

Thoracoabdominal Branch Repair

Tim Resch MD
Vascular Center
Skåne University Hospital
Sweden



Faculty disclosure

Tim Resch

I disclose the following financial relationships:

Consultant for COOK Medical

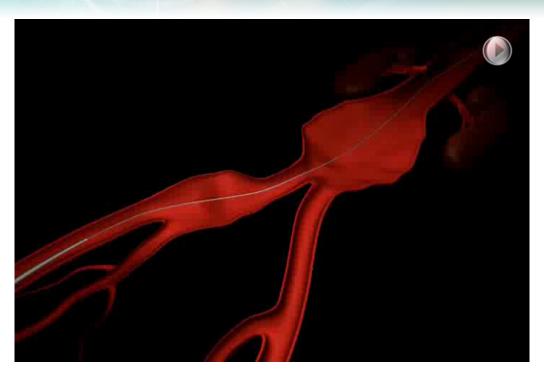
Receive grant/research support from COOK Medical

Advisory board of COOK Medical

Paid speaker for COOK Medical

Concepts: Branches





- May be coupled with fenestrations
- Requires "reasonable" rotational orientation
- Placed >1.5cm above target vessel
- Proximal and distal length required for overlap

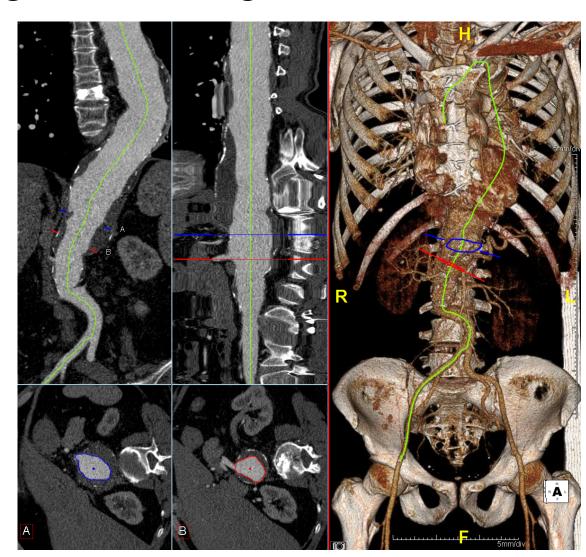






Imaging and Planning

- Preoperative 3D
 Imaging is critical
- Properly timed contrast bolus
- High-resolution reconstruction
 - Z-plane resolution
- Understanding of device deployment





Considerations

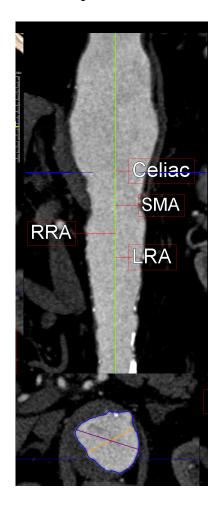
- Proximal landing zone
- Distal landing zone
- Ability to incorporate branches
- Adequate access vessels
- Anatomy of Target vessels



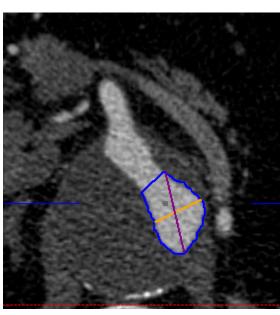


Branches Versus Fenestrations

Clearly Branch Clearly Fenestration Clearly In-between









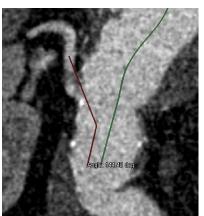
Branch – Aortic Geometric Interface

Crainocaudal





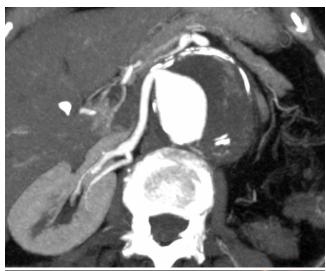
Type IV TAA

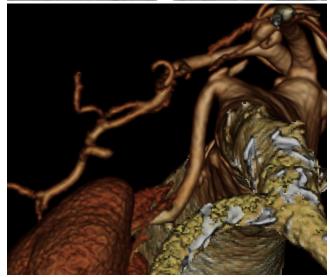




Type II/III TAA

Ant-Post

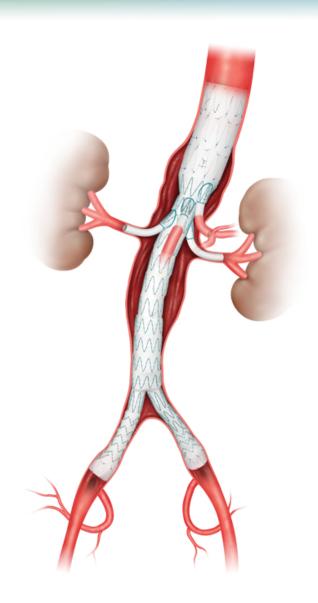






Zenith tBranch

- Standard 4 Branch Component
- Bifurcated Unibody
- Proximal and Distal Components Standard





