Off-The-Shelf Branched Endografts Should Always Be The First Option

Team CMD

Tim Resch

CMD Branched Endografts Should Always Be The First Option

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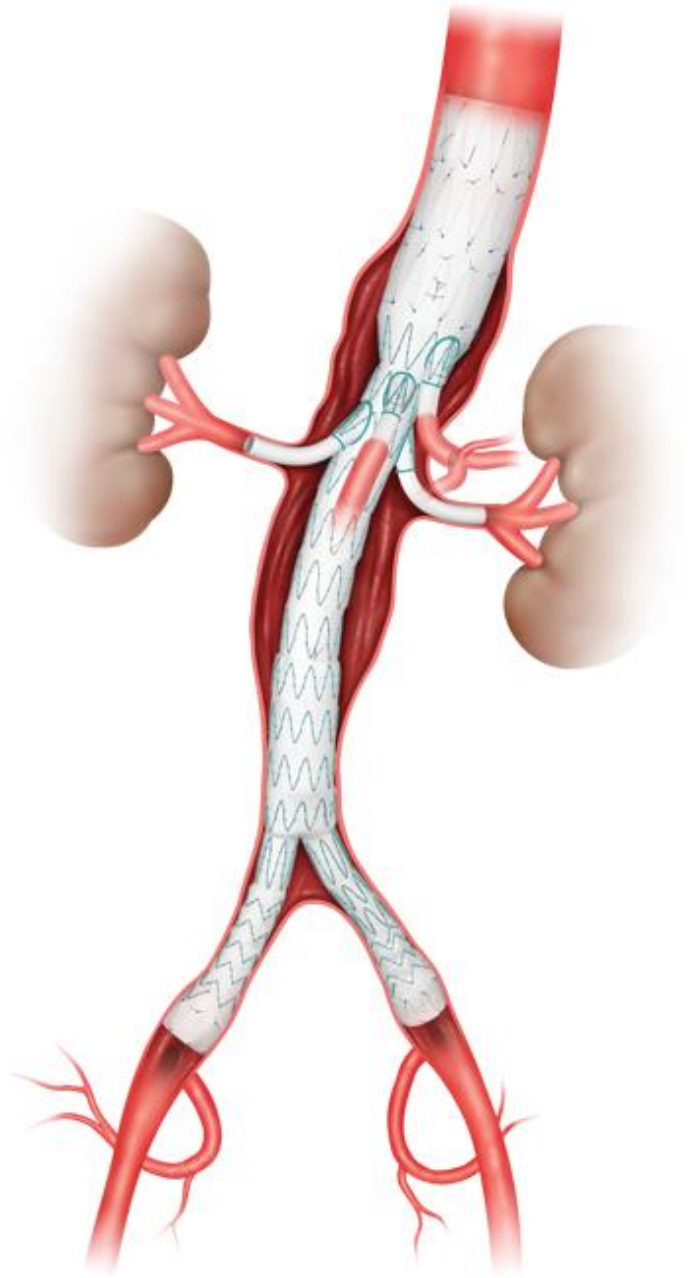
Zenith tBranch

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

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APPLICABILITY OF t-BRANCH®

- 201 patients with TAAAs
- 87% candidates for custom devices
- 47% candidates for t-Branch® device
- Reasons for unsuitability:
  - Visceral artery anatomy 50%
  - Access 26%
  - Proximal landing zone 21%

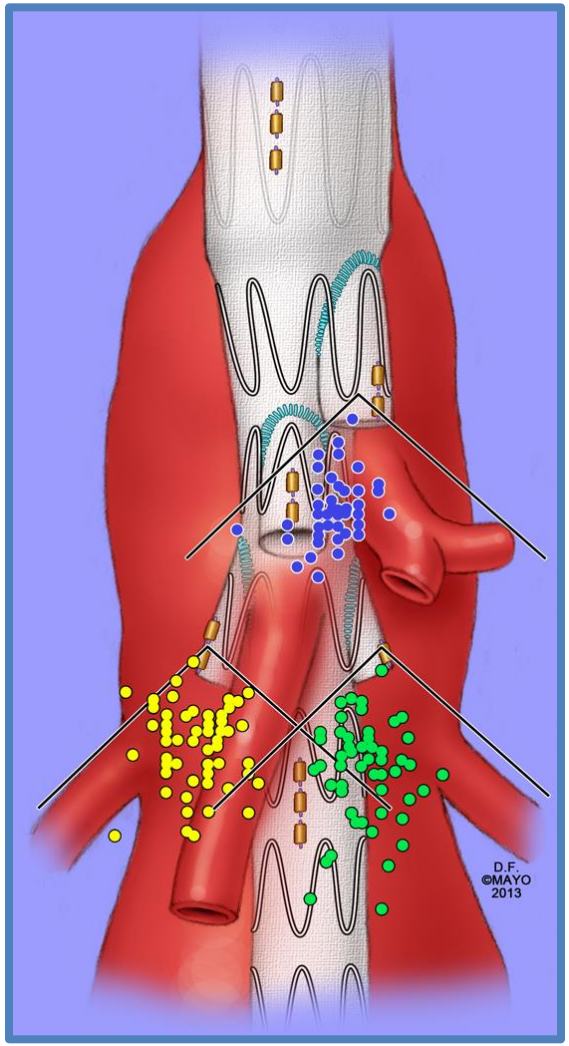


Table III. Branch outcomes[a]

