

Multicenter data on the usage of large covered stents in aortic blisters/PAU instead of an EVAR device

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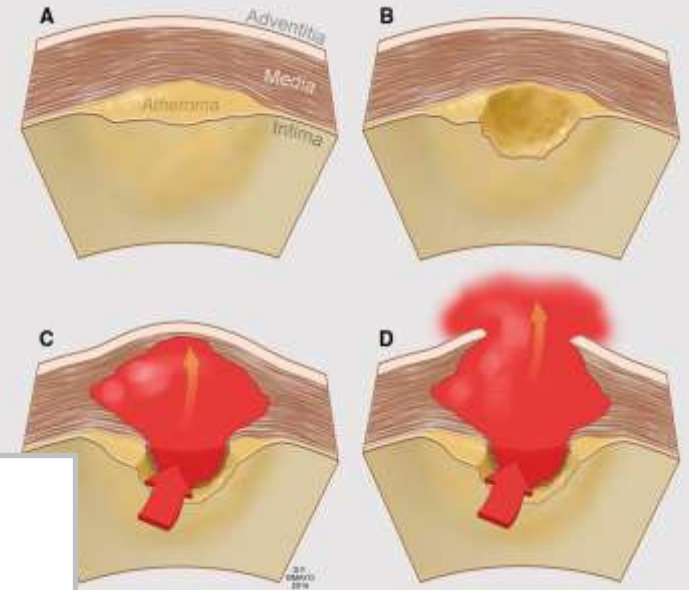
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Penetrating Aortic Ulcers (PAUs)

- Focal disruption of the intima & elastic lamina extending into the media from erosion of an atherosclerotic plaque.
- *Calcification* of part of the wall generates limited distensibility → **focal lesions** (\neq AAS)
- Accounts for 2-7% of AAS
- Increasing incidence

LOCATION:

- Aortic Arch \approx 10%
- Descending Aorta \approx 60%
- Abdominal Aorta \approx 30%



Therapy

- **Primary Objective:** Prevention of progression to aortic rupture and aortic dissection.

Uncomplicated
PAU

Recommendation 20	Class	Level of evidence	References
Uncomplicated* type B intramural haematoma and penetrating aortic ulcer should be treated medically, and followed by serial imaging surveillance	I	C	121,122

Recommendation 114	Class	Level	References
In uncomplicated penetrating aortic ulcer, dissection, or intramural haematoma of the abdominal aorta, serial imaging surveillance is recommended.	I	C	[499,579]

Complicated
PAU

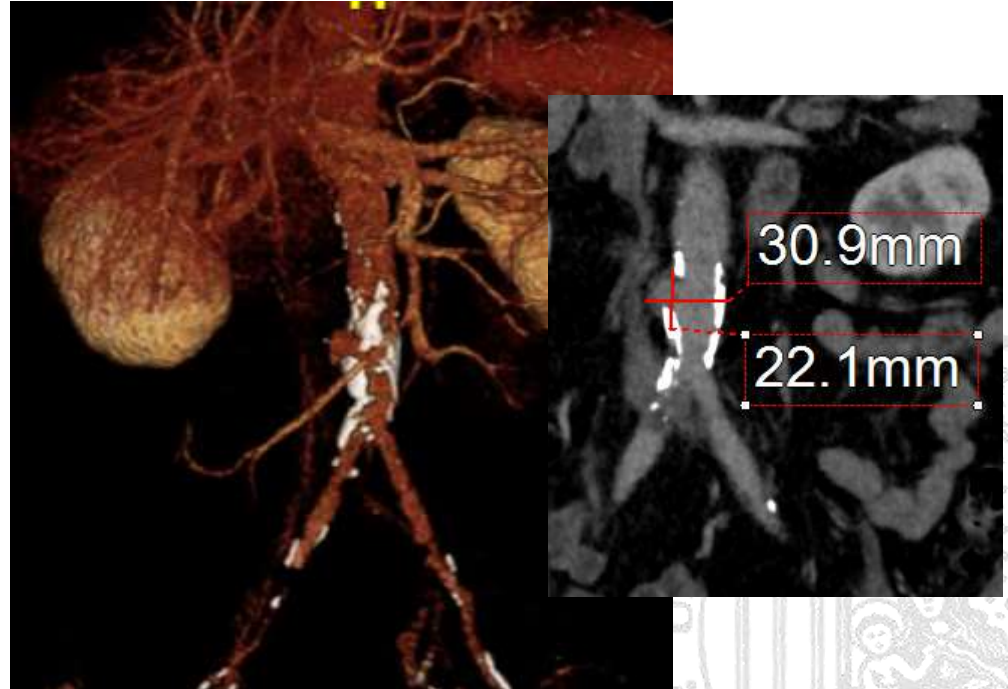
Recommendation 115	Class	Level	References
In patients with complicated penetrating aortic ulcer, dissection, or intramural haematoma, and in pseudoaneurysm in the abdominal aorta, repair is <u>recommended.</u>	I	C	[499,579]

