

Peer Review File

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Reviewer A

Thank you for your valuable feedback. Please see the responses to your comments below.

- Comment 1: In case 2 you say a PA pressure of 60/11, mean 16, and PCWP 28 mmHg. I believe the mean pressure there is incorrect.

Reply 1: The mean PA pressures were corrected.

Changes in the text: We have updated our text line 122-124 from “PA pressure of 60/11, mean 16” to “pulmonary artery pressure (PAP) of 61/32 mmHg with the mean of 45mmHg.”

- Comment 2: In figure 2 D the device used is Impella, not Impala

Reply 2: Word changed to Impella

Changes in the text: We have updated the text on Page 2 - figure 2 from Impala to Impella

- Comment 3: Discussion: CMRI is cardiac magnetic resonance imaging (not resonant). ". . .reference to the sinus of and an angle." Add Valsalva.

Reply 3: cMRI updated to resonance and Valsalva added.

Changes in the text: On line 157, text updated to “LMCA takeoff angle is measured in reference to the sinus of Valsalva and an angle of <60 degrees” and on line 148 text updated to “Cardiac magnetic resonance imaging (CMRI)”

Reviewer B

Thank you for your kind feedback. Please find my responses below:

Comment 1: Thank you for submitting these two interesting case reports on extrinsic compression of coronary arteries. For case 1: please justify the use of DES on SVG if the compression (chest tube) is removed, which should result in resolution of the stenosis.

Reply 1: Apologies for not including this information in the original text:

During coronary angiography, SVG graft was noted to have a thrombotic occlusion likely from the extrinsic compression of the chest tube. Given severe cardiogenic shock, decision was made to stent the lesion and immediately post-PCI patient's hemodynamics significantly improved. Additionally, the culprit drain was adjusted.

Changes in text: see lines 98-110. Details added to the case to provide further clarification and justification.

Comment 2: For case 2:

Why the patient present acutely as NSTEMI and cardiac arrest, when LM compression by pulmonary hypertension is usually chronic? Is there any case report on similar presentation?

Reply 2: pHTN from PAH is usually chronic however there are definitely published reports in the literature showing extrinsic compression of the LMCA by PAH leading to NSTEMI from demand ischemia.

Example: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7925067/>

https://journals.lww.com/ccmjournal/Fulltext/2022/01001/418_A_TALE_OF_TWO_ARTERIES_A_CASE_OF_NSTEMI_DUE.384.aspx

Changes in text: NONE

Comment 3: I doubt on the RHC findings, as the mean pulmonary pressure is only 16mmHg, which is not considered to have any pulmonary hypertension (please also provide the simultaneous systemic BP if there is). Also, it is not possible to have a higher PCWP (28mmHg) than the mean pulmonary pressure (16mmHg). Moreover, how can a mean PA pressure of 16mmHg cause obstruction to the LM artery, which has a much higher pressure? (the normal diastolic pressure of the aorta is much more than 16mmHg)

Reply 3: The mean PA pressures were corrected in text from 16mmHg to 45mmHg.

Changes in the text: We have updated our text line 122-124 from “PA pressure of 60/11, mean 16” to “pulmonary artery pressure (PAP) of 61/32 mmHg with the mean of 45mmHg.”

Reviewer C

This case series, entitled “Myocardial Ischemia in the Setting of Extrinsic Coronary Artery Compression: a case report”, is well-written and contains educational points. However, these cases had already reported in several literatures.

About Case 1

1. I agree that an IVUS image shown in the figure 2 suggested extrinsic compression of the venous graft. Were there any findings of thrombus formation? In cases with no thrombotic findings, I assumed that coronary flow due to extrinsic compression would be improved after removing the main cause of graft compression. Please describe IVUS or angiographical findings after removing the drainage tube, if possible.

