



Technical Tips for Endograft Repair of AAA

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Disclosures

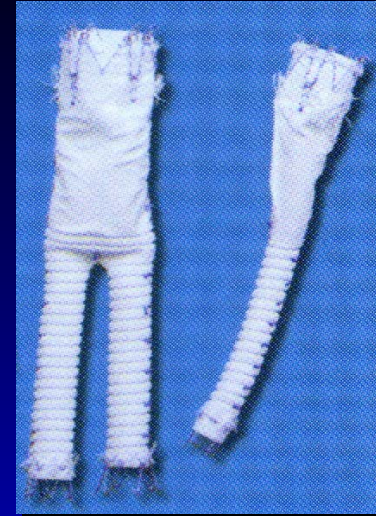
- Consultant: Spectranetics
- Advisory Board: Cordis, BSC, Medtronic, eV3, Edwards Lifesciences, Angioslide, Angioscore, Biocardia, SquareOne, NexGen, ReVascular, Novostent
- Equity Interest: AccessClosure

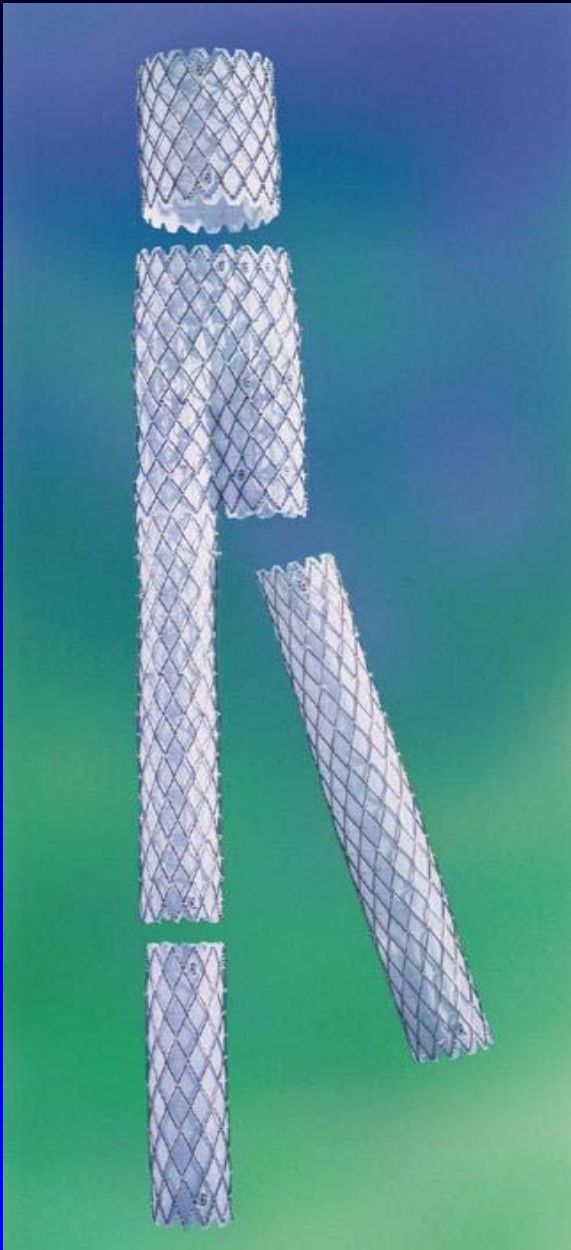
Device Selection

Are there significant differences?

FDA-approved Devices

- AnCure: '99 – '03
 - Off the market at this time
 - Perioperative complications
- AneuRx: '99
- Excluder: '02
- Zenith: '03
- Powerlink: '04





AneuRx AAAAdvantage Stent Graft System



AneuRx AAAAdvantage Stent Graft System

Advantages

- Easy and accurate deployment
- Modular design can be customized to varying anatomy
- Long track record

Disadvantages

- No proximal fixation
- Increased risk of late migration
- Cannot treat larger neck diameters
- Increased risk of late graft failure?