Branches vs. Fenestrations

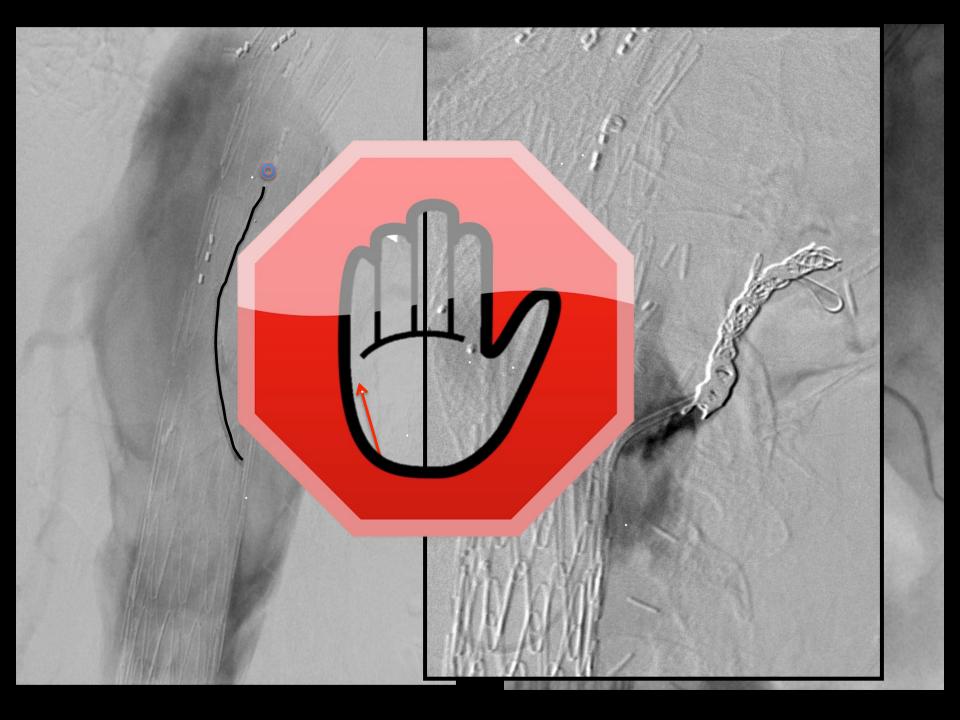
Branches

- TV in wide aorta >35
- Caudally oriented TV
 - SMA, CA
 - Renals in type 4 TAAA
- Emergency cases?
 - Off the Shelf

Fenestrations

- TV in narrow aorta
 - Type 1 TAAA
 - Chronic dissections
- Cranially oriented TV
 - Renals in type 2 TAAA
 - Juxta/Suprarenal AA

