



**Anatomical Decision:
Suprarenal vs. Infrarenal
Devices**

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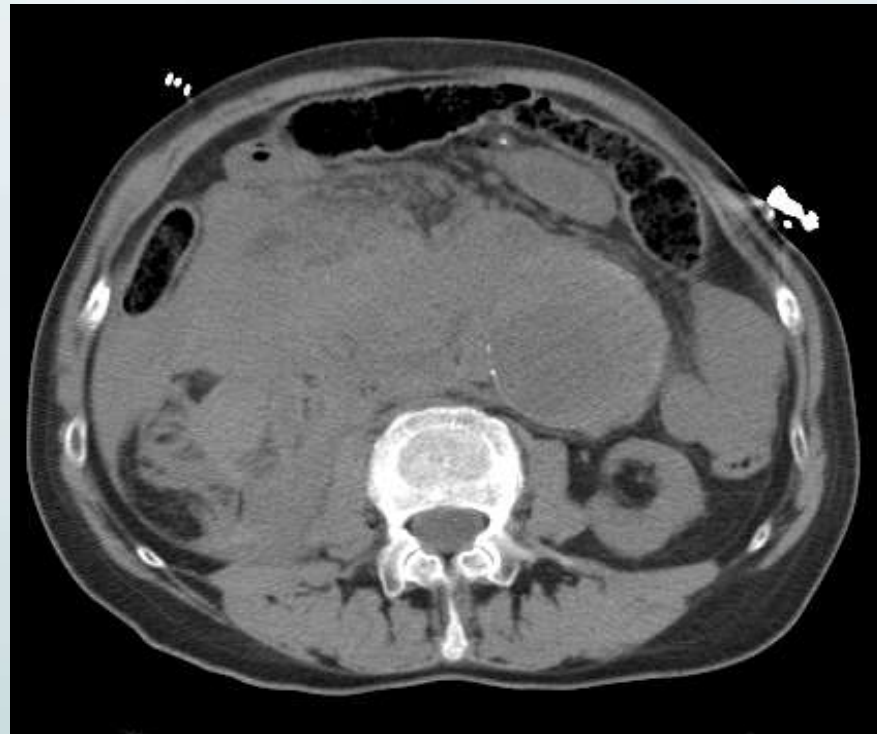


What We Are Trying to Prevent



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- Device migration
- Type I endoleak
- Late aneurysm rupture



The Ideal Anatomy

- 88 year old male
- 6.5 cm AAA
- History of COPD and pacemaker
- High surgical risk

Suprarenal fixation not required!





Challenging Anatomy

What is the optimal device for this angulated infrarenal neck?



Short Infrarenal Neck

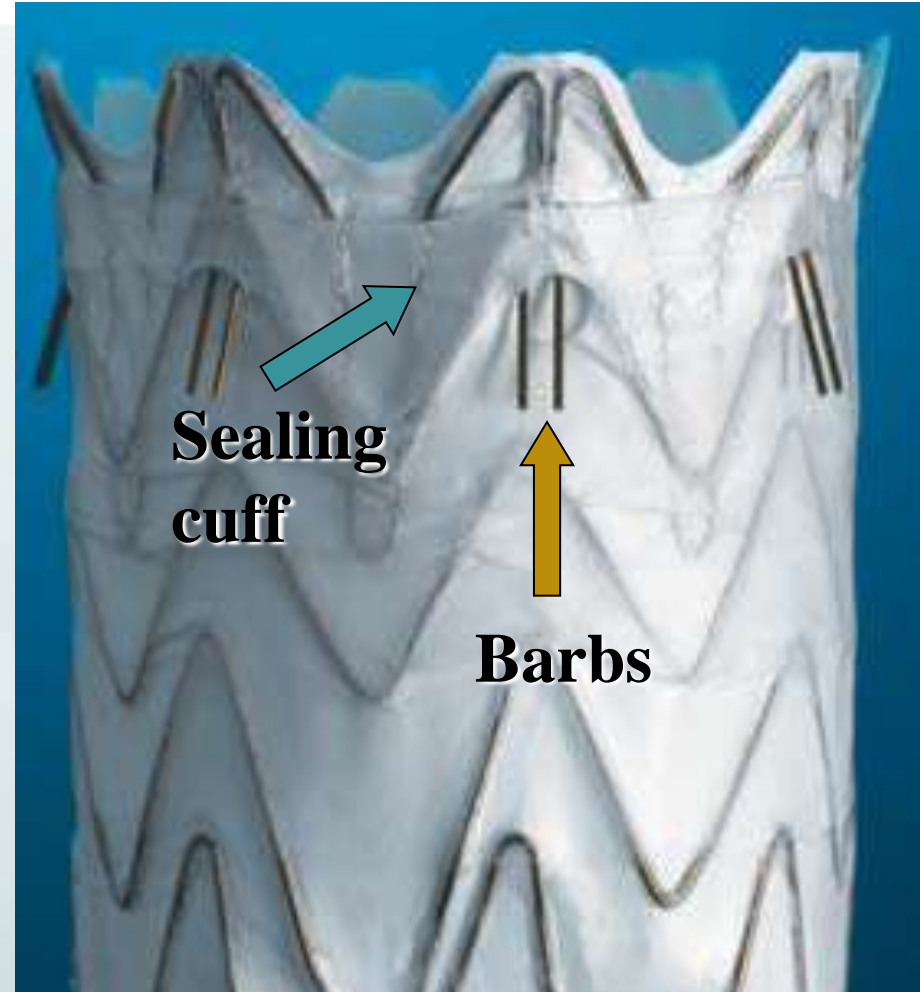
FDA-approved Devices



- AnCure: '99 – '03
 - Removed from the market
 - Perioperative complications
- AneuRx: '99
- Excluder: '02
- Zenith: '03
- Powerlink: '04
- Talent: '08
- Ovation: '12
- Zenith Fenestrated; '12
- Aorfix: '13