Branch	*No.*	*Insertion injury No. (%)*	*Patent No. (%)*	*Occluded No. (%)*	*Stenosed No. (%)*	*Stented No. (%)*	*Stenosed or occluded[b] No. (%)*	*Injured, stenosed, or occluded[b] No. (%)*
Celiac axis	76	2 (2.6)	74 (97.4)	2 (2.6)	0 (0.0)	0 (0.0)	2 (2.6)	3 (3.9)
Superior mesenteric artery	81	1 (1.2)	81 (100)	0 (0.0)	1 (1.2)	1 (1.2)	1 (1.2)	2 (2.5)
Renal artery	148	11 (7.4)	139 (93.9)	9 (6.1)[c]	4 (2.7)	3 (2.0)	13 (8.8)	21 (14.2)
χ^2		5.48	5.85	5.85	2.39	1.6	7.39	15.9
R		0.065	0.054	0.054	0.3	0.45	0.025	0

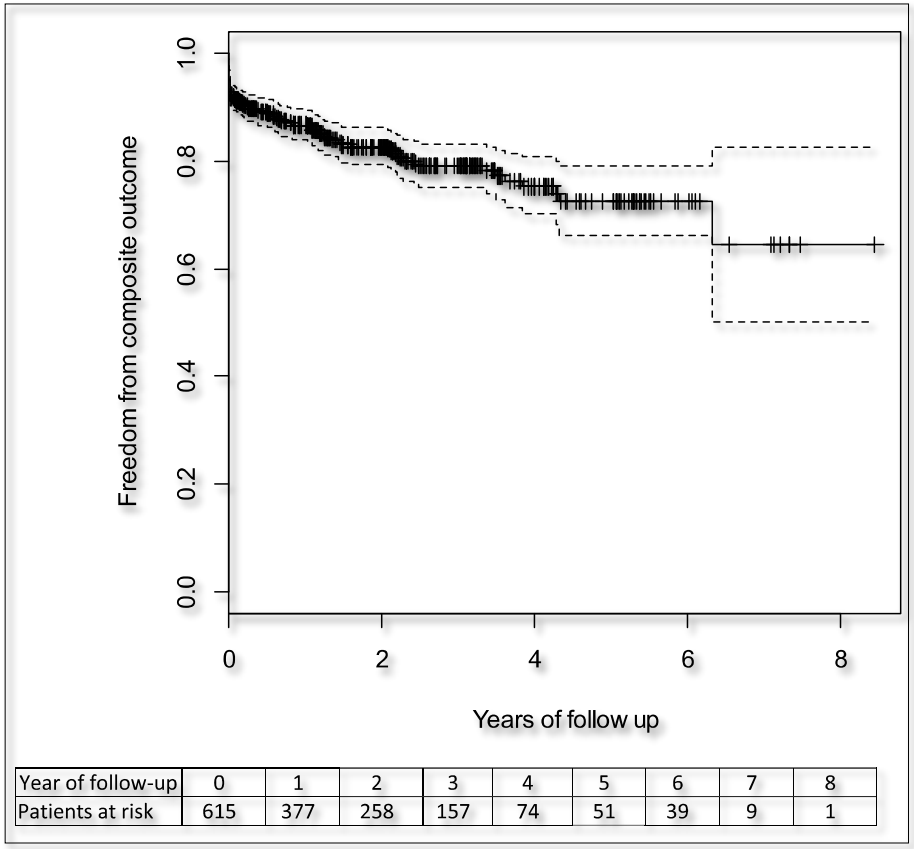
- Chuter et al JVS 2012;56
- 81pat, 306 Branches
- Mean FU 21months
- 100% Technical Branch Success

