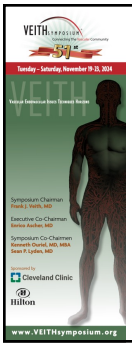
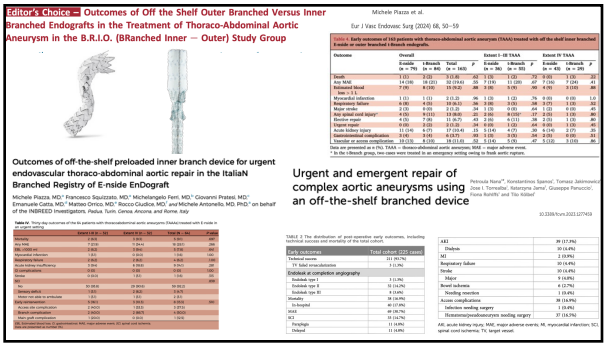


Comparison Of The Cook t-Branch OTS Endograft Device With The E-nside (Artivion) Multibranched Device For Juxta- And Pararenal AAAs And TAAAs: Advantages And Limitations Of Each

M Orrico, MD

San Camillo-Forlanini Hospital, Rome


Editor's Choice – Outcomes of Off the Shelf Outer Branched Versus Inner Branched Endografts in the Treatment of Thoraco-Abdominal Aortic Aneurysm in the B.R.I.O. (BRanched Inner – Outer) Study Group

Michele Piazza et al.

Eur J Vasc Endovasc Surg (2024) 68, 50–59

Outcomes of off-the-shelf preloaded inner branch device for urgent endovascular thoraco-abdominal aortic repair in the ItaliaN Branched Registry of E-nside EnDograft

Urgent and emergent repair of complex aortic aneurysms using an off-the-shelf branched device

t-Branch

Advantages

- **Longer Follow Up**
- Outer Branches→ support in large aortas
- **Precision in Release**
- **Trackability** of delivery system

Limitations

- One measure available for Proximal Landing (34 mm)
- Outer branches → needs at least 1/1.5 cm distance from the Target Vessel
- **Almost always needs bifurcated body**

E-nside

Advantages

- **Different Prox/Dist Diameters**
  - Less prox coverage
  - Land in abdominal aorta
- **Preloaded inner branches** + partial release allow to exit the graft in **narrow aortas**
- Inner Branches→ **FEVAR-like release**

Limitations

- OL with bifurcated body can be insufficient in tortous Abdominal Aortas
- Jump in release
- **No active fixation**

t-Branch VS E-nside

Agenda

#1 Branches technology

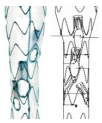
#2 Main graft Characteristics

3 Delivery System and release mechanism

t-Branch VS E-nside

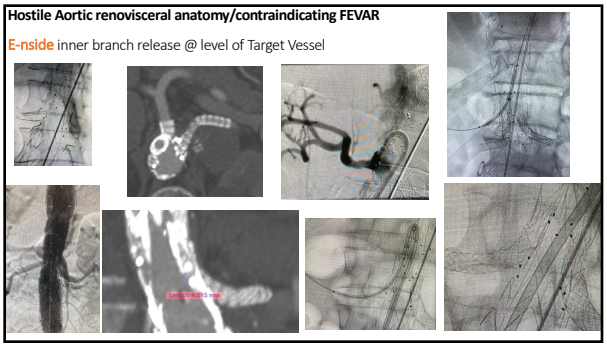
#1 Branches technology

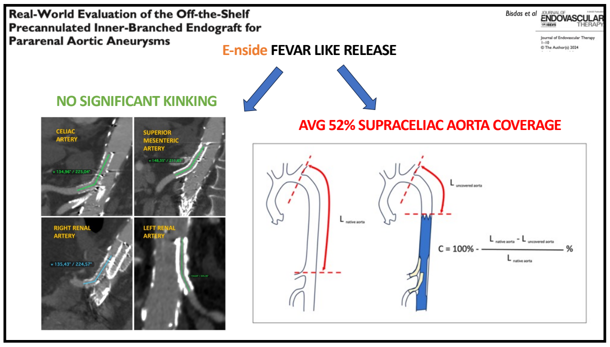
OUTER BRANCHES VS INNER BRANCHES *(preloaded)*

