University Heart Center Hamburg

GERMAN AORTIC CENTER HAMBURG

Technique of False Lumen Embolisation

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MEET 2015
MULTIDISCIPLINARY EUROPEAN ENDOVASCULAR THERAPY

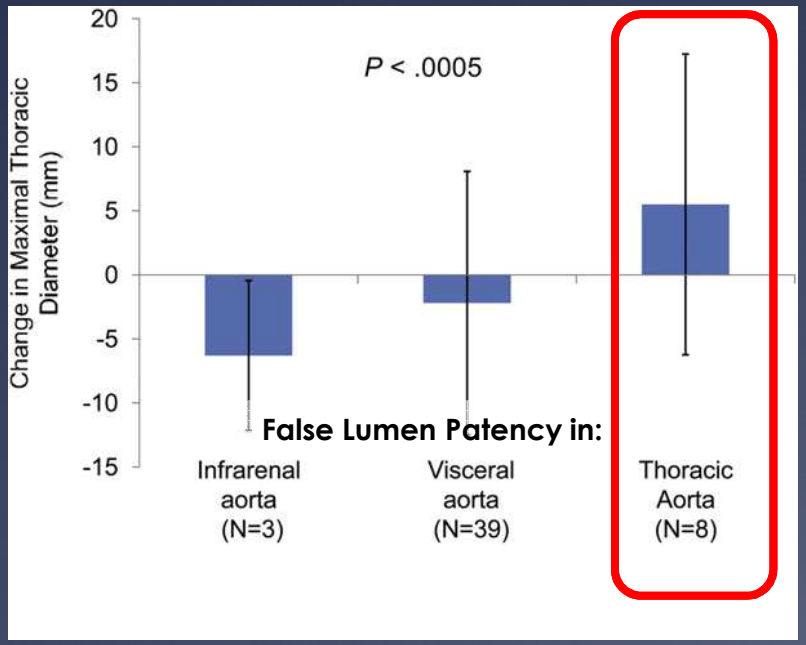
Disclosures

* Research-grants, travelling, proctoring speaking-fees, IP with Cook Medical.

TEVAR in Chronic Type B

Efficacy of thoracic endovascular stent repair for chronic type B aortic dissection with aneurysmal degeneration

Salvatore T. Scali, MD,[a] Robert J. Feezor, MD,[a] Catherine K. Chang, MD,[a] David H. Stone, MD,[c] Philip J. Hess, MD,[b] Tomas D. Martin, MD,[b] Thomas S. Huber, MD, PhD,[a] and Adam W. Beck, MD,[a]
Gainesville, Fla; and Lebanon, NH



- 2004-2011
- n=80, 26 months FU
- TEVAR for type B and residual AD
- LSA-coverage 75%, 24% debranching
- Median 16 (1-74) months.
- 35% FL-expansion during FU (!)

Scali et al. 2013; J Vasc Surg. 58:10-7

TEVAR in Chronic Type B

Predictors of Outcome after Endovascular Repair for Chronic Type B Dissection

K. Mani [a,d,*], R.E. Clough [a,b], O.T.A. Lyons [a,c], R.E. Bell [a], T.W. Carrell [a,b], H.A. Zayed [a], M. Waltham [a,c], P.R. Taylor [a,b]

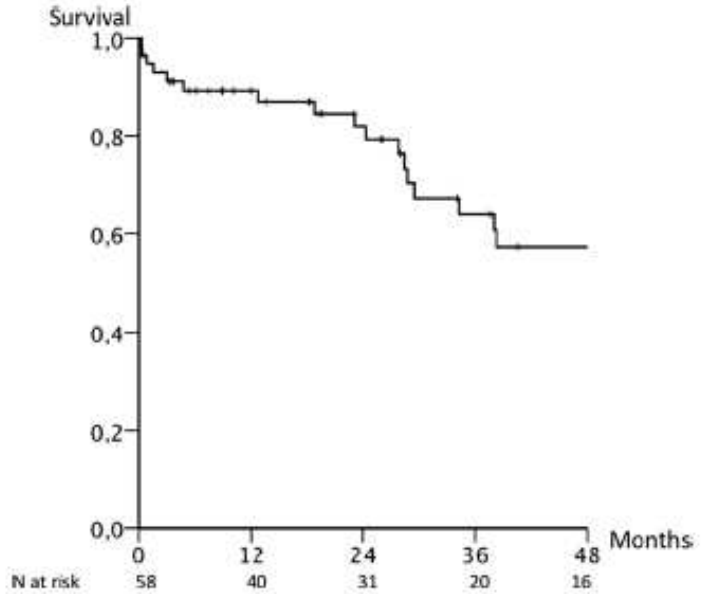


Figure 2. Kaplan–Meier analysis of survival after endovascular intervention for chronic type B dissection.

- 2000-2010
- N=58, 38 months FU
- TEVAR for chronic type B (>14days)
- Perioperative mortality 5.2%
- 3 year mortality 36%

Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91

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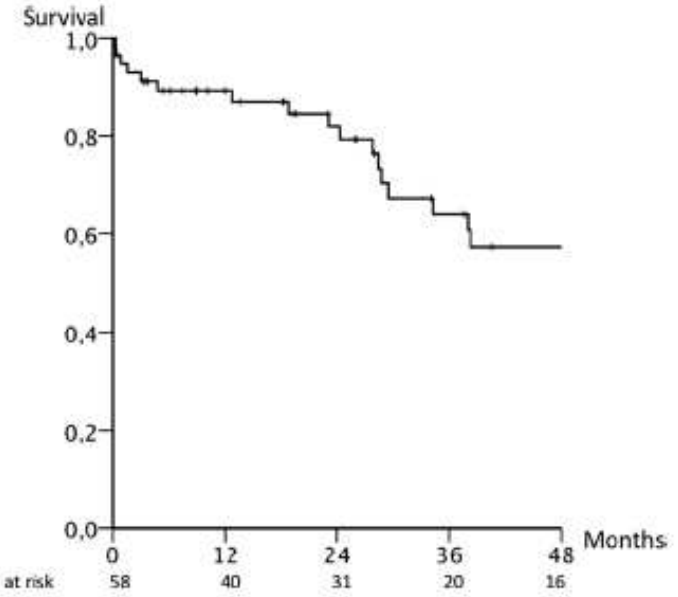
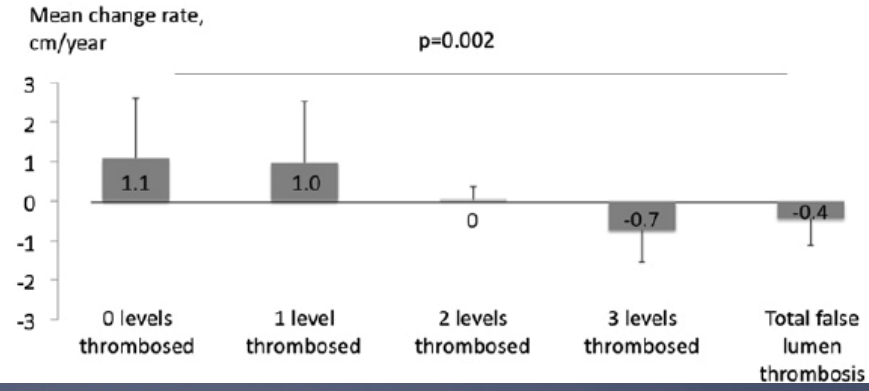


Figure 2. Kaplan–Meier analysis of survival after endovascular intervention for chronic type B dissection.

Cox regression analysis of factors related to mortality in patients with mid-term followup.

Parameters	Odds ratio	*P*-value	95% CI	
Age, per year	1.08	0.04	1.00	1.17
Female vs male	0.01	0.03	0.00	0.64
Urgent vs elective	0.59	0.60	0.08	4.33
Maximal aortic diameter pre-intervention, per cm	0.92	0.82	0.43	1.95
Increase in aortic size, per cm	2.70	0.01	1.23	5.96



Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91

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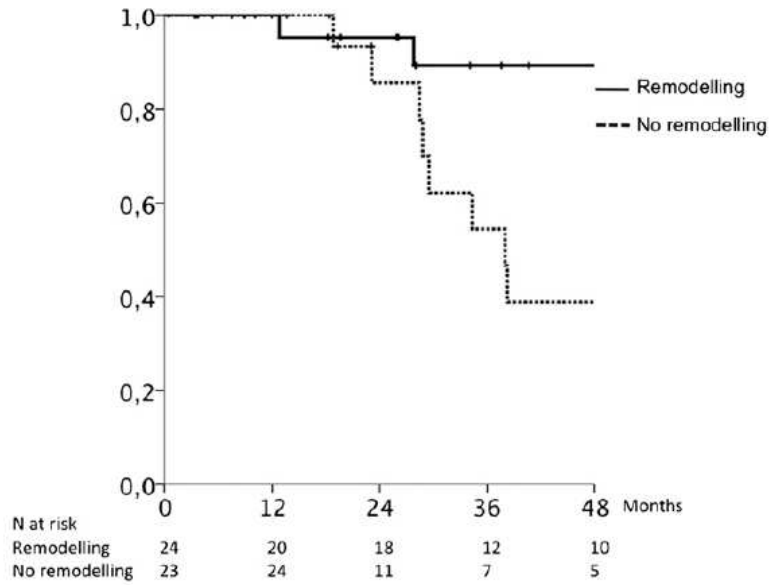


Figure 5. Kaplan–Meier analysis of survival based on remodelling of the aorta after endovascular intervention for chronic type B dissection.

