

Emergent Thoracic Endovascular Aortic Repair in Patient With Flying Elephant Trunk After Ascending and Total Arch Replacement

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Disclosure

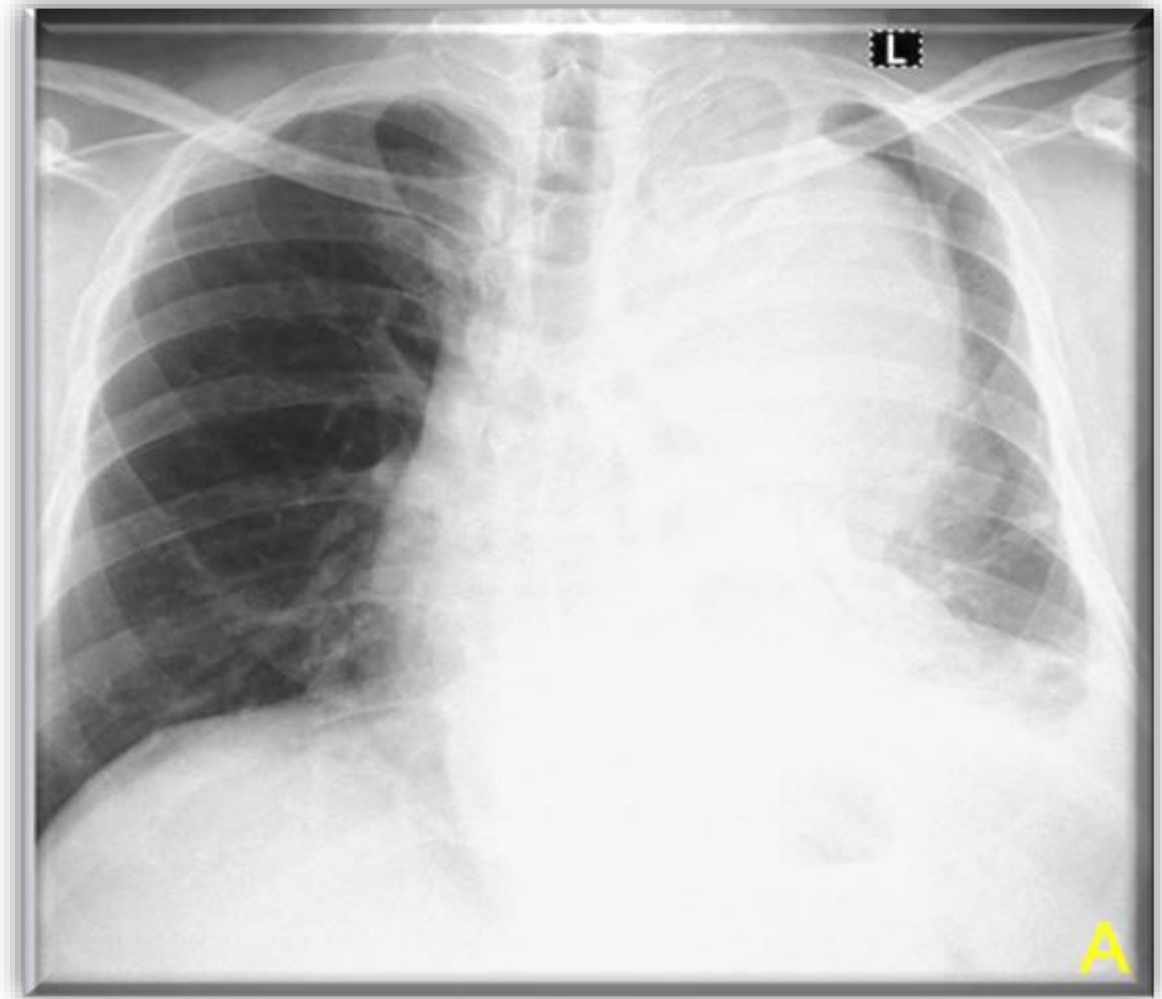
- Nothing to disclose

Case Illustration

- Male, 52 years old came with chief complain of chest pain. The pain characteristics appears suddenly at rest, with high intensity (VAS 9/10) and tearing sensation. Patients had previous risk factor of hypertension with uncontrolled blood pressure and heavy smoking.
- Physical examination showed that patient is fully alert, with blood pressure of 132/89 mmHg, respiratory rate 22 times a minute and peripheral saturation of 97% in room air.
- Blood examination during admission showed Hb of 10.1 g/dL and D-dimer of 5227 ng/ml.
- Echocardiography showed ejection fraction of 69% with trace aortic regurgitation and intimal flap in ascending aorta.