Recommendation 117	Class	Level	References
In patients with complicated penetrating aortic ulcer, dissection, intramural haematoma, or pseudoaneurysm of the abdominal aorta, endovascular repair should be considered as a first option.	Ia	C	[45,216,217,301,499,69]



Case of infrarenal aortic PAU

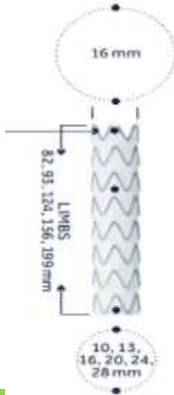
- 70 year-old male
 - Sigmadiverticulitis
 - Pending sigmaresection surgery
- **INDICATION:**
 - >2cm
 - Pending open abdominal surgery



Treatment options

■ Treatment Options:

- Open repair
- **EVAR:** w/ standard bifurcated devices
(large Fr, heavy calcification, narrow bifurc)
- **Straight Grafts:** Iliac Limbs, thoracic endografts, BeGraft aortic



BeGraft® aortic

- **Available \varnothing :** 12 – 24mm
(post-dilation \approx 30mm)
- **Available lengths:** 19mm – 59mm
- **Sheath Compatibility:**
 -9 F \varnothing 12 mm
 -11 F \varnothing 14 and 16mm
 -14 F \varnothing 18 - 24 mm