Durability of branches in branched and fenestrated endografts

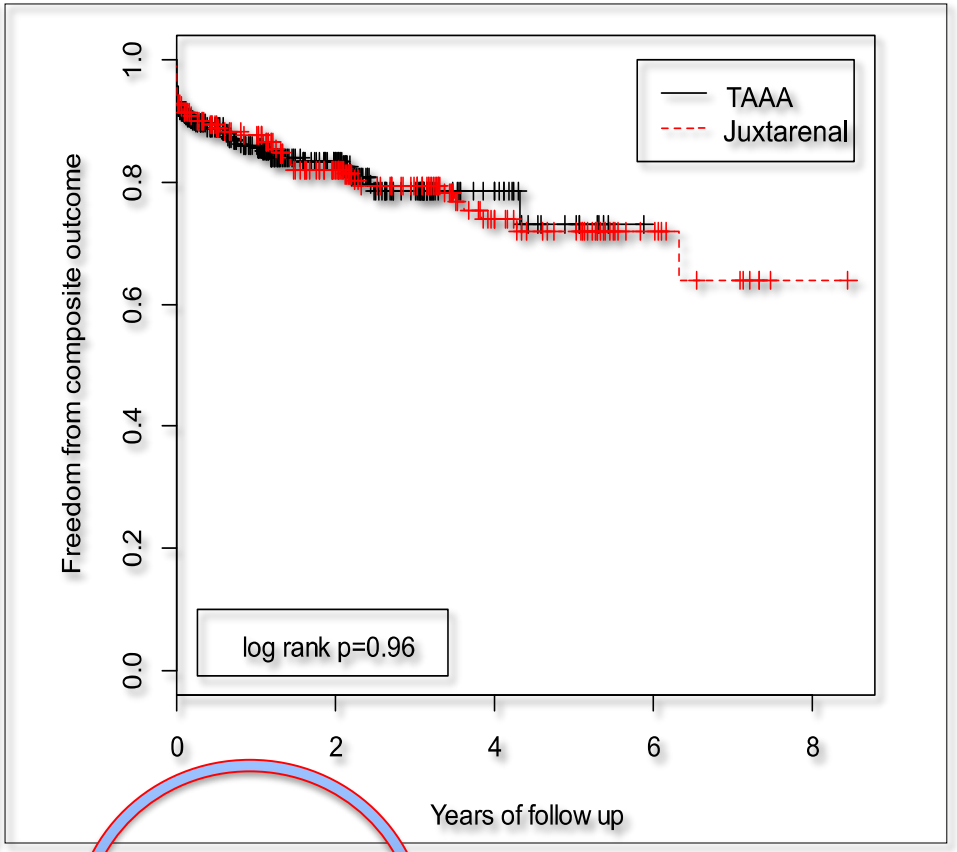
Tara M. Mastracci, MD, Roy K. Greenberg, MD, Matthew J. Eagleton, MD, and **Adrian V. Hernandez, PhD,**
Cleveland, Ohio

JVS 2013; 57:926

- 650 patients
  - Juxtarenal and TAAA
- Mean FU 3years



Year of follow-up	0	1	2	3	4	5	6	7	8
Patients at risk	615	377	258	157	74	51	39	9	1



- Reinterventions CA 0.4%, SMA 4%, RA 6%

Table III. Details of renal artery interventions in this cohort

Category	*No. of patients*	*Endoleak vs occlusion*	*Mean preoperative creatinine*	*Last recorded creatinine*	*Earliest and latest day from index procedure to secondary intervention*
Diagnostic angio and intervention for occlusion or stenosis	19	Occlusion/stenosis	1.12	1.35	87-2239
Complete occlusion, recanalization not possible	11	Occlusion/stenosis	1.14	1.90	33-751
Endoleak requiring intervention	28	Endoleak	1.32	1.77	3-1362

JUST DO IT.

Custom-made versus off-the-shelf multibranched endografts for endovascular repair of thoracoabdominal aortic aneurysms

Theodosios Bisdas, MD, Konstantinos P. Donas, MD, Michel J. Bosiers, MD, Giovanni Torsello, MD, and **Martin Austermann, MD,** *Muenster, Germany*

Objective: **This study compared early outcomes between the custom-made and the new off-the-shelf multibranched endograft (mbEVAR, t-branch; Cook Medical, Bloomington, Ind) for the endovascular repair of thoracoabdominal aortic aneurysms (TAAAs).**

Methods: **Between January 2010 and January 2013, 46 consecutive patients with TAAAs underwent endovascular aortic repair with mbEVARs. A custom-made device was used in 24 patients (group A, 52%), with Crawford classification type I, 2 (8%); type II, 4 (17%); type III, 9 (38%); and type IV/V, 9 (38%), and the a t-branch endograft was used in 22 patients (group B, 47%), with type II, 9 (41%); type III, 12 (55%); and type IV/V, 1 (4%). The main outcome measure was technical success, defined as successful target revascularization without occlusion of the bridging endografts or type I or III endoleak at the completion angiography. Secondary end points were mortality, unplanned reinterventions, branch occlusion, paraplegia, and persistent (after discharge) paraparesis.**