Case Illustration

- Chest X-Ray showed enlarged mediastinum



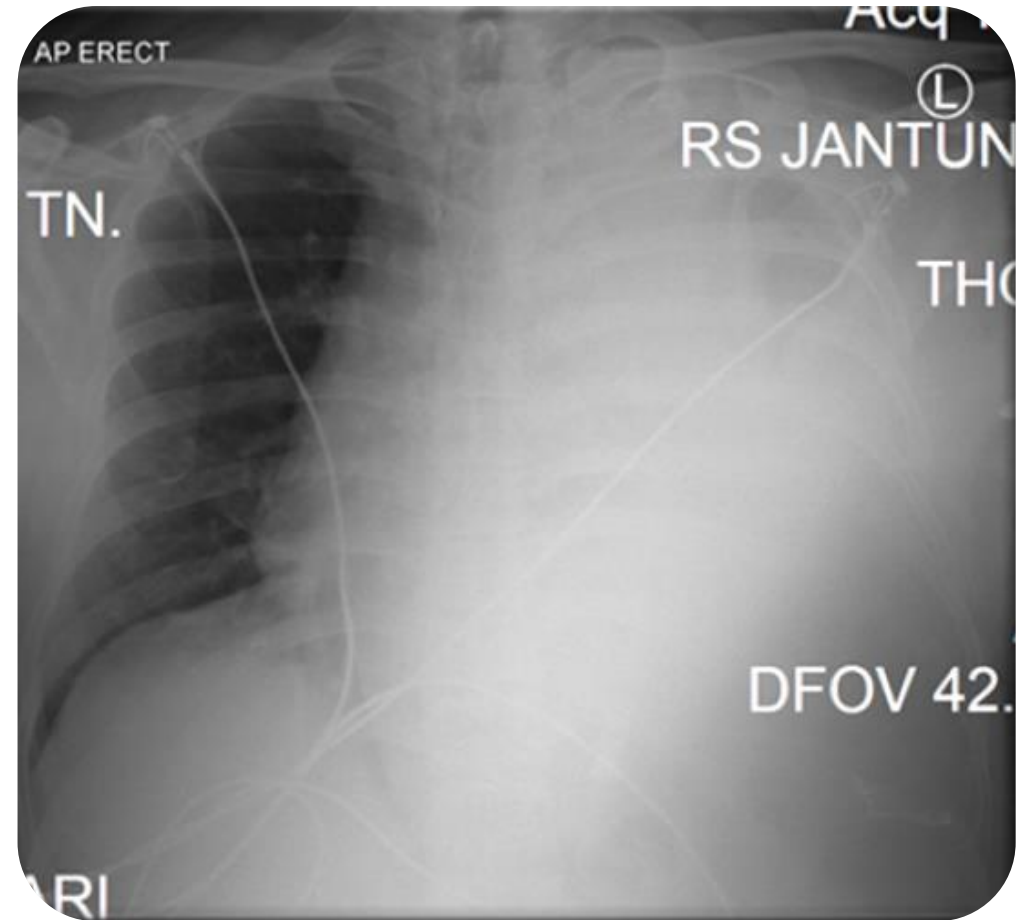
CT Angiography



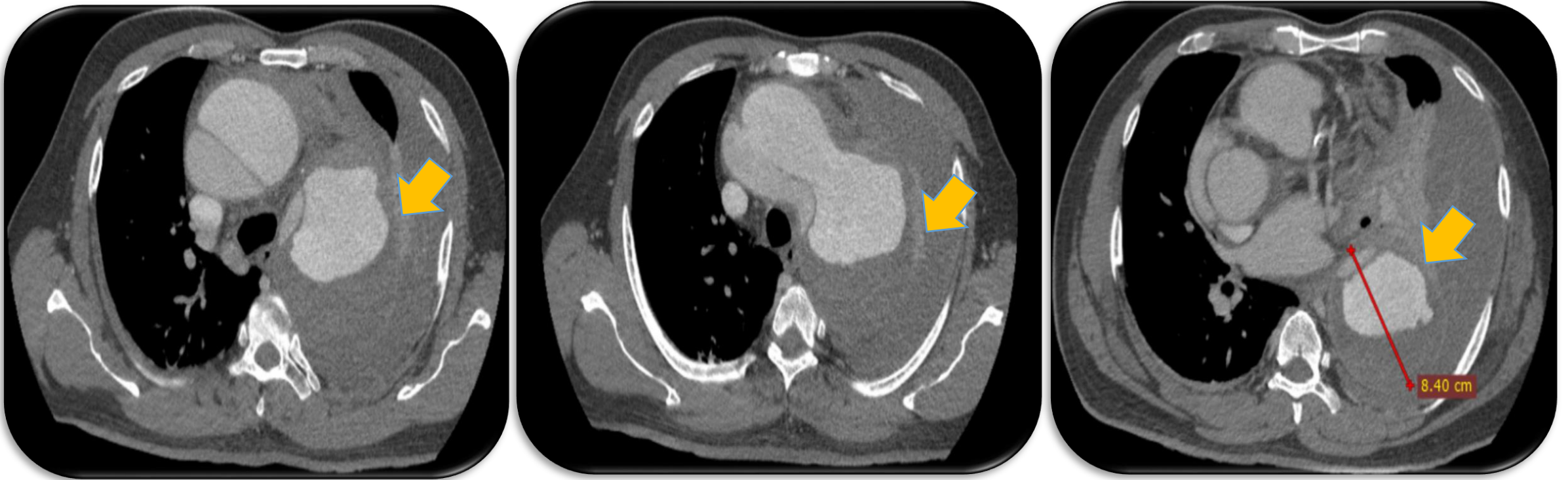
Stanford type A aortic dissection DeBakey 1 in ascending and descending aorta extending into abdominal aorta, with visualized intimal flap between the proximal brachiocephalic artery and abdominal aorta, forming double-lumen appearance, with intramural hematoma.

Case Illustration

- In ICVCU, There's worsening clinical condition of this patient as patient have increased breathing (RR: 40x/minute). Patient experienced acute respiratory distress and finally intubated.
- Chest X-ray evaluation showed worsening condition.



CT Angiography



Stanford Type A Aortic Dissection – DeBakey 1 with **contained rupture of descending aorta**

Guideline

Stanford A

- Urgent surgery (IB)
- If complicated with organ malperfusion → hybrid (IIaB)
- “endovascular therapy alone has been attempted in highly selected cases but has not yet been validated”



TEVAR indications are very limited for type A AD and IMH:

- Retrograde DeBakey type III AD
- Residual AD or IMH with complications after surgery



Stanford B

- Uncomplicated: medical therapy (IC), TEVAR (IIaB)
- Complicated: TEVAR (IC), surgery (IIbC)

Table 1 Anatomical requirements for ascending aortic TEVAR

Proximal and distal landing zones

Length >10 mm

Diameter >16 and <42 mm

No significant difference between proximal and distal landing zone (<10%)

Absence of calcification or thrombotic material

Aortic dissection

Intimal tear >10 mm above the sinotubular junction

Intimal tear >5 mm proximal to the innominate artery

No aortic regurgitation

Access vessels

Diameter of the common and external iliac artery >7 mm

TEVAR, thoracic endovascular aortic repair.

