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Management Of Type I Endoleak 
(Post TEVAR & Chimney) 
For Crawford type IV Thoraco-abdominal Aortic Aneurysm

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Disclosure

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I do not have any potential conflict of interest
Case Presentation

• 75 years old male patient.
• Hypertensive, DM, with abdominal pain.
• US showed AAA.
• CT angio showed thoraco-abdominal AA Crawford type IV, 5.5 cm and the Celiac artery is originated from the sac of the aneurysm.
• Unfit for the open surgical repair.
• Prepared for endovascular repair: TEVAR with Celiac artery chimney stent-graft.
Endoleake Type 1
• We thought that the endoleak is type I b, so we did another chimney to the SMA, and another extension distally beyond the SMA, then an angio still showing endoleak.
Pre SMA chimney & 2nd TEVAR
Post SMA chimney & 2nd TEVAR
• The procedure holded.

• Patient and family informed.

• Follow up with CTA.
CTA 1 M (6.4 cm)
Chimney Plug & Coiling the sac
Angiogram
Coiling The Sac
Plug in Celiac Chimney
Post coiling MRA (6m)
TEVAR with type I Endoleak
Closure of the celiac chimney
Types of Endoleak

Classification of endoleak

- Type Ia: Proximal fixation site
- Type Ib: Distal fixation site
- Type Ic: Iliac occluder
- Type IIa: Inferior mesenteric artery
- Type IIb: Lumbar artery
- Type IIIa: Disjunction
- Type IIIb: Fabric tear
- Type IV: Fabric porosity
Conclusion

• **Revascularization of the visceral aortic branches** during TEVAR & EVAR is recommended specially with diseased arteries and unsure anastomosis.
• **Visceral anastomosis** should be confirmed before the endovascular repair and during the procedure.
• **Distal landing zone** of the chimney stent should be more distal to avoid the endoleak and the difficult re-entry of the visceral branch, with necessity covering that branch.
• **New name:** *Type I Chimney endoleak* can be included in causes of endoleak.
Participants

- Reda Jamjoom, MD, Head of Vascular Surgery,
- Elsayed Younes, MD acting consultant Vascular surgeon,
- Usama Loutfi, MD, vascular consultant,
- Hosam Shoaib MD, Specialist in vascular surgery,
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Background

• Traditionally, type IV TAAAs have been treated with open surgery.

• The introduction and evolution of endovascular aneurysm repair allows options expanding.

• Hybrid technique: using endovascular therapy in combination with open surgery have been developed to repair these complex aneurysms.

• More advances is the total endovascular repair with branched or fenestrated TEVAR.

March 2012, Type IV Thoracoabdominal Aneurysms: What’s Next? By Nikolaos Tsilimparis, MD, and Joseph J. Ricotta II, MD, MS
• There is a large difference in complexity of repair between juxtarenal aneurysms and TAAAs.

• Parallel graft repair of a type IV TAAA may require placement of covered stents into all four visceral vessels.

• The endoleaks and the durability associated with these parallel graft of the branches, remains unsolved.

• The mid and long term outcomes are unknown.

March 2012, Type IV Thoracoabdominal Aneurysms: What's Next? By Nikolaos Tsilimparis, MD, and Joseph J. Ricotta II, MD, MS
• Fenestrated and branched technology has shown favorable results.

• Despite of promising results, these inventions are costly and time consuming for tailoring to each patient.

• Their routine use till now is impossible.
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