BeGraft
aortic



BeGraft

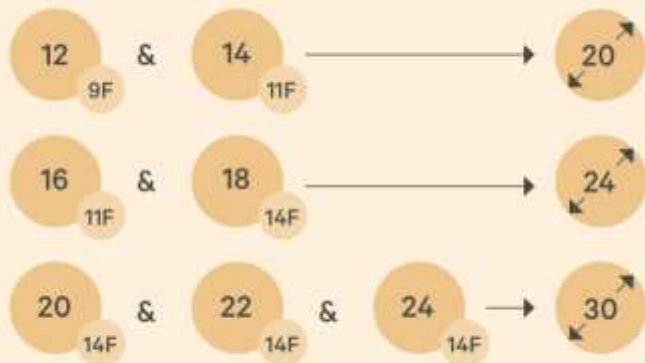
aortic



Bentley InnoMed GmbH

initial diameter

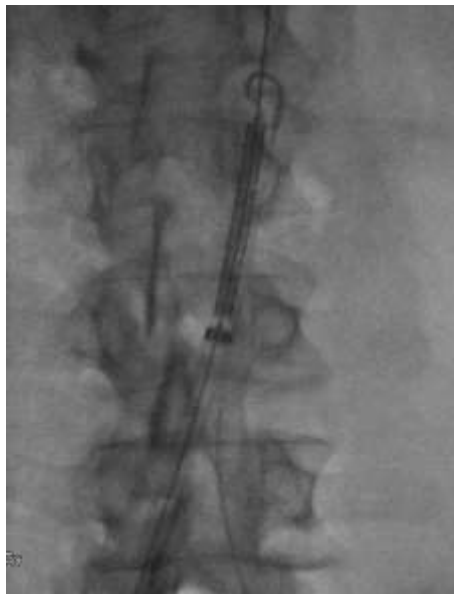
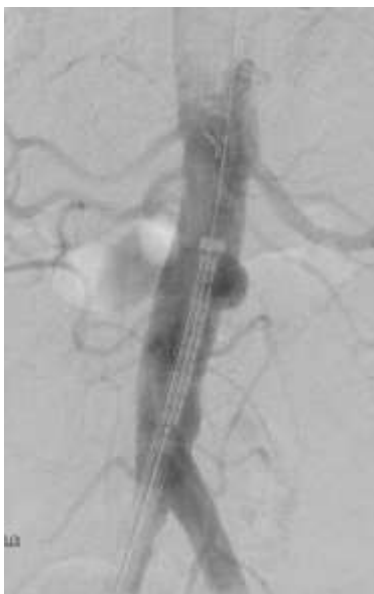
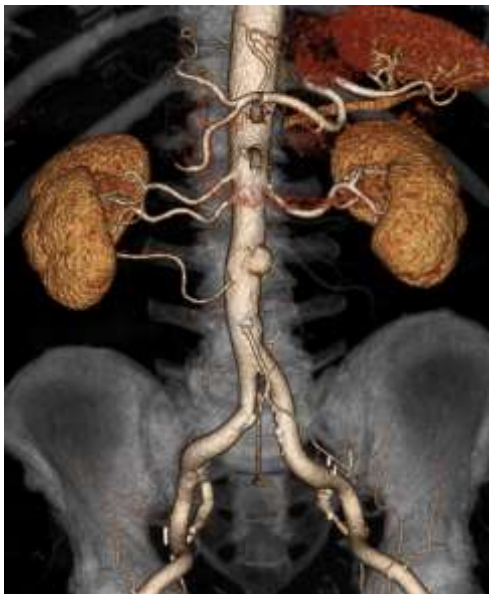
max. diameter**



all sizes in mm



Symptomatic aortic PAU



Proximal Postdilatation to 26mm

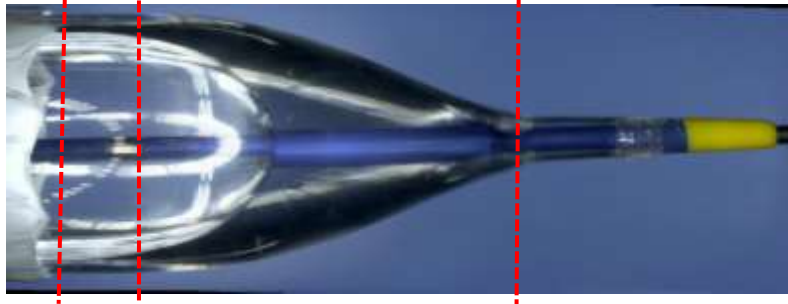
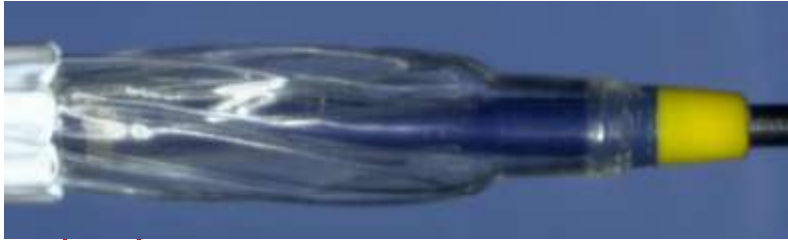


