

# Muscle Sparing Technique for Open Descending Thoracic Aortic Aneurysm Repair

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# INTRODUCTION

- The muscle- sparing thoracotomy (**MST**) and Latissimus dorsi sparing thoracotomy (**LDST**) have been described and utilized as a viable alternative to the conventional posterolateral thoracotomy.
- Since the **1<sup>st</sup>** publication of the LDMF in the US, some publications, including isolated reports and small case series, have presented possible benefits of this technique.
- However, very few have described its application for repairing descending thoracic aortic aneurysms (**DTAA**).

# OBJECTIVE

The purpose of this presentation is to describe a unique case of a successful open repair of a **DTAA** using the ***latissimus dorsi-sparing technique***



# METHODS

- A 47- year- old female with a past medical history of Raynaud syndrome, hypertension, smoking, and hyperlipidemia was referred to our institution for a **5.2 cm DTAA**.
- The aneurysm was associated with **severe aortic stenosis** due to intraluminal calcific lesions.
- Because of the large **calcified mass**, the DTAA was not suitable for thoracic endovascular aneurysm repair (TEVAR). The decision was made to proceed with open aortic repair.



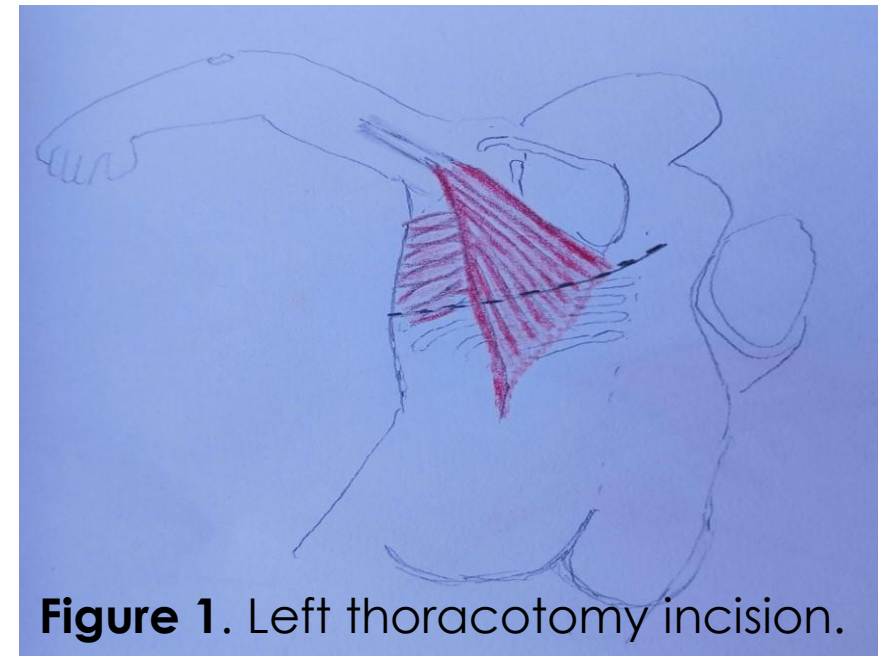
# RESULTS

- General anesthesia. A double lumen endotracheal tube was inserted.
- The patient was positioned in an oblique lateral decubitus.
- Left chest and abdomen prepped and draped.
- A catheter for cerebrospinal fluid (**CSF**) drainage was placed.

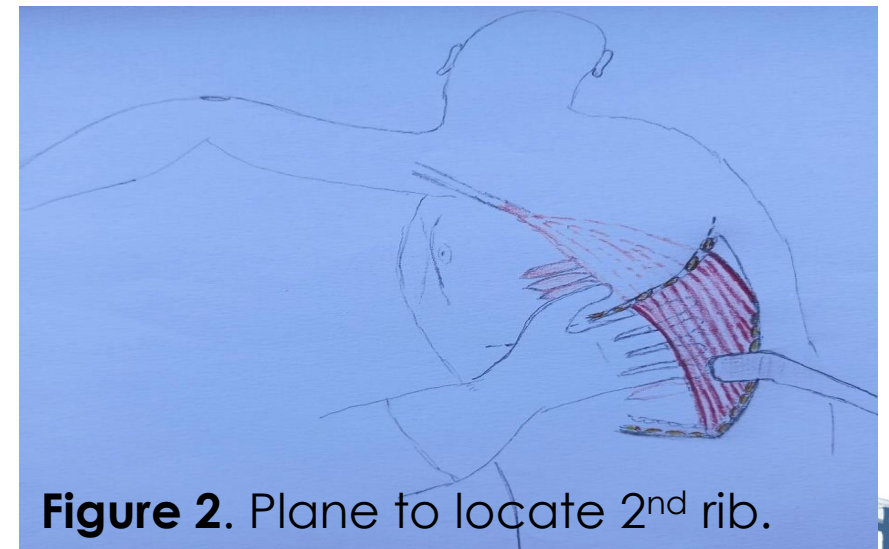


# RESULTS

- A seven-inch-long incision was made.
- The **subcutaneous flaps** were created. The auscultation triangle identified (Fig. 1).
- The **latissimus dorsi (LD) and trapezius** muscles were dissected and mobilized for retraction. The posterior border of the serratus anterior muscle was mobilized anteriorly.
- A **subscapular plane** is established. Locate the 2<sup>nd</sup> rib and count until the 6<sup>th</sup> intercostal space is identified.



