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2018
Les Comtes de Méan
Liège, Belgium

6th International Meeting on Aortic Diseases

New insights into an old problem CHU Liège, APF

www.chuliege-imaa.be

Arch Hybrid procedures are effective and durable for arch aneurysms

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CHU de Liège

Disclosure of Interest

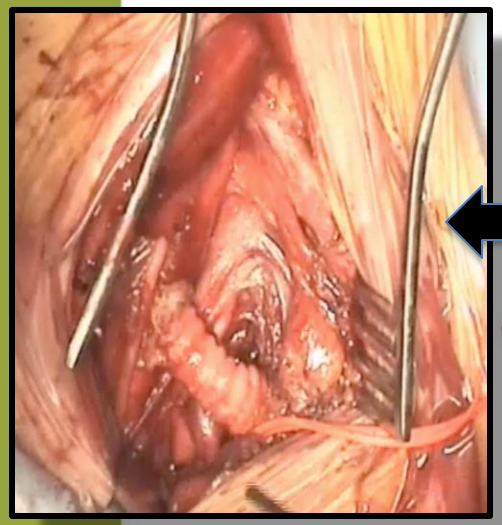
Speaker name: Colin Bicknell

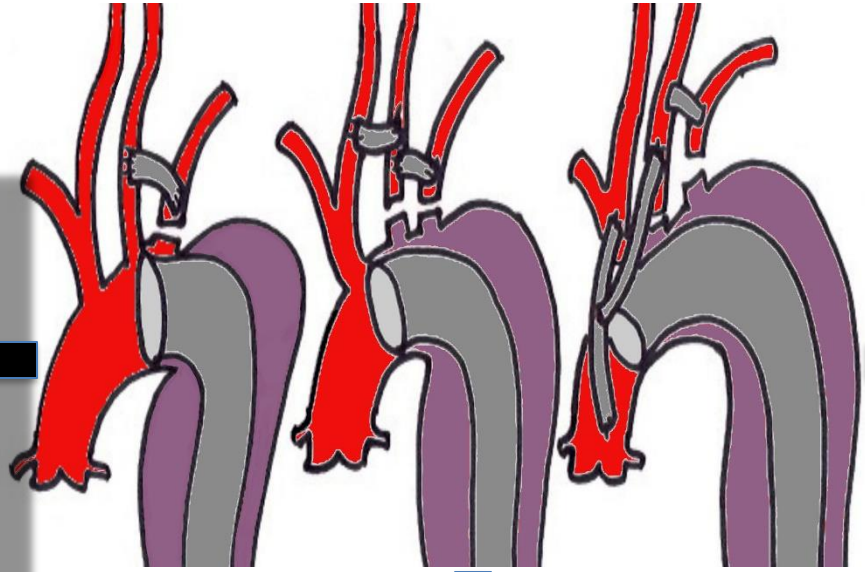
I have the following potential conflicts of interest to report:

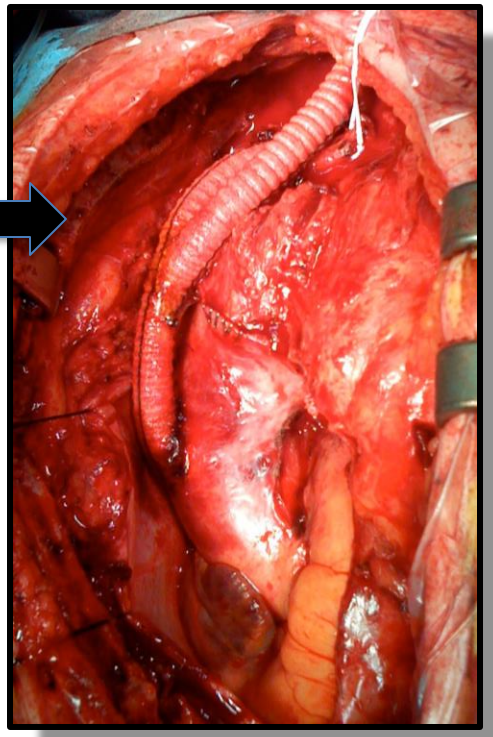
- Medtronic: Consultancy, Speakers fees, travel and conference fees
- Orzone: Institutional level capital funding
- Bolton Medical / Vascutek: Consultancy, speaker, travel and conference fees
- Gore: Travel and conference fees