Gore Excluder® Endoprosthesis

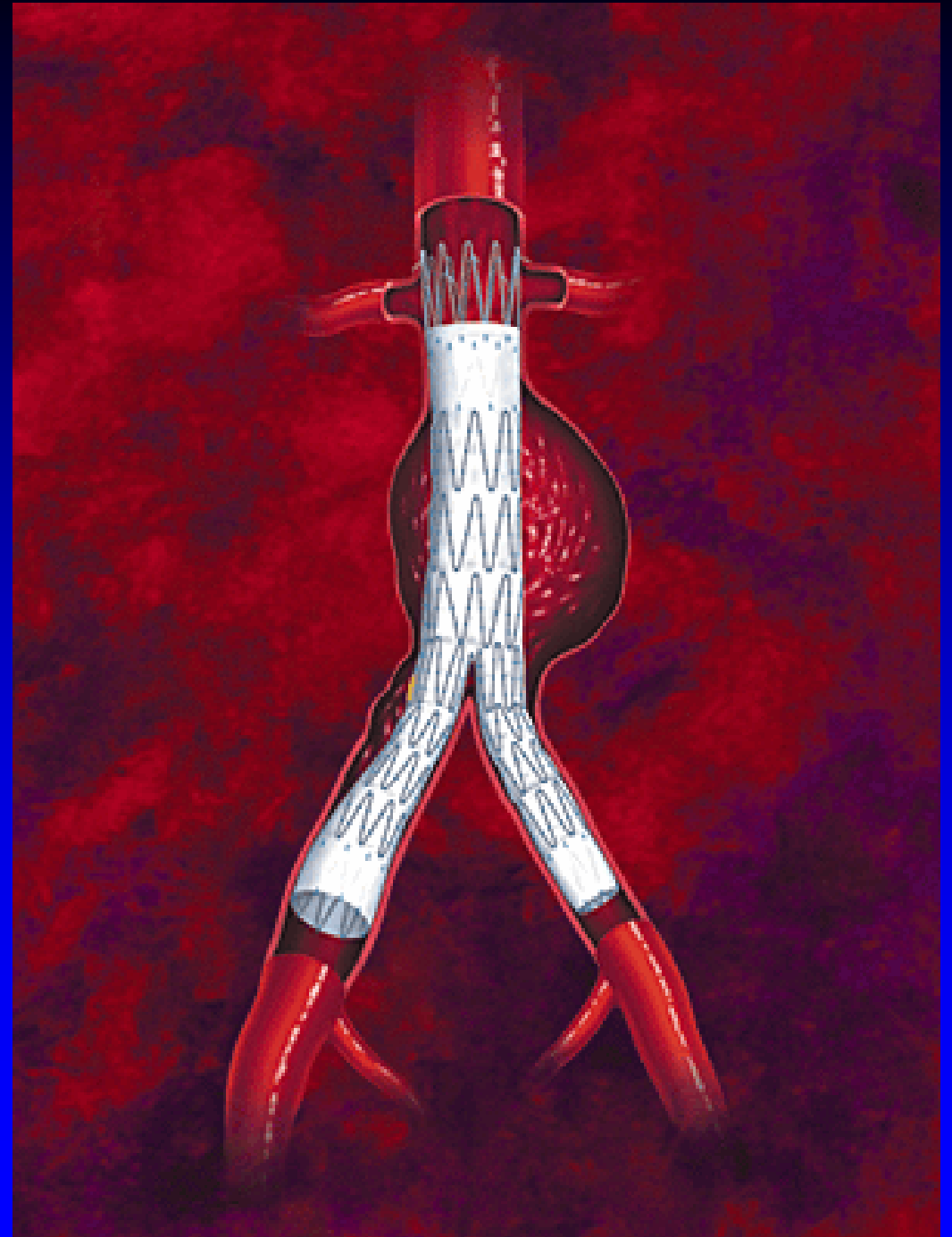


Gore Excluder Device

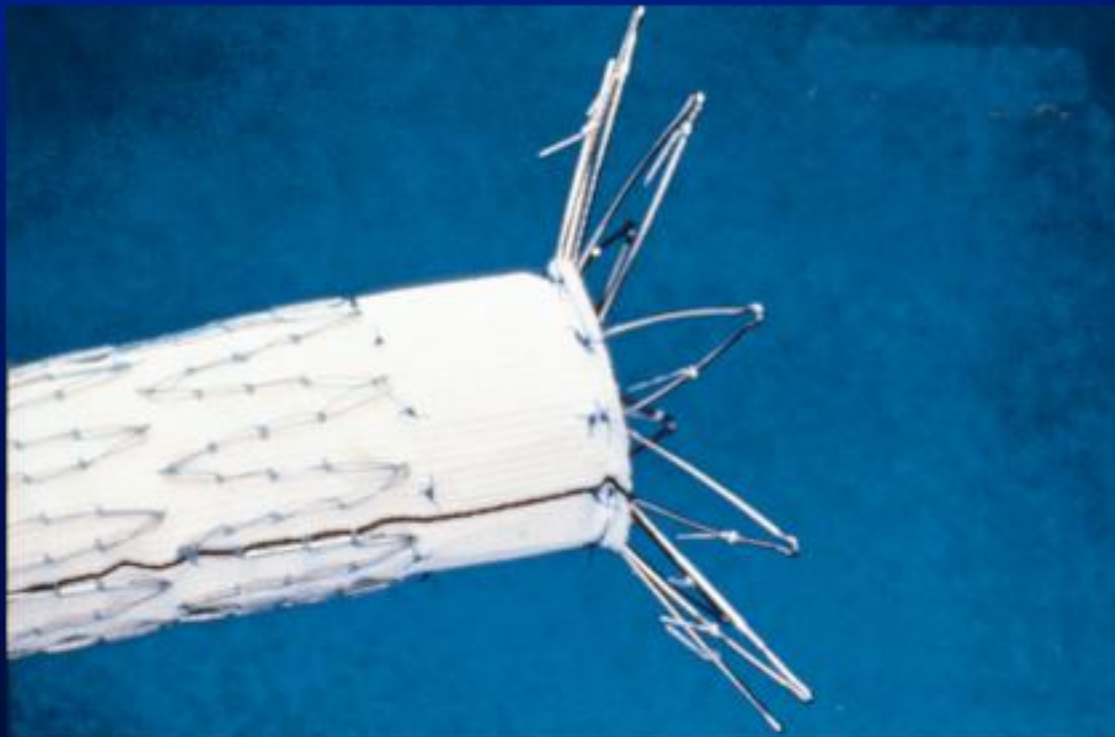
- Advantages
 - Flexible, easy to deliver
 - Low profile
 - Proximal fixation
- Disadvantages
 - Reduced rate of aneurysm shrinkage (problem solved with low porosity graft material)
 - Cannot treat larger aortic neck diameters

Cook Zenith Endograft

- Modular bifurcated design
- Long suprarenal attachment
- Proximal attachment hooks
- 16Fr and 18Fr delivery catheters



Zenith Stent Graft - retention hooks



Cook Zenith Endograft

- Advantages
 - More secure fixation – less risk of late stent graft migration
 - Able to treat larger aortic neck diameters
- Disadvantages
 - More complex delivery mechanism
 - Suprarenal fixation mandatory – may be undesirable in some cases

Powerlink System® (ENDOLOGIX)

- Bifurcated unibody system.
- Single wire Cobalt chromium stent.
- ePTFE covered, sutured only at the ends.
- Neck diameters 25 & 28 mm.
- Lengths 135, 140 & 155 mm.
- Limbs 16 mm diameter.