Reply 1: Apologies for not including this information in the original text:

During coronary angiography, SVG graft was noted to have a thrombotic occlusion likely from the extrinsic compression of the chest tube. Post-PCI and drain adjusted,

TIMI III flow was noted with improvement in hemodynamics. No repeat IVUS was performed.

Changes in text: see lines 98-110. Details added to the case to provide further clarification.

2. Authors should describe the CK and CK-MB values post-CABG in the Case 1. Myocardial ischemia due to a drainage tube already occurred just after the CABG? If ischemic findings were not observed for two days after the CABG, authors need to describe why extrinsic compression of the graft occurred the post-operative day 2. The position of the JP (drainage) tube was unintentionally or intentionally migrated? Can authors compare the chest radiographs just after the operation and the day 2?

Reply 2: No CK or CK-MB post-CABG were obtained. Comparing the chest radiographs post-CABG and day 2 (prior to the arrest), there was no obvious change in the positioning of the drain. We hypothesize that some time prior to the cardiac arrest and VT storm, the drain might have unintentionally migrated leading to the myocardial ischemia.

Changes in text: NONE

3. The patient had any ischemic findings until he suffered from catastrophic arrhythmia? Damodaran et al. described the efficacy of intraoperative use of transesophageal echocardiography for early detecting myocardial ischemia. Please discuss it.
Ref: Damodaran S, et al. A rare case report of early myocardial ischemia after coronary artery bypass surgery due to mechanical compression of vein graft by pericardial drainage tube: Role of transesophageal echocardiography. *Ann Card Anaesth.* 2020;23:100-102.

Reply 3: After patient was weaned off cardiopulmonary bypass circuit, intra-op TEE was performed by anesthesia with excellent visualization of all walls with stable EF and no new wall motion abnormality.

Changes in text: Intra-op report added on lines 98-99.

About Case 2

4. Please add the information of peak CK or troponin values in the Case 2. How the authors diagnosed the patient as NSTEMI?

Reply 4: Peak troponin was 12.98 ng/mL. No CK level was obtained.

Changes in text: Peak troponin added line 114.

5. In cases with anatomical coronary artery compression, exertional angina symptom is

generally observed. I assumed that other causes (electrolyte disturbance and dehydration) in addition to LMCA stenosis might have led to sudden onset of VF in the patient, because the patient had history of liver cirrhosis. Please describe this point.

Reply 5: Before to this hospitalization, patient had not been our institution in the prior four years, therefore no reports of exertional angina were noted. On admission, labs significant for Mg of 1.2 mg/dL and K 3.5 mEq/L. No other electrolyte abnormality were noted.

Changes in text: electrolyte data as well as its contribution to VFIB added in lines 114-117

6. Page3, Line 16: Although the patient had a slight dilated pulmonary artery (32.2 mm), no finding of pulmonary hypertension was observed on right heart catheterization (mean PA was 16?? mmHg). While, the PCWP was high 28 mmHg. Was this correct value?

Reply 6: The mean PA pressures were corrected in text from 16mmHg to 45mmHg.

Changes in the text: We have updated our text line 122-124 from “PA pressure of 60/11, mean 16” to “pulmonary artery pressure (PAP) of 61/32 mmHg with the mean of 45mmHg.”

7. Please describe the LMCA take-off angle (even after stent implantation).

Reply 7: LMCA take-off angle was not measured therefore was not reported.

Changes in the text: NONE

1. Please re-check the sentence: Lines 114-115: “Right heart catheterization (RHC) revealed demonstrated a mean right atrial pressure of 12 mmHg”.

Reply 7-1: Grammar fixed.

Changes in the text: See line 122-123.

2. In the Figure 6, the patient’s name is not masked?

Reply 7-2: Apologies, PHI removed.

Changes in the text: See Figure 6.

3. There is difference of the case number between the “Abstract” and “manuscript”. The Case 1 in the “Abstract” is the case 2 in the “manuscript”? I think that the numbering in the Abstract and in the text should be consistent.