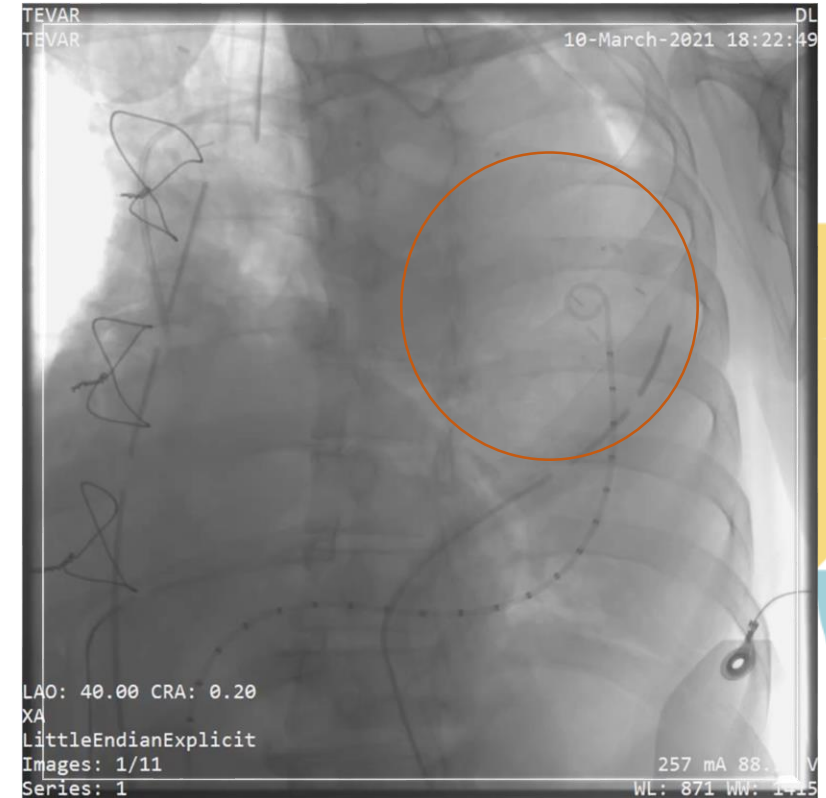
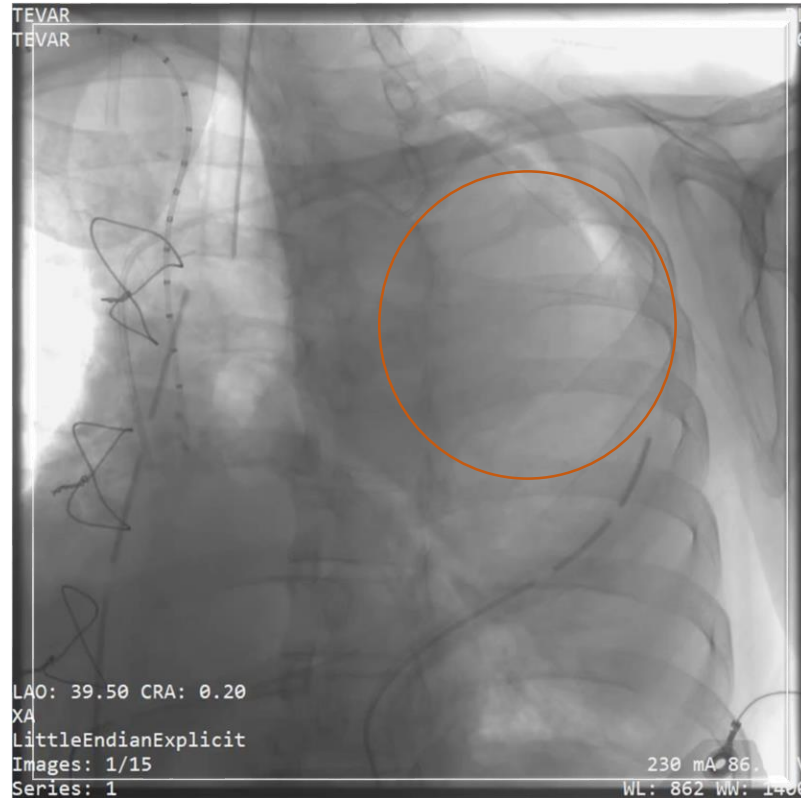
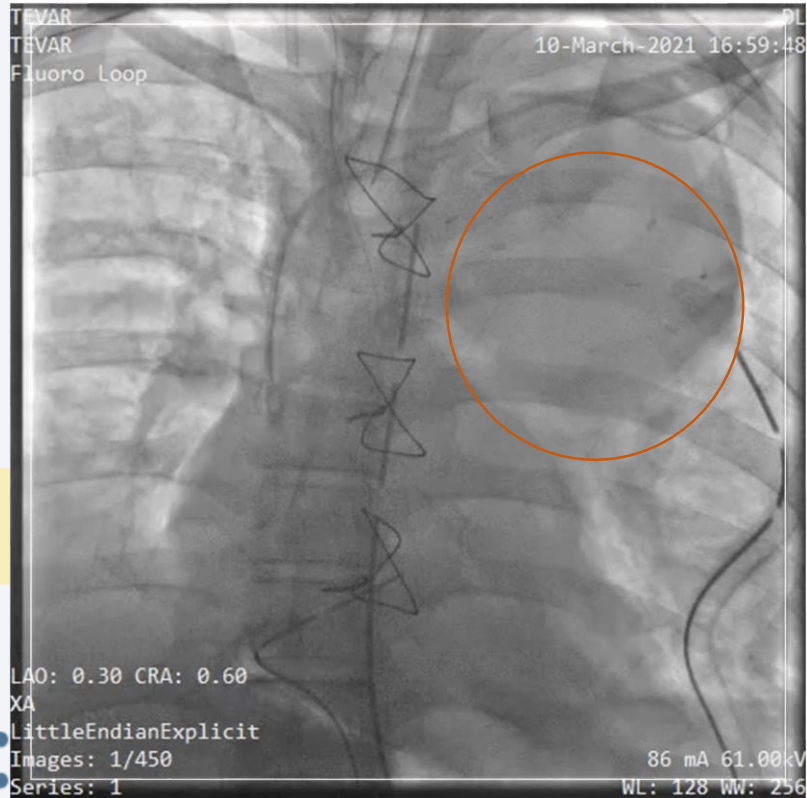
Emergent Ascending Aortic and Total Arch Replacement Procedure with Flying Elephant Trunk