Results: **Technical success was 100% in both groups. The 30-day mortality was 8% in group A (n = 2) and 0% in group B ($P = .51$). Survival rates at 6 months were 71% in group A (mean follow-up, 13 ± 11 months) and 94% in group B (mean follow-up, 6 ± 3 months; ($P = .04$). There was only one procedure-related death caused by cerebral bleeding and herniation in group A. The freedom-from-reintervention rate at 6 months was 100% in group A (mean follow-up, 12 ± 11.5 months) and 90% in group B (mean follow-up, 6 ± 3.9 months; $P = .07$). No branch occlusions were observed in group A, whereas a branch occlusion occurred in three patients in group B (in all cases the bridging endograft for the renal artery). In two patients, the possible reason for branch occlusion was a thrombophilic disorder, whereas in one patient, the reason remains unknown. Paraplegia was observed in one patient in each group (group A: 4%; group B: 5%; $P = .51$) and persistent paraparesis in two patients in group A (8%) and in one patient (5%) in group B ($P = .94$).**

Conclusions: **The t-branch device, with the unique advantage of direct implantation without any delay for manufacturing, showed 100% technical success and comparable clinical outcomes to the traditional custom-made mbEVARs. Further long-term evaluation remains mandatory. (J Vasc Surg 2014;60:1186-95.)**

Table I. Patient demographics and characteristics in both groups

Parameters[a]	*Group A (n = 24)*	*Group B (n = 22)*	P
Males	21 (88)	15 (68)	.22
Age, years	71 ± 6	70 ± 8	.7
Comorbidities			
Arterial hypertension	23 (96)	21 (95)	.51
Diabetes mellitus	1 (4)	1 (5)	.51
Coronary artery disease	20 (83)	18 (81)	.8
Chronic obstructive pulmonary disease	8 (33)	6 (27)	.9
GFR, mL/min/1.73 m^2	81 ± 25	73.2 ± 30	.36
Body mass index, kg/m^2	26 ± 3	25 ± 3	.41
Tobacco use	13 (54)	14 (64)	.72
ASA score			
3	5 (21)	6 (27)	.87
4	19 (79)	16 (73)	.87
Symptomatology at admission			
Asymptomatic aneurysms	20 (83)	18 (82)	.79
Symptomatic aneurysms	4 (17)	4 (18)	.79
Aneurysm characteristics			
Crawford classification			
Type I	2 (8)	0	.51
Type II	4 (17)	9 (41)	.13
Type III	9 (38)	12 (54)	.38
Type IV	9 (38)	1 (5)	.02
Postdissection aneurysms	2 (8)	3 (14)	.92
Maximal aneurysm diameter, mm			
Above the celiac trunk	57 (28-81)	61 (29-110)	.11
At the level of renovisceral segment	43 (26-61)	37 (25-75)	.04
Infrarenal	46 (21-102)	38 (17-69)	.21

ASA, American Society of Anesthesiologists; *GFR*, glomerular filtration rate.

[a]Continuous data are shown as mean ± standard deviation or median (interquartile range), and categoric data as number (%).

T Branch Outcomes

- T Branch suitability 69%
- 100% Technical Success
- 30d Mortality 0%
- 4 Renal Branch occlusions compared to none in the CMD group
  - 3 thrombophilia related