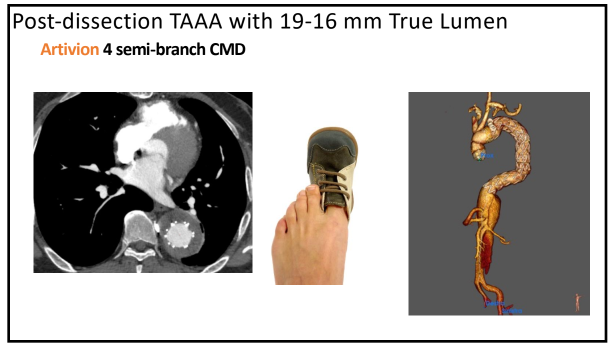


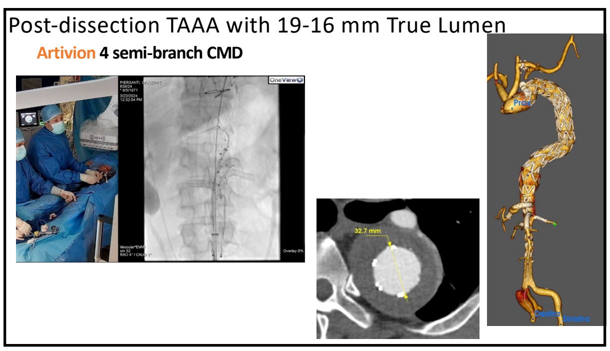
Hostile Aortic renovisceral anatomy/contraindicating FEVAR

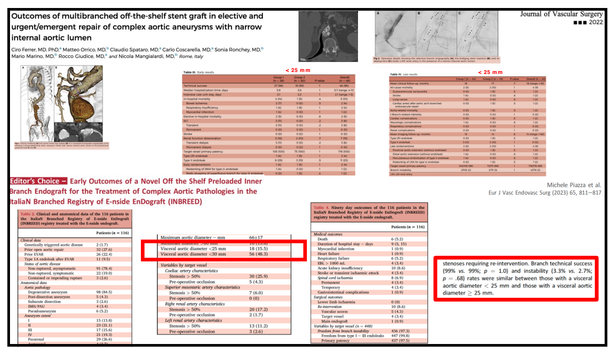
E-nside inner branch release @ level of Target Vessel

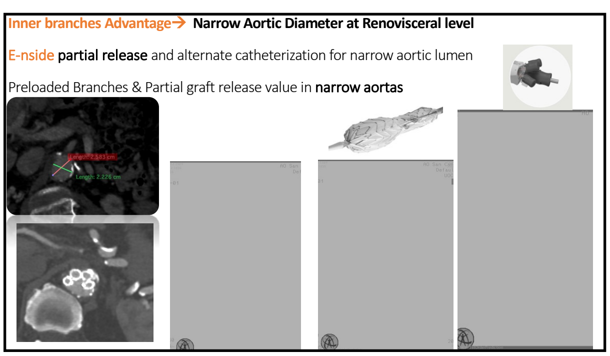


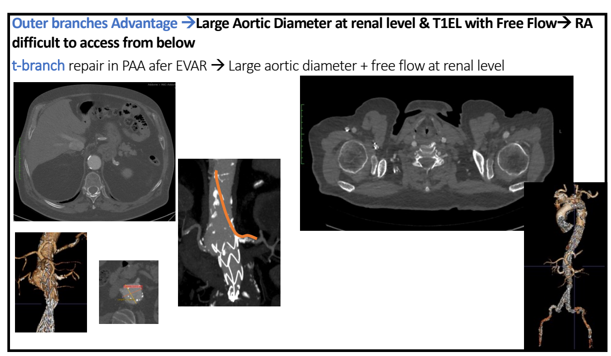

Real-World Evaluation of the Off-the-Shelf Precannulated Inner-Branched Endograft for Pararenal Aortic Aneurysms
ENDOVASCULAR THERAPY
E-nside FEVAR LIKE RELEASE
NO SIGNIFICANT KINKING
AVG 52% SUPRACELIAC AORTA COVERAGE
CELIAC ARTERY
SUPERIOR MESENTERIC ARTERY
RIGHT RENAL ARTERY
LEFT RENAL ARTERY
C = 100% - %