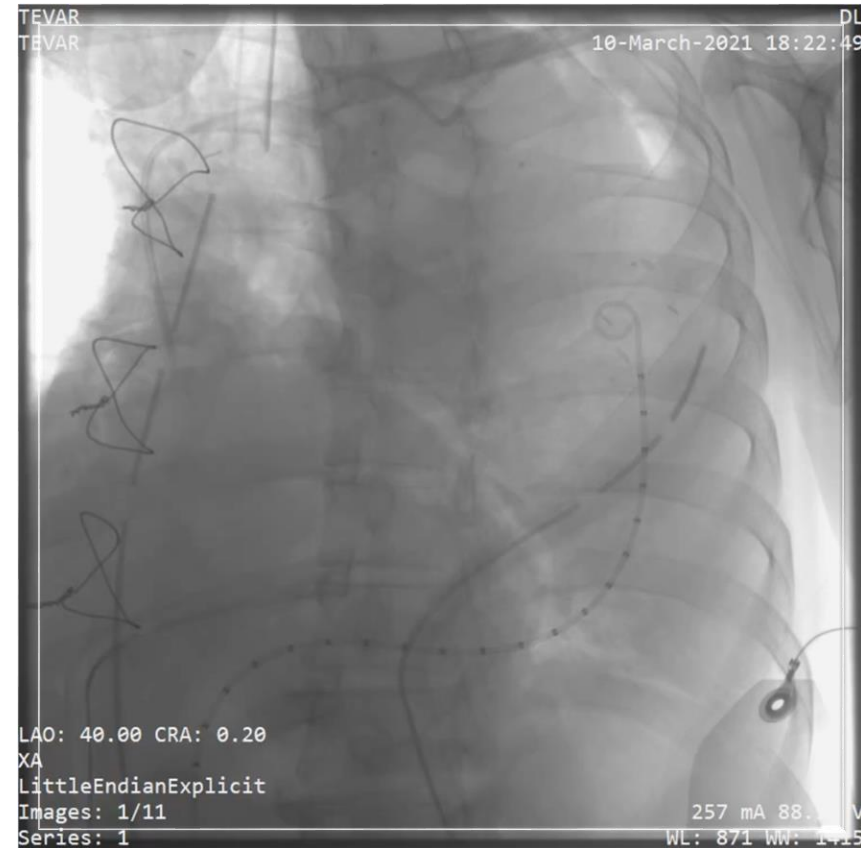
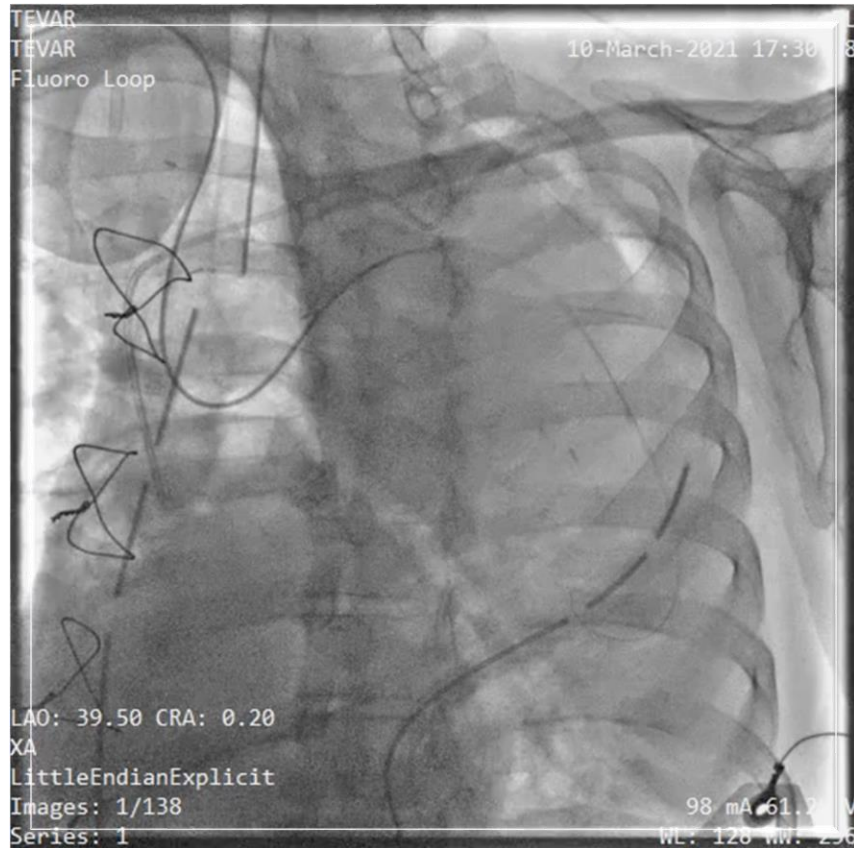
Thoracic Endovascular Aortic Repair