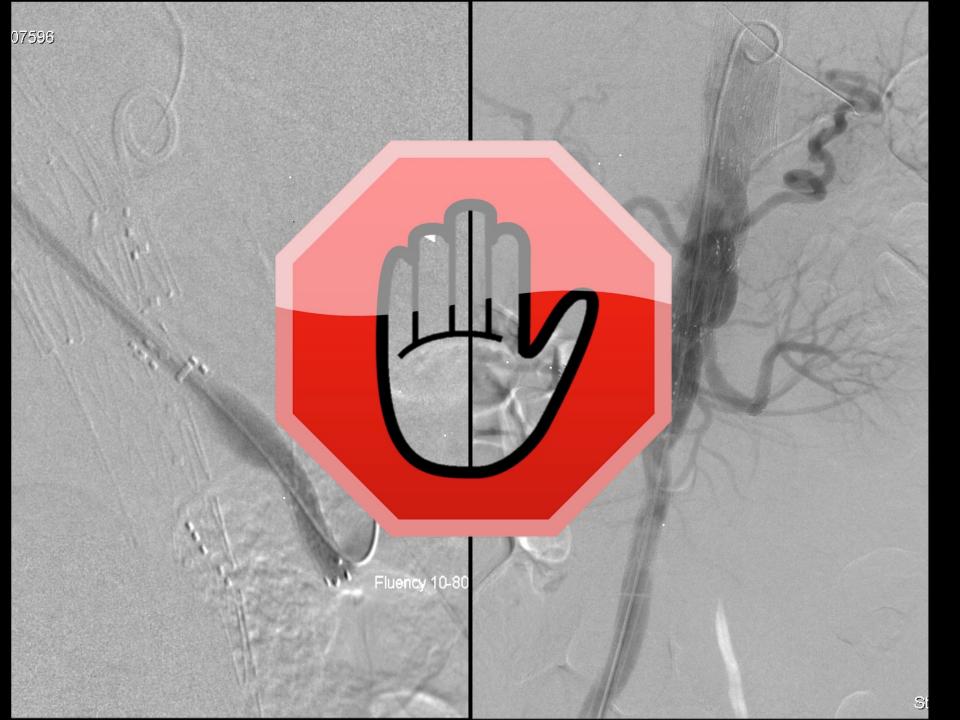
Tailor Graft to Patient in Planning







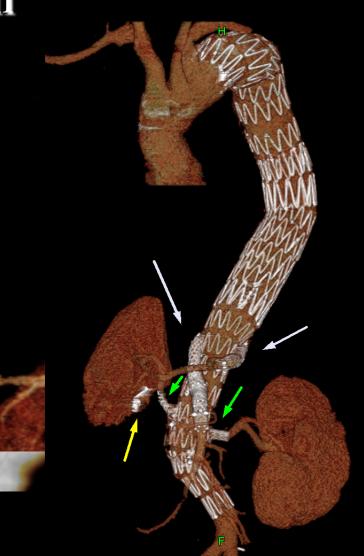
NOTE SOURCE CONTINUES AND	/ ³² 31		ZENITH® AAA ENDOVASCULAR GRAFT WORK SHEET
NOTE Photocopying the document may cause distortion. PHYSICIAN: Prol. RESCH ATTENT CODES DAVID ME DIN 31 32 32 32 32 32 32 32 32 32	640		
### PHYSICIAN: Prof. RESCH ### CODE DAVID MS DIN 31 32 32 32 331 335 331 332 331 332 332 331 332 332 332 332			
### 35 32 32 32 32 32 32 32	6 20	31	
35 31 32 60(LUMEN 21) 410 60(LUMEN 25) 400 32 55(LUMEN 27) 112-14 113-14 120 130 130 130 130 130 130 130 130 130 13		/	PHYSICIAN: 1101-12004 PATIENT CODE DAVID MEDIN
60(LUMEN 24) 60(LUMEN 3) 60(LUMEN 26) 57(LUMEN 27) 58(LUMEN 27) 55(LUMEN 27) 12trenal = 6mm 36t 53(LUMEN 27) 12trenal = 6mm 36t 34 × 25 32 34 × 25 36(LUMEN 21) 39 30 34 × 25 37 39 30 31 32 34(LUMEN 21) 39 39 30 30 31 30 30 30 30 30 30 30		35/	
60(LUMEN 24) 60(LUMEN 25) 60(LUMEN 25) 57(LUMEN 27) 58(LUMEN 27) 1 Lt. renal = 6mm 307 58(LUMEN 27) 1 Rt. renal = 6mm 340 53(LUMEN 27) 53(LUMEN 27) 53(LUMEN 27) 53(LUMEN 27) 53(LUMEN 27) 54(LUMEN 27) 54(LUMEN 27) 55(LUMEN 27) 56(LUMEN 27) 570 58(LUMEN 27) 580 58(LUMEN 27) 580 58(LUMEN 27) 580 60(LUMEN 37) 60(LUMEN 37) 60(LUMEN 38) 60(LUMEN 38) 60(LUMEN 38) 60(LUMEN 38) 60(LUMEN 28)			
60(LUMEN 27) 60(LUMEN 27) 57(LUMEN 27) 58(LUMEN 27) 11	22		60(LUMEN 24)
57(LUMEN 27) Se(LUMEN 25) Se(LUMEN 27) Se(LUMEN 27) Se(LUMEN 27) Se(LUMEN 27) Se(LUMEN 28) Se(LUMEN 28) Se(LUMEN 28) Se(LUMEN 28) Se(LUMEN 20) Se(LUMEN 37) Se	7.00		60(LUMEN 31) 41c
Selumen 25 SMF = 6mm 398 Solumen 27 Lt. renal = 6mm 376 Selumen 27 Lt. renal = 6mm 360 Selumen 23 Selumen 21 Selumen 21 Selumen 21 Selumen 22 Selumen 22 Selumen 22 Selumen 22 Selumen 22 Selumen 22 Selumen 23 Selumen 24 Selumen 37 Selumen 37 Selumen 38 Selumen 38 Selumen 39 Selumen	560		60 (LUMEN 28) 40