Infrarenal: Gore Excluder AAA Device

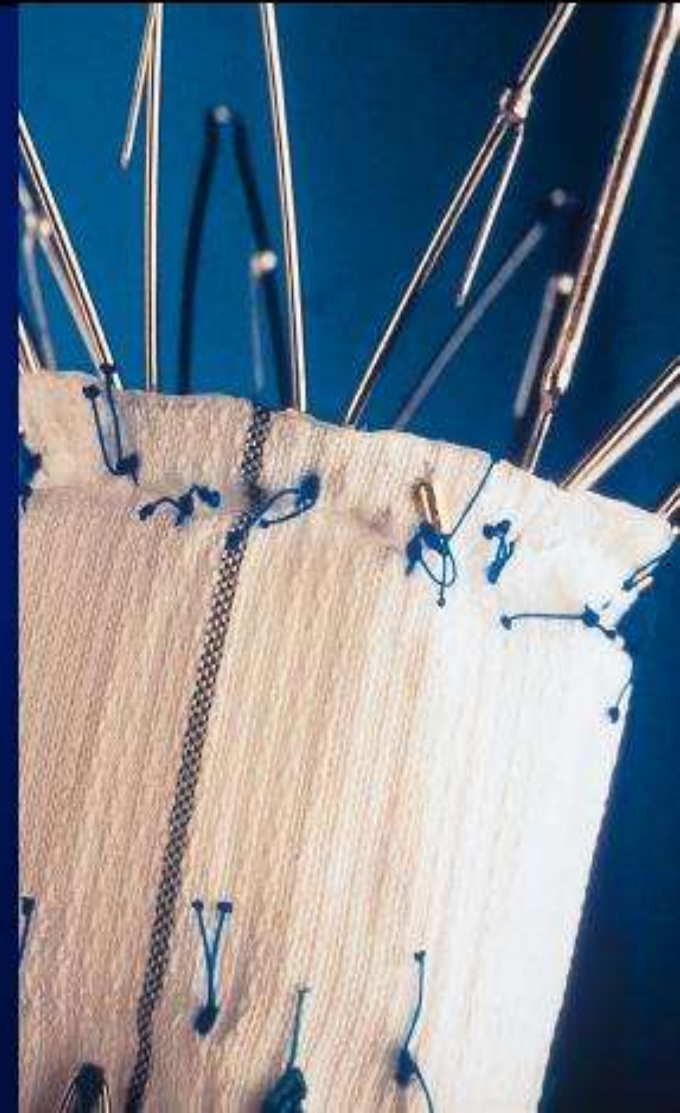
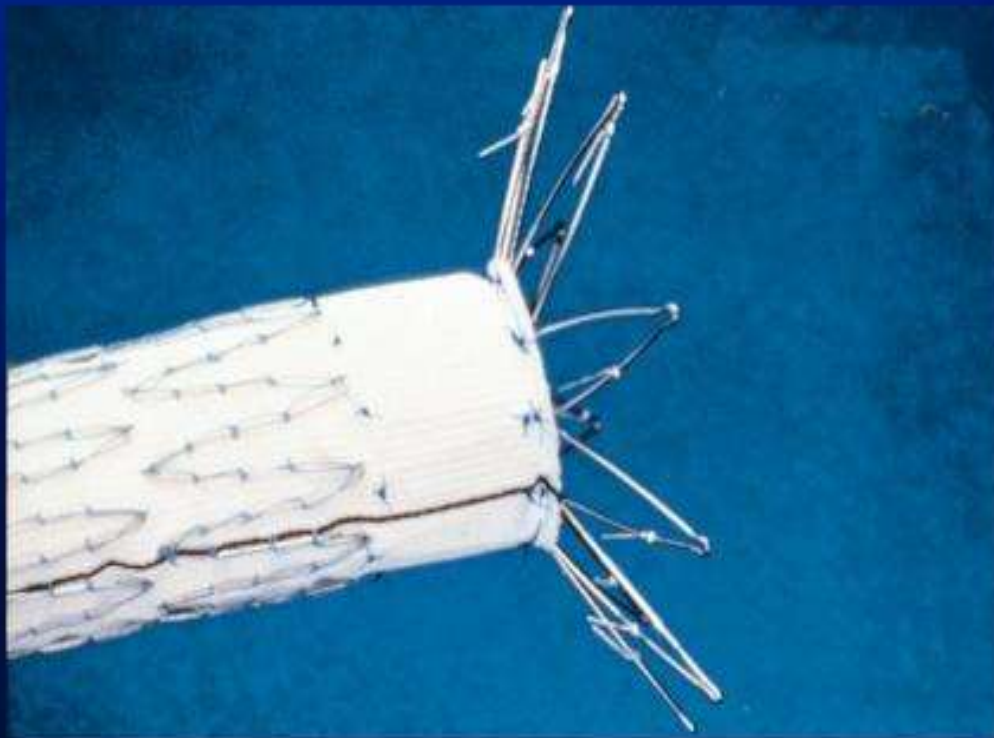


Infrarenal: (ENDOLOGIX)

