Peer Review File

Article information: https://dx.doi.org/10.21037/jtd-24-985

Reviewer A

The paper provides a valuable retrospective analysis of surgical approaches for managing adult aortic coarctation (COA) complicated by poststenotic aneurysm (PA) or dissection (PD). It highlights the complexity of treating these patients, emphasizing the importance of individualized treatment plans and a multidisciplinary team approach. The procedural success rate and positive short- and mid-term outcomes are commendable. However, the study's limited sample size and follow-up duration constrain the generalizability of its findings. Future research with larger cohorts and extended follow-up is necessary to validate these results and optimize treatment strategies. The paper effectively combines traditional and innovative surgical techniques, offering significant insights for similar cases.
Concerns:

Limited Sample Size: The small number of patients (20) in the study limits the generalizability of the results. This sample size may not adequately represent the broader patient population, potentially affecting the reliability of the conclusions.
Re: Thank you for your concerns. Studies have shown “COA was one of the common congenital cardiovascular abnormalities with the incidence of four of 10,000 live births. CoA with poststenotic aneurysm, on the contrary, was much rarer” (Pan et al., Annals of Vascular Surgery, 2022). 20 patients enrolled in this study is relatively large size in five years. The study is limited by the relatively small patient cohort. We have added some details into the section of discussion (see Page 8, line 296-299)

Short Follow-Up Period: The follow-up duration, though mid-term, is still relatively short for assessing the long-term success and potential complications of the surgical interventions. Longer-term follow-up is necessary to fully understand the outcomes.

Risk of Complications: While the procedural success rate is high, there are still significant risks of complications, such as anastomotic bleeding and spinal cord injury. Continuous monitoring and improvement of surgical techniques are needed to minimize these risks further.
Re: Thank you. To minimize the risks further, continuous monitoring and improvement of surgical techniques are needed. We have added some details into the section of discussion (see Page 8, line 300-303)

Recommendations . Please provide a cartoon (scheme) in addition to the CT scans to clearly explain the anastomosis.

In the section of ###Ascending to abdominal aortic bypass (ATAAB), this needs to be rewritten and a cartoon show the two limbs of the arterial perfusion for clarification
Re: Thank you. We have rewritten the section of ###Ascending to abdominal aortic bypass (ATAAB) (see Page 5, line 162-169). The cartoon have been added in the text (see Page 13, Figure 1).

Provide N algorithm of how the current practice of adult coarctation, simple ,
versus complex (PA or PD) and show the options so the reader can follow your thought and decision making.
Re: Thank you. As this is a preliminary study, the number of enrolled cases is limited, and the situations of patients are individualized and different, although we make a simple classification, it's also difficult to find out uniform standards to select surgery type. We hope that our different surgical methods can serve as a reference for cardiovascular surgeons combined with the actual situation of patients.

Reviewer B

The authors report their experience with 20 patients treated surgically for coarctation of the aorta complicated by aneurysm formation or dissection. This manuscript appears to be an extension of their experience having reported 10 cases in 2023 treated with extra-anatomic bypass. The results are satisfactory overall with all with no mortality and presumably few complications.
My major criticism concerns the use of ascending to abdominal aorta bypass or ascending aorta to femoral artery bypass for patients who require operations on the ascending aorta and/or the aortic valve. The authors do not adequately discuss the other options available to manage these conditions, i,e. two-stage procedures, or the complications reported in other publications associated with the single stage procedure. The authors indicate that imaging studies were performed at one year, but do not state if subsequent imaging studies were performed which would seem essential to document the long-term outcome of these procedures.
Re: Thank you. We have added discussion about two-stage procedures disadvantages in the section of discussion (see Page 8, line 296-299). The majority of patients resided in provinces outside Beijing and they required to return to our hospital for follow-up within one year. If no aortic-related events, subsequent follow-up would be conducted locally. The final follow-up of the study was primarily conducted via telephone. So it

is difficult to get the long-term CTA. This study represents our initial exploration of these rare diseases, but we will continue to monitor these patients, gather more cases, and strive to get CTA examinations at all stages as you suggest. We appreciate your valuable feedback.

Reviewer C

The aim of this study is to present more appropriate and personalized surgical techniques for adult patients with aortic coarctation, focusing on a specific population with post-stenotic dissection or aneurysm, which are rarely discussed in the literature.
Authors highlight the importance of multidisciplinary teamwork made by both cardiac surgeons and endovascular specialists in modern medicine.
They clearly illustrate their surgical strategies (ATFAB, BTFAB, or ATAAB); moreover, the use of VSD closure device or direct ligation to induce aortic thrombosis and eliminating the PA or PD. Furthermore, these patients show an increased risk of thrombotic embolisms and it would be highly useful to have additional details regarding postoperative and follow-up anticoagulant therapy (VKA, DOACS, DAPT).
Re: Initially, we were also worried about the potential risk of distal embolism due to thrombosis detachment. However, after follow-up, this did not occur. As mentioned, we addressed PA and PD by inducing aortic thrombosis, therefore at present anticoagulant therapy is not recommended to treat the particular thrombosis.

Another complication that could be associated with procedures involving tunneled devices in abdominal cavity (ATFAB, BTFAB) is infection. It could be interesting to know which prophylactic antibiotic therapy the authors used and which type of prostheses they used in such cases.
Re: The primary focus of this study is on surgical techniques. As there were no reported cases of graft infection, drug treatment was not discussed. Broad-spectrum antibiotics such as cefoperazone and sulbactam sodium are commonly used. We use dacron artificial blood vessel and have explained this as your suggestion. We have added some details into the section of discussion (see Page 4, line 157).

In TEVAR operation, when landing zone area is insufficient, authors perform axillary-axillary artery diversion. Please, they could describe in detail how this surgical technique is performed. Additionally, why a carotid-subclavian diversion is not considered to expand the proximal landing zone.
Re: Various methods can be employed to expand the landing zone, with carotid-subclavian diversion being among the options. The patients included in this study by

chance underwent axillary-axillary artery diversion. Thank you for bringing this to my attention. I have made the necessary adjustments to the relevant content in the original article (see Page 4, line 143-145; Page 7, line 263).

Few additional comments:
a. Line 27: authors mention “CP stent surgery” without defining this acronym before.
Re: Thank you. We have added the full name of “CP”.

b. Line 130 “midline thoracotomy” could be replaced with “median sternotomy”
Re: Thank you. We have replaced “midline thoracotomy” by “median sternotomy”.

In conclusion, this study combines the advantages of both surgical and endovascular procedures, emphasizing personalized decision-making strategy for CoA patients with PA or PD.
The article is potentially suitable for publication due to its appropriate use of English language, highly selected population and specific interesting topic.