55(LUMEN 27) 1 Rt. renal = 6mm 376 53(LUMEN 23) 53(LUMEN 23) 52(LUMEN 21) 530 44(LUMEN 21) 530 44(LUMEN 21) 530 34(LUMEN 20) 540 58(LUMEN 37) 580 58(LUMEN 37) 580 58(LUMEN 37) 580 58(LUMEN 37) 580 60(LUMEN 37) 60(LUMEN 31) 60(LUMEN 29)	550		57(LUMEN 27) - 9 Celiac = 7mm 39c
55(LIMEN 27) 1 Rt. renal = 6mm 376 53(LIMEN 23) 52(LIMEN 23) 52(LIMEN 21) 340 52(LIMEN 21) 340 341 340 341 340 341 340 341 340 341 340 341 340 341 340 341 340 341 340 341 340 340	40		SG(LUMEN 25) / SMA = 8mm 382
53(LUMEN 23) 52(LUMEN 21) 52(LUMEN 21) 530 44(LUMEN 20) 340 340 340 340 340 340 340 3	330		55 (LUMEN 27) 1 H. renal = 6mm 37c
55(LIMEN 25) 52(LIMEN 21) 530 52(LIMEN 21) 530 44(LIMEN 20) 540 58(LIMEN 40) 58(LIMEN 37) 580 60(LIMEN 31) 60(LIMEN 34) 60(LIMEN 31) 60(LIMEN 32) 60(LIMEN 32)	24.25		56(LUMSN 27) / Rt. renal = 6mm 360
52(LUMEN 21) 52(LUMEN 21) 340 340 340 340 340 340 340 34	30		
52(LUMEN 21) 34(LUMEN 22) 34(LUMEN 22) 34(LUMEN 22) 34(LUMEN 22) 34(LUMEN 22) 350 360 360 360 360 360 360 360	42.		
34(LUMEN 20) 340 28(LUMEN 17) 360 240 260 270 270 280 270 280 270 280 270 280 28		45_	52(LUMEN 21) , / 330
28(WMEN 17) 366 290 270 270 280 270 280 280 280 28	480		
240 240 2560 260 260 260 270 270 270 270 270 270 270 270 270 27	440		
13-14 13-14 260 13-14 13-14 260 260 260 260 260 260 260 26	460		28(WMEN 17) - 300
13-14 250 13-14 260 13-14 260 13-14 260 13-14 260 13-14 260	450		240
13-14			280
13-14 260 (LUMEN 31) 60 (LUMEN 28) 60 (LUMEN 28)		147	270
240 60(LUMEN 28)	7		
	1		13
	390		240
730	380		
	370	50" oblique	220
210	360		210
200			
Pla 10 20 1	DSA FILM DATE:/	CTA FILM DATE: 16, 10, 08	