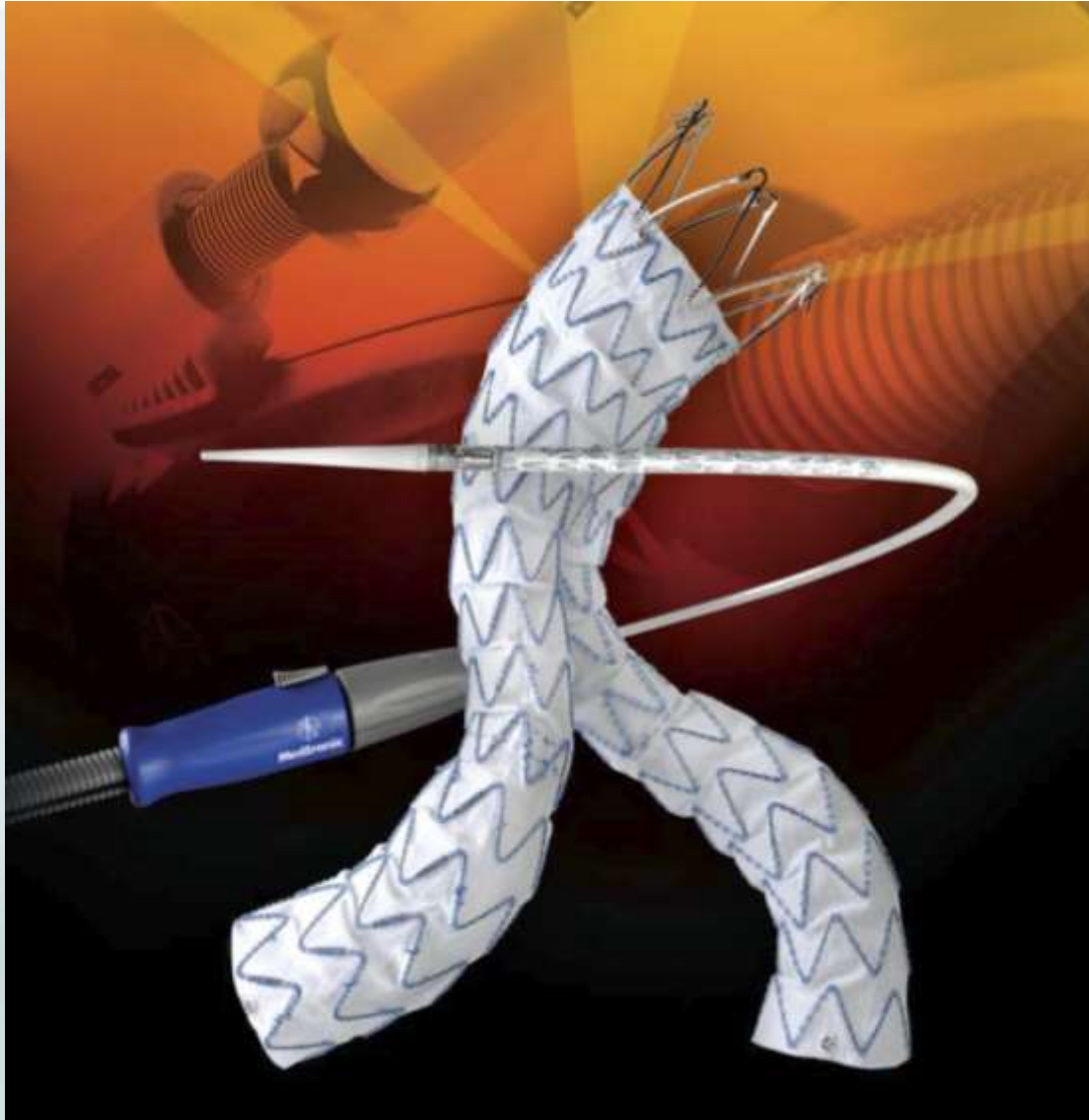
- Bifurcated unibody system.
- Single wire Cobalt chromium stent.
- ePTFE covered, sutured only at the ends.
- Buttress against the aortic bifurcation
- Aortic extender with suprarenal fixation available



Zenith Stent Graft - retention hooks



Endurant Stent Graft



Ovation Prime Stent Graft

Suprarenal nitinol stent with integral anchors for fixation

Low-viscosity, radiopaque, fill polymer



Neck Indication: $\geq 7\text{mm}$

Inflatable rings for optimal seal and conformability



Suprarenal vs. Infrarenal *Effect on Renal Complications*

- Analysis of 21 studies comparing SR vs. IR fixation
- Impact of SR vs. IR fixation on renal dysfunction, renal artery stenosis, renal artery occlusion, renal infarction, and need for new dialysis
- 4474 Patients (SR 1949; IR 2525)
- Median follow-up 12 months
- No difference in the risk of any renal complications between SR and IR fixation groups

Suprarenal vs. Infrarenal *Effect on Renal Complications*

- Targeted module of the National Surgical Quality Improvement Project
- Perioperative and 30-day outcomes were compared among SR (Zenith, Endurant) and IR (Excluder) stent grafts
- 3587 patients: 2273 (63%) with SR and 1314 (37%) with IR
- Renal complications (1.1% vs. 0.1%, $p < .01$) and length of stay greater than 2 days (34% vs. 25%, $p < .01$) greater with SR Fixation

There's More to Consider Than Just Suprarenal vs. Infrarenal

- Pararenal sealing with fenestrated device
- Alternative sealing mechanisms
 - Aptus Endoanchors
 - Polymer sealing rings