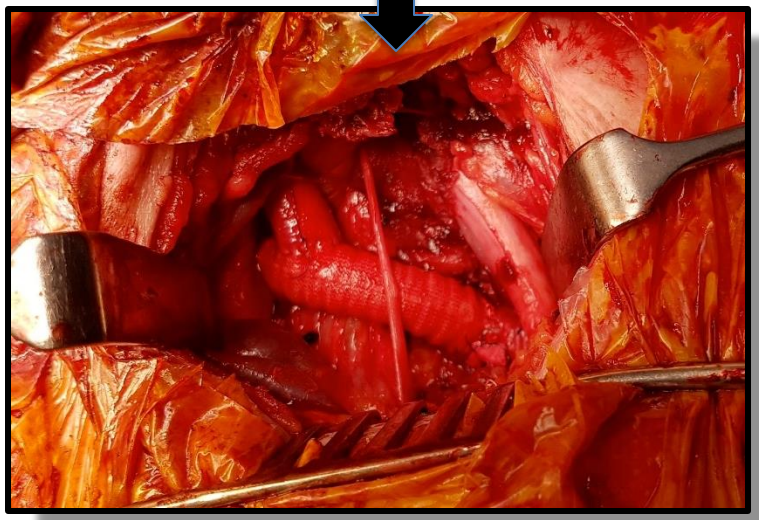
TAAs involving the arch

ARCH HYBRID PROCEDURES