Post-dissection TAAA with 19-16 mm True Lumen
Artivion 4 semi-branch CMD


Post-dissection TAAA with 19-16 mm True Lumen
Artivion 4 semi-branch CMD
32.7 mm

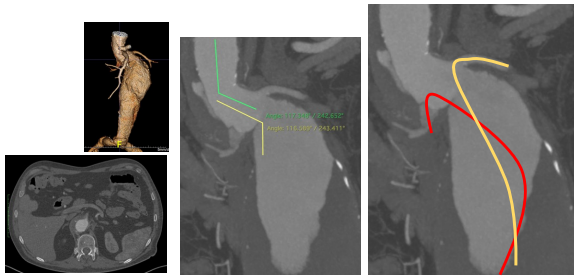

Outcomes of multibranched off-the-shelf stent graft in elective and urgent/emergent repair of complex aortic aneurysms with narrow internal aortic lumen
Journal of Vascular Surgery
< 25 mm
< 25 mm
Editor's Choice – Early Outcomes of a Novel Off the Shelf Preloaded Inner Branch Endograft for the Treatment of Complex Aortic Pathologies in the ItaliaN Branched Registry of E-nside EnDograft (INBREED)
Michele Piazza et al.
Eur J Vasc Endovasc Surg (2023) 65, 811–817


Inner branches Advantage→ Narrow Aortic Diameter at Renovisceral level
E-nside partial release and alternate catheterization for narrow aortic lumen
Preloaded Branches & Partial graft release value in narrow aortas


Outer branches Advantage →Large Aortic Diameter at renal level & T1EL with Free Flow→ RA difficult to access from below
t-branch repair in PAA afer EVAR → Large aortic diameter + free flow at renal level

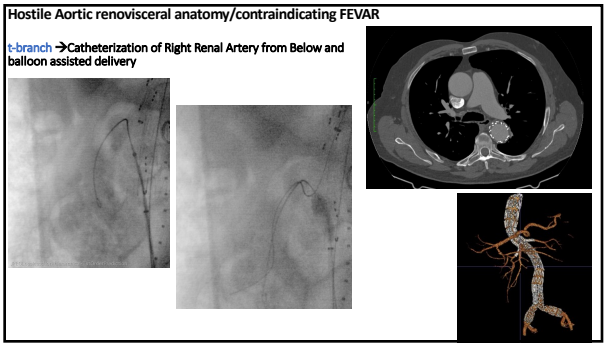
Hostile aortic renovisceral anatomy/contraindicating FEVAR

PAA repair with t-branch → hostile angle of pararenal aorta



Hostile Aortic renovisceral anatomy/contraindicating FEVAR

t-branch →**Catheterization of Right Renal Artery from Below and balloon assisted delivery**



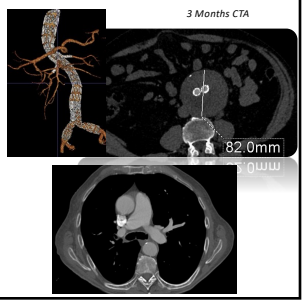
t-Branch & E-nside

#2 Main graft Characteristics

Urgent/Emergent J-PAAAs

10 cm PAA repair with t-branch → shrinkage @ 3 months

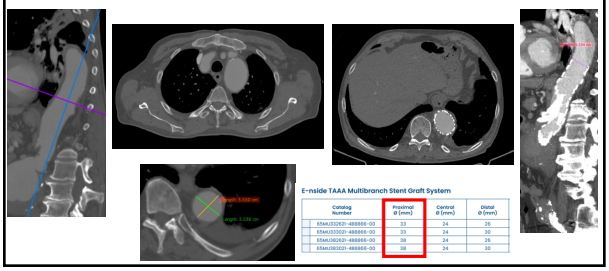
3 Months CTA



10 cm TIVTAAA repair with E-nside

Impending rupture of JAAA excluded with E-nside

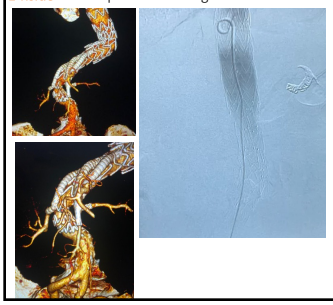
Aortic Diameter @ Proximal Landing 35 mm→ **38 mm graft with less thoracic Coverage**