Semi Hybrid Open Surgical Repair

Mobile Elephant Trunk and Ruptured Area of Descending Aorta

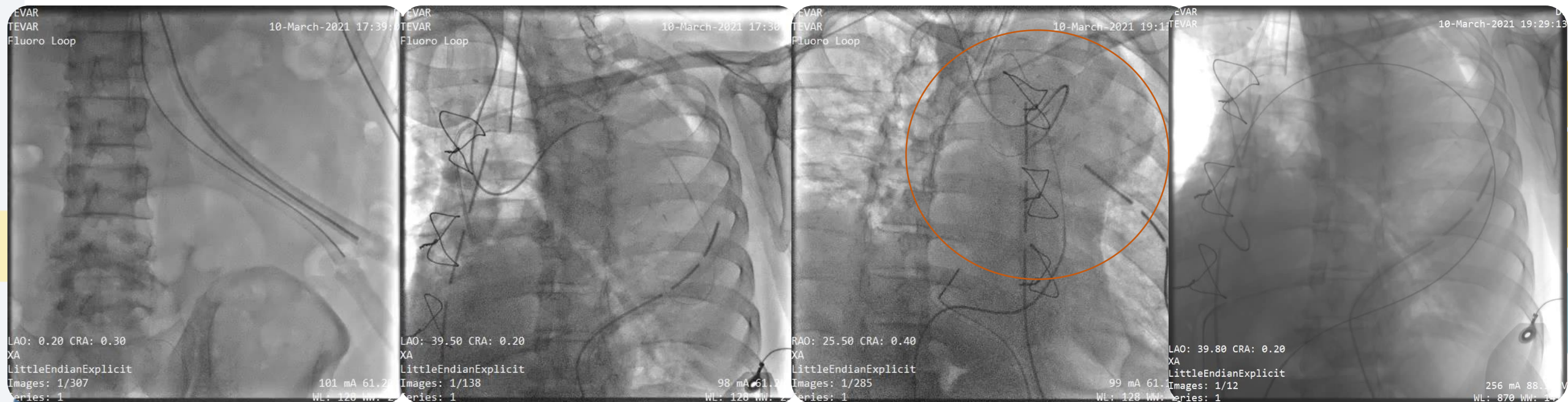


Endovascular Aortic Repair in Conventional “Flying” Elephant Trunk: Proximal Wire Cannulation Passed Conventional Elephant Trunk



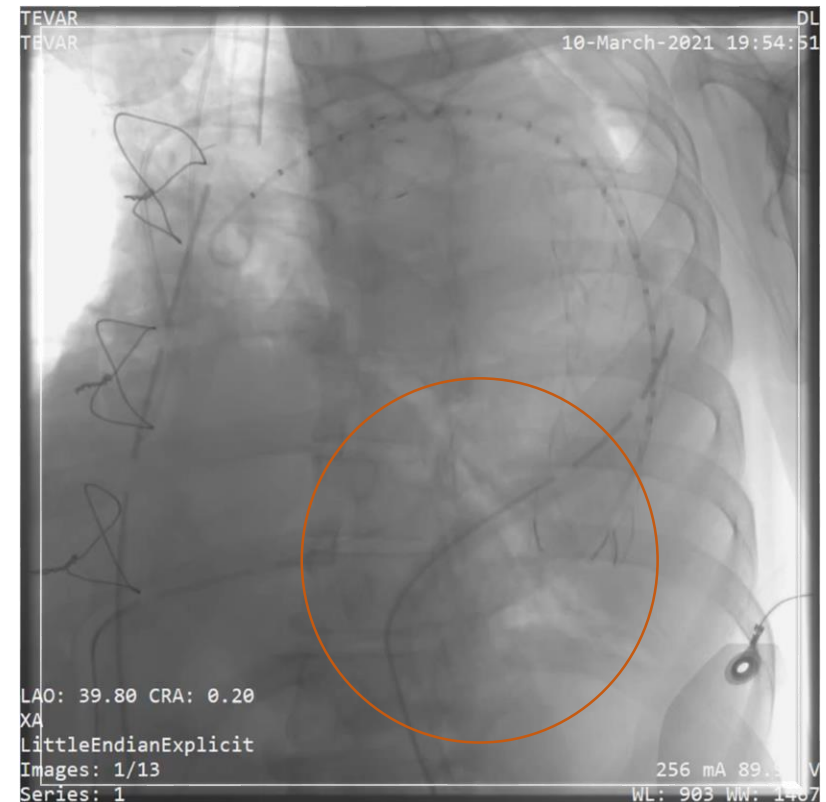
Attempt on proximal wire cannulation in conventional elephant trunk, failed because it entered the false lumen