Endologix Powerlink Endograft

- Advantages
 - Unibody construction – no risk of Type III endoleak
 - Long aortic body – longer attachment zone and potential to buttress against aortic bifurcation
- Disadvantages
 - Limited aortic and iliac diameters
 - No proximal fixation

FDA-Approved Endografts for AAAs

	AneuRx	Excluder	Zenith	Powerlink
Metal	Nitinol	Nitinol	Stainless Steel	Cobalt-Chromium
MRI Compatible	YES	YES	NO	YES
Graft Material	PET	ePTFE	PET	ePTFE
Infrarenal Suprarenal	Infrarenal	Infrarenal	Suprarenal	Infrarenal
Anchoring Barbs	NO	YES	YES	NO

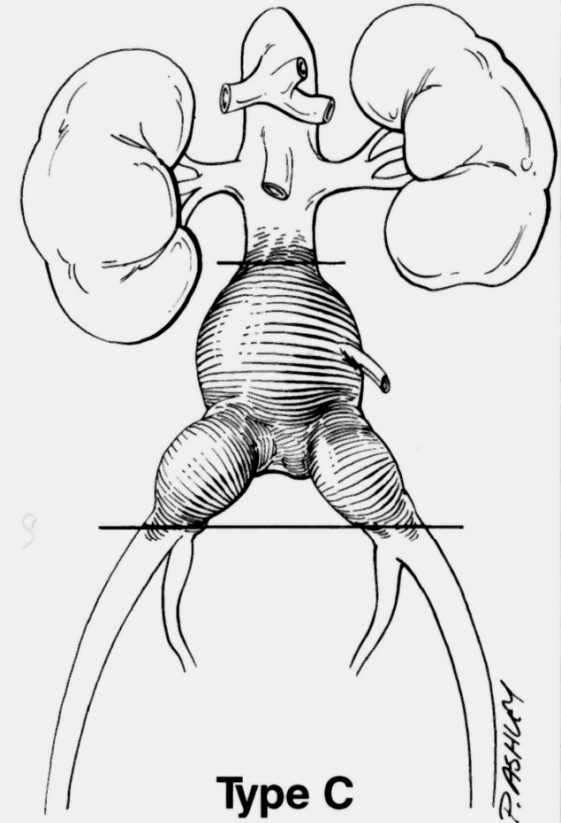
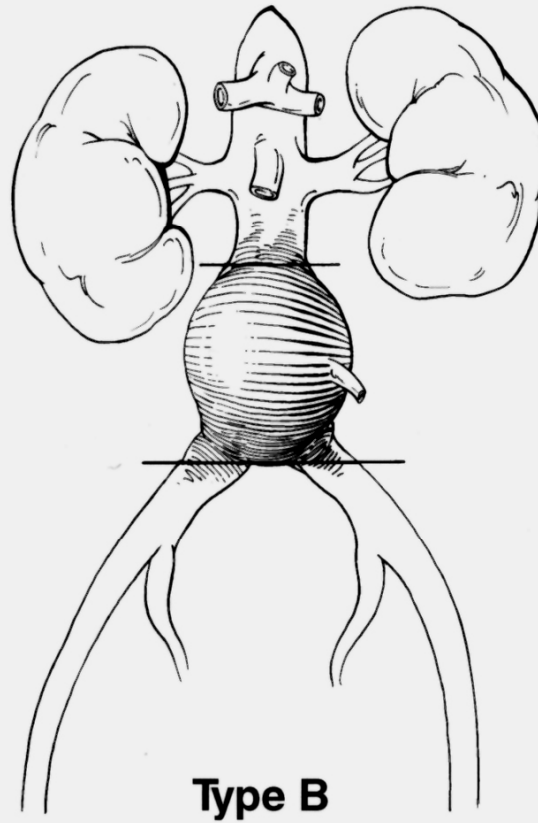
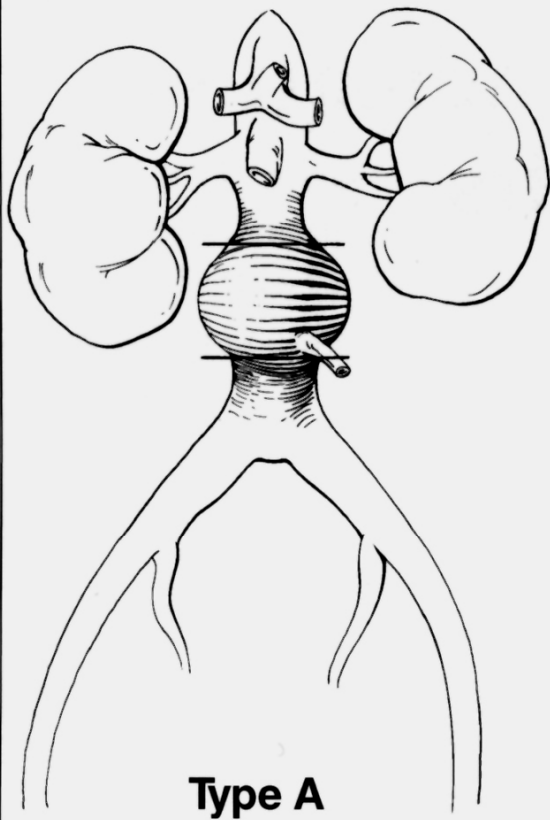
	AneuRx	Excluder	Zenith	Powerlink
Modular	YES	YES	YES	Unibody
Fully Supported	YES	YES	YES	YES
Aortic Diameters	20-28 mm (17-25 mm)	23-28.5 mm (18-26 mm)	22-36 mm (18-32 mm)	25 & 28mm (18-26 mm)
Delivery Diameters	21.4 F OD	21.7 F OD	22-26 F OD	21 F OD
Iliac limb Diameters	12-24 mm 16-19 F OD	10-20 mm 14-19 F OD	8-24 mm 17-19 F OD	16-20 mm 11-17 F OD