Post-Op CTA

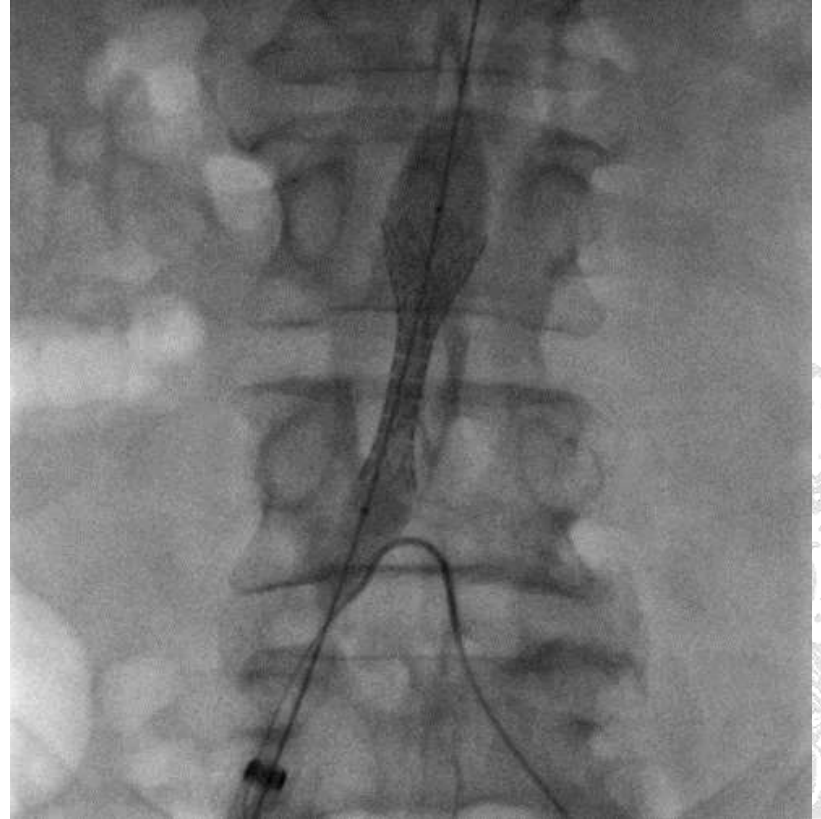


6 months: complete remodeling

Technical aspects – Balloon Shoulder



BGA Ø 12mm



Multicenter Study

Patient Cohort

- BeGraft® Aortic stent-graft in 9 European centers from 2017 to 2020
- 40 Patients, mean age of 74 years
- 63% male

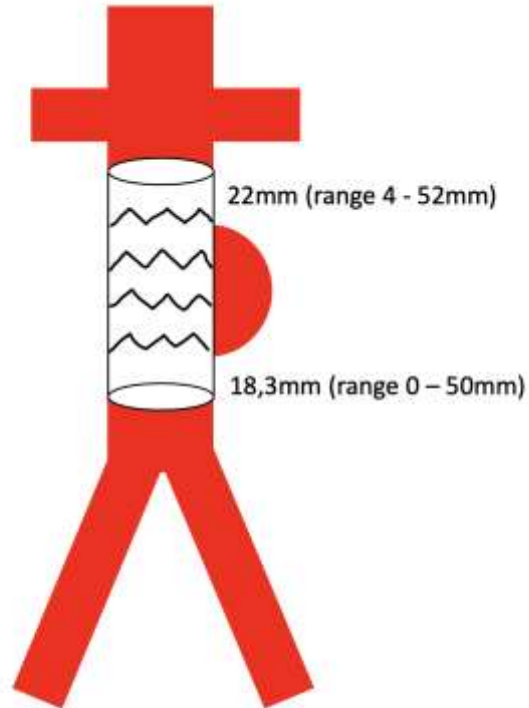
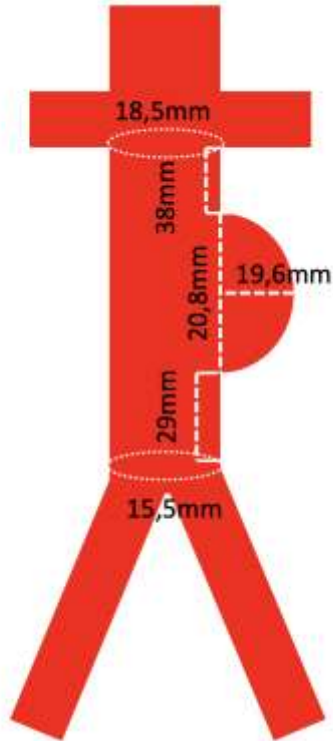
Indication for treatment

