resulted in retrograde filling of the bilateral external iliac artery and aortic bifemoral resulting in the massive aneurysmal disease that eventually led to our patient's demise.

- Changes in text:

Over time, extrinsic compression led to vascular stasis and eventual femoral artery thrombus formation directing our patient to seek emergent medical attention for life-threatened limb. However as stated previously, we lack the operative details to confirm any details regarding the initial surgical repair. In regards to the initial surgery it was surgeon preference to perform aorto-bifemoral bypass as opposed to aorto-biiliac graft during initial surgery. We can infer that the purpose was to exclude/bypass the iliac arterial system (common and internal iliac artery) from systemic circulation since this comprised the severe aneurysmal disease. Based on interventions done during hospitalization related in this paper, we can also deduce that the internal iliac artery

was not ligated (either properly or at all) and only the external iliac artery was ligated. While typically open surgical repair may not require close surveillance, we suggest that in open surgical repairs where surgical details cannot be fully confirmed, surveillance imaging should be performed for early detection of untreated or progression of initial disease. (Lines 102-127)

7. Why did the patient not undergo laparotomy straightaway second time around rather than endovascular coiling etc? Would that have made a difference in the outcome?

- The patient underwent coil embolization and cyanoacrylate glue embolization prior to laparotomy. He had a high mortality risk and efforts to address the aneurysm were limited given the large size and complex anatomy. However ongoing hemorrhagic shock and abdominal compartment syndrome (ACS) led to the laparotomy for palliation of ACS and abdominal decompression, rather than attempts to address the aneurysm itself.
- Changes in text: Ongoing hemorrhagic shock from massive hemoperitoneum and obstructive shock from the onset of abdominal compartment syndrome required initial stabilization in the intensive care unit (ICU) followed by transportation to the operating room. He had a high mortality risk and efforts to address the aneurysm were limited due to its large size and complex anatomy. Instead, efforts focused on palliation of ACS and abdominal decompression. (Lines 55-59)

8. Figure 4 is not necessary and does not give proper information. So can be taken out.

- Thank you for this suggestion. We had previously added this figure 4 based on a suggestion from this journal asking us to follow the CARE guidelines which recommended a timeline. We have removed it as your recommendation.

- Changes in text: removed figure 4