Branched Endografts in the Treatment of Iliac Aneurysms

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Presenter Disclosure

Presenter: Ningzhi Gu

- I have no current relationships with commercial entities

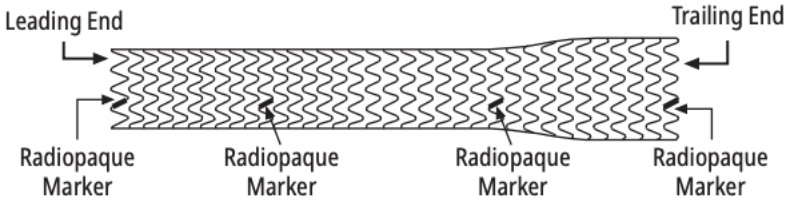
Iliac aneurysms are common

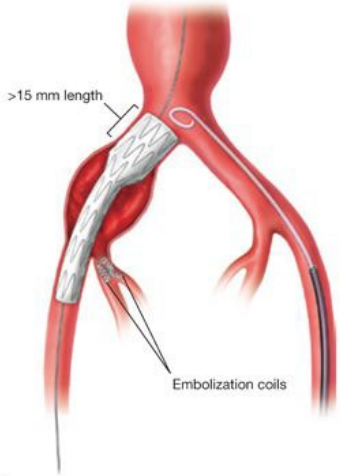
Endovascular Repair of Abdominal Aortic Aneurysms With Concomitant Common Iliac Artery Aneurysm: Outcome Analysis of the EUROSTAR Experience

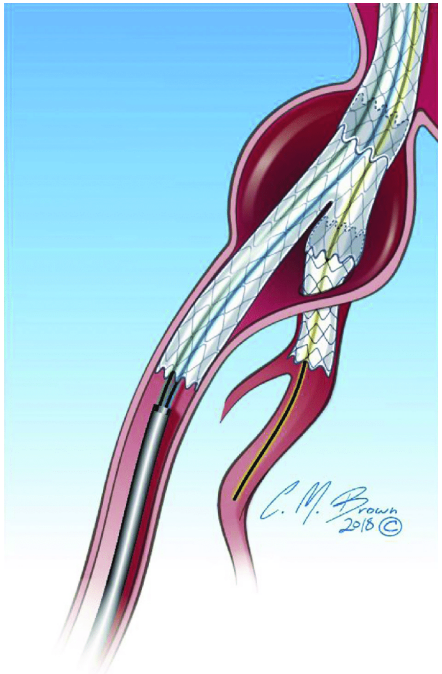
Roel Hobo, MSc[1]; Johannes E.M. Sybrandy, MD[1]; Peter L. Harris, MD, FRCS[2]; and Jacob Buth, MD, PhD on Behalf of the EUROSTAR Collaborators

[1]EUROSTAR Data Registry Centre, Catharina Hospital, Eindhoven, The Netherlands.
[2]EUROSTAR Secretary, Royal University Hospital, Liverpool, United Kingdom.

- 28% of 6286 patients who underwent endovascular AAA repair
- CIAA patients had more adverse outcomes
  - Limb occlusions
  - Type IB and II endoleaks
  - Reinterventions
  - Ruptures


Leading End
Trailing End
Radiopaque Marker
Radiopaque Marker
Radiopaque Marker
Radiopaque Marker


>15 mm length
Embolization coils


C. M. Brown
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REVIEW

Systematic Review and Meta-analysis of the Effect of Internal Iliac Artery Exclusion for Patients Undergoing EVAR

D.C. Bosanquet [a,*], C. Wilcox [a], L. Whitehurst [a], A. Cox [a], I.M. Williams [a], C.P. Twine [a,b], on behalf of the British Society of Endovascular therapy (BSET)

[a] South East Wales Regional Vascular Network, Royal Gwent Hospital, Newport, UK
[b] Division of Population Medicine, Cardiff University, Cardiff, UK

Table 1. Table of pooled weighted mean results for patient outcomes.