Endovascular Aortic Repair in Conventional “Flying” Elephant Trunk: Distal Wire Cannulation to Conventional Elephant Trunk and Fixation Elephant Trunk by Wire and Catheter



Successful attempt on distal wire cannulation in ‘flying’ conventional elephant trunk with aortography evaluation

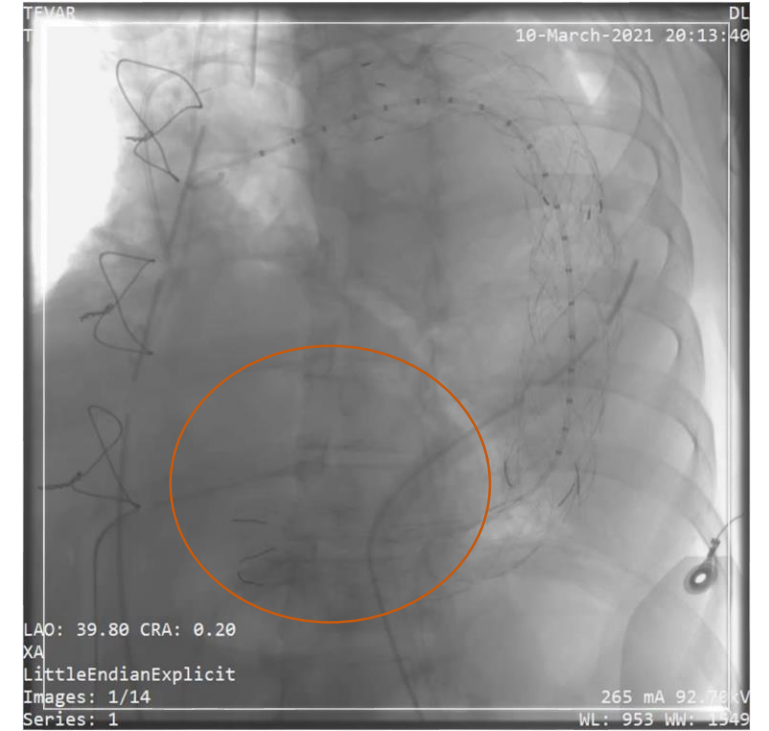
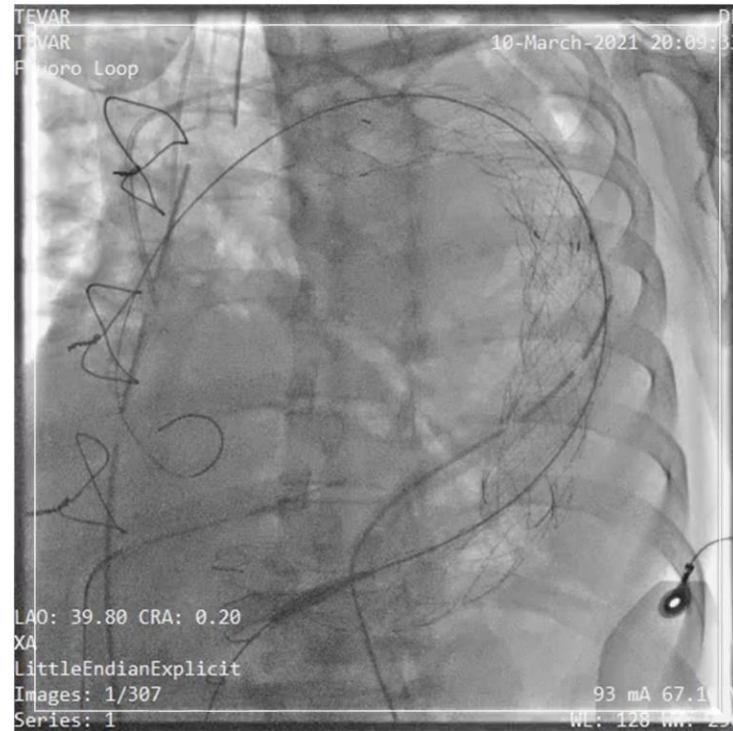
Endovascular Aortic Repair in Conventional “Flying” Elephant Trunk: Successful Deployment of Aortic Stent Graft and Retrieval of Olive Tip