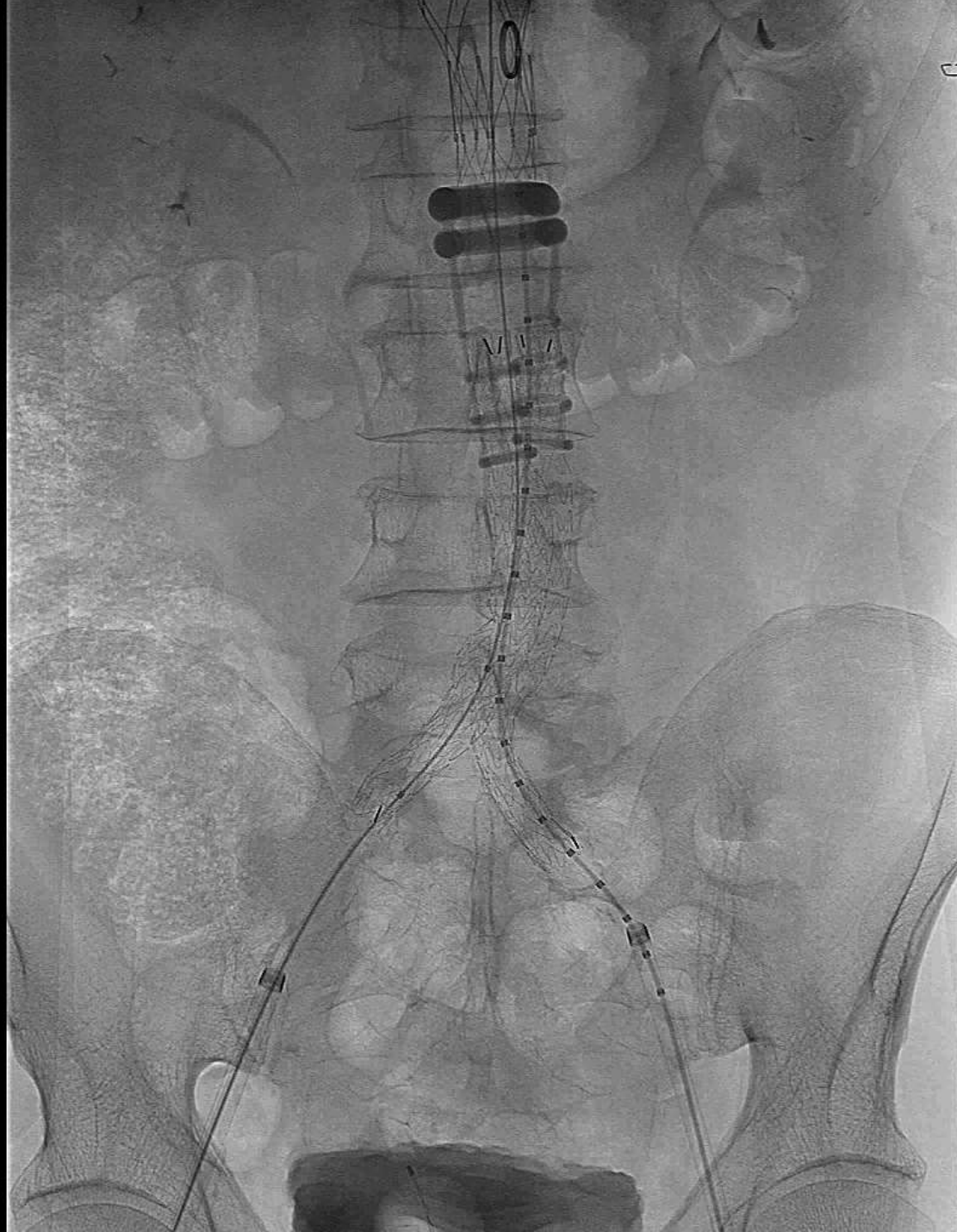


85 yo Male with 5.8 cm AAA



Percutaneous Access
Home the next day

Case Exam





LAO 18°
CRAN 16°
FD 14.4 inch

0:00
4:00
11:06:41

10
1-13

inch

32

Baseline and One Year Follow-up CT



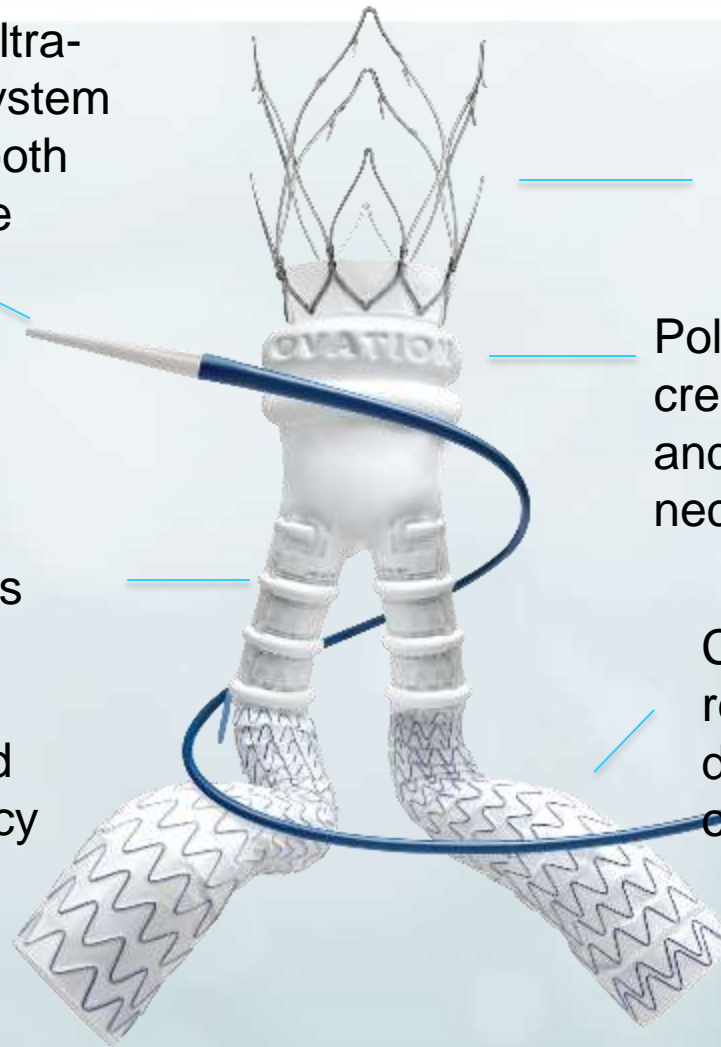
3-Year Follow-up Duplex



Ovation Prime Stent Graft

At 14F, the ultra-low profile system enables smooth access to the aneurysm