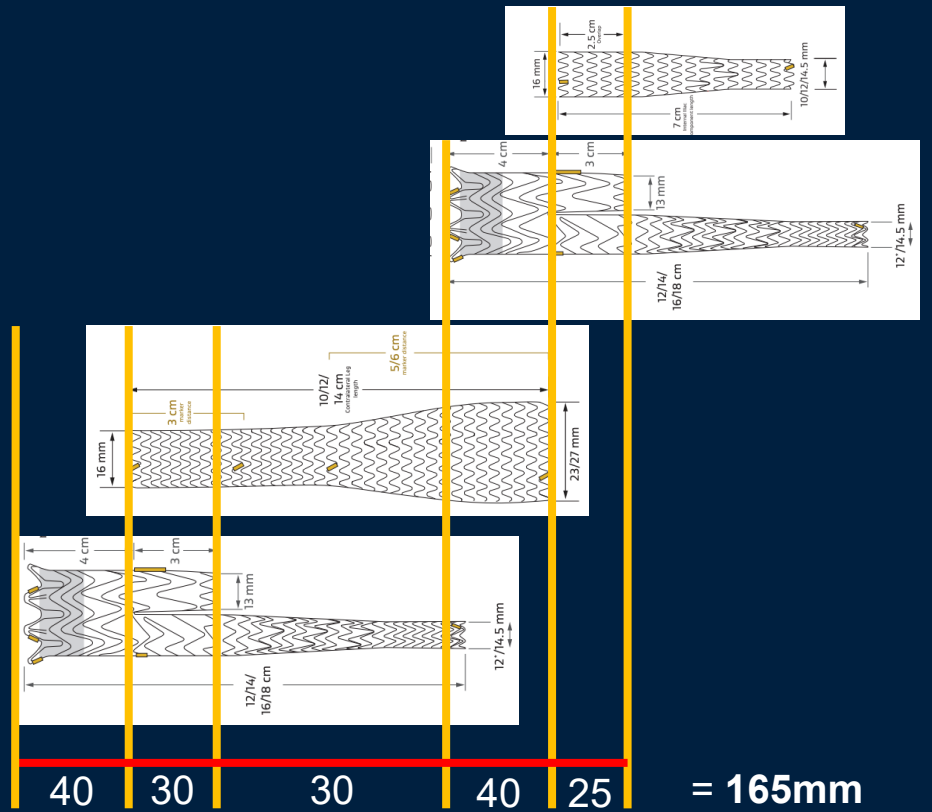
Outcome		*N* patients	Weighted mean (%)	95% CI
Buttock Claudication	Overall	1979	27.8	27.1—28.6
	Immediately post-operatively	1057	31.7	30.7—32.7
	At subsequent follow-up (21.8 months)	1057	16.5	15.6—17.3
Erectile dysfunction	Overall	1091	10.2	9.4—10.9
Ischaemic bowel	Overall	1638	0.49	0.42—0.56
Pelvic/gluteal ischaemia	Overall	1385	0.51	0.41—0.62
Spinal ischaemia	Overall	1195	0.75	0.63—0.87

	Recommendations	Level/Class of Recommendation[a]	Quality/Level of Evidence[b]
Society for Vascular Surgery (SVS), 2018	1. We recommend preservation of flow to at least one internal iliac artery.	1	A
	2. We recommend using FDA-approved branch endograft devices in anatomically suitable patients to maintain perfusion to at least one internal iliac artery.	1	A
	3. We recommend staging bilateral internal iliac artery occlusion by at least 1 to 2 weeks if required for EVAR.	1	A
European Society for Vascular and Endovascular Surgery (ESVS), 2019	1. The threshold for elective repair of isolated iliac artery aneurysm (common iliac artery, internal iliac artery and external iliac artery, or combination thereof) may be considered at a minimum of 3.5 cm diameter.	IIb	C
	2. In patients with iliac artery aneurysm, endovascular repair may be considered as first-line therapy.	IIb	B
	3. Preserving blood flow to at least one internal iliac artery during open surgical and endovascular repair of iliac artery aneurysms is recommended.	I	B
	4. In patients where internal iliac artery embolization or ligation is necessary, occlusion of the proximal main stem of the vessel is recommended if technically feasible, to preserve distal collateral circulation to the pelvis.	I	C

Lengths

Objectives:

1. Obtain a seal
2. Do not cover renal arteries
3. Bottom of Iliac branch component needs to open above iliac bifurcation