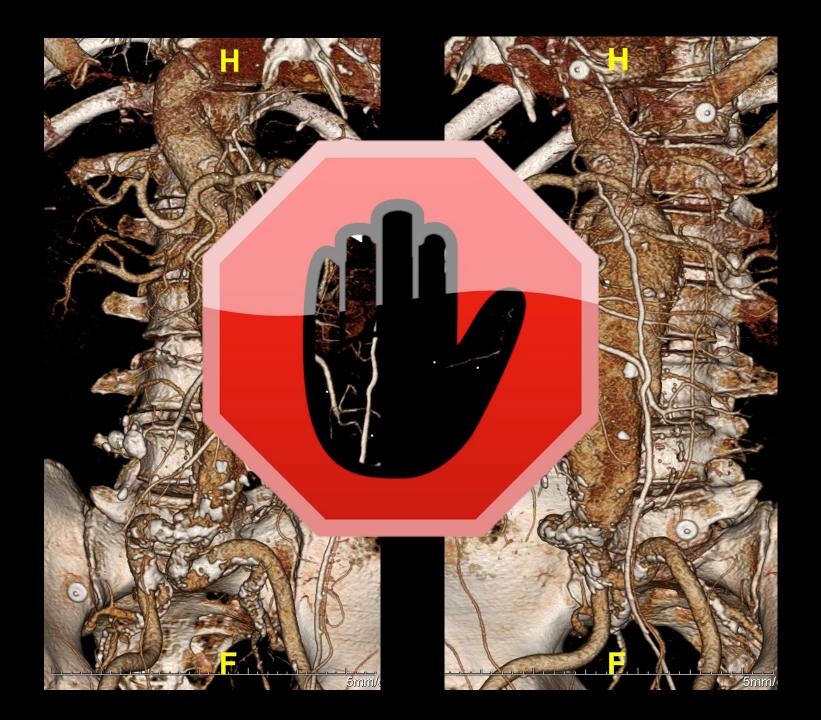


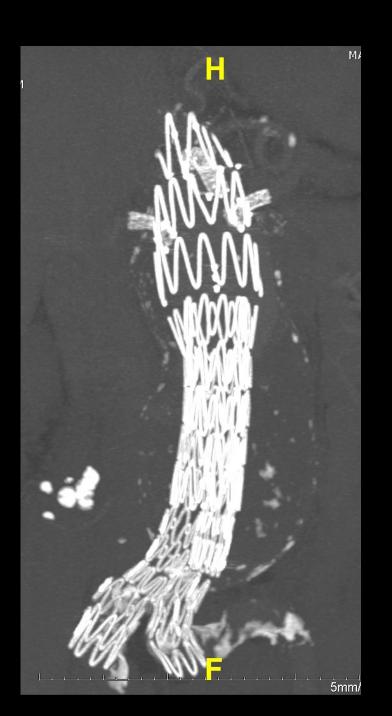


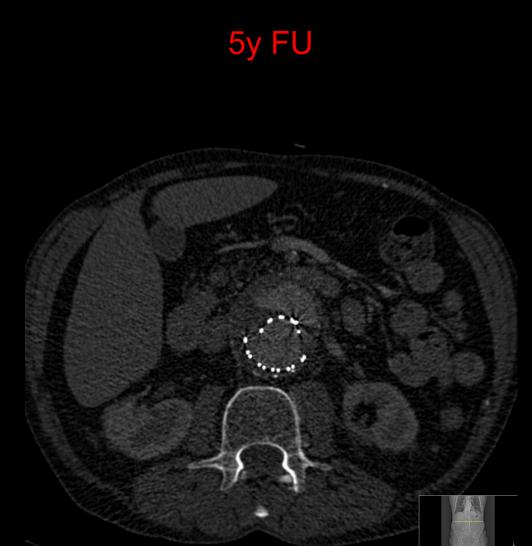
Making a Durable Branch

- Make branches as short as possible
- Align branch graft vector in accordance to target vessel native anatomy
- Provide as much overlap as possible between the branch and aortic component as well as the branch and visceral target vessel
- Minimize kinking and angulation in branches