Low permeability PTFE enables effective aneurysm exclusion and device patency

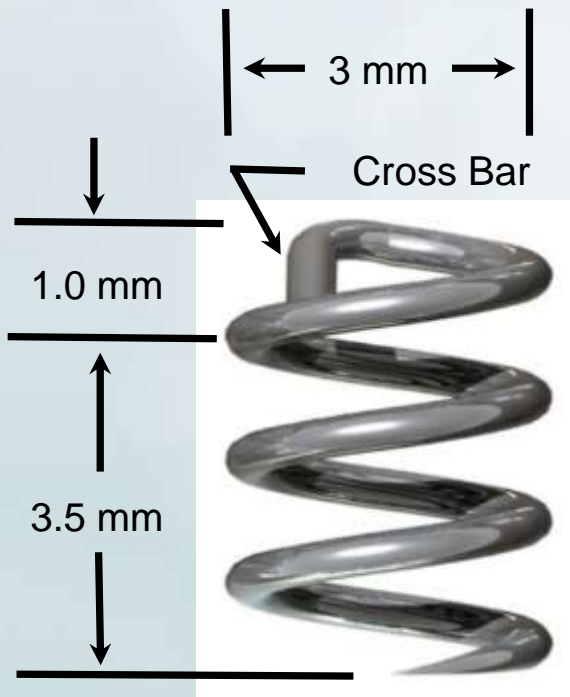


Staged deployment of suprarenal stent allows simple, precise placement

Polymer-filled sealing ring creates a custom seal and protects the aortic neck

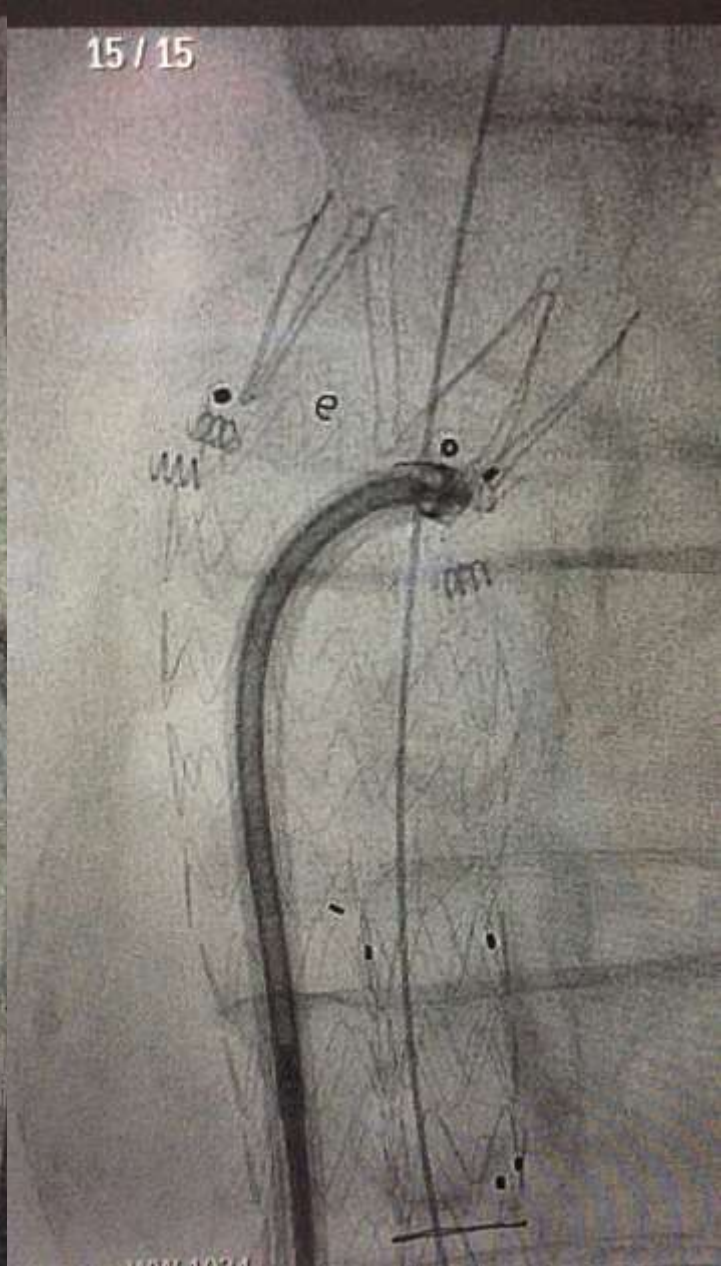
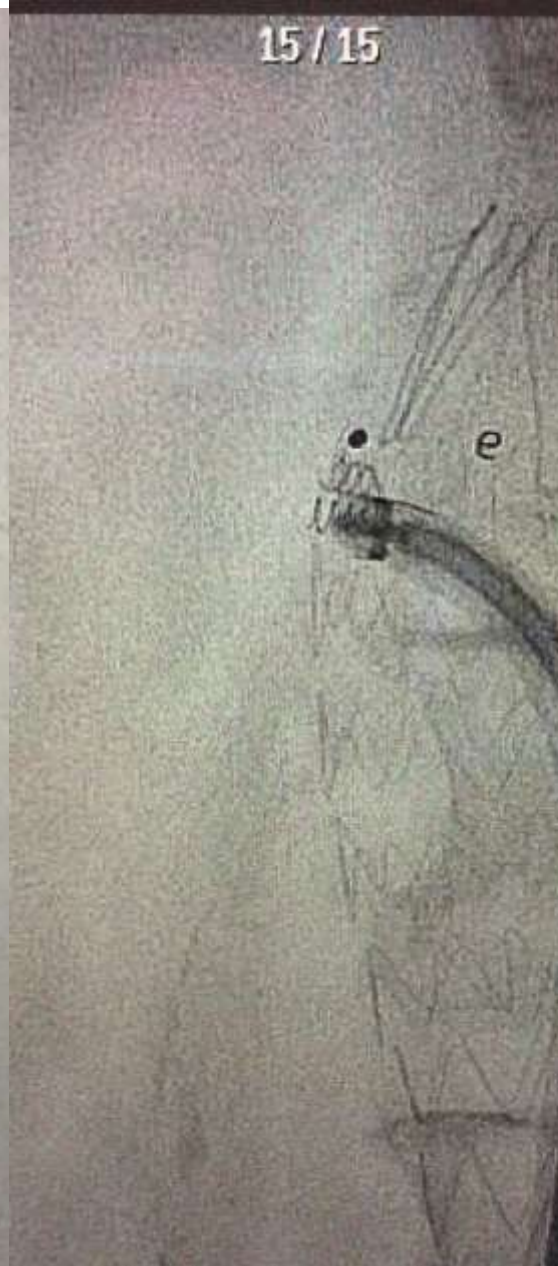
Conformable, kink resistant iliac limbs designed to reduce risk of occlusion