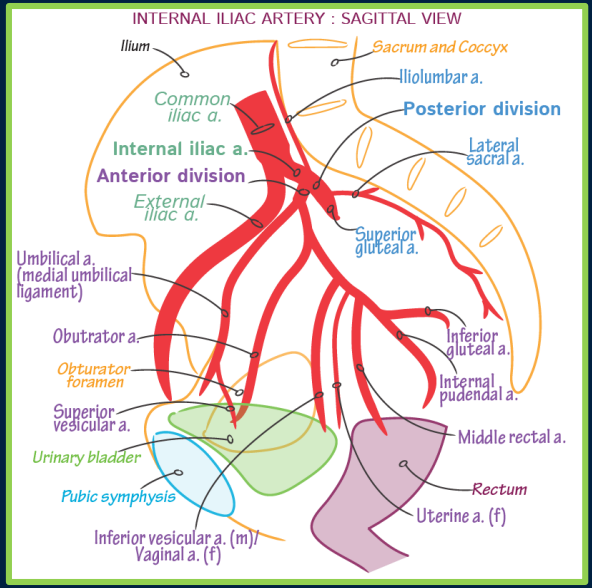


Widths

1. Diameter of infrarenal aorta (>20mm, main body)
2. Diameter of common iliac (>17mm, iliac branch component)
3. Diameter of external iliac (6.5 – 25mm, contralateral limb)
4. Diameter of internal iliac (6.5 – 13.5mm, hypogastric limb)

Technical challenges

- Excessive tortuosity
  - Kinks
  - Iliac pseudo-obstruction
- Inability to cannulate internal iliac
  - Branch malalignment
  - Ostial disease
- Perforations/dissections
  - Wire in posterior division of internal iliac



From the Society for Vascular Surgery

Check for updates

Five-year outcomes from a prospective, multicenter study of endovascular repair of iliac artery aneurysms using an iliac branch device

Darren B. Schneider, MD,[a] Jon S. Matsumura, MD,[b] Jason T. Lee, MD,[c] Brian G. Peterson, MD,[d] Rabih A. Chaer, MD,[e] *and* Gustavo S. Oderich, MD, FACS,[f] *Philadelphia and Pittsburgh, PA; Madison, WI; Stanford, CA; Chesterfield, MO; and Houston, TX*

- IDE trial
- Prospective cohort
- 63 patients underwent placement of a single IBE
  - 36 were able to complete follow up
- No ruptures

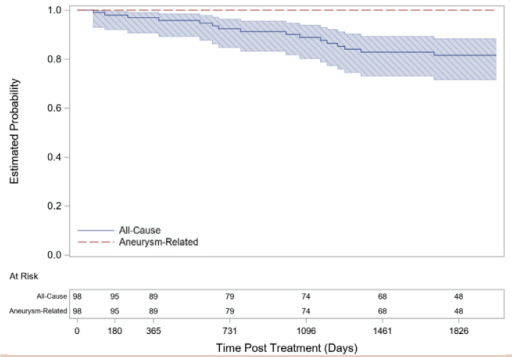
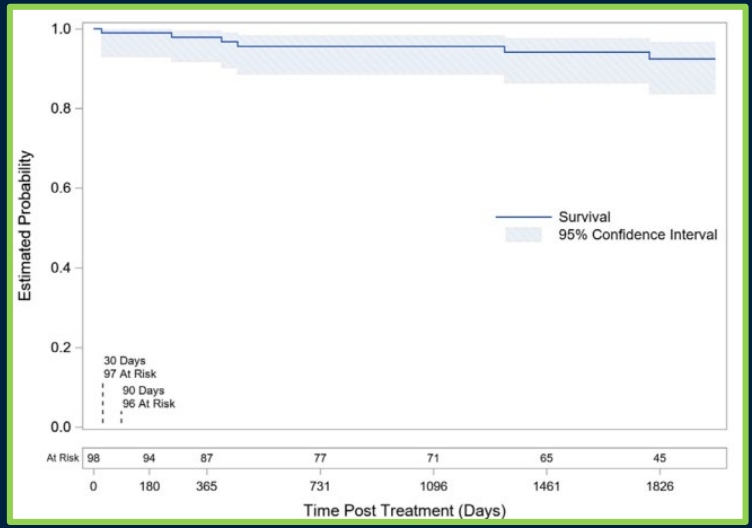


Fig 1. Kaplan-Meier freedom from all-cause and aneurysm-related mortality. Estimates of freedom from all-cause mortality (*solid blue line*) and aneurysm-related mortality (*dashed red line*) with 95% confidence intervals (*diagonal line and gray shading*). Number of evaluable patients to >5 years shown along x-axis.