T Branch Unsuitability

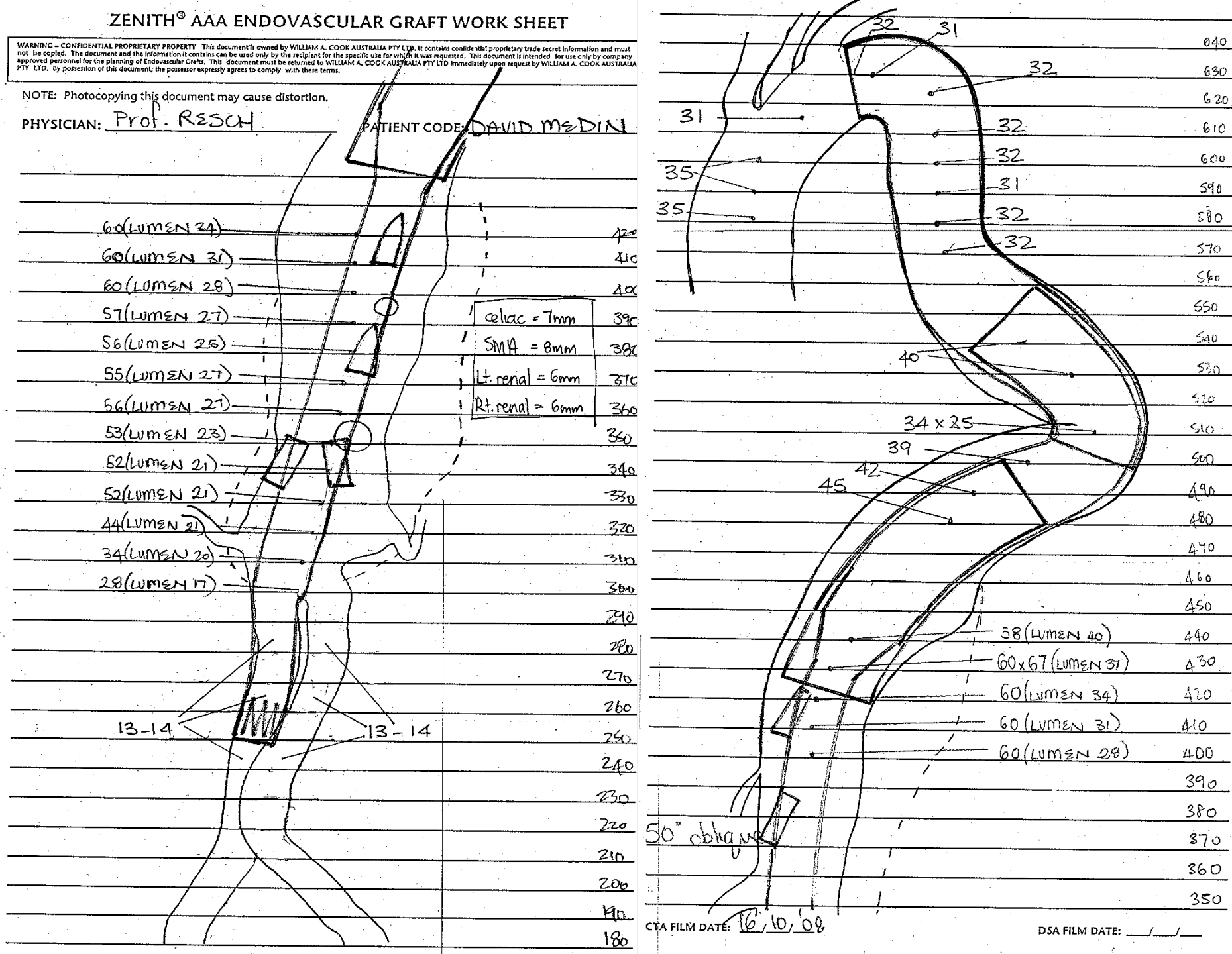
- Long distance from celiac trunk to RA (60%)
- Diameter < 25mm at RA (20%)
- Cranially Oriented RA (20%)
- Large Proximal landing Zone (13%)

- CMD Grafts confer less aortic coverage, more flexibility in TV cath and less total number of grafts

ZENITH® AAA ENDOVASCULAR GRAFT WORK SHEET

NOTE: Photocopying this document may cause distortion.