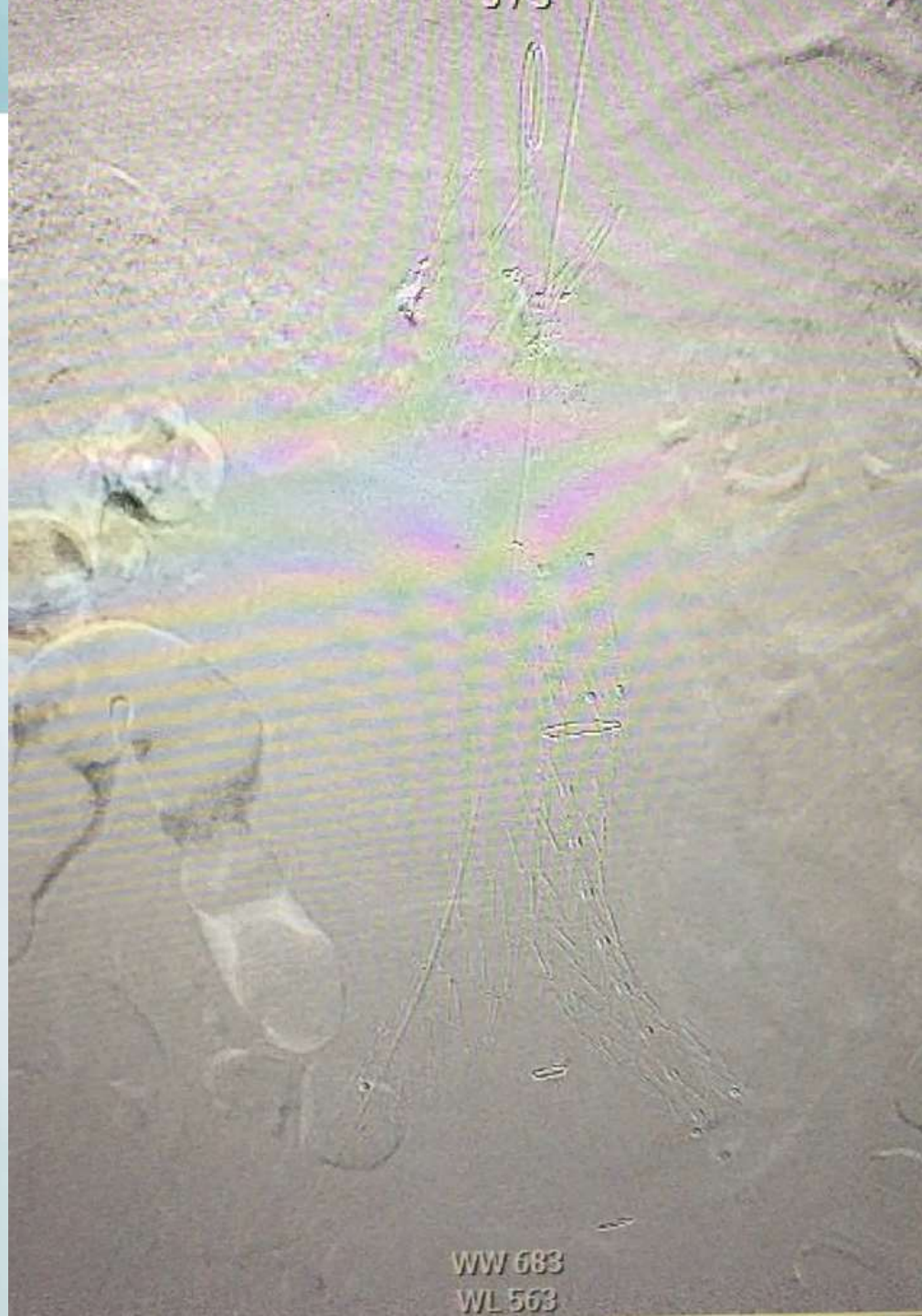
Heli-FX System: Anchors, Applier and Guide