Case Selection

Aneurysm Morphology

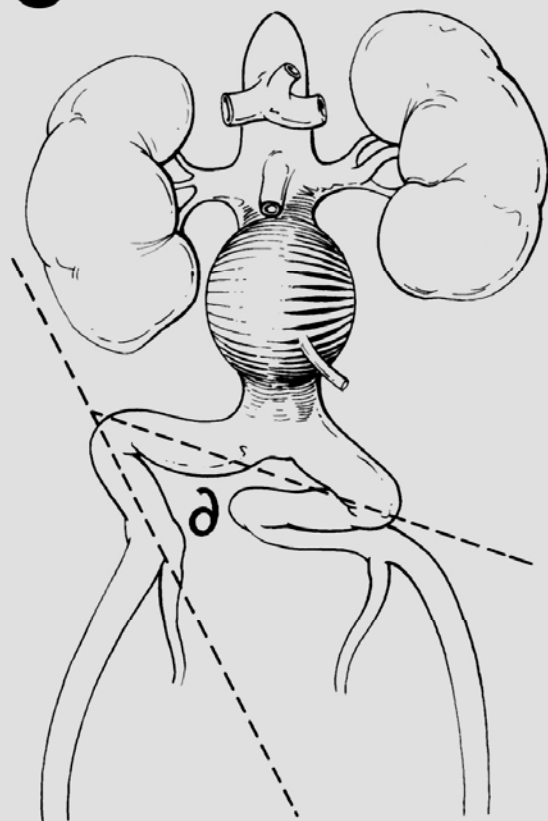
A

Endoluminal

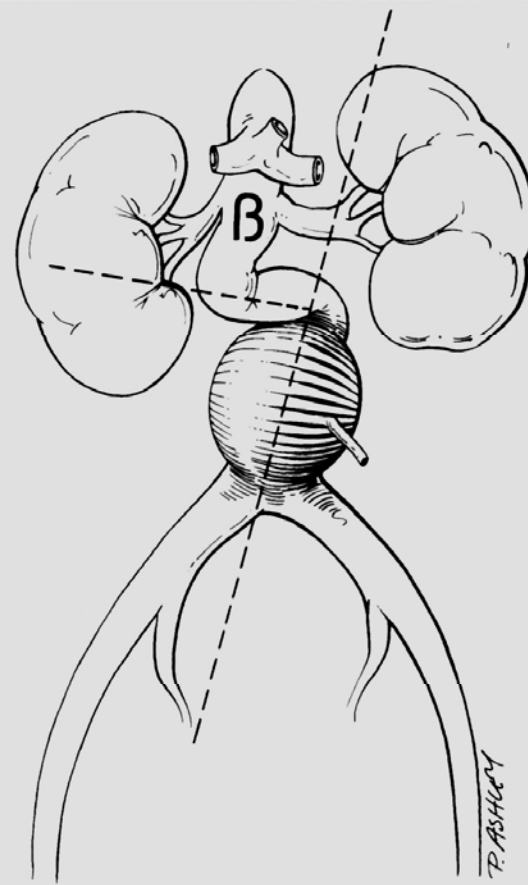


Aneurysm Morphology

C



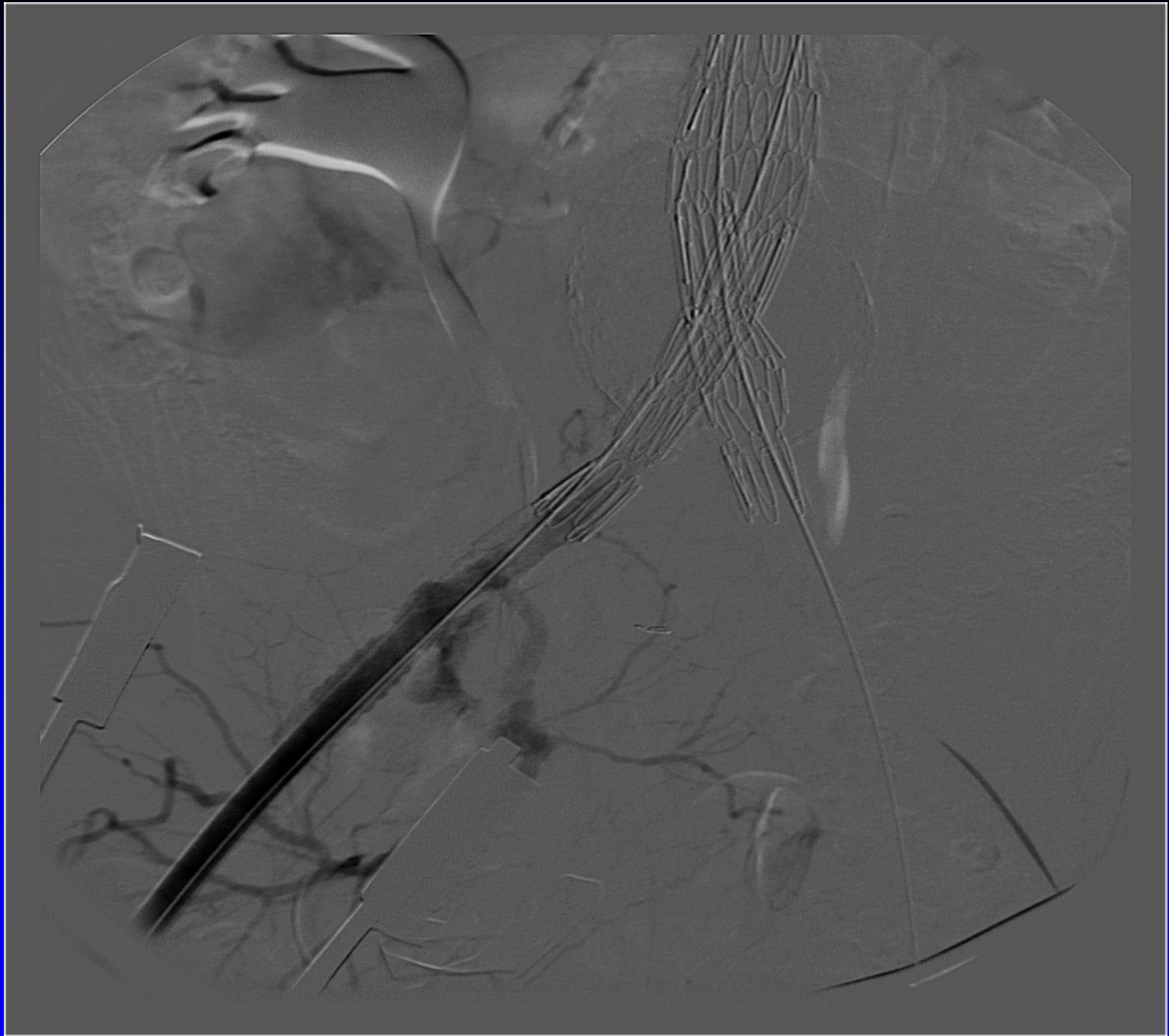
Ilio-iliac Axis $\delta < 90^\circ$

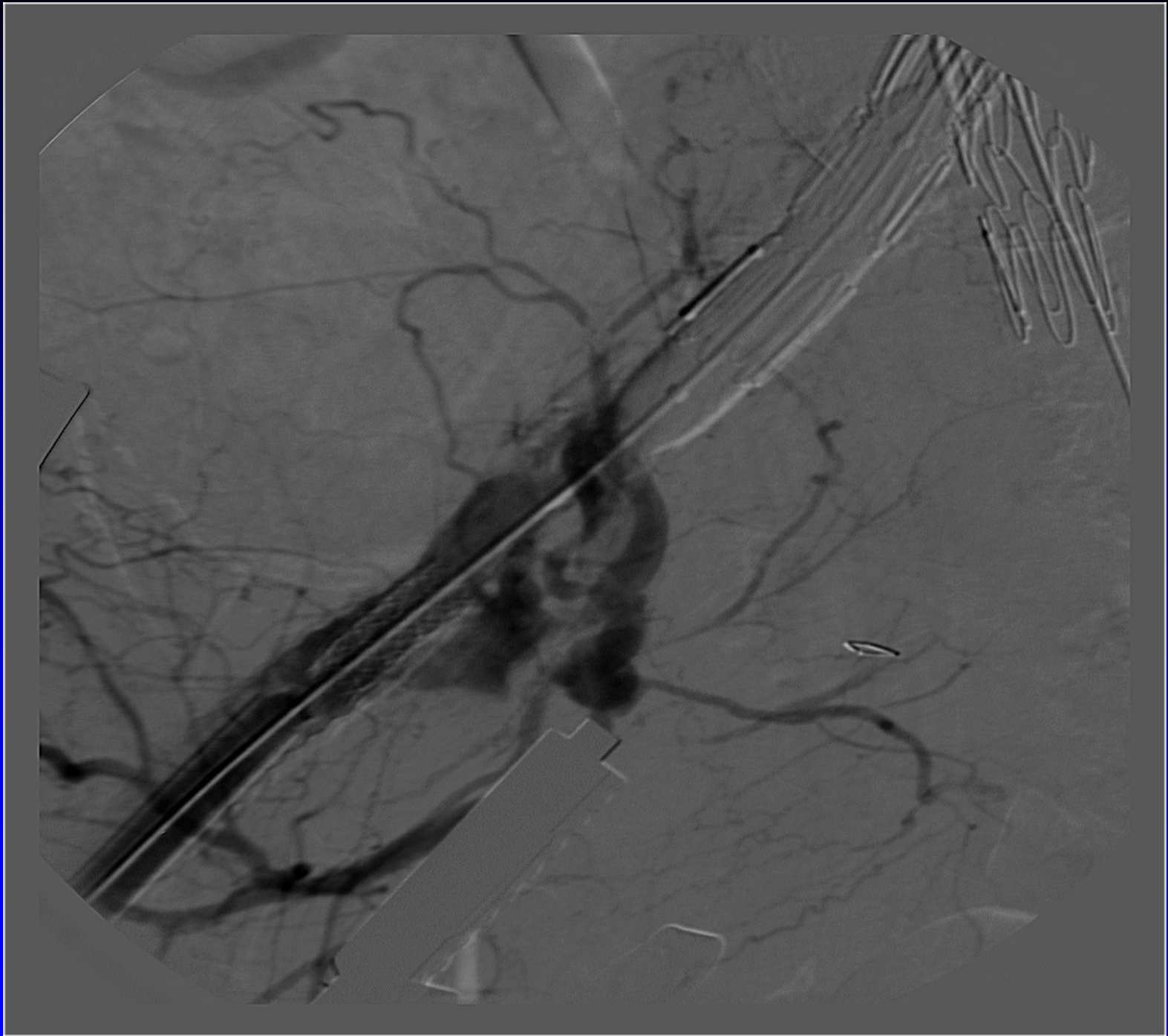


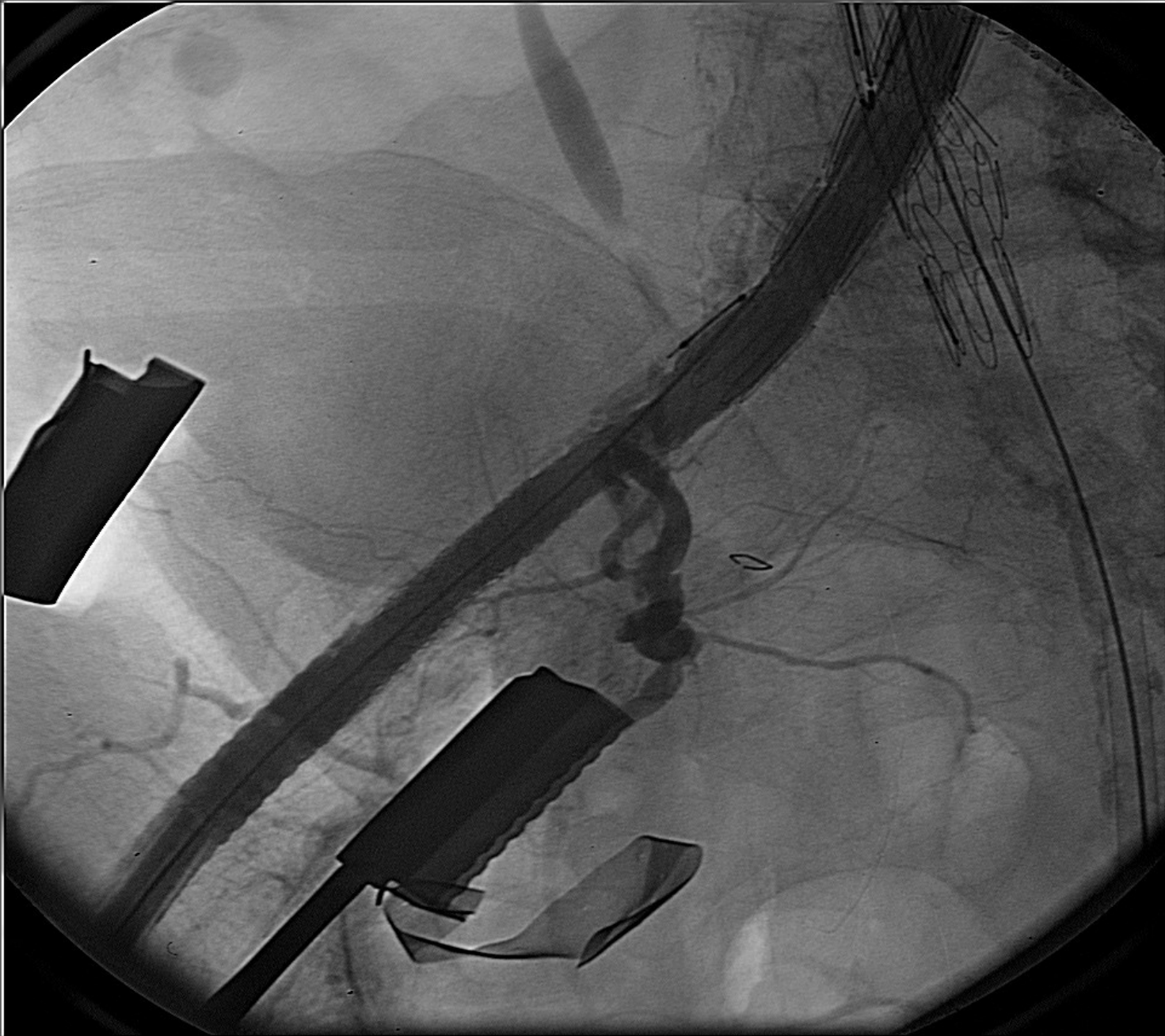
Angulation Proximal
Neck $\beta > 60^\circ$

Case Example

- 75 year old female
- 6 cm AAA
- Small, calcified iliofemoral vessels
- EVAR performed with Zenith endograft
- Following removal of sheath, hypotension occurs and angiography reveals extravasation from right external iliac artery







Endovascular Stent-Grafting *Technique*

Critical Dimensions:

- Diameter and length of proximal neck
- Diameter of the common iliac arteries (attachment site)
- Diameter of external iliac and common femoral arteries (for device passage)
- Length from renal arteries to aortic bifurcation and iliac bifurcation (device selection)

Endovascular Procedure

- Cath Lab or OR Suite (Fluoroscopy)
- General, Epidural, or Local Anesthesia
- Bilateral Small Groin Incisions vs. Preclose technique
- Bifurcated Graft
- Discharge on post op day one or two