**Figure 1.** Left thoracotomy incision.



**Figure 2.** Plane to locate 2<sup>nd</sup> rib.

# RESULTS

- Special attention and time was dedicated to the specific **setting of the surgical field**. We used 2 large Finochietto thoracic retractors, perpendicular to each other. (Fig. 3). Use 1 Finochietto- extra-large blades.
- Surgery performed on Left Heart Bypass (**LHB**).
- The proximal aorta: flexible atraumatic **flexible aortic clamp** (Fig. 4). The distal aorta was clamped using a flexible aortic clamp, which was inserted (5- mm skin access) through a 9<sup>th</sup> intercostal space (Fig. 4).
- A **28-mm woven Dacron** tube graft (Hemashield®) was used for replacement of the aneurysm.

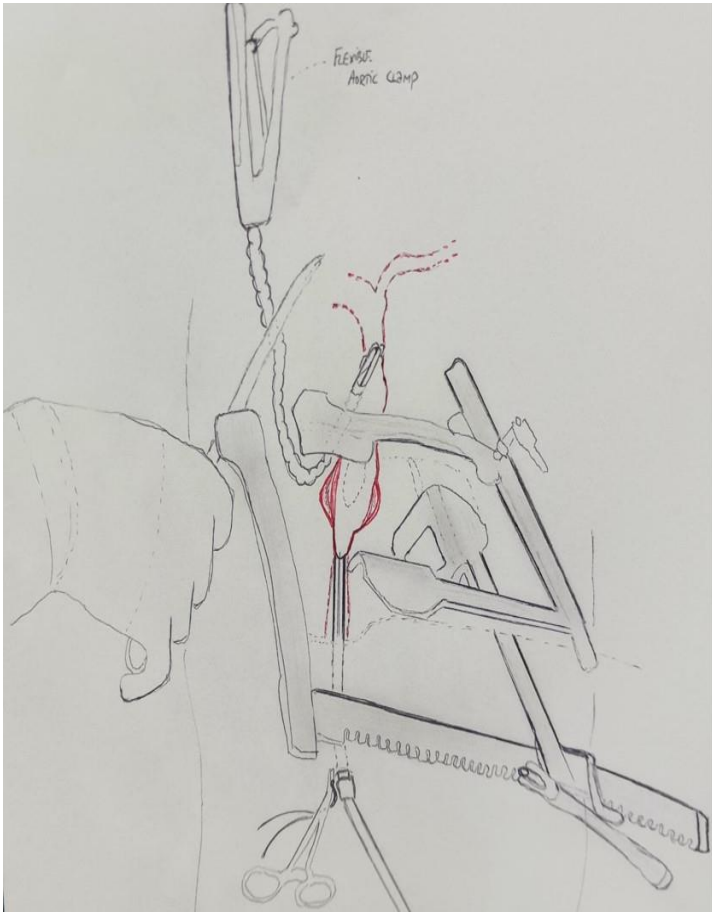




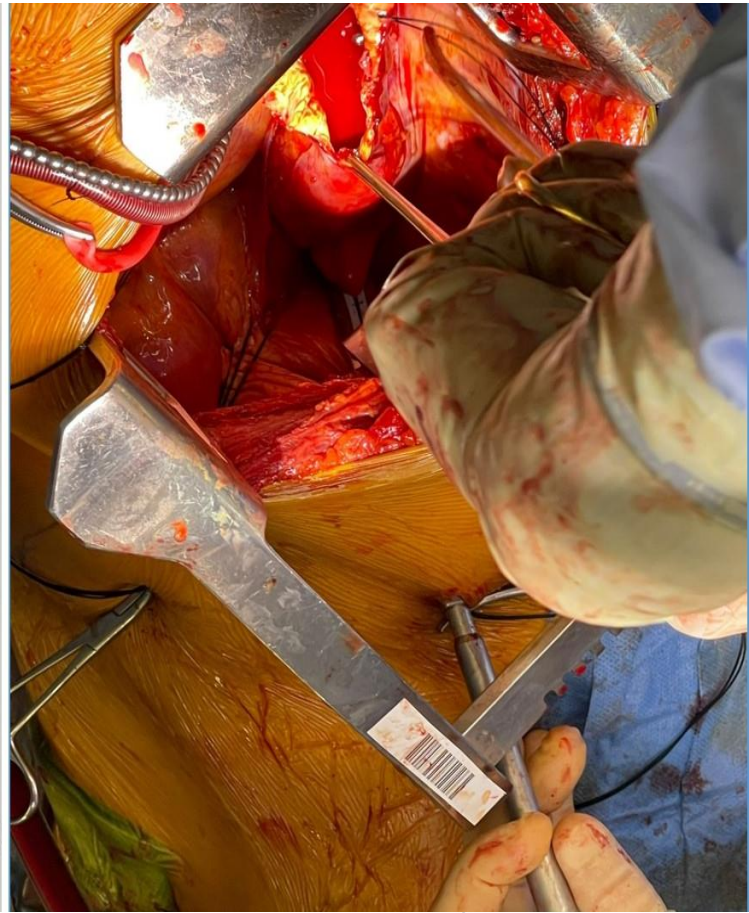
# RESULTS



**Figure 3.** Field setting. Aortic stenosis.



**Figure 4.** Diagram setting. Flexible aortic clamps.



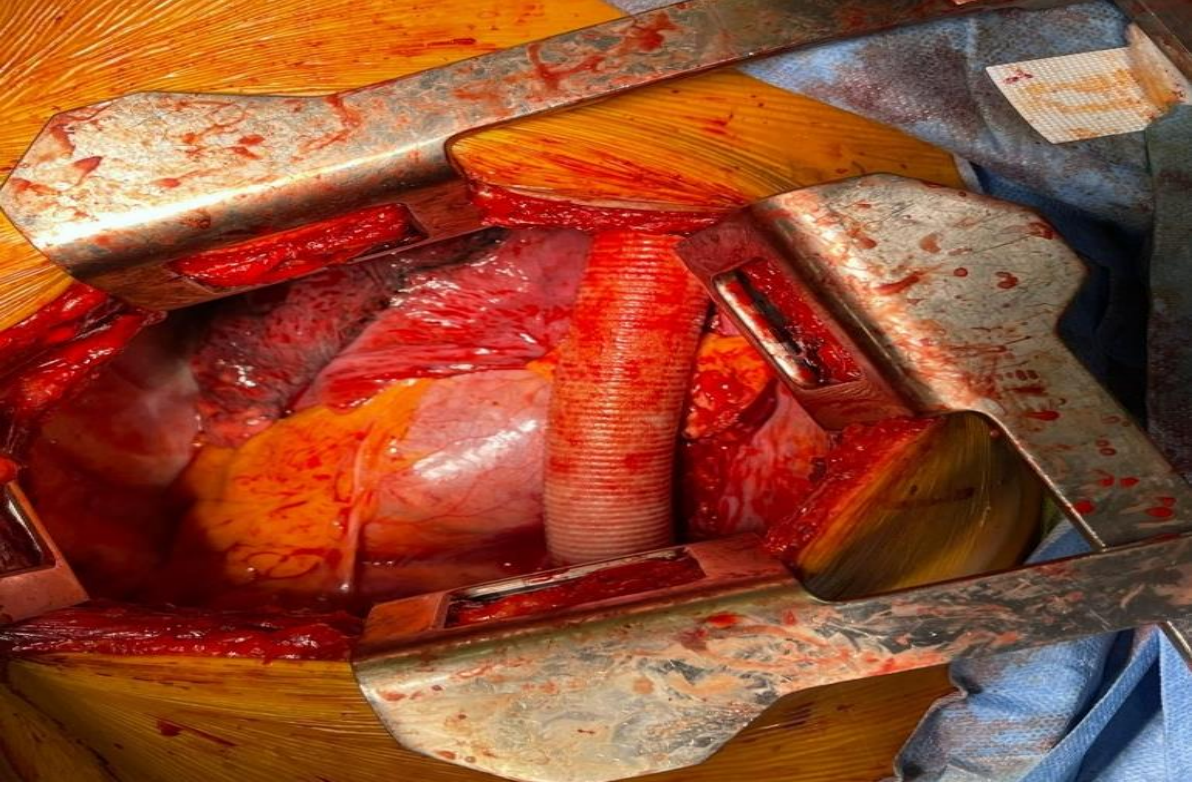


# RESULTS

- The remaining thoracic aorta was opened. The highly calcified mass was completely resected **“en bloc”** with the aortic wall (Fig. 5).
- The aortic graft cut to appropriate length. Distal anastomosis performed.
- Patient was discharged home on the **9<sup>th</sup> postoperative day**.
- There was no chronic thoracic pain or infection during follow-up.
- Pathology: severe intimal atherosclerosis with **nodular calcification** (Fig. 5).



# RESULTS



**Figure 5.** Severe aortic calcification.

**Figure 6.** Interposition 28-mm aortic graft

# DISCUSSION

- There have been ***fewer than 10 reports*** in the English literature that delve into the description of the LD muscle-sparing technique in adults for thoracic or thoracoabdominal aortic aneurysms (TAA).



# DISCUSSION

- **Possible benefits** of MST:
  - Reducing postoperative pain.
  - Decreasing respiratory complications.
  - Preserving a better postoperative lung function.
  - Improving shoulder movement performance.

# CONCLUSIONS

***The latissimus dorsi muscle-sparing*** thoracotomy is a feasible option for open DTAA repair. Possessing knowledge of the details required to perform this skill is of great value.