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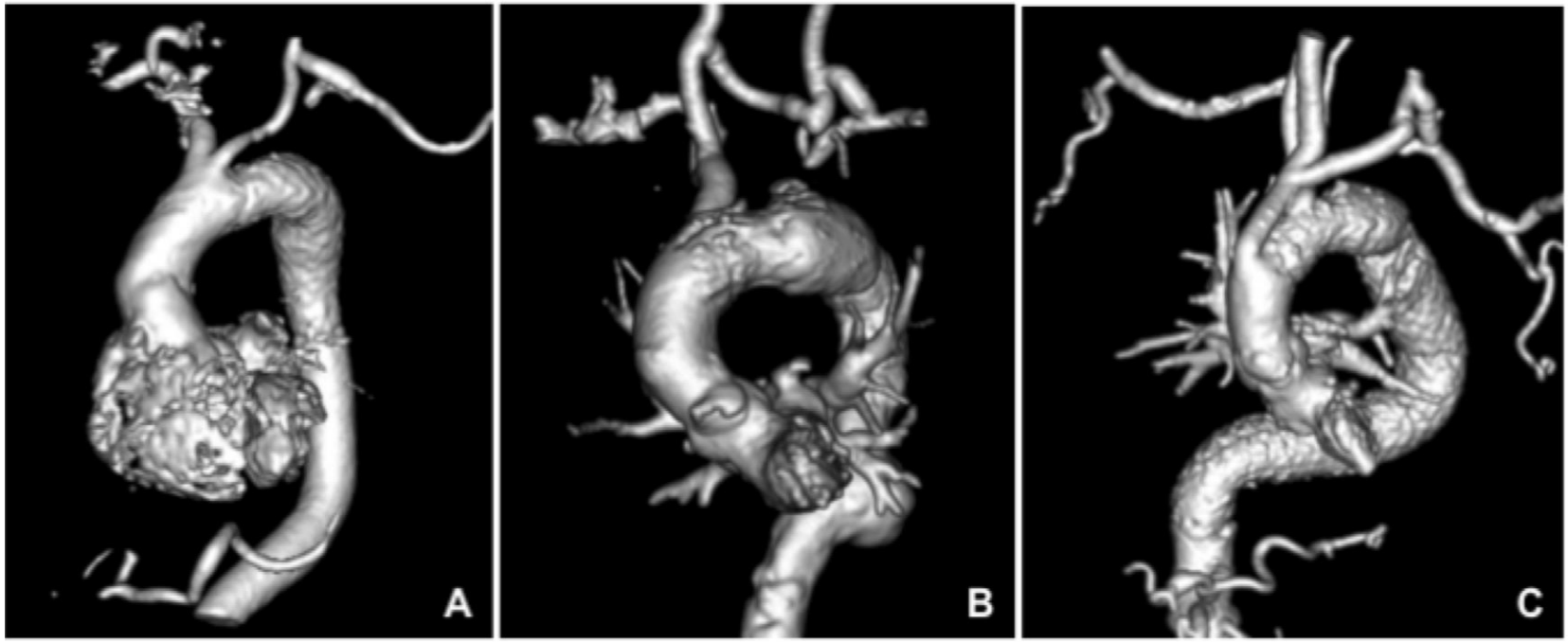
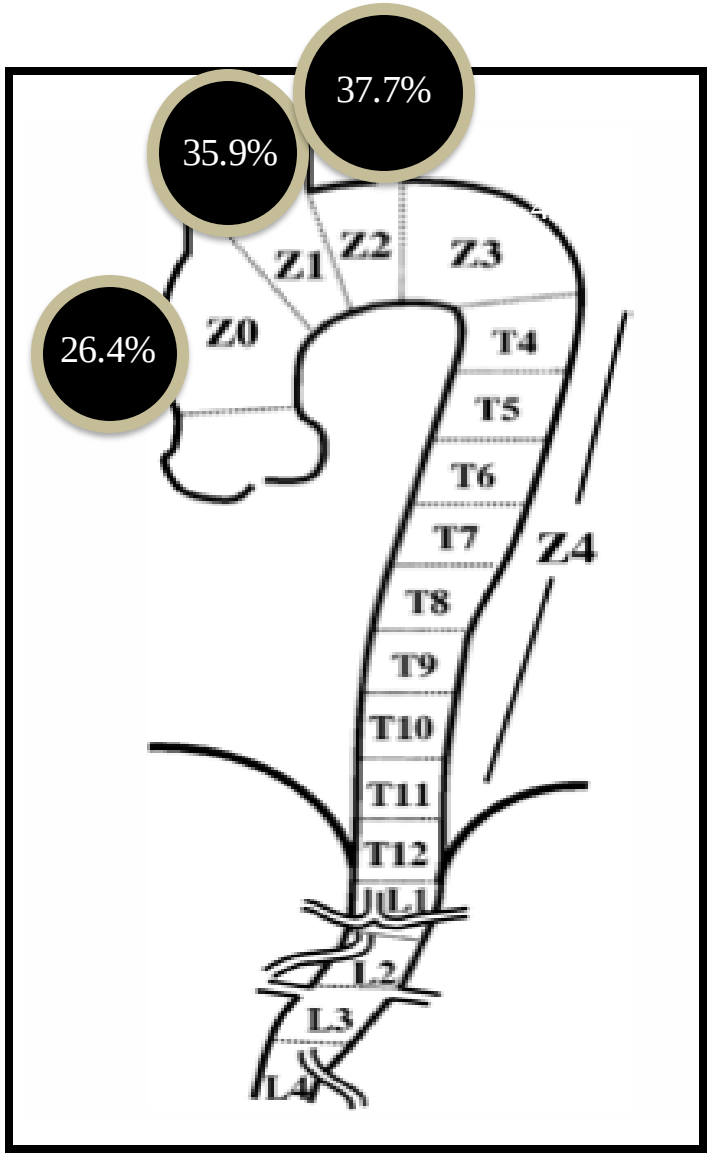