PHYSICIAN: Prof. RESCH PATIENT CODE: DAVID MEDIN



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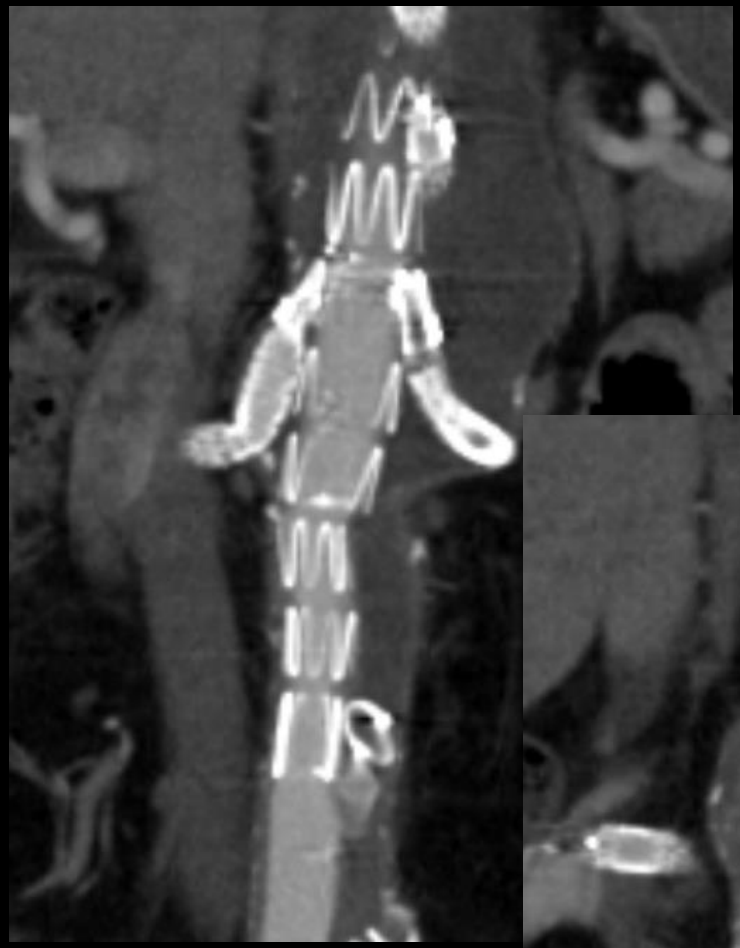
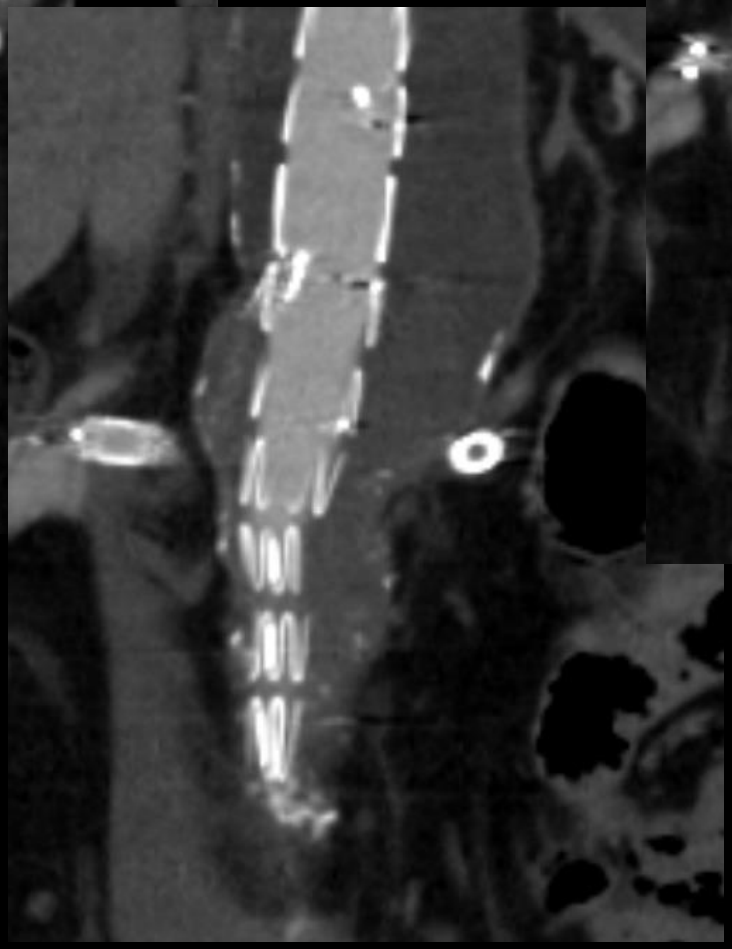