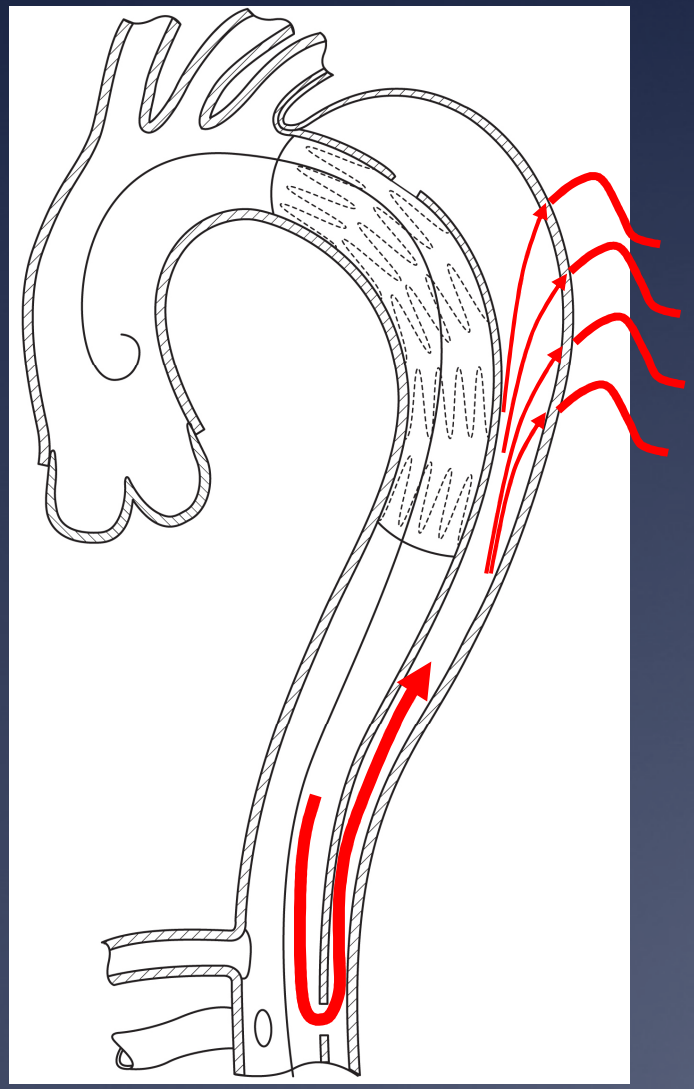
False Lumen Perfusion

No Aortic Remodelling

Death

Mani et al. 2012; Eur J Vasc Endovasc Surg 43: 386-91

Failure to Remodel in Chronic Dissection



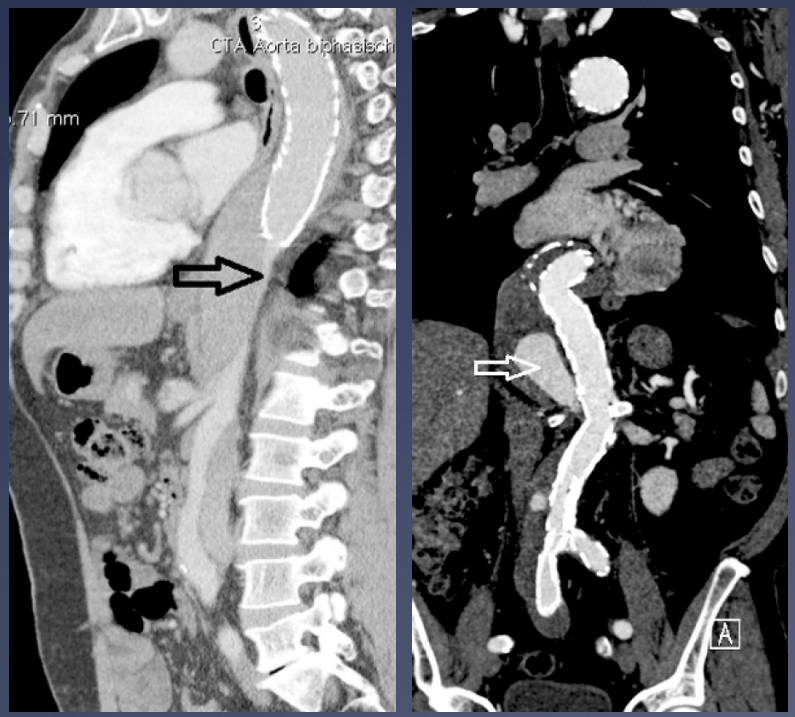
* Perfusion and pressure unchanged in false lumen
* Presence of Intercostals originating from false lumen
* False lumen back flow to Intercostals

fEVAR in Chronic Type A/B

Outcomes of Fenestrated/Branched Endografting in Post-dissection Thoracoabdominal Aortic Aneurysms

K. Oikonomou [a,b], R. Kopp [a], A. Katsargyris [a], K. Pfister [a], E.L. Verhoeven [b], P. Kasprzak [a,*]

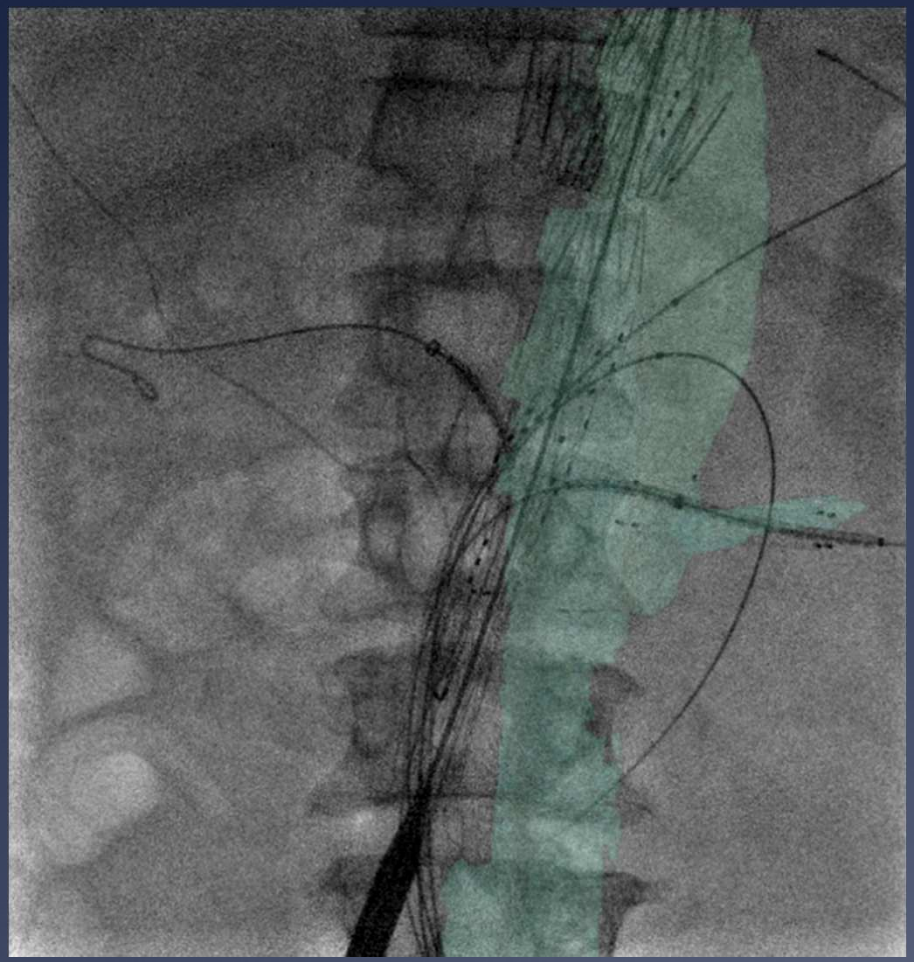
[a] Department of Surgery, Division of Vascular Surgery, University Hospital Regensburg, Regensburg, Germany
[b] Department of Vascular and Endovascular Surgery, Paracelsus Medical University, Nürnberg, Germany