IMPERIAL EXPERIENCE

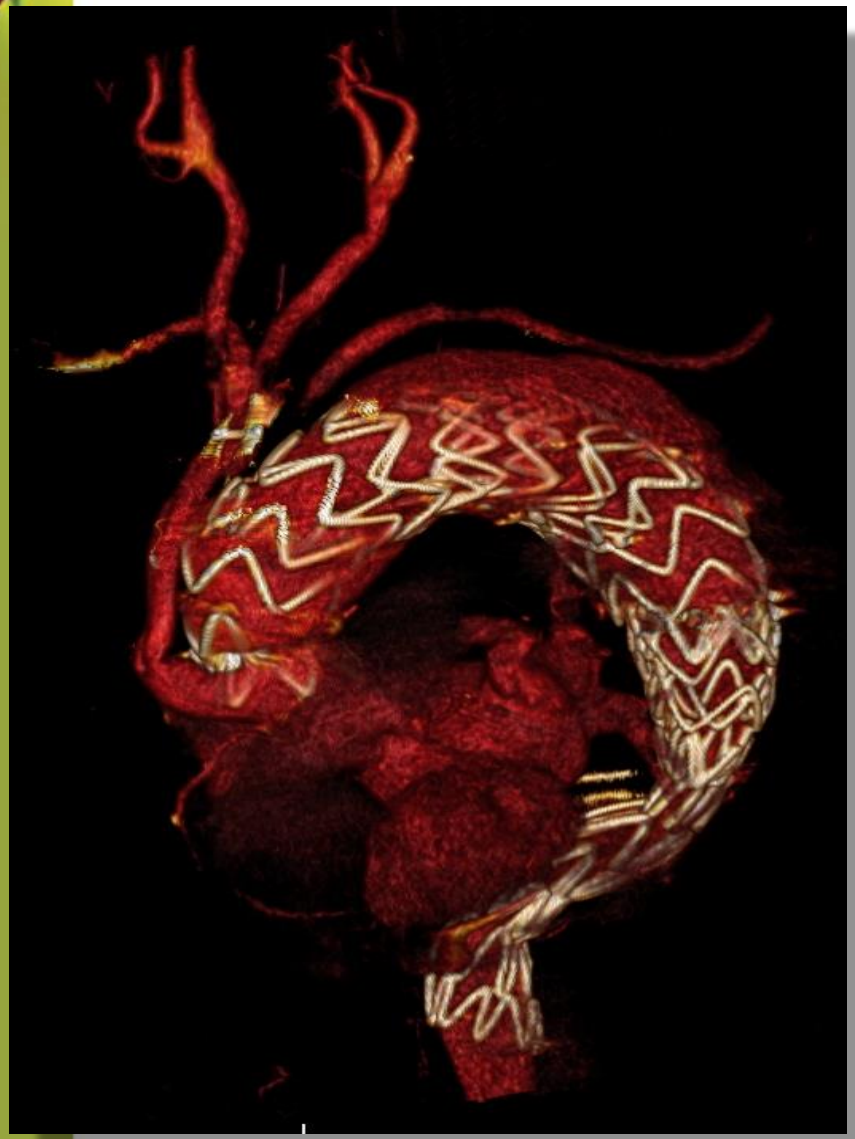
Variable (N=55)		
	Median age	67 (38-88)
	Male sex	36 (65.5%)
ASA Grade	1	0
	2	7 (12.8%)
	3	35 (63.6%)
	4	13 (23.6%)
	Renal impairment (eGFR <60ml/min/1.73m^2)	14 (25.5%)
	Previous aortic repair/surgery	18 (32.7%)
	Connective tissue disorder	3 (5.5%)
	Emergency (<24hrs from presentation)	7 (12.7%)
	Symptomatic	28 (51.0%)
Aortic Pathology	Aortic aneurysm	40 (72.7%)
	Acute Type B dissection	10 (18.2%)
	Acute Type A dissection	1 (1.8%)
	Other	4 (7.3%)
	Mean number stents	2.5 (1-9)
	Spinal drain	40 (72.7%)
Ishimaru landing zone (N=53)	0	14 (26.4%)
	1	19 (35.9%%)
	2	20 (37.7%)



IMPERIAL EXPERIENCE: PROCEDURAL

- Primary technical success achieved in 52/55 (94.5%) of cases
    - Aneurysm rupture between stages
    - Stent graft deployment failure (access)
    - Type 1a

IMPERIAL EXPERIENCE: RESULTS



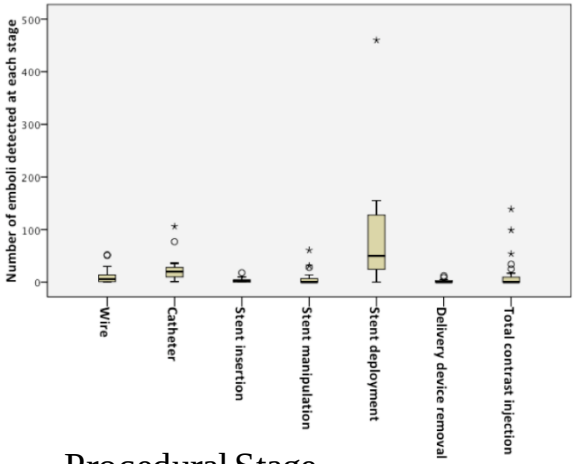
- Mortality (30D) 3.6% (2/55).
  - Elective 2.1% (1/48)
  - Emergency 14.3% (1/7)
- In Hospital Mortality 9.1% (5/55)
- 8 complications related to extra-anatomical bypass grafts
- 4 Further interventions (unrelated to procedure)

