Direct False Lumen Occlusion Techniques in Chronic TBAD: Update on Techniques and Results

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Disclosures

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

* Consultant to Philips
Long-Term Predictors of Descending Aorta Aneurysm Change in Patients With Aortic Dissection

Jong-Min Song, MD, PhD, Sung-Doo Kim, MD

Figure 1: Incidence of Distal Aorta Aneurysm

Incidence of aneurysm at the aortic arch; upper, mid, and lower descending thoracic aorta; and abdominal aorta in patients with type 1 and type 3 aortic dissection.

Song et al. 2007; JACC 50:799-804
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, d 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
Predictors of Outcome after Endovascular Repair for Chronic Type B Dissection

K. Mani, R.E. Clough, O.T.A. Lyons, R.E. Bell, T.W. Carrell, H.A. Zayed, M. Waltham, P.R. Taylor

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

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
- FL-TAA in 1/3 of TEVAR-patients!
Direct False Lumen Occlusion
Direct False Lumen Occlusion

- TEVAR-extension to CA
- Embolisation by
  - Plugs, coils, glue
  - Candy-plug
  - Knickerbocker-technique
- Does not restrict further distal techniques like fenestrated EVAR
Coils, Plugs, Glue
Outcomes after false lumen embolization with covered stent devices in chronic dissection

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

Maximum Diameter: 24 mm!
Candy-Plug

22mm Amplatzer plug II

22mm ZIP iliac-occluder

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

October 2013

January 2014

January 2016
Candy-Plug in Hamburg

- 2013-2016; N=18
- Technical success 18/18
- No procedural complication
- No SCI
- No 30d mortality
- 1 death at 5m due to continued perfusion through AVP
- 3 reinterventions for continuous perfusion
- 10/10 FL-thrombosis at 6m
- 7/10 aneurysm regression at 6m
- No aneurysm expansion at 6m
Knickerbocker-Technique

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

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

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

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

- 2013-2016; N=15
- Technical success 14/15
- No complications
- No 30d mortality
- No SCI
- 4 reinterventions for continuous perfusion
- Secondary FL-thrombosis all patients
FL-Aneurysm in Chronic AD

**Long-Term Predictors of Descending Aorta Aneurysmal Change in Patients With Aortic Dissection**

Jong-Min Song, MD, PhD,* Sung-Doo Kim, MD,* Jeong-Hoon Kim, MD,* Mi-Jeong Kim, MD,*

- **N=100**: 51 post TAAD; 49 TBAD
- **FU**: 53±26 months: FL-Aneurysm
  - Aortic arch: 3%
  - Upper desc. aorta: 14%
  - Mid desc. aorta: 8%
  - Lower desc. aorta: 4%
  - Abdominal aorta: 3%

Song et al. 2007; JACC 50:799-804
fEVAR in Chronic Type B
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; Eur J Vasc Endovasc Surg 48: 641-8
Role of FL-Occlusion:

Hamburg 2013-2015:

* Chronic aortic dissection/failing TEVAR: 39
* False Lumen Occlusion techniques: 31
  * Candy-plug: 14
  * Knickerbocker: 12
  * Other (plugs, coils, glue): 5
* Primary F/B EVAR: 8
* Secondary F/B EVAR: 2
Secondary F/B EVAR

10cm

46mm
Secondary F/B EVAR

FET, TEVAR+Candyplug + Fenestration F/B EVAR
Iliac False Lumen Embolisation

Ballon-occlusion to prevent plug-embolisation
Conclusions

- 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
- Experience promising, but future role to be defined.
- F/B stentgrafts reserved for abdominal FL-aneurysm.
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