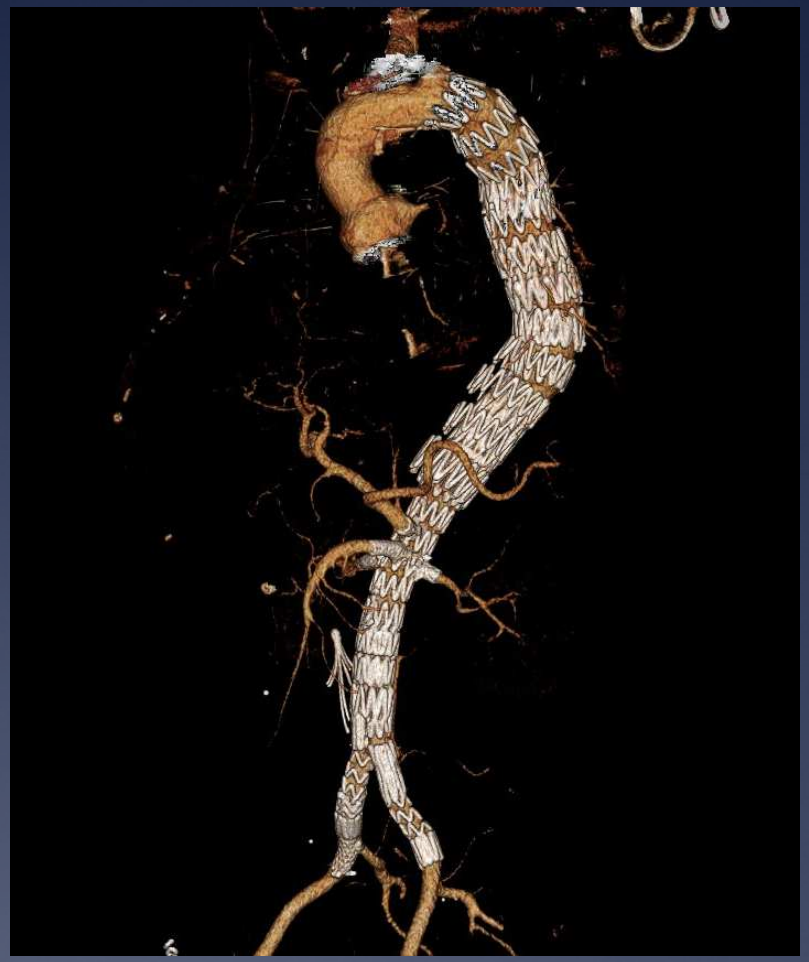


- 2010-2014
- N=31, 17 months FU
- 6 Type II EL; 6 type 1b EL
- 30d-mortality: 9.6%
- Technical success: 93.5%
- FL-thrombosis: 88%

Oikonomou et al. 2014; J Vasc Endovasc Surg 48: 641-8

fEVAR in Chronic Type B



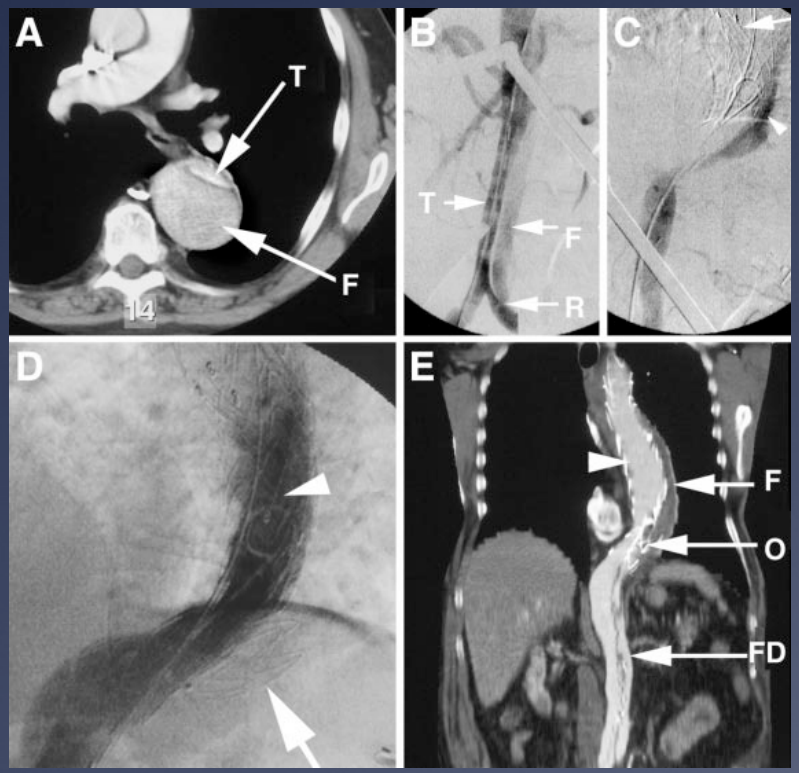


Courtesy of Stephan Haulon, Lille

Cork in the Bottleneck

How to Exclude the Dilated False Lumen in Patients After a Type B Aortic Dissection? The Cork in the Bottleneck

Maartje C. Loubert, MD[1]; Victor P.M. van der Hulst, MD, PhD[3];
Cees De Vries, MD[3]; Kees Bloemendaal, MD[2]; and Anco C. Vahl, MD, PhD[1]

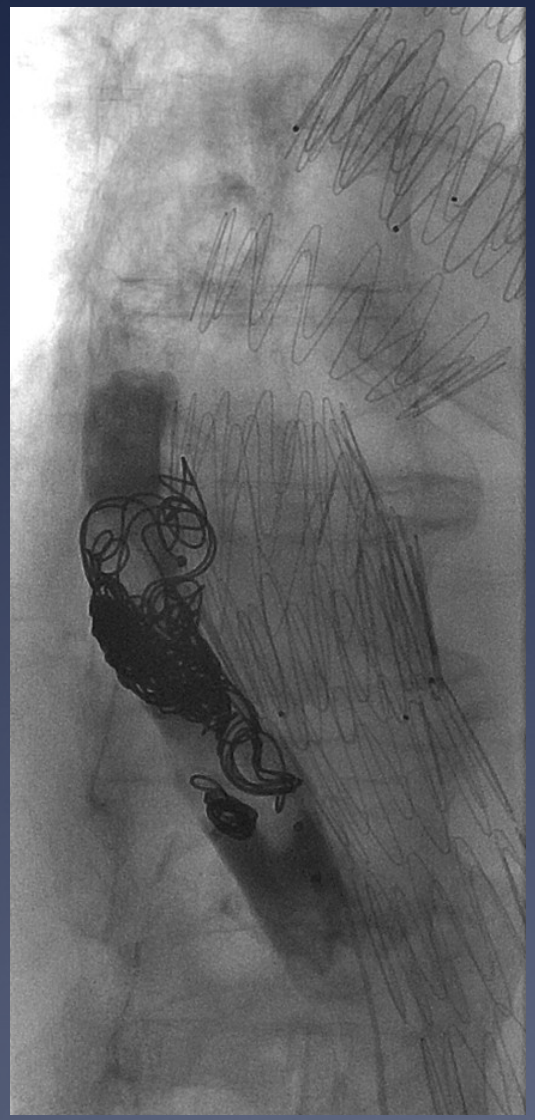


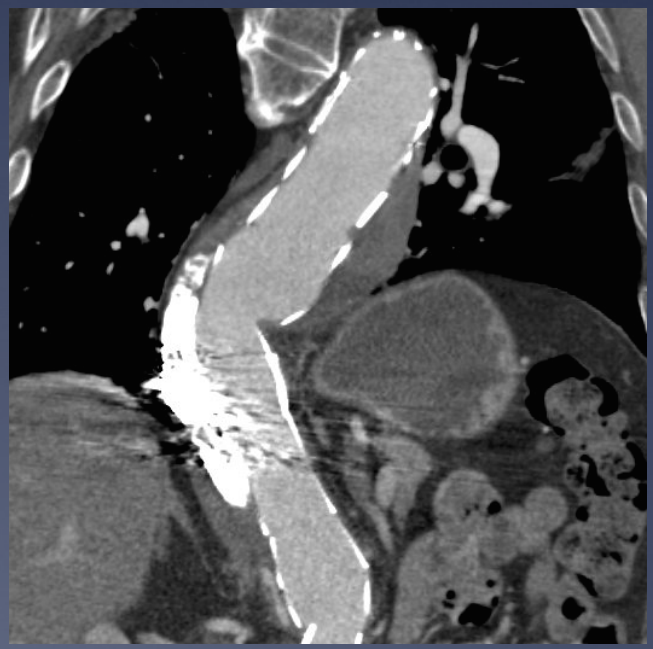
- 2 Cases

1. FL-TAA-occlusion with:
   - 2 Greenfield filters
   - 6 detachable balloons
   - 5ml thrombin
2. FL-TAA-occlusion with:
   - 24mm Talent occluder