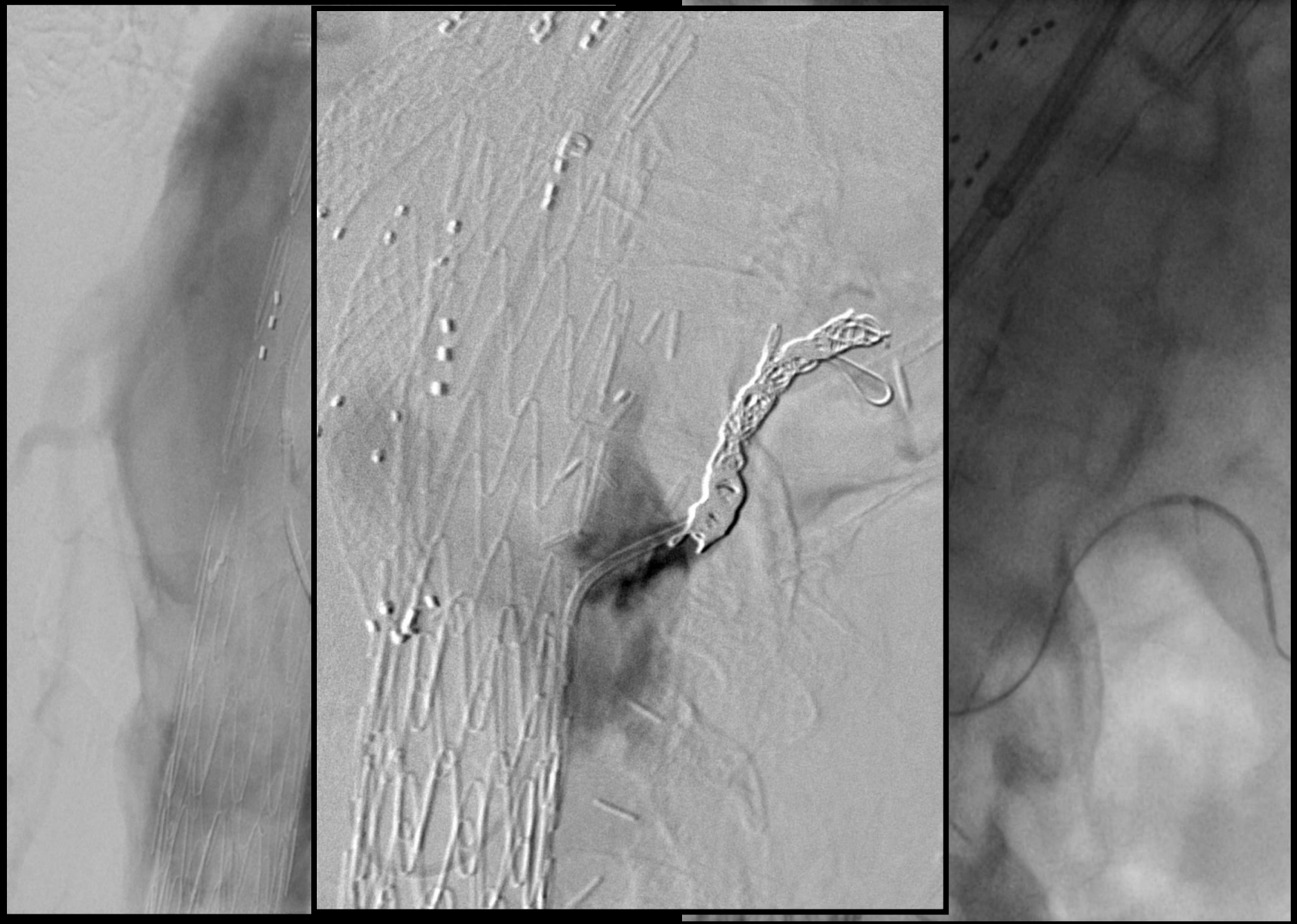


JUST DON'T

Renal Branches Are Particularly Prone to Fail

Performance of Bridging Stent Grafts in Fenestrated and Branched Aortic Endografting ☆

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Department of Vascular Surgery, St. Franziskus Hospital and University Clinic of Muenster, Muenster, Germany

WHAT THIS PAPER ADDS

This study provides details of the performance of bridging stent grafts used in fenestrated and branched endografting for the treatment of thoracoabdominal aortic aneurysm. It may help in planning the procedure and in addressing future device developments.

Objective/Background: Bridging stent grafts (BSGs) are used to connect the target vessel with the main body during fenestrated or branched aortic endografting (f/bEVAR). No dedicated devices are available for BSG. The aims of this study were to assess the performance of BSGs.

Methods: Between January 2004 and May 2014 the data of patients treated with f/bEVAR were prospectively collected. Only patients treated after January 2010 were included. The main measurement outcome was any BSG related complications. A logistic regression analysis, including target vessel type, type of joint (fenestration or cuff), and type of BSG identified potential risk factors.

Results: One hundred and fifty consecutive patients underwent f/bEVAR, and 523 target vessels were involved. These included 104 celiac, 140 superior mesenteric, 275 renal, and four other arteries. The technical success rate was 99% (520/523 target vessels). Balloon expandable BSGs were mainly used ($n = 494$; 95%), and in 336 (65%) relining stents were combined. The primary reasons for technical failure were the dislocation of the main body ($n = 1$) and unsuccessful cannulation ($n = 2$). One was revascularized by means of the periscope technique. Four target vessel injuries were recorded and four renal arteries occluded peri-operatively. After a median follow up of 14 months (interquartile range 5.5–23.0), 13 (2%) BSGs occluded and 19 (4%) required re-interventions. Two SMA occlusions occurred, leading to death in both patients. The patency and freedom from re-intervention rates at 3 years amounted to 85% and 91%, respectively. Use of a branched main body was the only independent risk factor for re-intervention and for the composite event (hazard ratio [HR] 3.5, 95% confidence interval [CI] 1.3–9.9 [$p = .02$]; and HR 2.8, 95% CI 1.2–7.0 [$p < .01$], respectively). Of note, the use of relining stents seemed not to prevent BSG related complications.

Conclusion: The currently used BSGs had low occlusion and re-intervention rates. Modifications of the branched design or dedicated BSG devices may improve outcome, especially after bEVAR.