Angulated Infrarenal Neck

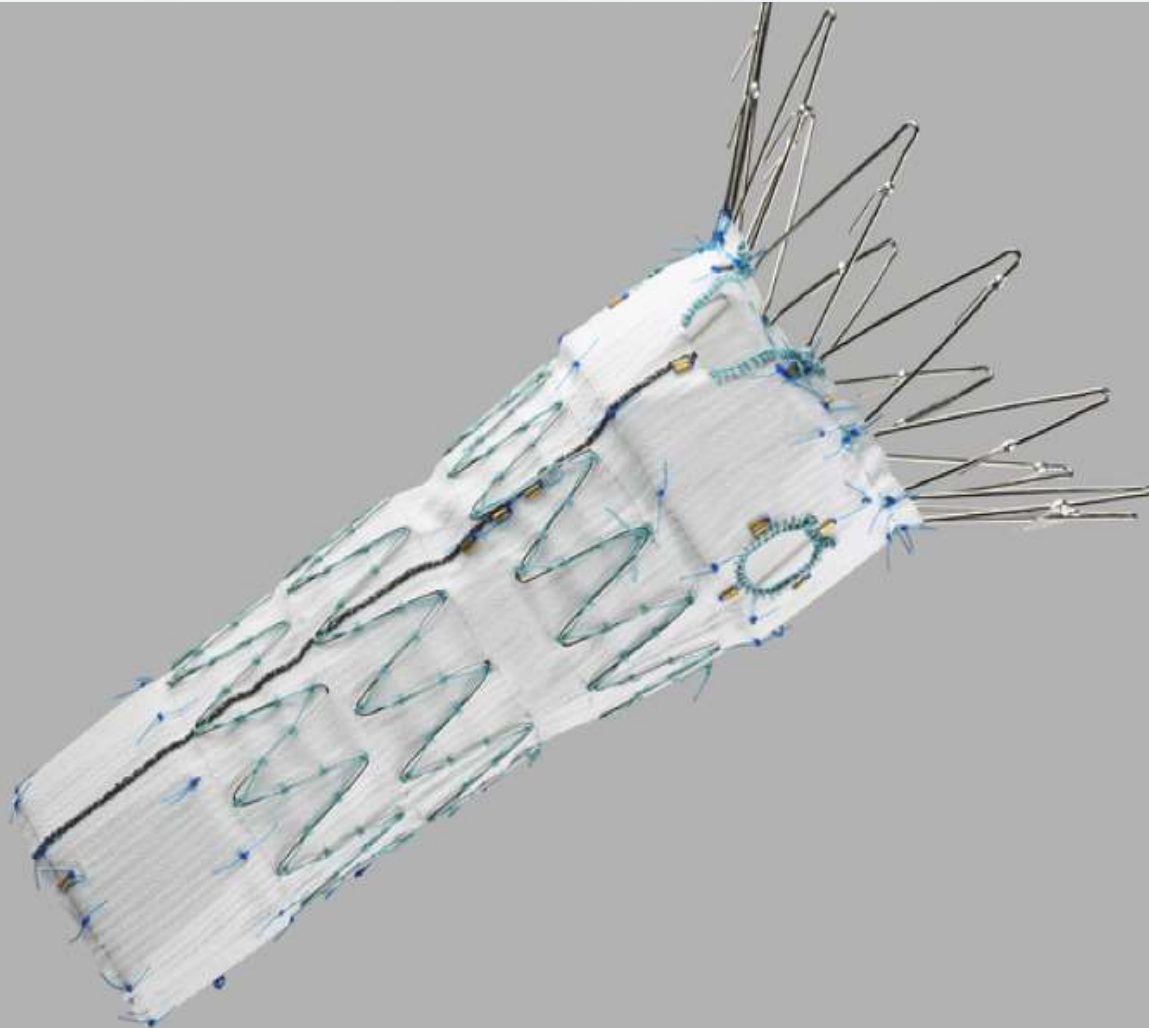






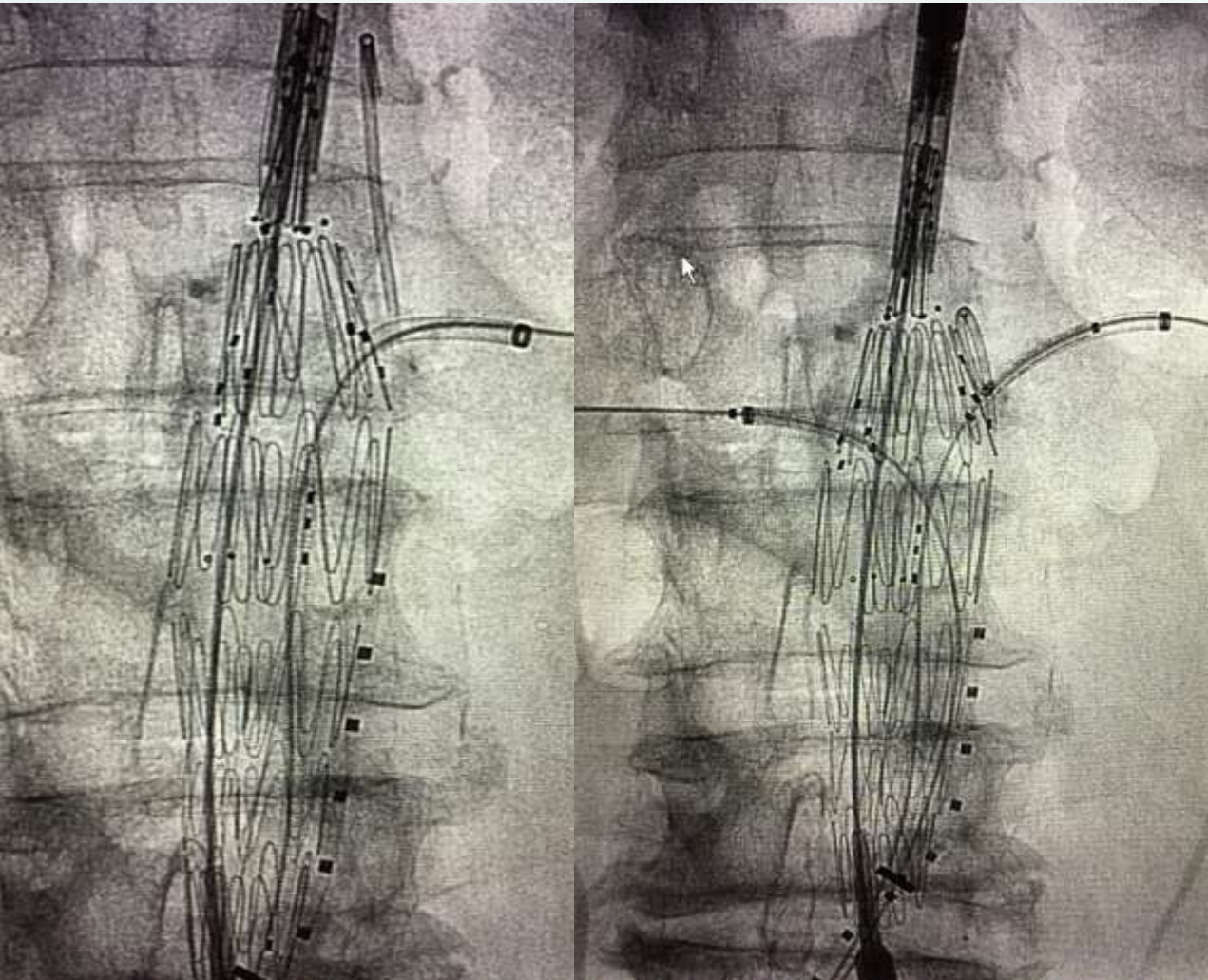
WW 683
WL 563

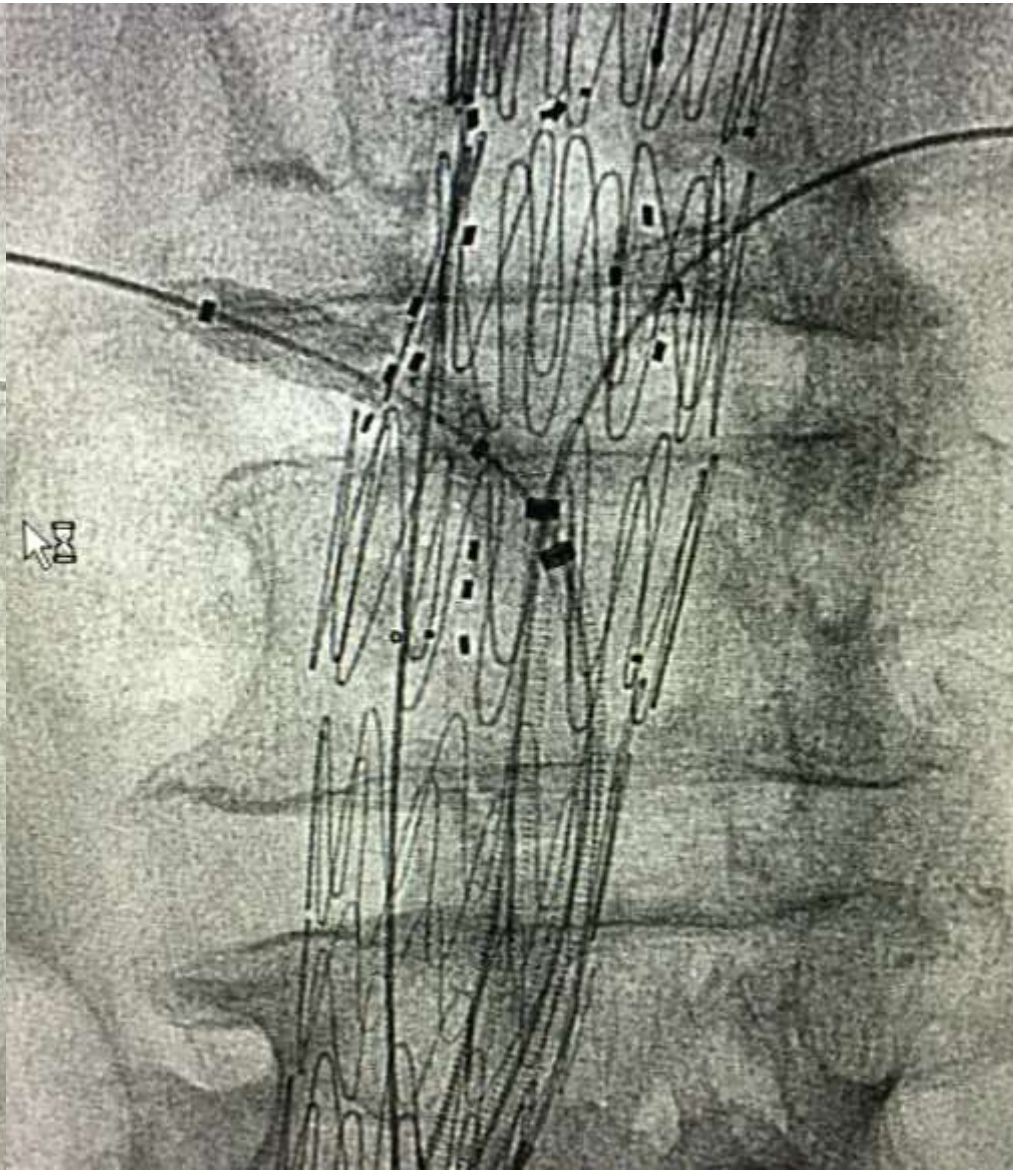
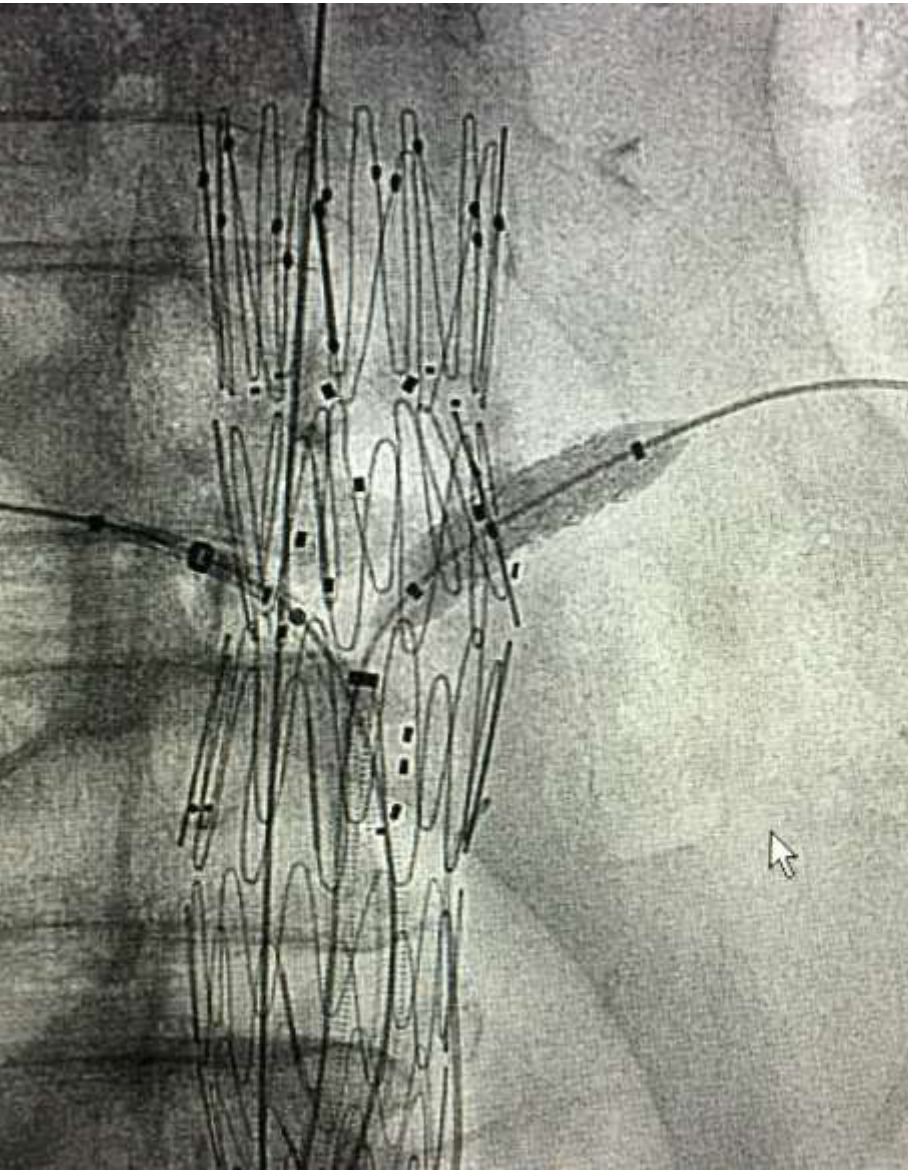
Fenestrated Graft



No Infrarenal Aortic Neck







FEVAR



Conclusions

- Suprarenal fixation is often necessary in complex anatomy to minimize the risk of late endograft migration
- Controversy persists regarding the potential for injury to the kidneys with with suprarenal fixation
- Additional sealing adjuncts offer the potential for reduced Type I endoleak in otherwise unfavorable cases
- Fenestrated EVAR has expanded the patient population that can be treated – early data promising