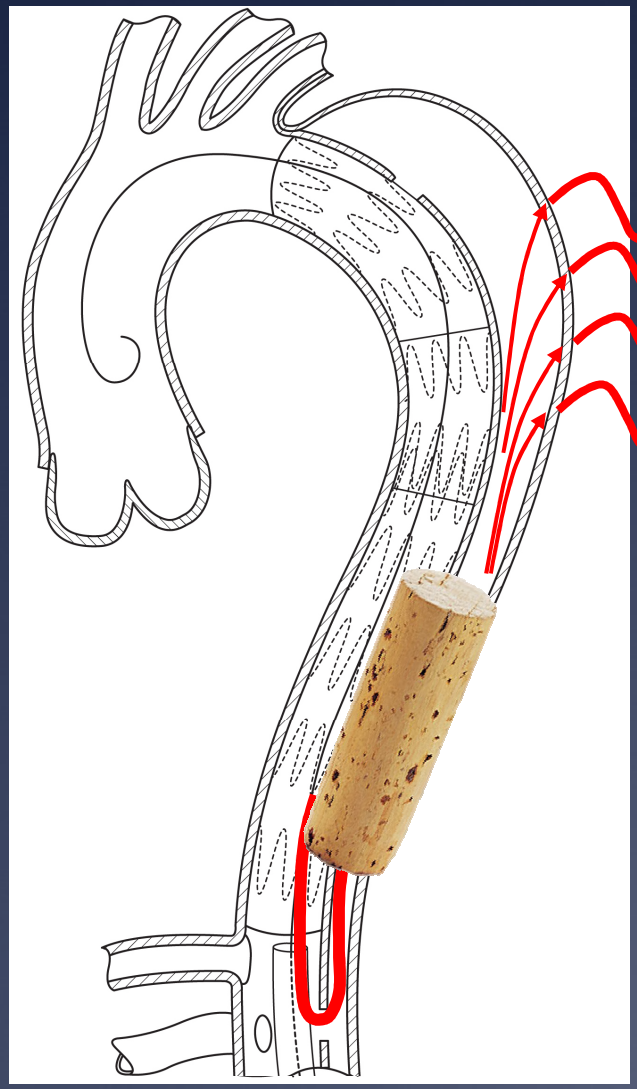
Loubert et al. 2003; J Endovasc Ther 10: 244-8

Direct False Lumen Occlusion





Direct False Lumen Occlusion



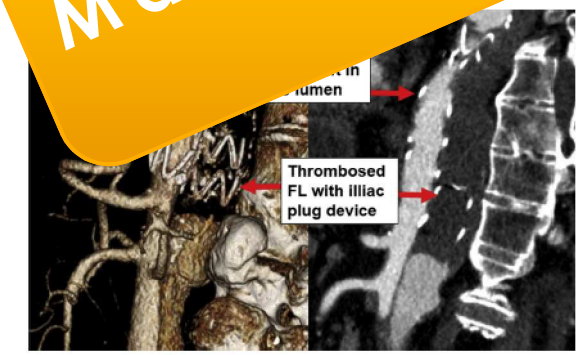
- Seperates aortic FL-compartments!
- Does not restrict further distal techniques like fenestrated EVAR

False Lumen Embolisation

Outcomes after false lumen embolization with covered stent devices in chronic dis

Jahanzaib Idrees, MD, Eric E. Roselli, MD, Susan Shafii
Bruce W. Lytle, MD, *Cleveland, Ohio*

Maximum Diameter: 24mm!

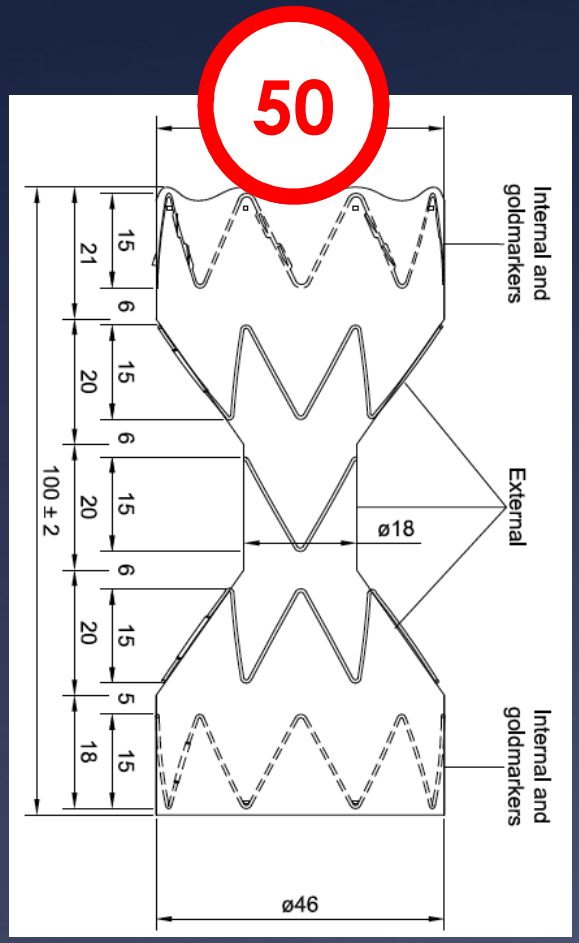


	Outcome[a] *(N = 21)*
30-day mortality	1 (4.7)
Follow-up, median months	26 (2-42)
Aortic rupture	0
Complete thrombosis after index embolization	15 (71)
Partial thrombosis	6 (29)
Endovascular reintervention (re-embolization)	4 (19)
Complete thrombosis after further embolization	19 (90)
Failure of thrombosis	0
Reduction in postoperative max descending diameter	13 (62)
Shrinkage, median mm	4.6 (0.2-27)

