

Peer Review File

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Comment 1: This reviewer thinks a section on current imaging modalities for the diagnosis and preoperative planning of access-associated central venous obstruction would be appropriate.

Reply 1: These topics could be the focus of another paper within this dedicated journal. Therefore, we did not include them in this paper.

Comment 2: Line 77: Reference #10 on the comparative outcomes of LLVA and AVG is quite outdated. Moreover, the study in question was not a comparative one although the authors did conclude that the secondary patency rate was equivalent to that previously reported in the literature for UE AVGs. It may be more appropriate, if possible, to reference a contemporary comparative study

Reply 2: No comparative studies were found. The sentence was reworded and the outdated reference was replaced by one that reported the patency rates of LLVA only.

Changes in the text: “With progression of CVD, the options for conventional UE VA may prematurely become exhausted, leading to catheter-dependence or the need for lower extremity vascular access (LEVA). LEVA has favorable primary and secondary patency rates (10,11), however it is associated with high infection rates of 18%-41% (12,13).”

Comment 3: Lines 106-111: The authors cited a meta-analysis which compared PTS and PTA. What is not clear to the reader is whether these studies compared the two treatment modalities as first-line therapy or not. As the authors correctly stated, PTS is often offered as a second-line therapy following inadequate PTA and therefore a simple comparison of both techniques without accounting for previous treatments may be biased. Authors should clarify.

Reply 3: The included studies (n = 8) in the cited meta-analysis compared PTA as first-line therapy with PTS was used either provisionally (i.e. following unsatisfactory PTA) or following re-stenosis/recurrence in a different setting. Agree and we’ve already mentioned that in the same paragraph.

Changes in the text: “A recent meta-analysis (22) that included eight comparative studies has compared these two modalities. This study showed that PTA was associated with better primary assisted patency rates compared to the PTS group at the 24 month follow-up only while primary patency rates were insignificant at 3, 6, 12 and 24 months. However, this simple comparison between the both techniques without accounting for previous treatments may be biased, since all included studies compared PTA as first-line therapy with PTS that was used either provisionally (i.e. following unsatisfactory

PTA) or following re-stenosis/recurrence in a different setting.”

Comment 4: Line 142: Access-associated thoracic outlet (not “output”) syndrome is indeed an under-appreciated cause of central venous stenosis.

Reply 4: Corrected!

Comment 5: Could the authors expound further on the management of this condition?

- Do authors recommend decompression surgery for all confirmed cases. If not, what factors should be taken into consideration for decision making?
- What should be the ideal treatment sequence? Same setting decompression and PTA/PTS or staged? If staged which should come first.
- In this reviewer’s view, same setting PTA/PTS may lead to vein rupture due to the fragility of the vessel after extensive venolysis. What is the authors’ practice?

Reply 5:

- Yes, we do recommend decompression surgery for all confirmed cases.
- The patients first receive a venogram followed by IVUS then undergo an angioplasty to relieve their symptoms (ie. swelling), subsequently on a different setting, the decompression is performed (ie. first rib resection either trans-axillary or infra-clavicular). Lastly, the patients undergo a non-provisional stent deployment in another different setting.
- Agree and this is why we do it in a staged fashion as mentioned in our previous answer.

Changes in the text: “In our practice, we perform a surgical decompression using a transaxillary or supraclavicular approach for all confirmed cases. The patients first receive a venogram followed by intravascular ultrasound then undergo an angioplasty to relieve their symptoms (ie. swelling), subsequently on a different setting, the decompression is performed. Lastly, the patients undergo a non-provisional stent deployment in another different setting.”

Comment 6: Concerning uncrossable CV occlusions, some authors have previously reported using an inside-out technique to place a tunneled dialysis catheter through the occluded segment and later configuring a HeRO graft from that access. Is this something the authors consider in their practice?

Reply 6: No, we have a very high success rate of central venous recanalization which is followed by endovascular treatment of the lesion during the surgical reconstruction of the conventional upper extremity vascular access (VA). That said, for the relatively small percentage of patients that are unable to be reconstructed centrally, we would prefer to place a short-term tunneled dialysis catheter till a reconstruction of reliable

and durable lower extremity permanent VA.

However, due to the variable availability of VA surgical skill sets within different VA creation teams, we advocate using the available appropriate treatment approaches/options based on the local providers' skills utilizing interdisciplinary and patient-centered team approach.

Comment 7: Line 229: Regarding open surgical techniques, what are the indications for considering them as a first-line therapy without doing endo first?

Reply 7: Given the high reliability and durability of endovascular reconstruction of the central venous system and compared to the inevitable morbidity of open surgical repair, we have not seen a role in pursuing open surgery in lieu of first-line endovascular therapy.