Endoluminal Stent-Grafts

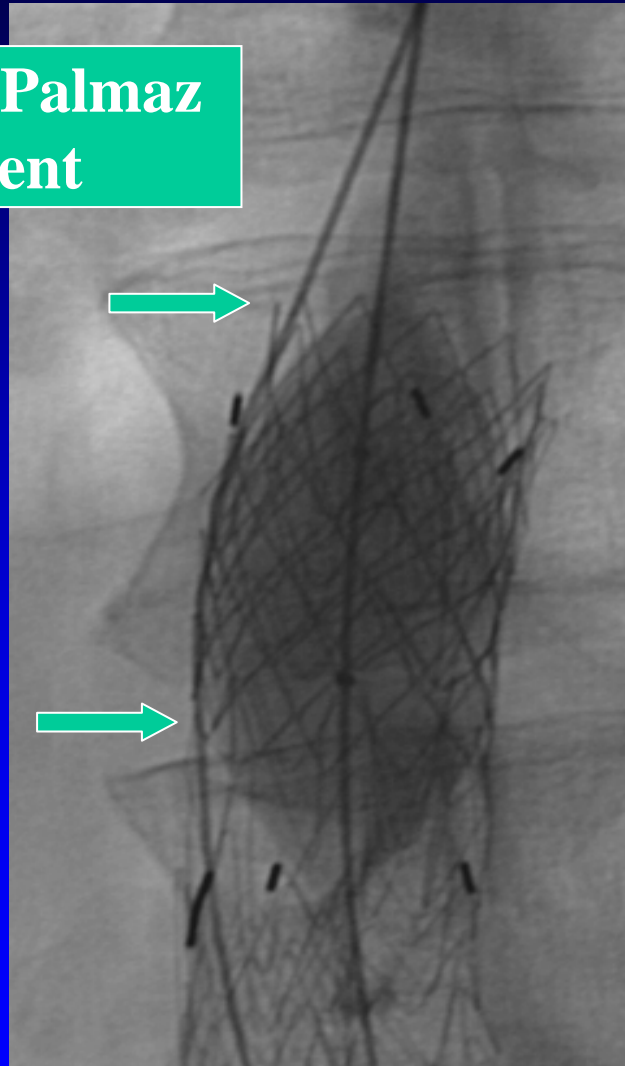
- 88 year old male
- History of COPD and pacemaker
- High surgical risk
- 6.5 cm AAA





Accessory Tools for EVAR

Large Palmaz
Stent

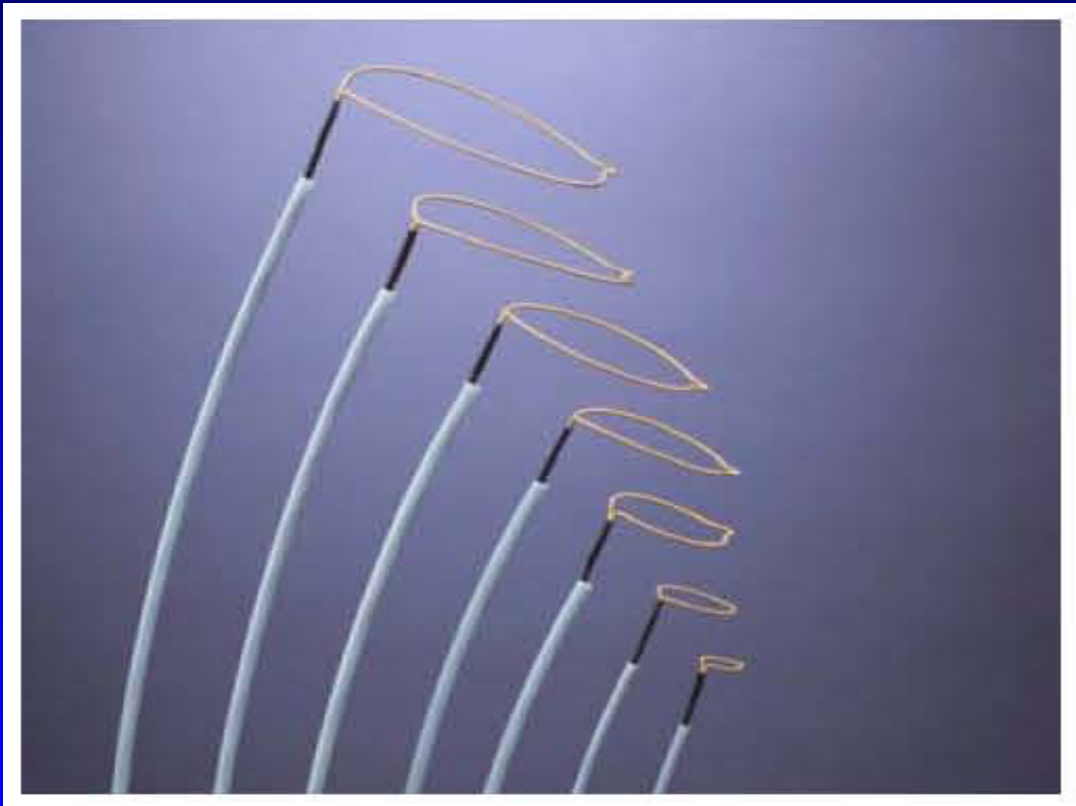


Balloon for
molding

Accessory Tools for EVAR



Other Equipment

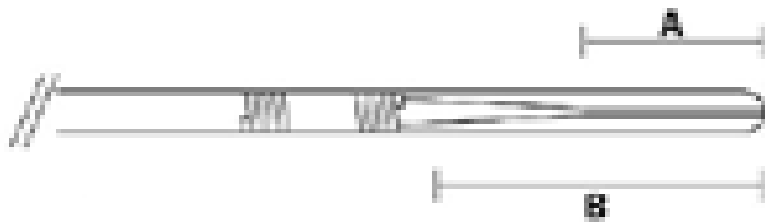


Snares



Coils

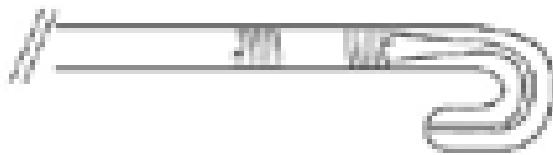
Amplatz Super Stiff™ Guidewires (BSC)