Reply 7-3: Abstract edited for consistency.

Changes in the text: See lines 60-62 for the edited text.

4. Page2, Line 31: AMI; The authors need to properly abbreviate terms that appear for the first time.

Reply 7-4: Abbreviations fixed.

Changes in the text: See lines 80-81.

Reviewer D

Thank you for submitting your manuscript to our Journal. The theme presented is very interesting and provides enormous room for a meaningful debate. On the other hand, the text still has room for improvement.

The manuscript lacks surgical illustration, if available a surgical image of the chest tube compressing the venous graft would be interesting. With such a colorful subject of discussion their presence might improve the text didactics.

Timeline - Despite being cited in the checklist I could not find the timeline on the manuscript. I suggest creating a timeline (either a figure or a table) with historical and current information from this episode of care to better illustrate the case management. Examples available at <https://bit.ly/3zZGTvP>

No ethical issues on this article. Informed consent wasn't offered to the patients due to the specific conditions of the cases and ethical board approval wasn't necessary.

Some references are over 10 years old, unless fundamental or classic papers they should be updated.

Furthermore, despite the efforts to follow the appropriate guidelines on Case Reports (eg, CARE statement) the text demands these adjustments to improve its quality.

Keep up the good work. This manuscript has great potential and adjusting these minor issues is a normal path in the review process for a good paper to be published.

Reply 1:

Thank you for your kind comments.

- No surgical images were obtained during the case. Chest drain compressing the venous graft was visualized during coronary angiography, and therefore that image was included under Figure 2-A
- Timelines for Case 1 and Case 2 added.

Changes in the text: See pages 12 and 13 for timelines for case 1 and 2.

Reviewer E

The authors have submitted a case report detailing 2 cases of extrinsic coronary compression. The cases are well described with good imaging and would be of interest to the scientific community.

Some minor amendments are suggested below:

Title: One of the cases involves a chest drain externally obstructing a vein graft. Therefore the title should remove the word 'artery'.

Reply 1: Title: word “artery” removed.

Changes in the text: See Title, see page 1 and 2

Introduction:

First 5-6 lines can be removed as they are too general.

Reply 2: we believe that the general introduction allows reader to have a brief background on the disease process before we start discussing the case.

Changes in the text: NONE

Case 1:

This is an interesting case. Why was a DES implanted if the drain was the cause of the compression? It would seem more appropriate to adjust the drain rather than consigning the patient to DAPT in the post-operative course (increasing the risk of bleeding). SVG PCI is also associated with increased in-hospital mortality and stent thrombosis in the future. The treatment rationale could be made clearer in the discussion.

Reply 3: Apologies for not including this information in the original text:

During coronary angiography, SVG graft was noted to have a thrombotic occlusion likely from the extrinsic compression of the chest tube. Given severe cardiogenic shock, decision was made to stent the lesion and immediately post-PCI patient's hemodynamics significantly improved. Additionally, the culprit drain was adjusted.

Changes in text: see lines 98-110. Details added to the case to provide further clarification and justification.

Case 2:

Excellent CT images. Ideally, would also include the post-stenting IVUS to demonstrate resolution of compression.

Reply 4: Post-stenting IVUS imaging were not available, therefore not included.

Changes in the text: NONE

Discussion:

- In general, the discussion is too long and could be more concise.
- For interventional operators, it is important to note that in some views, the LM compression can be missed if transecting the long axis of the narrowing. LAO cranial

view is important as it is more likely to transect the short axis of the slit (Akbal et al. European Heart Journal-Cardiovascular Imaging. 2018;19(11):1302–1308.)

- The importance of IVUS should also be emphasized as it aids diagnosis and guides stent size and length of deployment.

- 4th paragraph line 7: word valsalva is missing.

Reply 5: Discussion concised. Importance of IVUS is included in discussion of lines 152-154. Word Valsalva added.

Changes in the text: See lines 152-154, 157.