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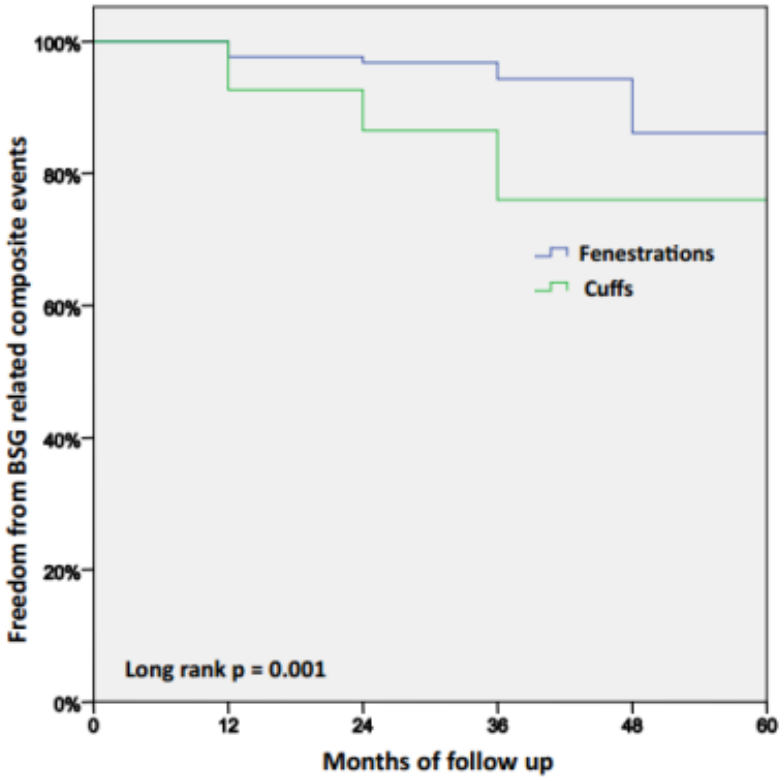
Keywords: Aneurysm, Aorta, Branched, Bridging, Endovascular, Fenestrated, Stent

Pannucio et al, EJVES 2015

Long Term Outcomes of Fen v Branch

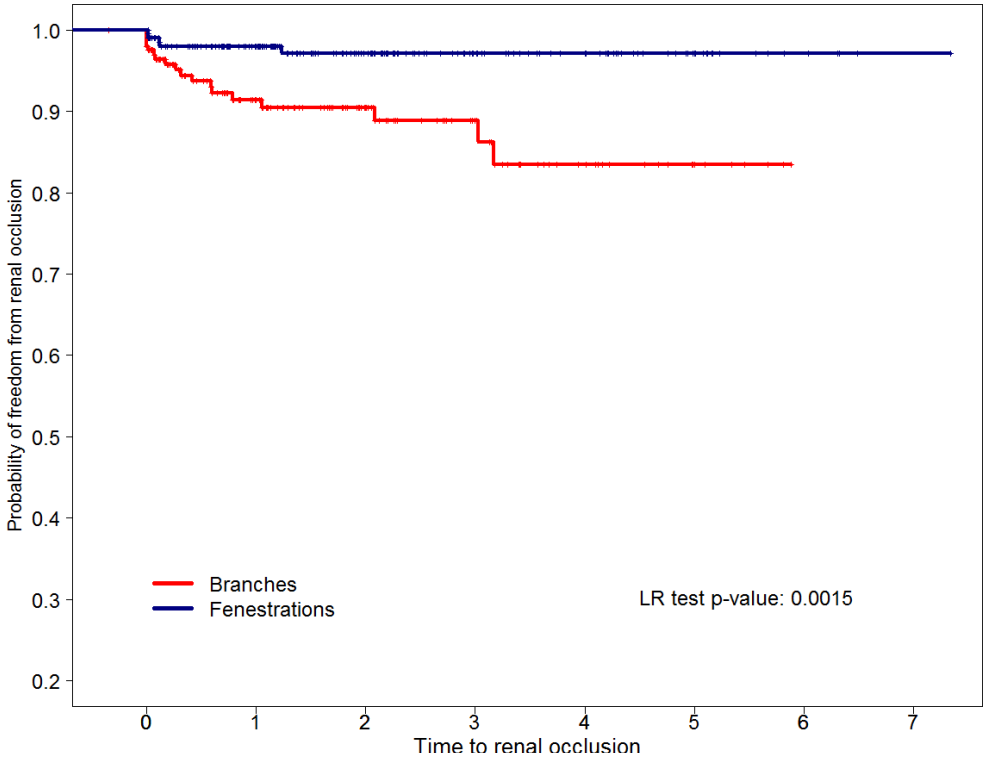


Numbers at risks

Months of follow up	0	12	24	36	48
Fenestrations	251	168	62	15	7
Cuffs	272	95	50	12	1

Pannucio et al, EJVES 2015

Branch v Fenestrated: Branch Durability



Year of Follow-up	0	1	2	3	4	5
Patients at risk Renal Branch	202	95	60	34	18	7
Patients at risk Renal Fen	207	142	84	47	32	16

Martin-Gonzales et al, EJVES

Spandex Rule: ”Just Because You Can, Doesn’t Mean You should”

T. Mastracci, RFL