Idrees et al. 2014; J Vasc Surg 60:1507-13

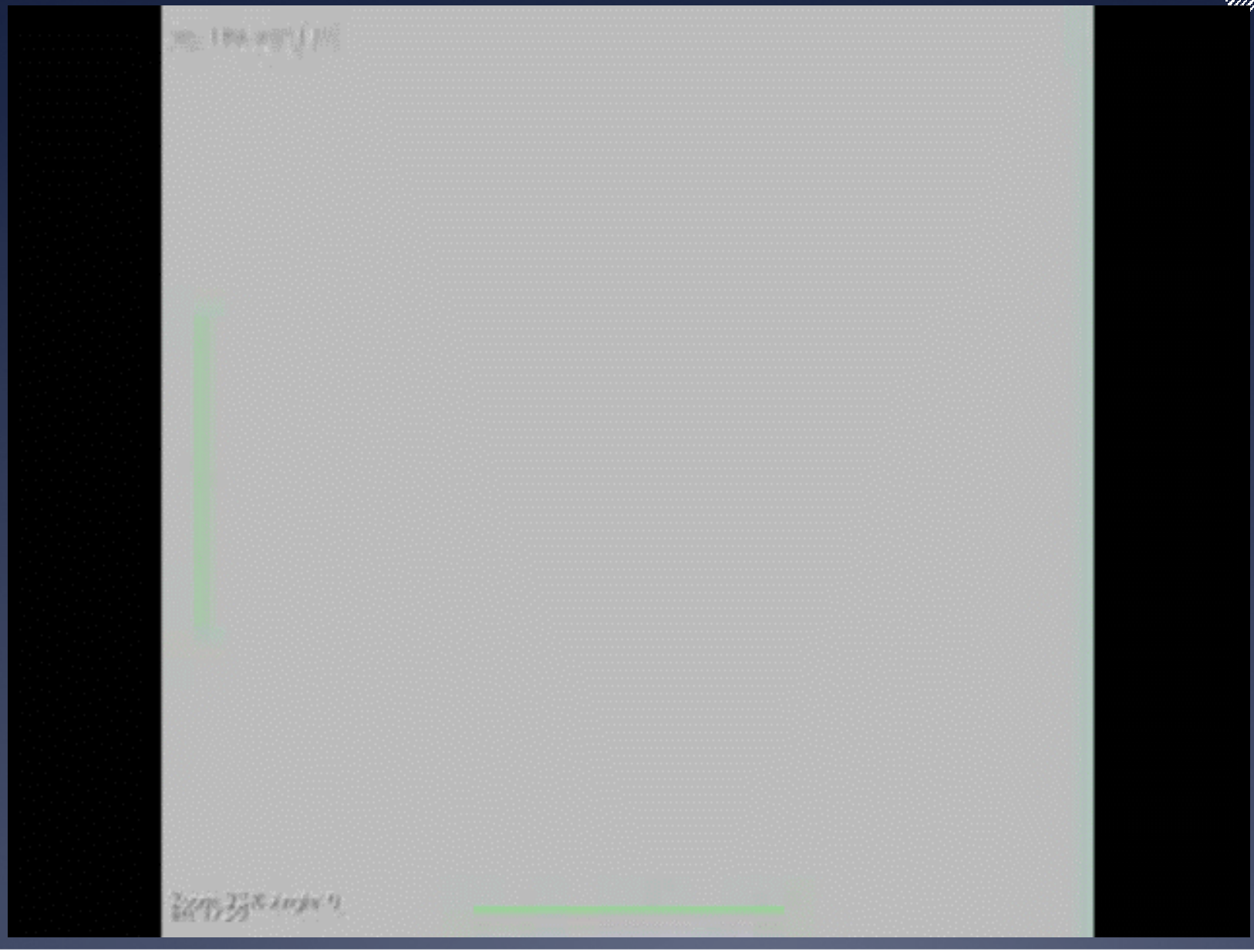
„Candy-Plug“

Candy-Plug

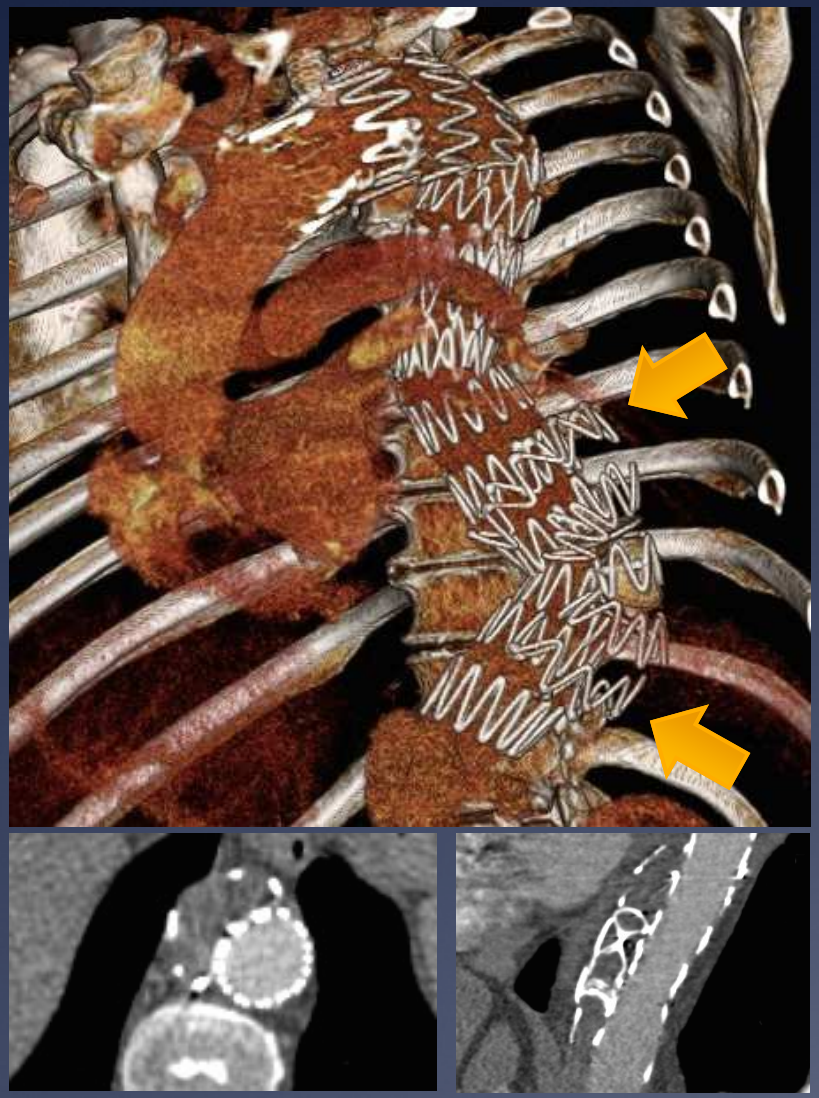


22mm Amplatzer plug II

Kölbel et al. 2013; J Endovasc Ther 20: 484-9



Candy-Plug

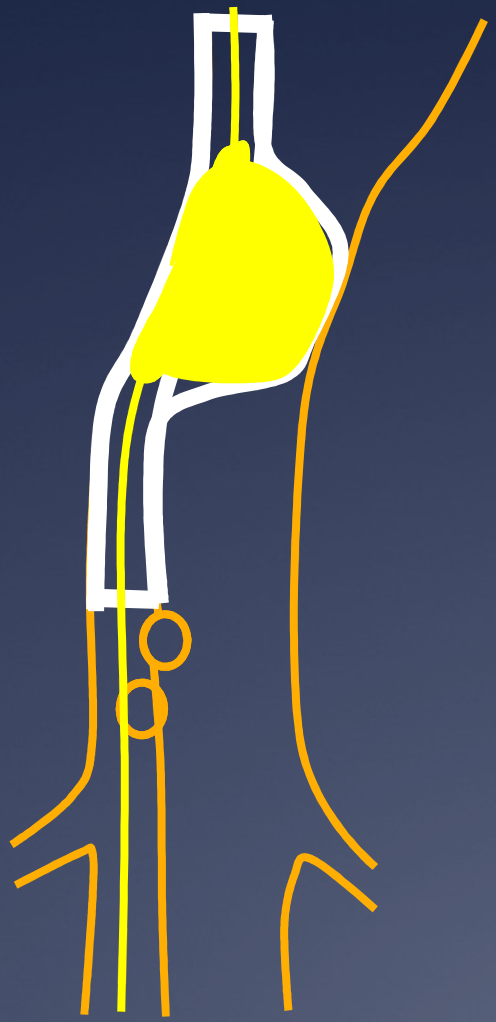


- Investigational technique
- Max. 50mm diameter
- 22mm Amplatzer II
- N=10
- Technical success 10/10
- Reintervention for continued perfusion: 2

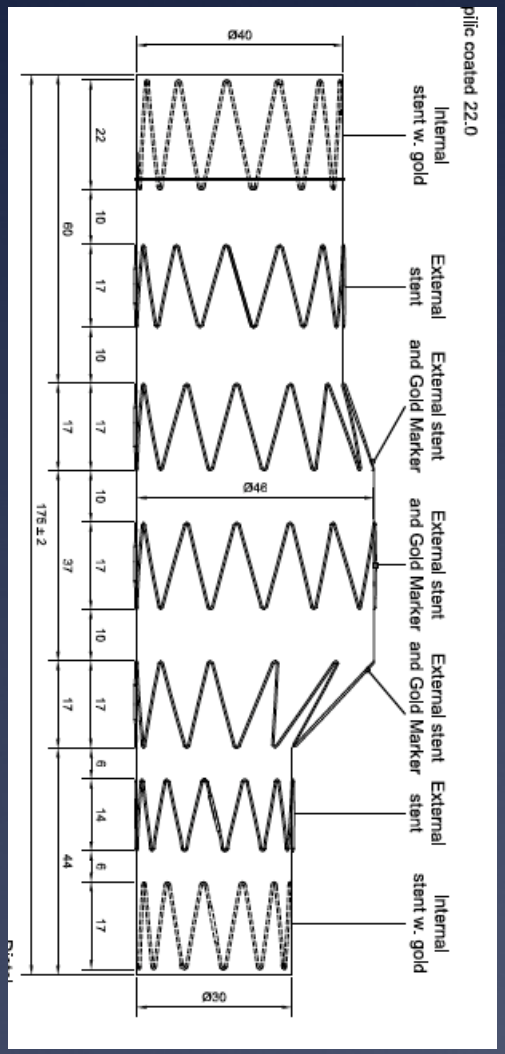
Kölbel et al. 2013; J Endovasc Ther 20: 484-9