IMPERIAL EXPERIENCE: RESULTS

- Early endoleak rate
  - 1a – treated with chimney and extension
  - 1b – treated with extension
  - Two type 2, planned subclavian occlusion
  - Two type 2, under surveillance
- Stroke rate
  - 6/48 elective/urgent
  - 2/7 emergency

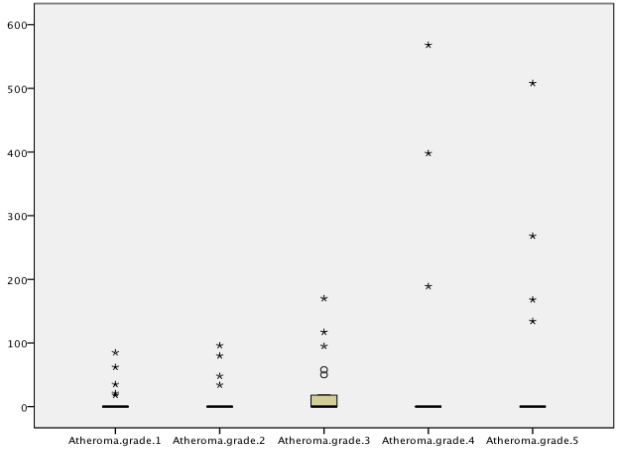
REDUCTION OF STROKE RISK

Perera A, BJS 2017

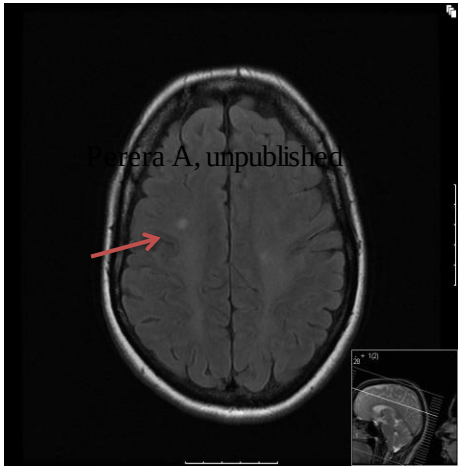