Amplatz Super Stiff



Amplatz Super Stiff ST 1cm Short Tip



Amplatz Super Stiff J-Tip



Amplatz Super Stiff ST 3.5cm Short Tip

- Maximum stiffness
- Soft, atraumatic tip
- Teflon coating
- Different tip lengths and configurations

.035" Guidewires – Extra Support

- **LUNDERQUIST (Cook)**
 - Stainless steel mandril tip
 - Maximum rigidity
 - Shapeable distal tip
 - 145 and 260 cm lengths
- **ROSEN WIRE (Cook)**
 - Heavy Duty wire with 2 cm flexible tip
 - Atraumatic tip

IVUS During EVAR



iLab System



Atlantis PV Catheter

Role of IVUS during EVAR

During Device Deployment

- Document position *within graft* during deployment of contralateral limb
- Evaluation adequacy of proximal and distal seal
- Evaluate expansion of iliac limbs of graft
- Rule out dissection in iliac arteries distal to graft

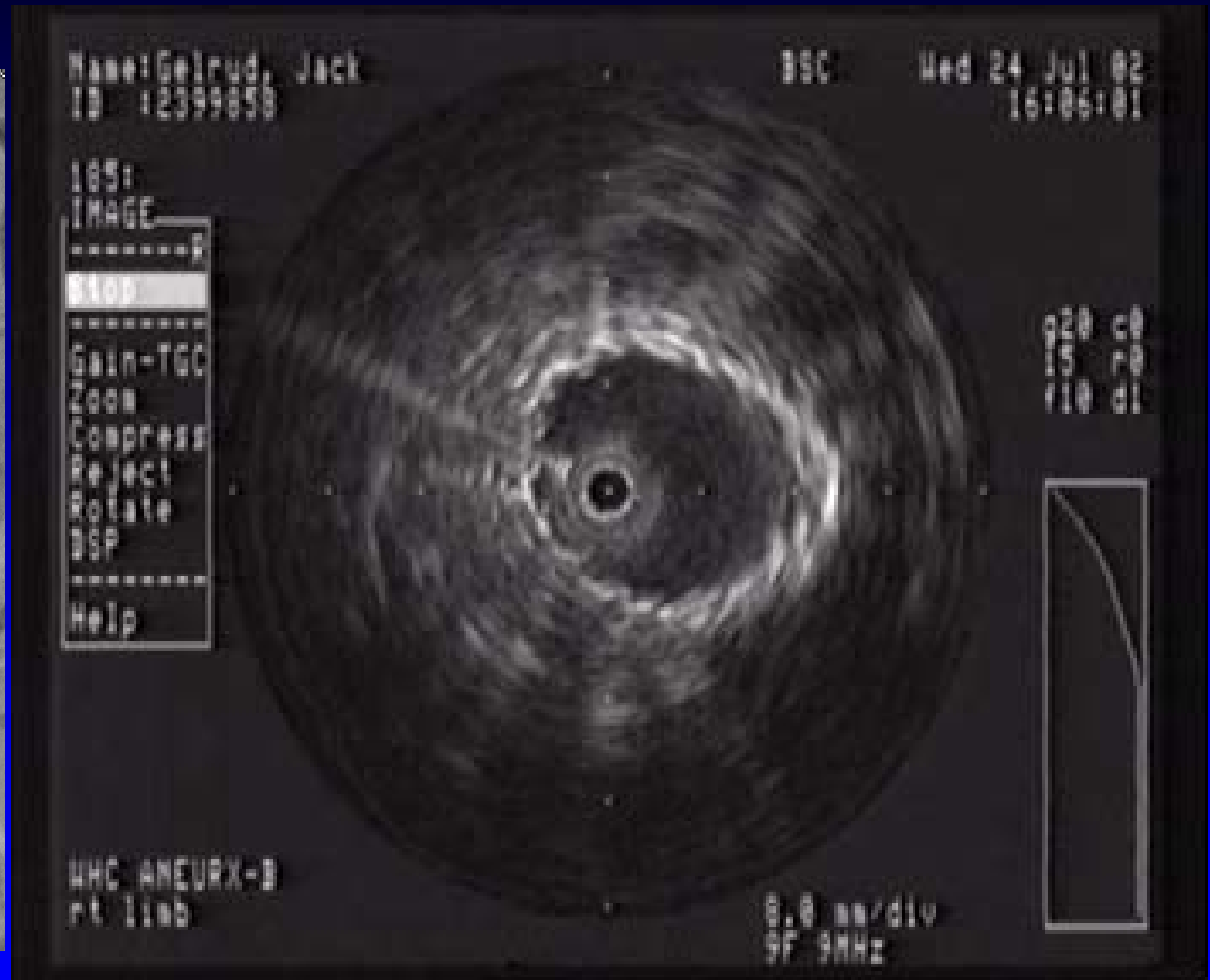
22 M
02



J M



JC



Conclusions

- Patient selection is the most important factor
- Knowledge about the devices and their differences is key
- You must have a full inventory of guidewires, catheters and bailout equipment
- Many cases can be performed percutaneously with the Preclose technique