- 5-year patency of the external iliac branch was 100%
- 5-year patency of the internal iliac branch was 95%
- 5-year freedom from reintervention was 90%
    - 6 patients, 8 reinterventions
        - 5 – type 2 endoleak
        - 2 – external iliac
        - 1 – internal iliac
    - Endoleak in 38% of patients
        - 9 – type 2
        - 2 – indeterminate
    - CIA sac enlargement in 3.2%
    - AAA sac enlargement in 29%
    - No buttock claudication



Aorta and Major Branches

Eur J Vasc Endovasc Surg (2021) 62, 177—185

EJVES Open Access

One Year Outcomes of an International Multicentre Prospective Cohort Study on the Gore Excluder Iliac Branch Endoprosthesis for Aorto-Iliac Aneurysms

Daphne van der Veen [a], Suzanne Holewijn [a], Raffaello Bellosta [b], Steven M.M. van Sterkenburg [a], Jan M.M. Heyligers [c], Ilaria Ficarelli [d], Francisco J. Gómez Palonés [e], Nicola Mangialardi [f], Nilo J. Mosquera [g], Andrew Holden [h], Michel M.P.J. Reijnen [a,i,*], on behalf of the IceBERG Study Collaboration

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[d] Vascular Surgery, Cardarelli Hospital, Naples, Italy
[e] Department of Angiology and Vascular Surgery, Doctor Peset University Hospital, Valencia, Spain
[f] Vascular Surgery, San Filippo Neri Hospital, Rome, Italy
[g] Department of Angiology and Vascular Surgery, Complexo Hospitelario Universitario de Ourense, Spain
[h] Department of Interventional Radiology, Auckland City Hospital, Auckland, New Zealand
[i] Multi-Modality Medical Imaging Group, TechMed Centre, University of Twente, Enschede, the Netherlands

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SAGE journals

Original Article

Results of the Galician registry in the treatment of complex aortoiliac aneurysms with GORE® EXCLUDER® Iliac Branch Endoprosthesis (GALIBER)

Alba Méndez Fernández [1], Jorge Fernández Noya [1], Nilo J Mosquera Arochena [2], Jorge Vidal Rey [3], Pablo Calvin Álvarez [4], Francisco José Franco Meijide [5], and Rosa Villardefrancos Gil [2]

- Long term durability and need for reintervention (~10%), NOT branch patency (>95%), is the major shortcoming
- Frequently related to type 2 endoleaks (15 – 35%)

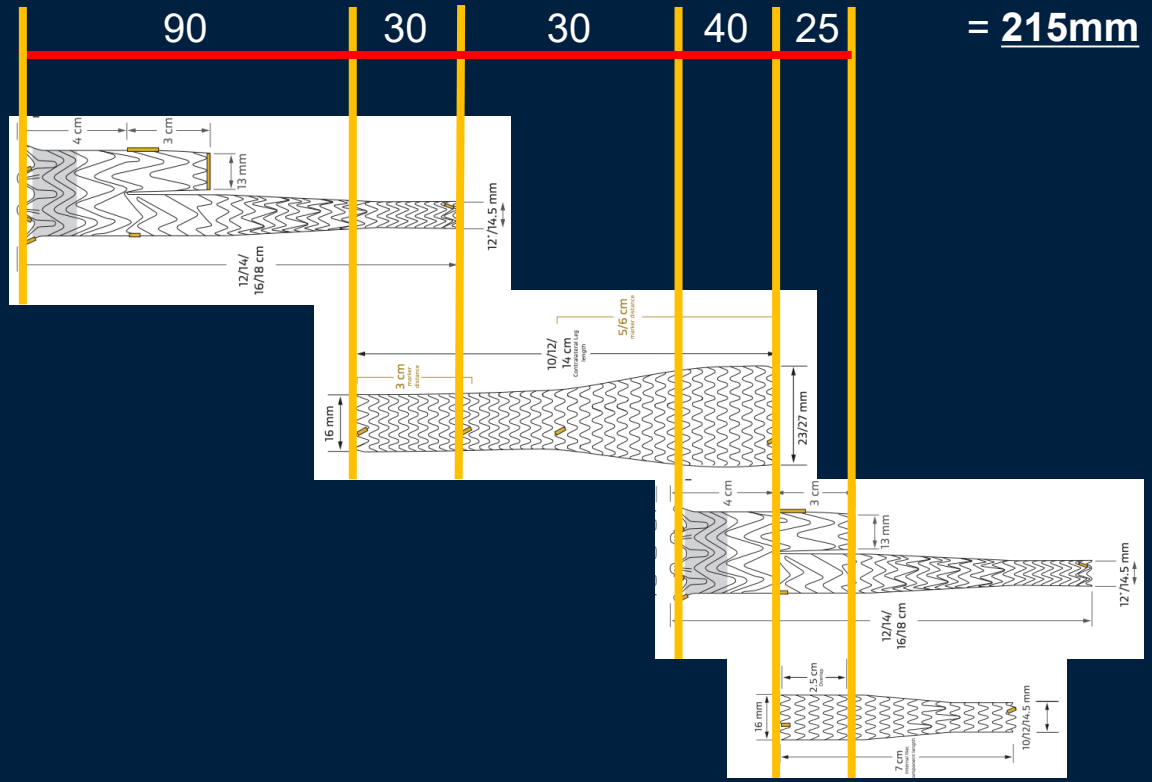
From the Vascular and Endovascular Surgery Society