Procedural Stage

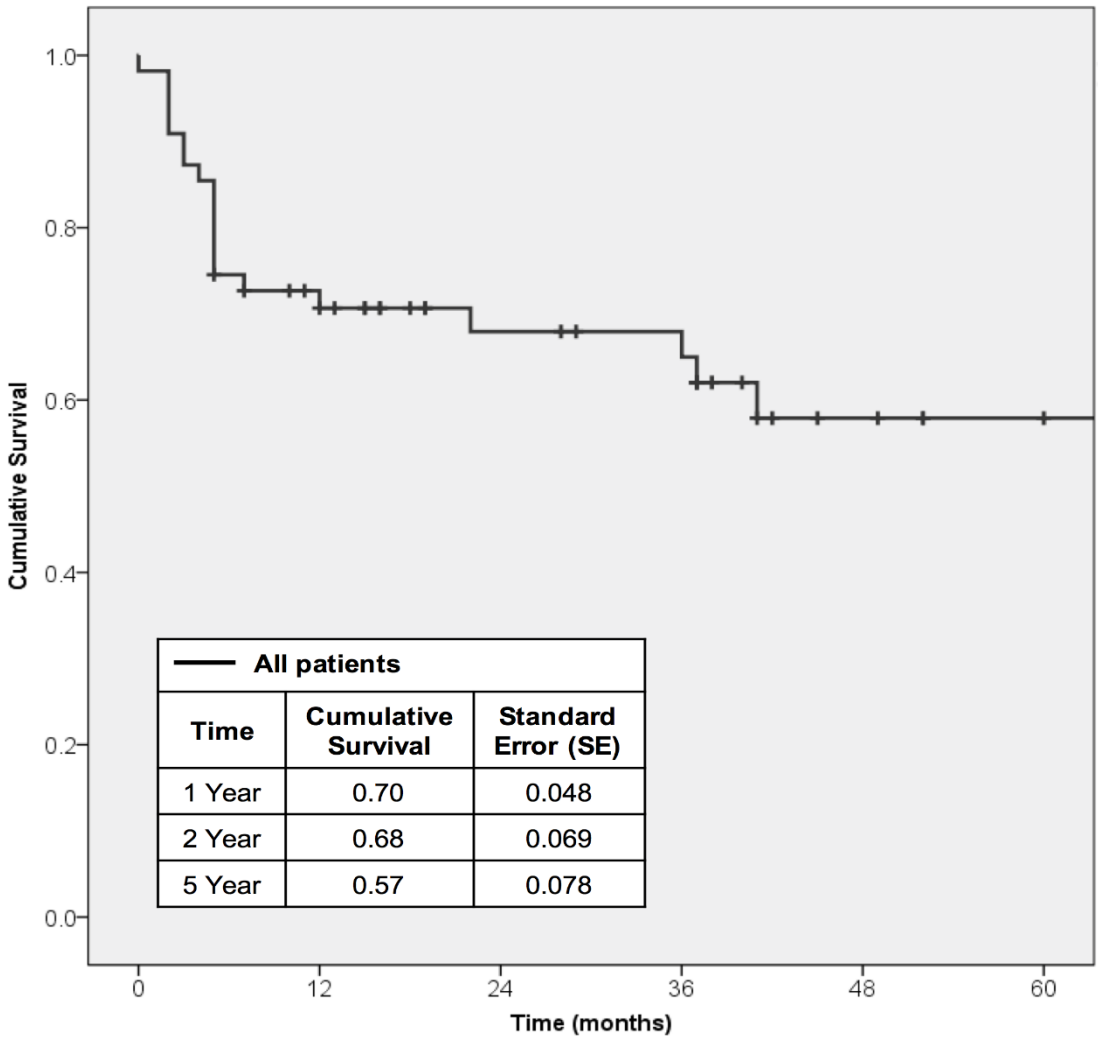
EMBOLI number



Grade of Atheroma



FIVE YEAR SURVIVAL



All patients

Time	Cumulative Survival	Standard Error (SE)
1 Year	0.70	0.048
2 Year	0.68	0.069
5 Year	0.57	0.078

At risk patients	55	36	25	23	11	8

FIVE YEAR DURABILITY (SEAL)

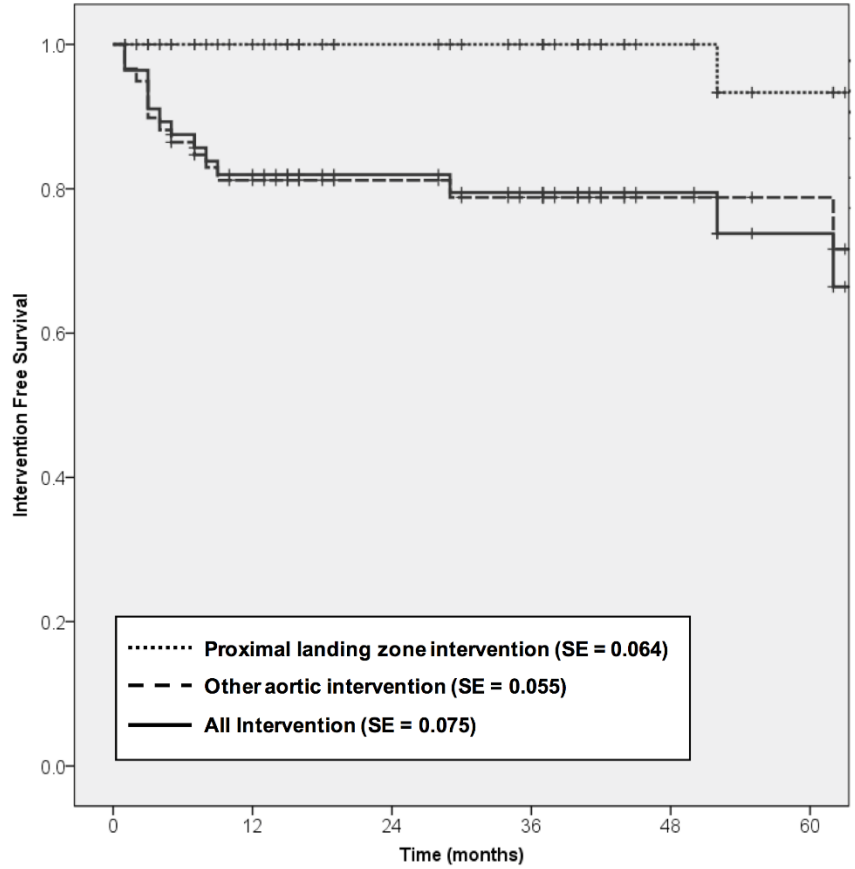
Overall mean follow-up was 74.6 months (95% CI 57.5-91.7).