„Knickerbocker“

Knickerbocker-Technique

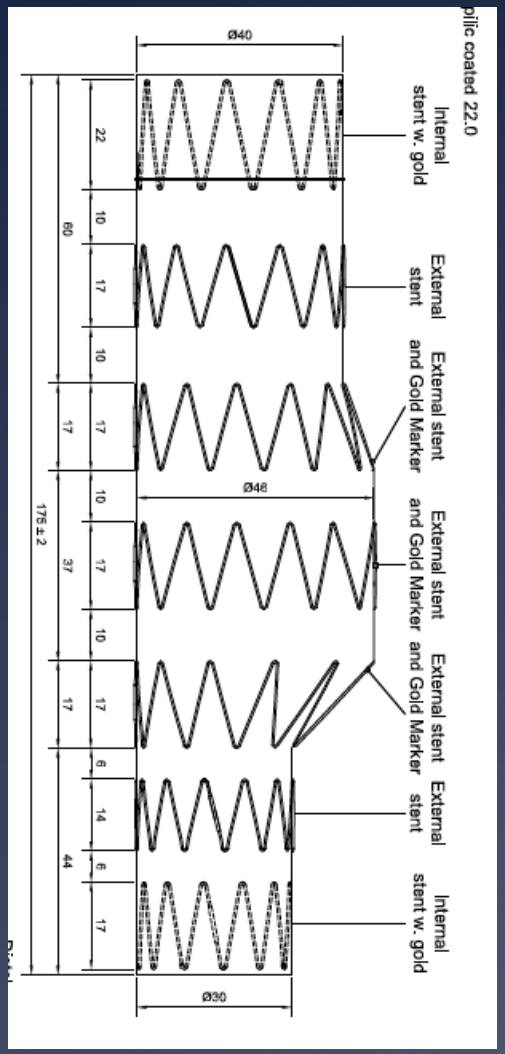


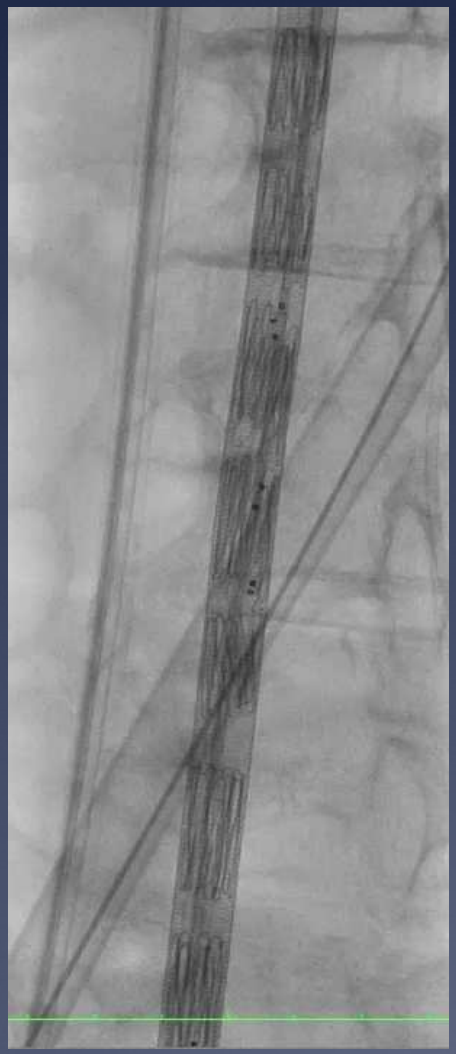
Knickerbocker-Technique



Kölbel et al. 2014; J Endovasc Ther 21: 117-22

Knickerbocker-Technique





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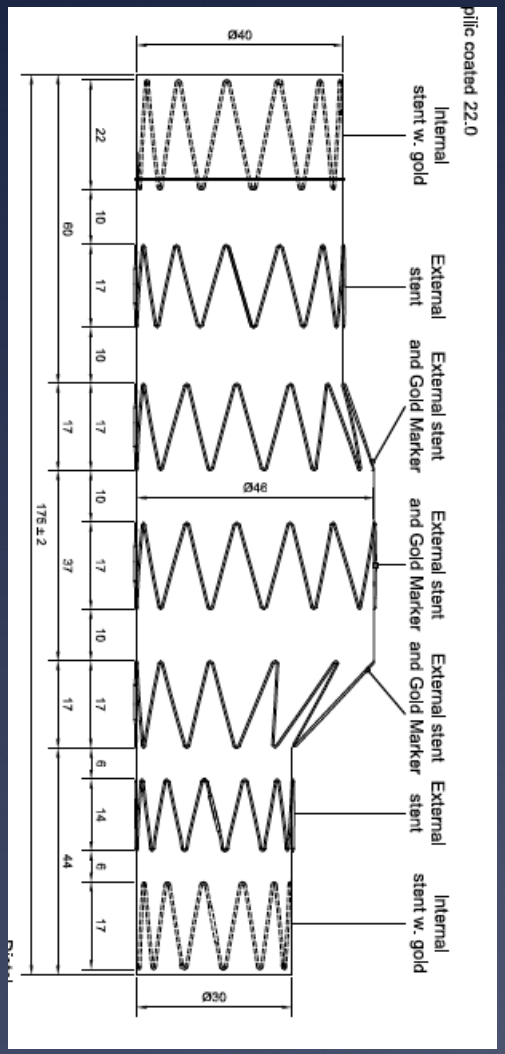

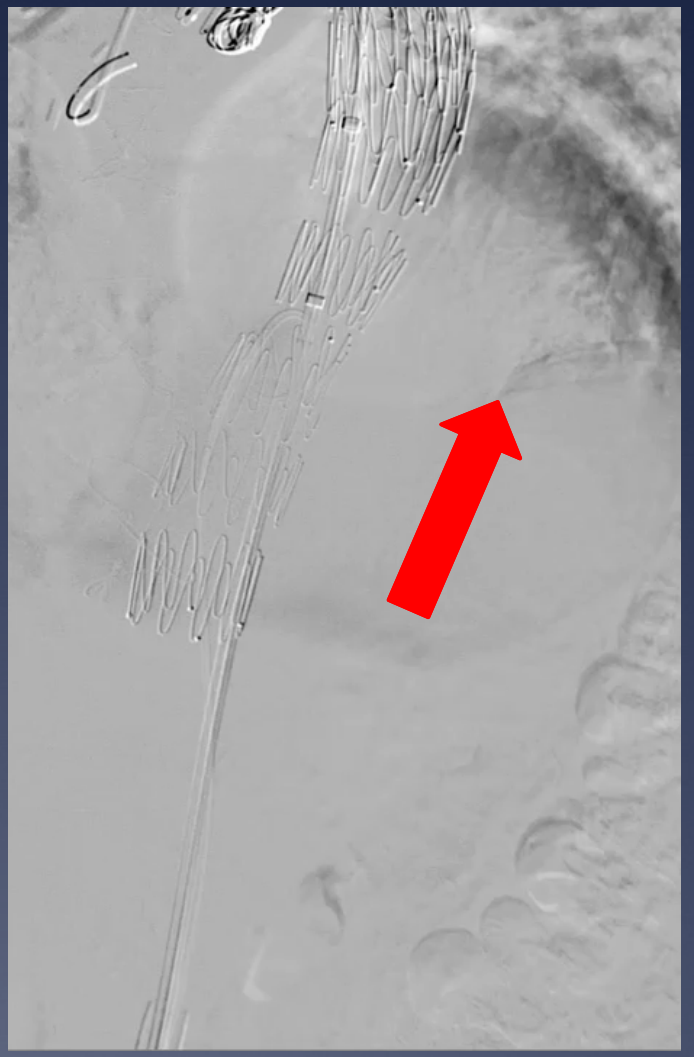

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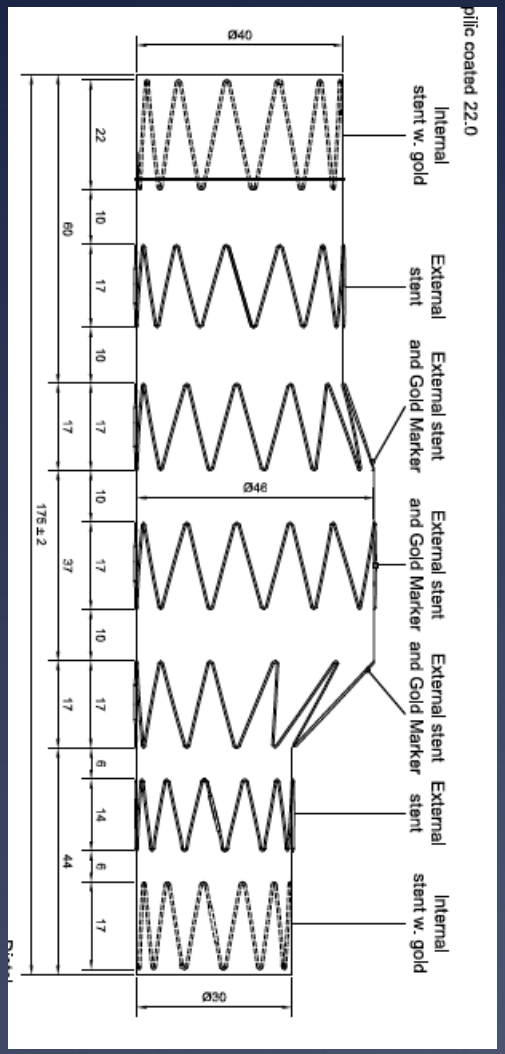