Gore Iliac Branch Endoprosthesis for treatment of bilateral common iliac artery aneurysms

Thomas S. Maldonado, MD,[a] Nilo J. Mosquera, MD,[b] Peter Lin, MD,[c] Raffaello Bellosta, MD,[d] Michael Barfield, MD,[a] Albeir Moussa, MD,[e] Robert Rhee, MD,[f] Marc L. Schermerhorn, MD,[g] Jeffrey Weinberger, MD,[h] Marald Wikkeling, MD,[i] Jan Heyligers, MD,[j] Frank J. Veith, MD,[a] Ross Milner, MD,[k] *and* Michel P. J. Reijnen, MD,[l] on behalf of the Gore Bilateral IBE Study Group,* *New York and Brooklyn, NY; Ourense, Spain; Los Angeles, Calif; Brescia, Italy; Charleston, WVa; Boston, Mass; Indianapolis, Ind; Drachten, Tilburg, and Arnhem, The Netherlands; and Chicago, Ill*

- European and American registry data after FDA approval
- 47 patients, mean follow up of 6.5 months
- 98% technical success
- 98% IIA patency
- 96% EIA patency
- No mortality or reintervention
- 30% type 2 endoleak rate

Bilateral IBE



CLINICAL RESEARCH STUDY | ABDOMINAL AORTIC AND ILIAC ARTERY ANEURYSMS · Volume 75, Issue 4, P1268-1275.E1, April 2022 · *Open Archive*

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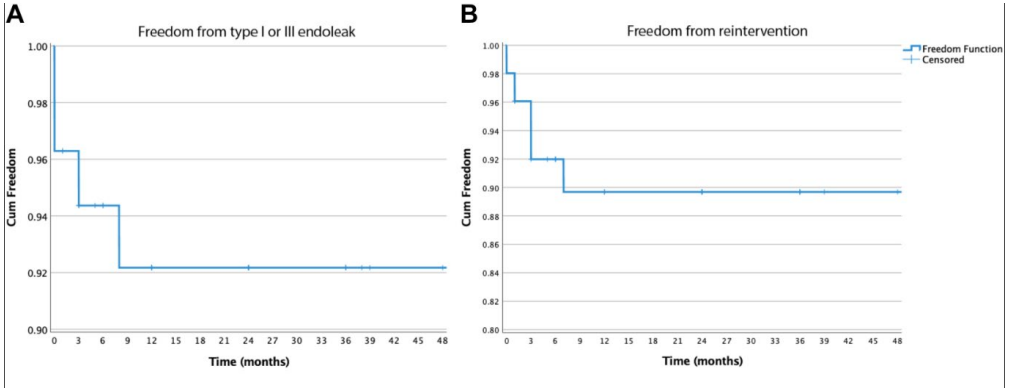
Solitary iliac branch endoprosthesis placement for iliac artery aneurysms

Fieke K. Oussoren, MD [a] · Thomas S. Maldonado, MD, PhD [b] · Michel M.P. J. Reijnen, MD, PhD [a,c] · ... · J. Wever, MD, PhD [t] · A. Wiersema, MD, PhD [u] · O.R.M. Wikkeling, MD, PhD [v] ... Show more