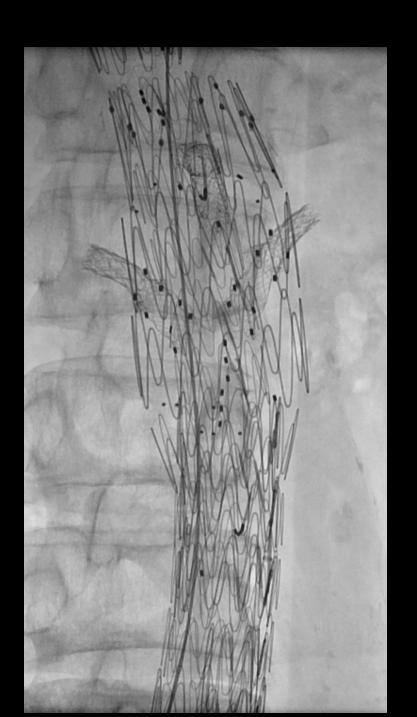


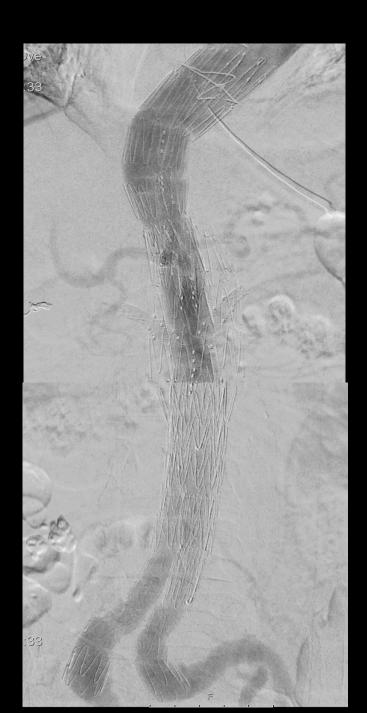




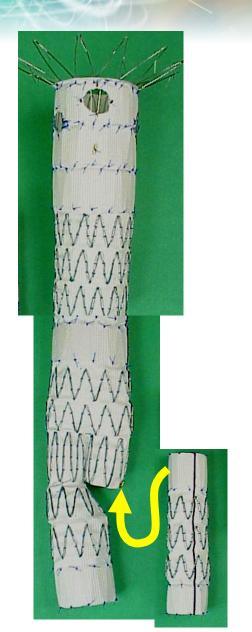






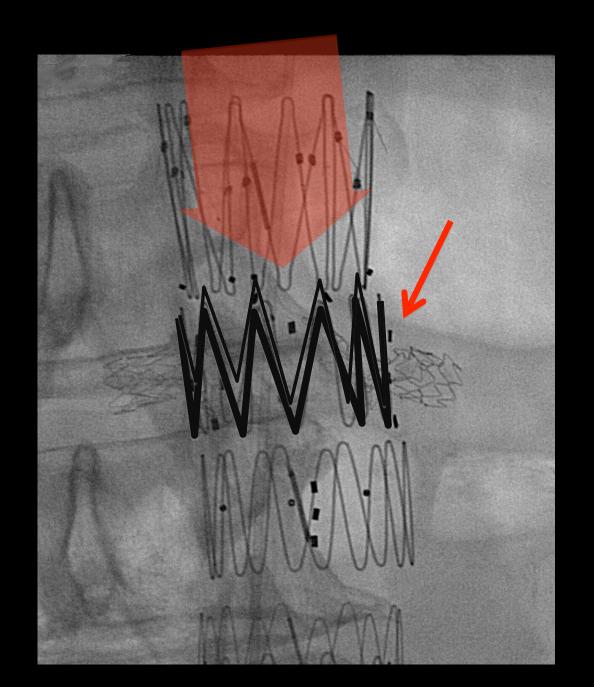




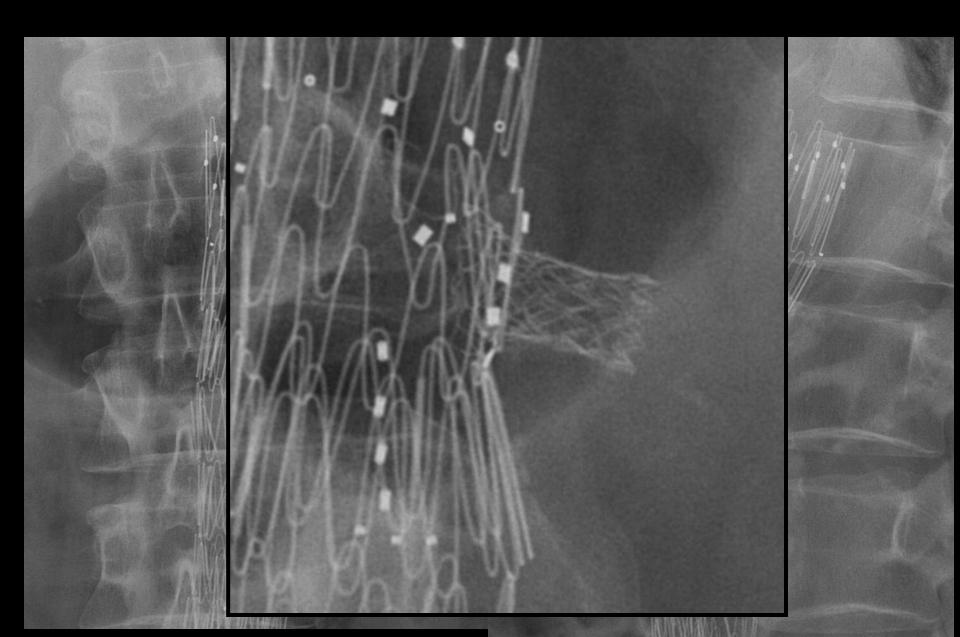


More vulnerable points?