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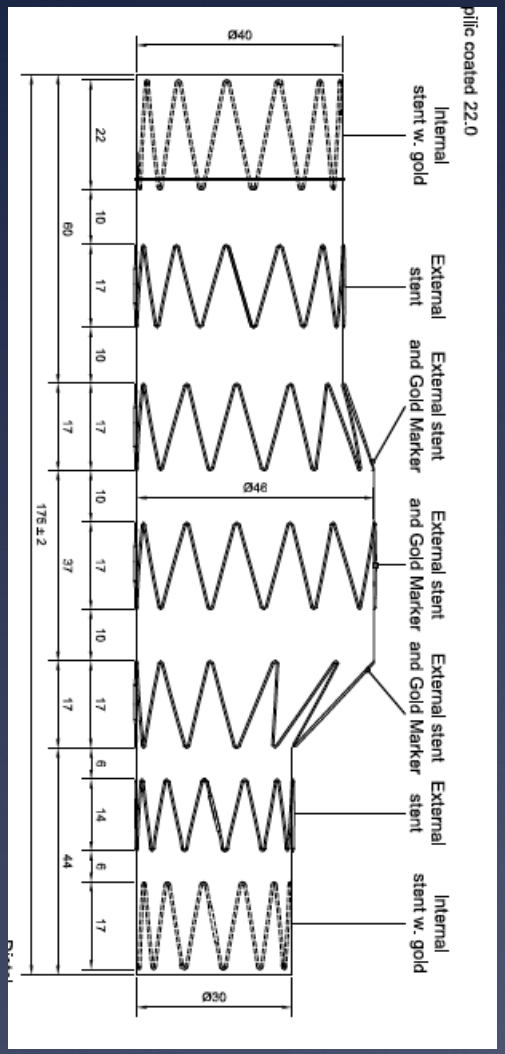

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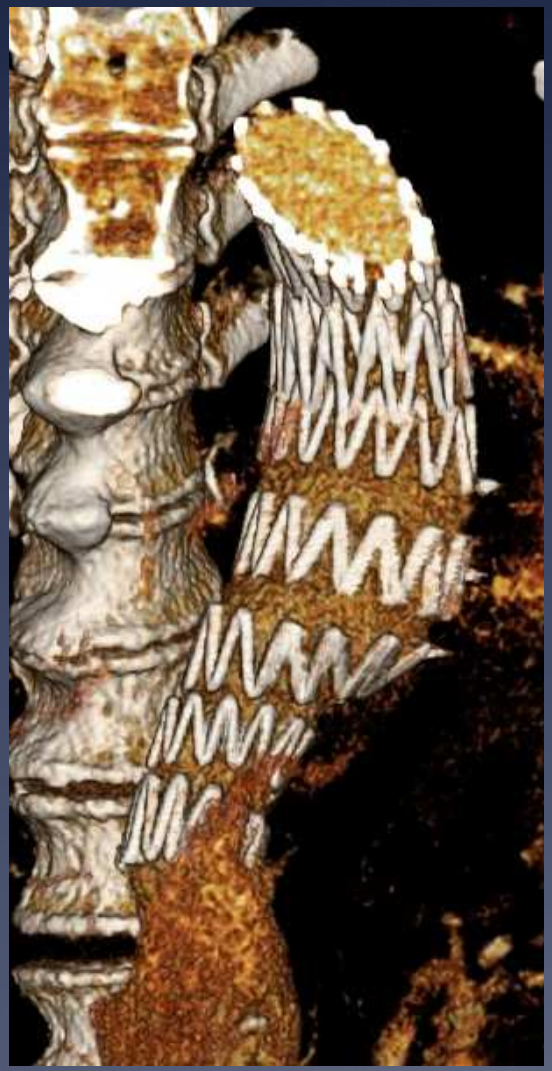
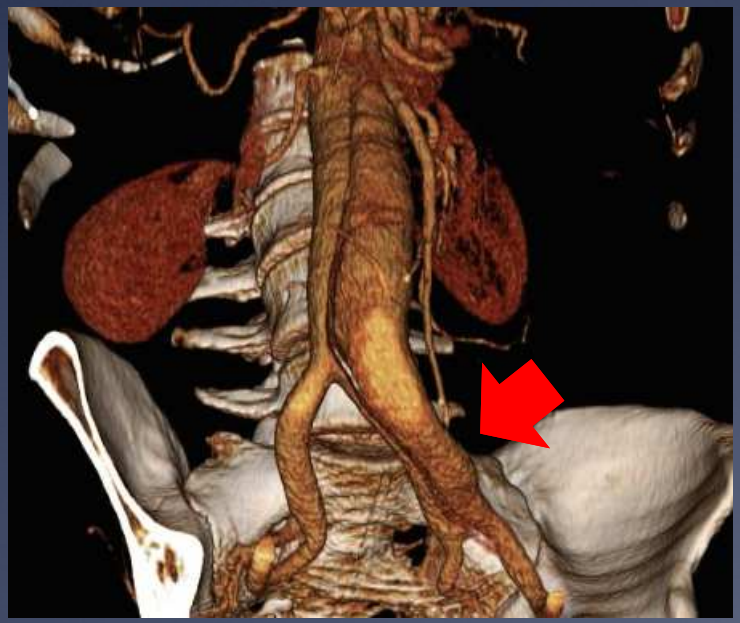


- Investigational technique
- Diameter reducing ties
- One sided bulge
- Gold-markers
- N=10
- Technical success 10/10
- 2 requiring additional coils and cyanoacrylate
- FL-thrombosis all patients