Long term reintervention

- 2 type 1a endoleaks
- 6 type 1b endoleaks
- 6 type 2 endoleaks
- 2 type 3 endoleaks

Bypass patency rate of 98.7% (78/79).

Cumulative re-intervention free survival comparing proximal landing zone vs. other re-intervention vs. all aortic re-intervention



At risk patients	55	36	25	23	11	8

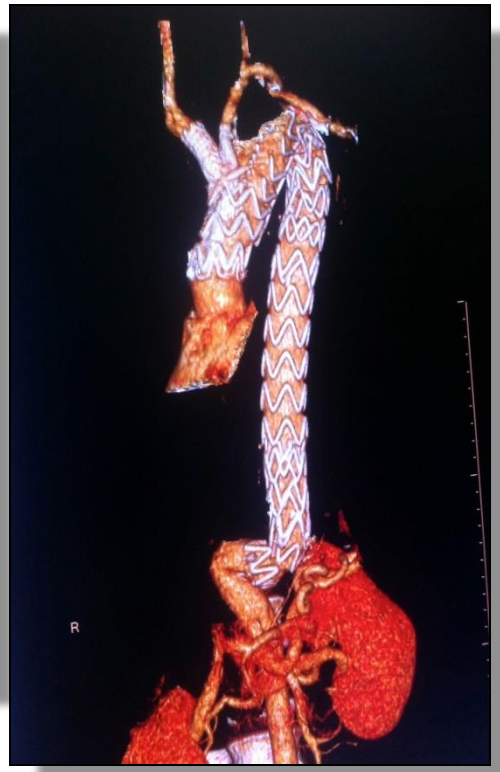
ENDOVASCULAR APPROACHES

- Bolton double arch branch Imperial:
  - Technical success
  - One type A dissection and one CVA
  - No re-intervention in the short term

Orthotopic branched endovascular aortic arch repair in patients who cannot undergo classical surgery

Martin Czerny, Bartosz Rylski, Julia Morlock, Holger Schröfel, Friedhelm Beyersdorf, Bertrand Saint Lebes, Olivier Meyrignac, Fatima Mokrane, Mario Lescan, Christian Schlensak, Constatijn Hazenberg, Trijntje Bloemert-Tuin, Sue Braithwaite, Joost van Herwaarden ✉, Herve Rousseau

- Czerny 2018
  - STROKE RATE 13.3%
  - ENDOLEAK 6.7%



ENDOVASCULAR APPROACHES

COOK inner branched device
(38 patients)

- Early mortality and neurologic events 17.9% after learning curve

12 month follow up for 33 survivors

- Further 12.1% mortality, 1 stroke
- Endoleaks in 9.1%, only one type 1
- 1 branch obstruction, 1 open conversion


Hazlon et al

Evolving Technology/Basic Science

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] Cherie 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]


Branched Endovascular Therapy of the Distal Aortic Arch: Preliminary Results of the Feasibility Multicenter Trial of the Gore Thoracic Branch Endoprosthesis

Himanshu J. Patel, MD, Michael D. Dake, MD, Joseph E. Bavaria, MD, Michael J. Singh, MD, Mark Filinger, MD, Michael P. Fischbein, MD, PhD, David M. Williams, MD, Jon S. Matsumura, MD, and Gustavo Oderich, MD

GORE branched endografts for distal arch aneurysms

- No stroke/death at 30 days
- 94.7% 6-month survival
- No late endoleaks

SINGLE CHIMNEY FOR LANDING IN ZONE ZERO

Consider in:

- Emergency
- Hostile chest
- Co-morbid patient

Useful but….
Make sure it seals!

CONCLUSIONS

- Acceptable mortality and morbidity in the short term in elective patients
- Long term re-intervention rate excellent
- Stroke remains the major complication

These data are a benchmark for totally endovascular repair to aim for but before we move to an endovascular utopia:

- In the short term we need to understand the results in those less anatomically suitable for arch branch devices and with disease in arch
- In the long term we need to understand the results over extended follow up

Until endovascular approaches are ready for prime time and suitable for all anatomies these procedures will have a place