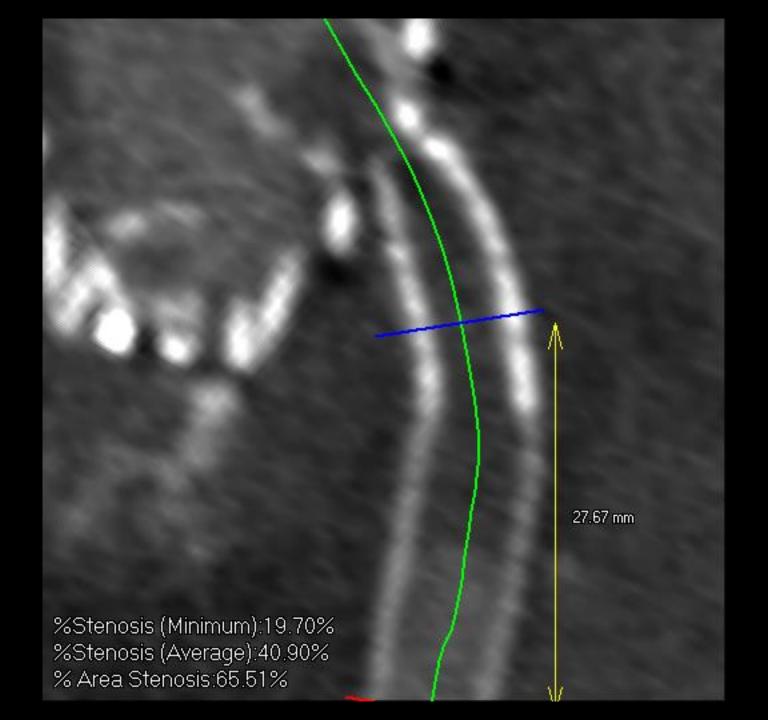


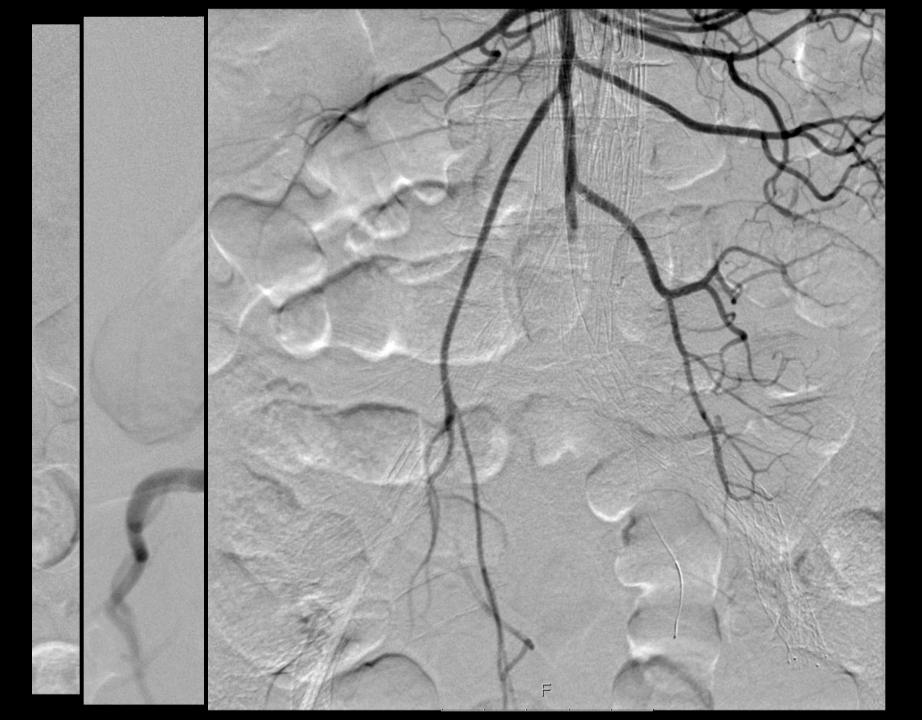
1 month FU







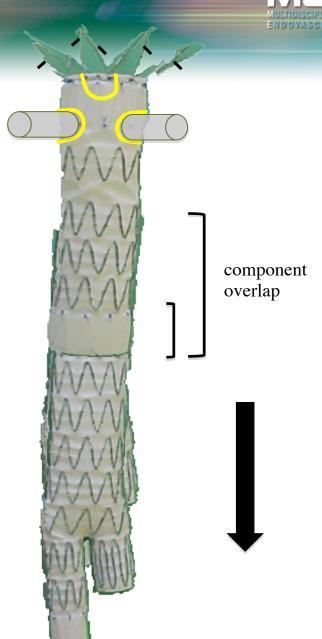






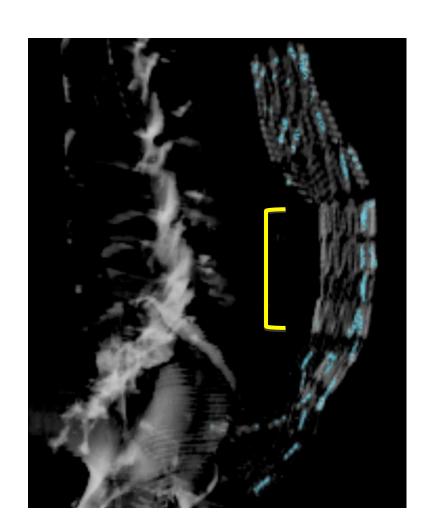
Migration

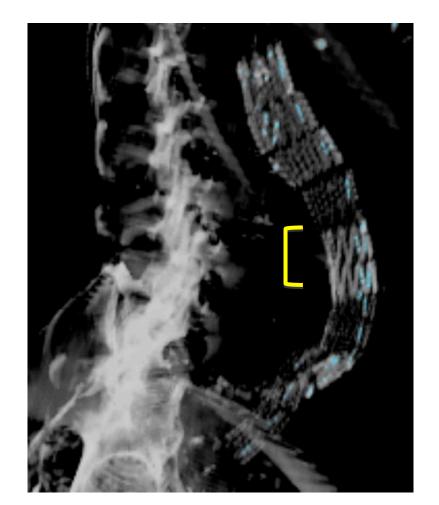
- 13 % bifurcated component movement > 10 mm
- 0.9 % complete separation





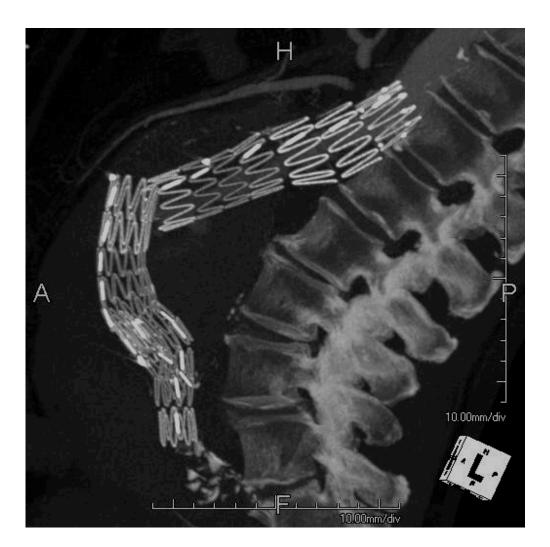
Component Separation



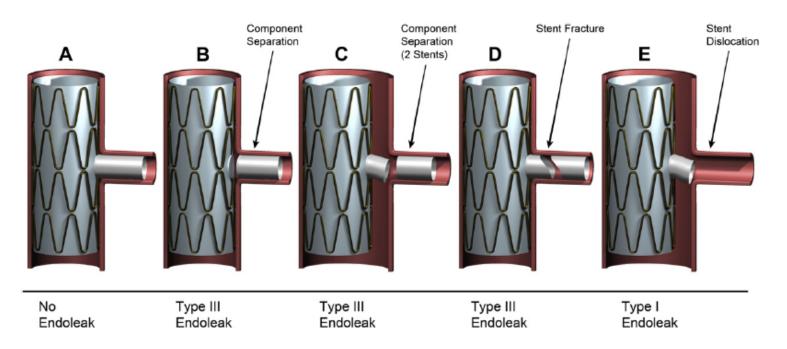




Rupture!







Mastracci et al JVS 2013;57



Type 1 EL







Summary - Planning

- Maximize component overlap
 - TV branches
 - Main components
- Plan to match anatomy
 - Do not force the anatomy to the graft!



Summary - Intraoperative

- Reinforce branches appropriately
 - Compression
 - Transition
- Intraoperative issues sometimes hard to detect
 - Small endoleaks around branches
 - Minor branch disconfigurations
 - Intraoperative Angio-CT useful



Summary – FU Failures

- Complex Endografts introduce new failure modes
 - TV issues
 - Component Separation
 - Complex type 1 and 3 EL (uncommon)
- FU must be tailored for specific failures
 - CTA reconstructions
 - Plain X-ray

June 27& 28 Malmö, Sweden

COURSE DIRECTORS

Martin Malina, Malmö, Sweden Tim Resch, Malmö, Sweden

SCIENTIFIC COMMITTEE:

John Brennan, Stephan Haulon, Richard Mc Williams, Eric Verhoeven

18[™] INTERNATIONAL EXPERTS SYMPOSIUM

CRITICAL ISSUES in aortic endografting 2014

www.critical-issues-congress.com