- size/morphology of the iPAU (67,5%); mean diameter of 19 ± 12 mm
- presence of symptoms (27,5%); mean diameter of 19 ± 11 mm
- contained ruptures (5%); mean diameter of 23 ± 3 mm



Results

Preoperative Anatomic Characteristics



Perioperative Data

- 98% technical success
- One rupture due to extensive oversizing

Median operation time	58 min (19 – 170 min)
Median fluoroscopy time	8 minutes (3 – 34 min)
Mean contrast volume	80 ± 7.8mL
Oversize used	50% mean oversizing of 16,2% 20% no oversizing 30% mean undersizing of 14,9%
Number of Stents used	1 Stent 45% 2 Stents 37,6% 3 or 4 Stents 17,4%
Additional procedures	25% : <ul style="list-style-type: none">• 5 CERAB• 3 Proximal extensions• 2 Angioplasty of the iliac artery



Results

Thirty-day outcomes

- No mortality
- No aortic re-interventions
- 2,5% general reintervention
 - Hematoma evacuation

Mid-term Results

- 14 months median follow-up time (2-39 months)
- no vascular reinterventions or vascular-related deaths were reported
- in four patients, a type II endoleak was observed



Conclusion

- The treatment of iPAU with the BeGraft® Aortic Stent Graft is feasible and safe
- Balloon-expandable stentgrafts offer the option to repair iPAUs with a simple technique and a shorter coverage of the aorta.
- The low-profile sheaths necessary enable the treatment through calcified access vessels and of small diameter aortic bifurcations





Thank you



EXPERIENCE WITH ABDOMINAL PAU

Study (reference)	Number of patients	Mean age (y)	Sex (male/female)	Risk	Treatment
Lagaay [21]	3	58	3/0	HTN-CAD	ABI (2)-tube (1)
Cornud et al. [22]	1	53	1/0	CAD	Tube
Barbier et al. [23]	1	73	0/1	NA	ABI
Toda et al. [34]	2	70	2/0	HTN-CAD-PAD	Surgical interposition graft
Farooq et al. [35]	2	68	2/0	HTN (2)-PAD	ABI (1)-tube (1)
Ganaha et al. [12]	31	71	15/16	HTN	Interposition stent graft
Sensi et al. [44]	11	76.7	10/1	HTN (9)-CKD (1)-CAD (6)	ABI (4)-tube (1)- EVAR (6)
Eggebrecht et al. [45]	22	69.1	16/6	HTN (2)-CKD (9)-CAD (12)	EVAR (22)
Thalheimer et al. [46]	1	57	1/0	HTN-CAD-PAD	Tube (1)
Dalainas et al. [47]	2	68.6	2/0	HTN (2)-CKD (2)-CAD (5)	EVAR (2)
Piffaretti et al. [48]	13	73	12/1	HTN (13)-CKD (2)-CAD (2)-PAD (6)	EVAR (13)
Fyntanidou et al. [49]	4	67	4/0	HTN (4)-CKD (1)-CAD (1)	EVAR (4)
Lindblad et al. [50]	19	72	16/3	NA	EVAR (19)
...					
Total	230	49/164 (29.9%) ^a	115/164 (70.1%) ^b		

- 298 abdominal PAU from 1974-2015
- Series > 10pt: rare
- 40.3% asymptomatic
- 43.8%: Abdominal pain
- 11.9%: Hypovolemic shock

- **62%: EVAR**
- **35.4%: Open repair**
- **2.6%: Surveillance**

PAU of the abdominal aorta: A case report and review of literature. Vasc Specialist International 2019. Kotsis et al.