Inner Branched Arch Endografts following Ascending Open Repair

Stéphan Haulon, J Sobocinski, A Hertault, T Martin Gonzalez, R Spear, R Azzaoui

> Aortic Centre, Vascular Surgery Lille University Hospital, France



Disclosures

Research support, Consulting
Cook Med, GE Healthcare











OPEN SURGERY





Open Surgery







Hybrid Repair





PROXIMAL SEAL No Compromise!

- Asc Aorta diam<38mm
- Prox neck length>25mm
- Type B dissections





Preoperative measurements with CPR on workstation



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Access Tortuosity/Calcification

















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Endovascular Aortic Repair - Edited by Gustavo Oderich, Springer





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Type A Dissection Follow-Up

- 72 year-old female
- Previous condition
 - Acute type A dissection: Open Ascending Aorta repair in 2008
 - Essential Hypertension
 - Renal impairment
 - Severe COPD













Global experience with an inner branched arch endograft

Stéphan Haulon, MD, PhD,^a Roy K. Greenberg, MD,^b Rafaëlle Spear, MD,^a Matt Eagleton, MD,^b Cherrie Abraham, MD,^c Christos Lioupis, MD,^c Eric Verhoeven, MD, PhD,^d Krassi Ivancev, MD,^e Tilo Kölbel, MD, PhD,^f Brendan Stanley, MD,^g Timothy Resch, MD,^h Pascal Desgranges, MD, PhD,ⁱ Blandine Maurel, MD,^a Blayne Roeder, PhD,^j Timothy Chuter, MD,^k and Tara Mastracci, MD^b

Background: Branched endografts are a new option to treat arch aneurysm in high-risk patients.

Methods and results: We performed a retrospective multicenter analysis of all patients with arch aneurysms treated with a new branched endograft designed with 2 inner branches to perfuse the supra aortic trunks. Thirty-eight patients were included. The median age was 71 years (range, 64-74 years). An American Society of Anesthesiologists score of 3 or 4 was reported in 89.5% (95% confidence interval [CI], 79.7-99.3) of patients. The 30-day mortality rate was 13.2% (95% CI, 2.2-24.2). Technical success was obtained in 32 patients (84.2% 195% C1 77 4-95 91) Early secondary procedures were performed in 4 patients (10.5% [95% CI, 0.7-20.3]). Early cerebrovascular complications were diagnosed in 6 patients (15.8% 95% CI, 4.0-27.61), including 4 transient ischemic attacks, 1 stroke, and 1 subarachnoid hemorrhage. The median follow-up was 12 months (range, 6-12 months). During follow-up, no aneurysm-related death was detected. Secondary procedures during follow-up were performed in 3 patients (9.1% [95% CI, 0.0-19.1]), including 1 conversion to open surgery. We compared the first 10 patients (early experience group) with the subsequent 28 patients. Intraoperative complications and secondary procedures were significantly higher in the early experience group. Although not statistically significant, the early mortality was higher in the early experience group (30% [95% CI, 0.0-60.0]) versus the remainder (7.1% [95% CI, 0.0-16.9]; P = .066). Being part of the early experience group and ascending a rtic diameter >38 mm were found to be associated to higher rates of combined early mortality and neurologic complications.

Conclusions: Our preliminary study confirms the feasibility and safety of the endovascular repair of arch aneurysms in selected patients who may not have other conventional options. Clinical trial registration information: Thoracic IDE NCT00583817, FDA IDE# 000101. (J Thorac Cardiovasc Surg 2014; ■:1-8)



Prevalence of thoracic aneurysms : 10.4 for 100 000 pers/year Aortic arch aneurysm = 10 % of thoracic aneurysms

	Mortality rate	Stroke rate	TYPE 1 EDL	
OPEN SURGERY	2% - 16.5%	2% – 18%	-	Moon <i>et</i> <i>al</i> , 2007
HYBRID REPAIR	0 -15%	0 - 11%	20%	Clough <i>et</i> <i>al</i> , 2013 Melissano et al, 2007



Risk Factors for Early Mortality and Neurologic Events

	EE (n = 10) versus LE (n = 28)	AAD ≥38 mm (n = 11) versus AAD <38 mm (n = 27)	PAAS (n = 12) versus no PAAS (n = 26)
Early mortality and neurologic events $(n = 11)$	6 (60.0; 28.1-91.9) vs	6 (54.5; 13.7-85.3) vs	2 (16.7; 5.5-38.7) vs
	5 (17.9; 3.4-32.4)	5 (18.5; 3.6-33.4)	9 (34.6; 16-53.2)
<i>P</i> value	.019	.026	.23

Values are given as n (%; 95% confidence interval). Boldface indicates P values < .05. EE, Early experience (first 10 patients); LE, late experience (later 28 patients); AAD, ascending aorta diameter; PAAS, prior ascending aortic surgery.



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Editor's Choice – Subsequent Results for Arch Aneurysm Repair with Inner Branched Endografts, $\stackrel{}{\approx}$

R. Spear^a, S. Haulon^{a,*}, T. Ohki^b, N. Tsilimparis^c, Y. Kanaoka^b, C.P.E. Milne^a, S. Debus^c, R. Takizawa^b, T. Kölbel^c

^a Aortic Centre, CHRU Lille, France
^b Vascular Surgery, Jikei University, Tokyo, Japan
^c German Aortic Center, University Heart Center Hamburg, Germany

WHAT THIS STUDY ADDS

This study reports early outcomes following endovascular repair of arch aneurysms in patients unfit for open surgery and is the first evaluation of arch aneurysm endovascular repair performed after the initial learning curve.



ESVS 2015

- 27 patients
- Technical success always achieved
- No patients died during the 30-day postoperative period
- Early neurologic events:
 - -2 major and one minor strokes (11%)



Post Type A Repair







- Male 36yo
- Marfan syndrome
- Tirone David
- Redo sternotomy with aortic valve replacement
- Respiratory failure requiring thracheotomy, endocarditis, acute renal failure requiring transient dialysis



⇒Multidisciplinary decision of endovascular treatment















Deployment of bridging stent in left common carotid branch



1 month CT scan

1 year CT scan





1 month CT scan

1 year CT scan













Ascending Aorta and Arch

Eur J Vasc Endovasc Surg (2011) 42, 442-447





Endovascular Approaches to Acute Aortic Type A Dissection: A CT-Based Feasibility Study

J. Sobocinski^a, N. O'Brien^a, B. Maurel^b, M. Bartoli^c, Y. Goueffic^d, T. Sassard^e, M. Midulla^f, M. Koussa^a, A. Vincentelli^a, S. Haulon^{a,*}



SUITABILITY FOR INNER BRANCH GRAFT

Post Type A Open Repair

- TOTAL CASES: 74
 - -Tyrone David Repair 41 (55.4%)
 - -Bentall Repair 32 (43.2%)
 - -Unknown 1 (1.4%)











LANDING ZONE SUITABILITY

- ASCENDING AORTIC GRAFT LANDING
- ZONE SUITABLE: 54 (73%)

 Major reasons for exclusion were landing zone too short or major graft kink



CONCLUSION

Conventional surgery: «gold standard» but not in « high risk patients »

Verify Hybrid technique: redo sternotomy?

Total endovascular repair: Seal in Ascending Aorta? Type A dissection Follow-up