But, Endoleak type 1B can be seen from aortography

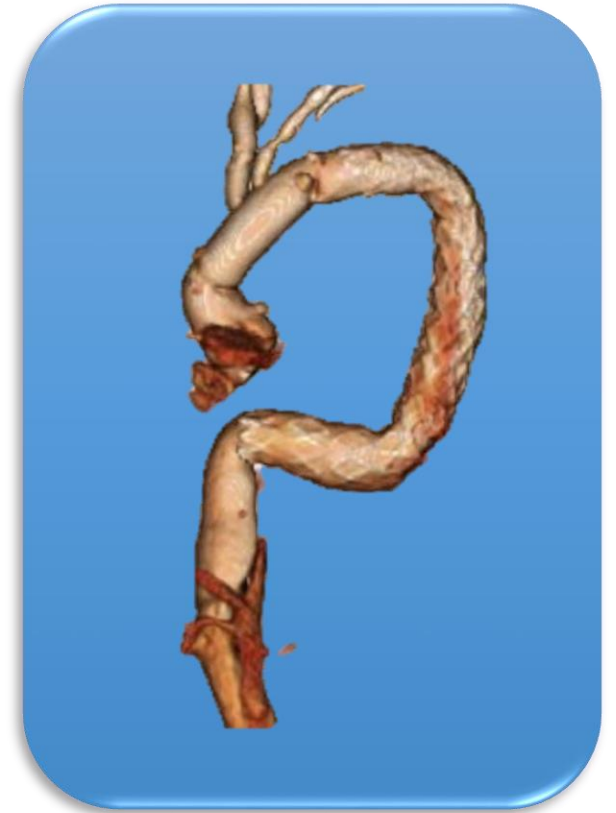
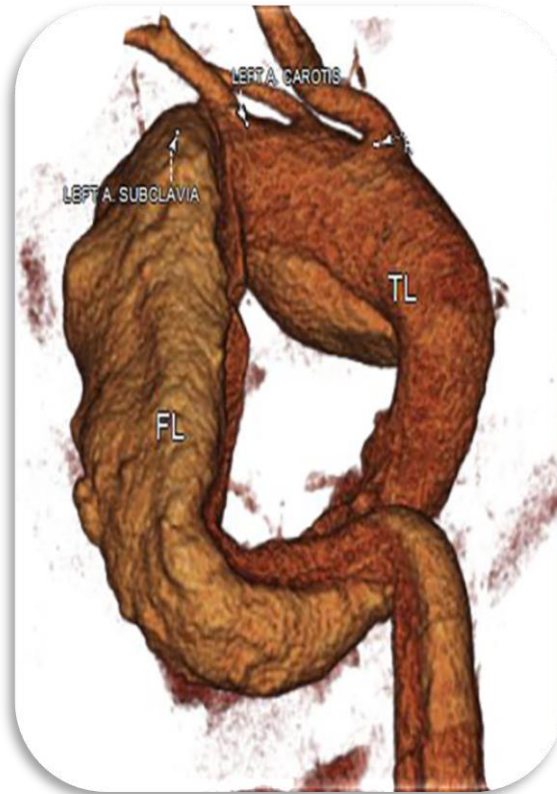
Endovascular Aortic Repair in Conventional “Flying” Elephant Trunk:

Successful Deployment of Second Stent Graft Overlapping With the First Stent Graft and Retrieval of Olive Tip



Successful TEVAR with Two Stent Graft Overlapping in ‘flying’ elephant trunk
without endoleak

Successful Semi-Hybrid Open Surgical Repair With TEVAR



Emergent Ascending and Total Arch Repair with Conventional Elephant Trunk 'flying' TEVAR

Conclusion / Take-home Message

- Frozen elephant trunk is the main choice in this case but its unavailability makes the conventional elephant trunk an option even though it is very challenging to do its TEVAR due to by flying elephant trunk