**Introduction**

TAG are used to successfully treat aortic aneurysm, aortic dissection, and traumatic aortic injuries

When medical management of patients with aortic pathology is unsuccessful, thoracic surgeon and interventional radiologist are asked to perform an EVAR.
**Technique**

**Turtlehead Meaning??**

Novel technique for treating nearly impossible short landing zone necks that utilizes carefully overlapped grafts.

**Grafts deployed distal to proximal while increasing the amount of overlap for rigidity until the final graft is precisely deployed reducing the possibility of movement.**

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**Case 1**

**HPI:** 68 year old asymptomatic male presenting with increasing aortic arch aneurysm now measuring 5.5 cm.

**PMH** significant for mechanical AVR and ascending aneurysm repair in 2004.

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**Case (extreme angulation)**

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**Case (extreme angulation)**

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Case (extreme angulation)

Technique

Glass model showing the thoracic and abdominal aorta (thoracic aneurysm and an infra-renal abdominal aortic aneurysm)
Technique #1

Technique #2

Technique #1

Technique #2

Follow-up

75 year old female presents with back pain

Companion Case (no PTA)
Mortality of the endovascular stent grafting of an unruptured thoracic aortic aneurysm is 5.2% compared to 12% with open surgical repair.
Overall, including complication rates and post-treatment re-intervention rates, endovascular stent grafting of aortic repair is cost-effective in comparison to the open repair.

This technique decreases the chances of encountering the negative sequelae of the bird-beaking due to precise deployment with good apposition to the lesser curvature of the aortic arch.

The endovascular aortic stent grafting with a single graft was not feasible in our cases due to concern of migration and the possible complication of bird-beaking which can lead to invagination and a disastrous outcome. Therefore, turtle heading technique was utilized for rigidity and precision.
Due to the rigidity of this endograft construction, the chances of migration are reduced. Although placing multiple grafts for TAA repair increases overall costs of the procedure, the potential long-term benefit of less complications and compounding costs from complications and re-interventions is advantageous.


With type 3 aortic arch anatomy the endovascular graft repair is complicated by bird-beak phenomena. In this situation, the proximal portion of the graft does not sit flush with the lesser curvature of the aortic arch. Due to high pressure blood flow from the ascending aorta, over time this will lead to invagination of the proximal portion, narrowing of the lumen, and migration of the graft.
**Discussion**

The future is coming

**Discussion**

C-TAG with Active control

**Conclusion**

The “turtle head” technique utilizes commercially available stents deployed in an “on label” fashion to create a rigid yet conformable endograft that can precisely treat difficult proximal landing zone necks.

Hey, it looks like this one had a tube graft placed the conventional way...
Hey, it looks like this one had a tube graft placed the conventional way…

That's too bad…

Perhaps if they would have used the bottle head technique, he would still be around today.