Affiliations & Notes · Article Info

- 18 European and American centers
- 51 patients, 54 IAAs were excluded
- Median follow up of 36 months
- No aneurysm related mortality
- Branch patency of 98%
- Only 1 type 1A endoleak



Aorta and Major Branches

Eur J Vasc Endovasc Surg (2023) 65, 819—826

Use of Secondary Iliac Branch Devices after Previous Endovascular Abdominal and Thoraco-Abdominal Aortic Aneurysm Repair☆

Paolo Spath [a,b,1,*], Yamel Cardona-Gloria [c,1], Giovanni Torsello [c], Enrico Gallitto [b,d], Tugce Öz [a], Efthymios Beropoulis [c], Jan Stana [a], Mauro Gargiulo [b,d], Nikolaos Tsilimparis [a]

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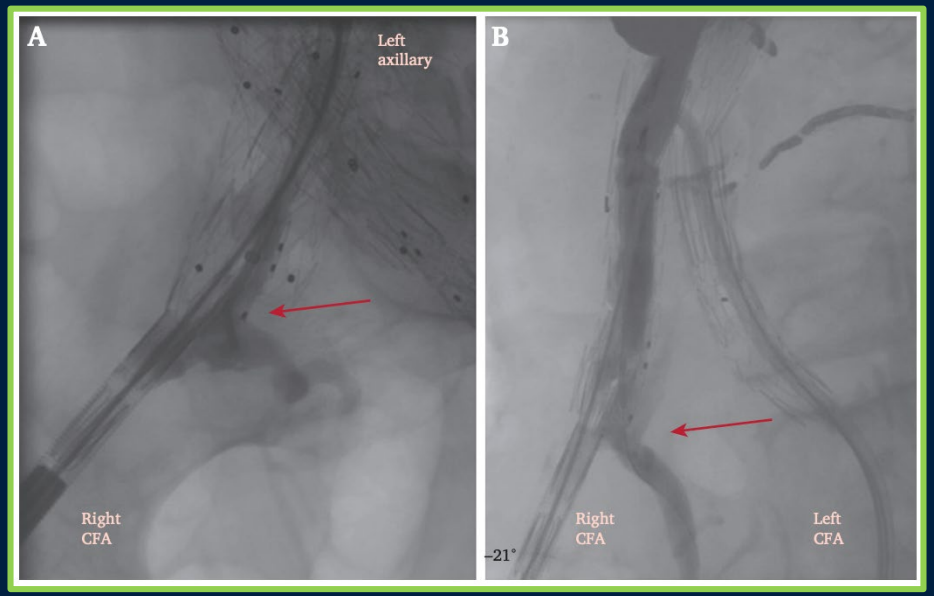

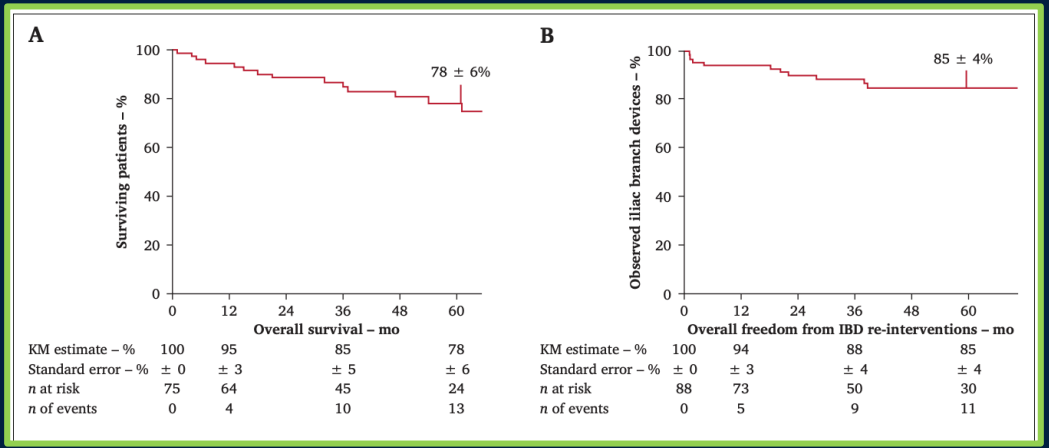

- Mean follow up of 47 months
- Aortic specific mortality of zero
- 100% technical success

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