Kölbel et al. 2014; J Endovasc Ther 21: 117-22

Iliac False Lumen Embolisation



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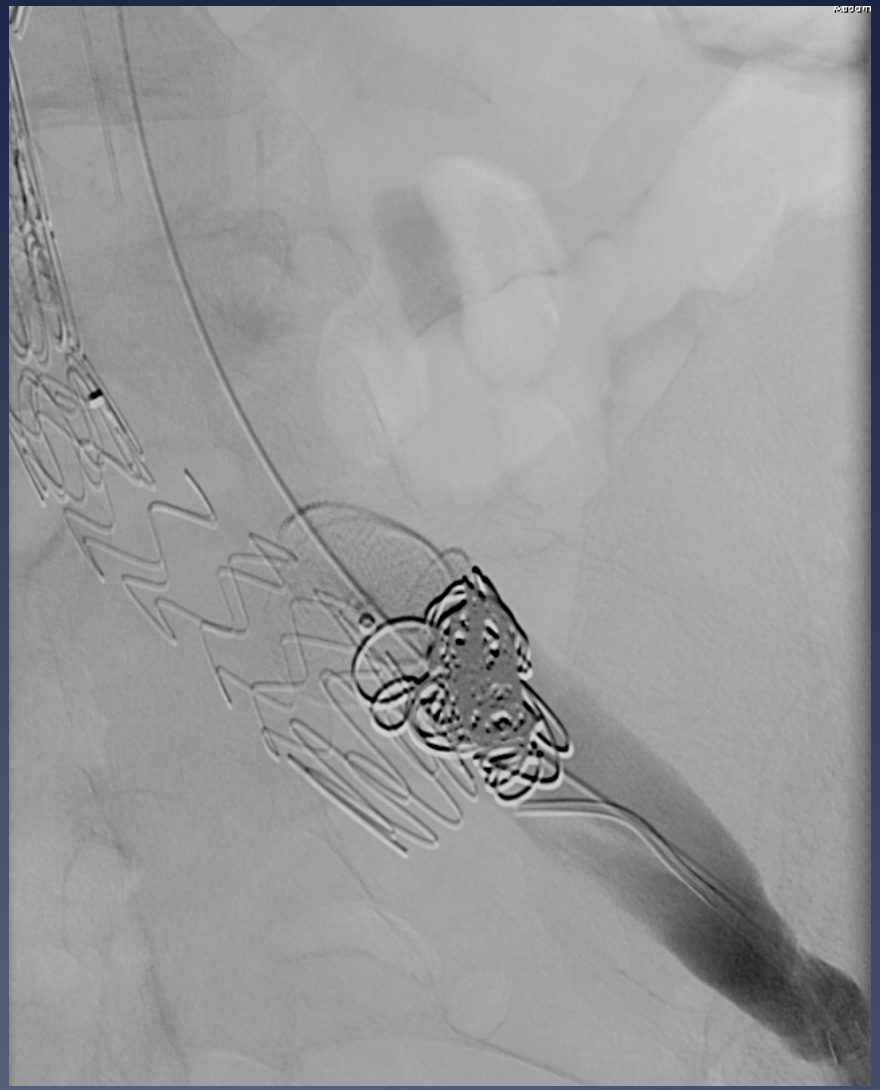
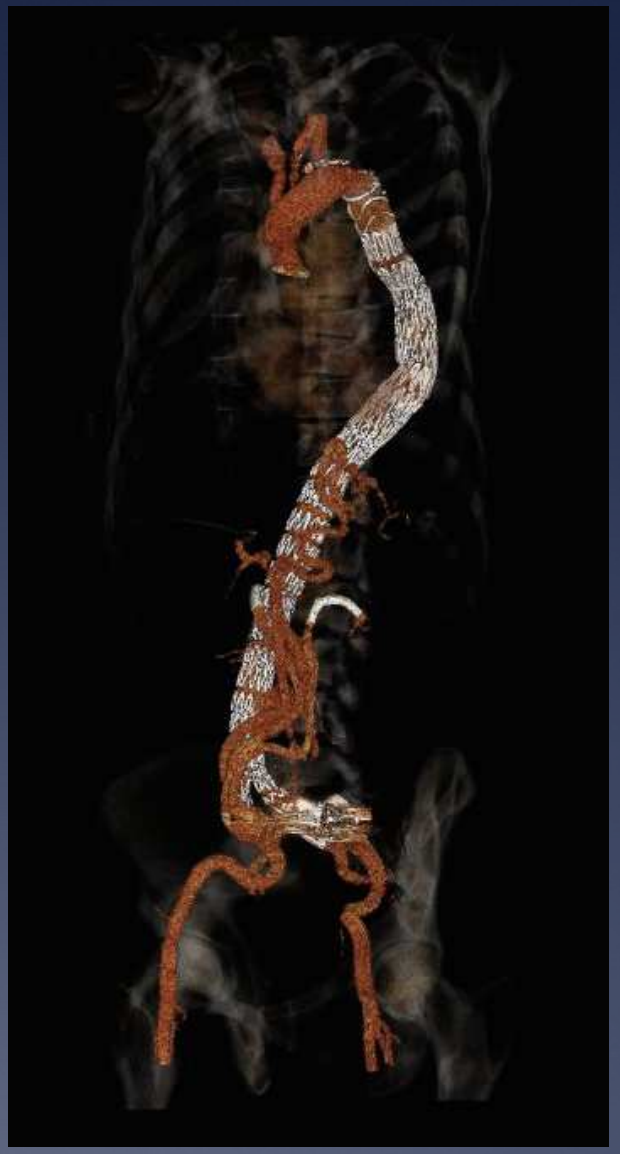
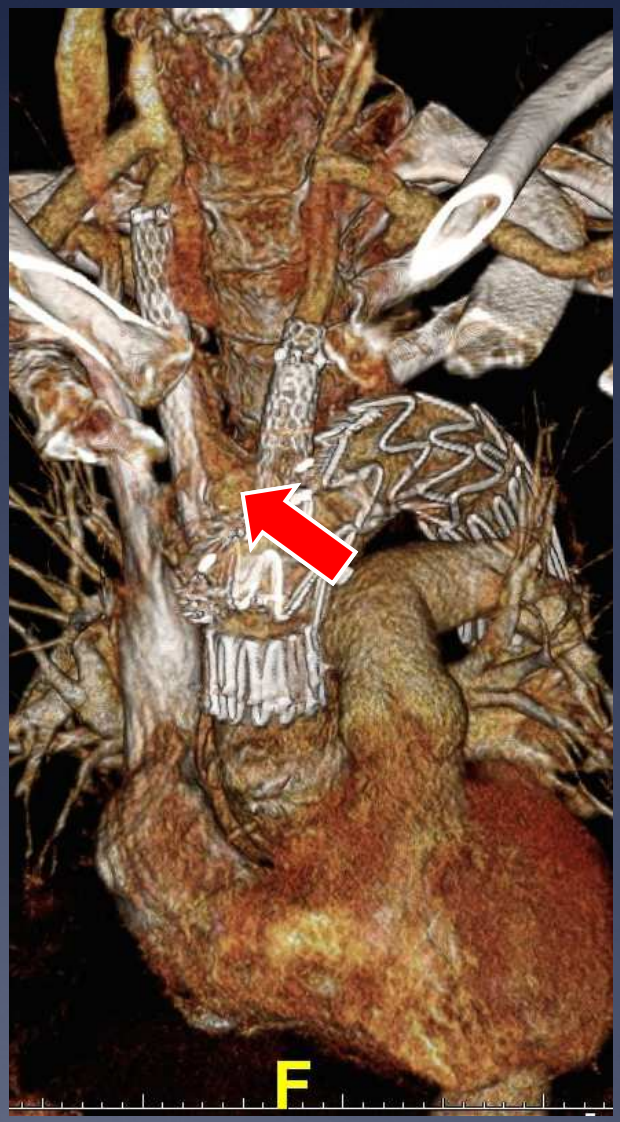


Ballon-occlusion to prevent plug-embolisation

Iliac False Lumen Embolisation



Post Type A, Branched Arch



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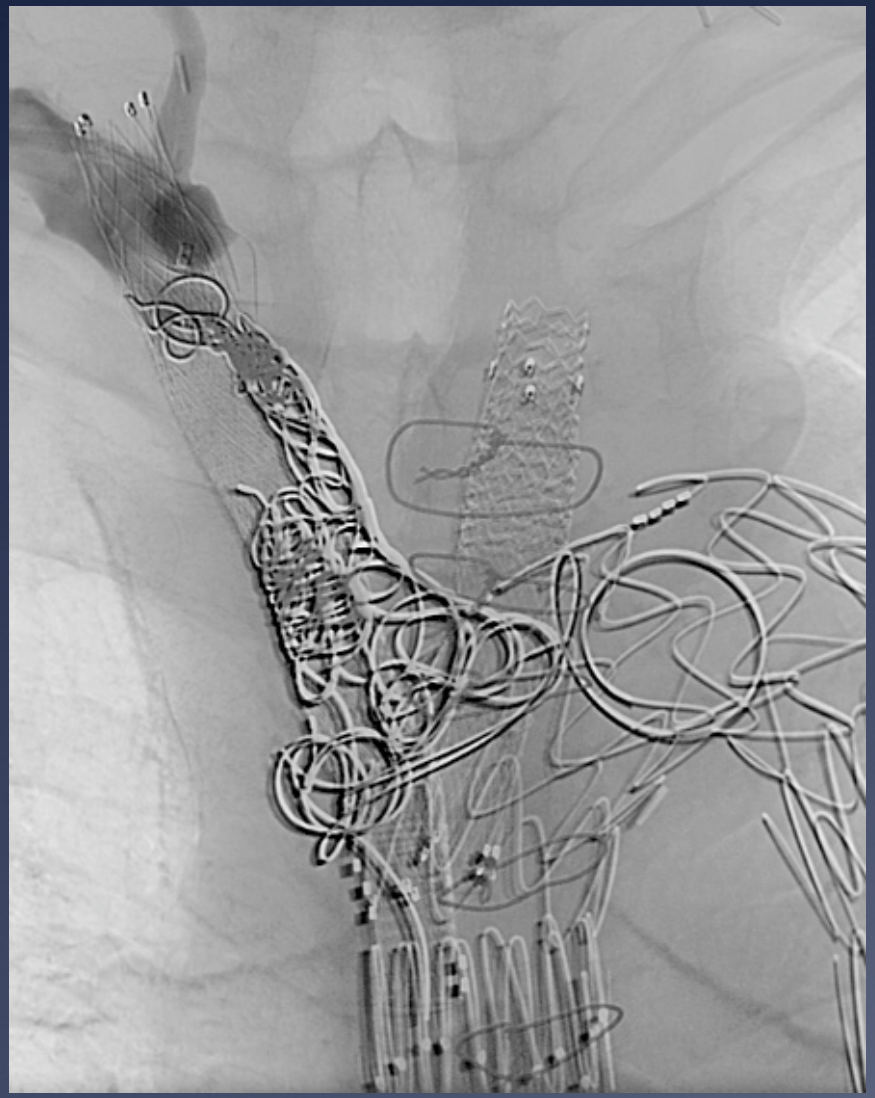

Post Type A, Branched Arch

Conclusion

- Tubular stent-graft sufficient in majority cases of TBAD.
- False lumen backflow limiting treatment success in chronic TBAD.
- Techniques for false-lumen embolisation:
  - Plugs, coils, glue
  - Candy-plug
  - Knickerbocker-technique
- Early results promising, but future role to be defined.