E-nside TAAA Multibranch Stent Graft System

Catalog Number	Proximal Ø (mm)	Central Ø (mm)	Distal Ø (mm)
65MU332621-488866-00	33	24	26
65MU333021-488866-00	33	24	30
65MU382621-488866-00	38	24	26
65MU383021-488866-00	38	24	30

E-nside aortic repair with landing in distal abdominal aorta



E-nside TAAA Multibranch Stent Graft System

Catalog Number	Proximal Ø (mm)	Central Ø (mm)	Distal Ø (mm)
65MU332621-488866-00	33	24	26
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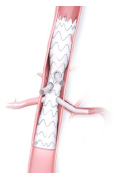
65MU382621-488866-00	38	24	26
65MU383021-488866-00	38	24	30



E-nside Lack of Active Fixation

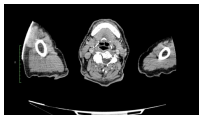
TAAA

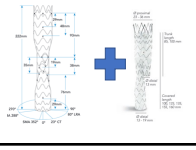
OS/OL

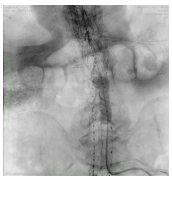
t-branch hooks

Urgent/Emergent J-PAAAs

E-nside overlapping with bifurcated body → insufficient in tortuosities







t-Branch & E-nside

3 Delivery System and release mechanism

Editor's Choice – Outcomes of Off the Shelf Outer Branched Versus Inner Branched Endografts in the Treatment of Thoraco-Abdominal Aortic Aneurysm in the B.R.I.O. (BRanched Inner — Outer) Study Group

Michele Piazza et al. Eur J Vasc Endovasc Surg (2024) 68, 50–59

E-nside

The graft design and step by step operative technique have been described previously.[12,17] The device is a nitinol inner branched endograft with a 24 Fr outer diameter delivery system, available in four different sizes (proximal diameter 38/33 mm; distal diameter 30/26 mm). All inner branches are pre-cannulated with a polyimide tube that can be loaded with a 0.018" wire from the handle system and snared from above the top of the graft using an upper limb or contralateral femoral approach. According to the manufacturer's instructions for use, the device should land on a thoracic endograft, but in clinical practice it has also been safely used without TEVAR.[12] Potential advantages are conformability to different aortic diameters, easy cannulation of the pre-loaded branches, and adaptation to a narrow aortic diameter.

t-Branch

The t-Branch is a stainless steel graft with a single version (34 mm proximal diameter, 18 mm distal diameter, and four outer branches), in a 22 Fr internal (24 Fr external) delivery system. The endovascular procedure is intended to be completed by distal deployment of a bifurcated Zenith Universal Distal Body Endovascular Graft (Unibody; Cook Medical) landing in the iliac arteries. The potential advantages are easier advancement in challenging iliac access and a traditional pull back deployment mechanism.

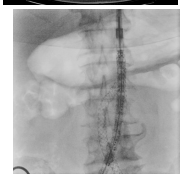
Previous distal surgical repair

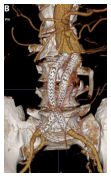
t-branch for evolution after surgical aortic repair

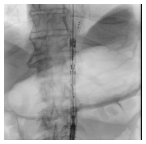
No short Custom Grafts with Inverted Limb

Late failure of a Nellix endoprosthesis treated with the t-Branch off-the-shelf multibranched stent graft

Antonio Loreto, MD, Matteo Orrico, MD, Mario Marino, MD, Alessio Vona, MD, Sonia Ronchey, MD, PhD, and Nicola Mangialardi, MD, Rome, Italy

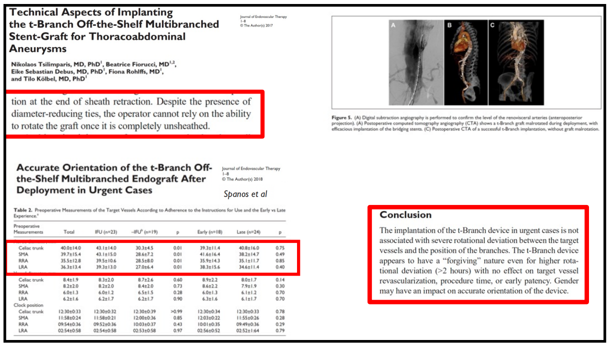


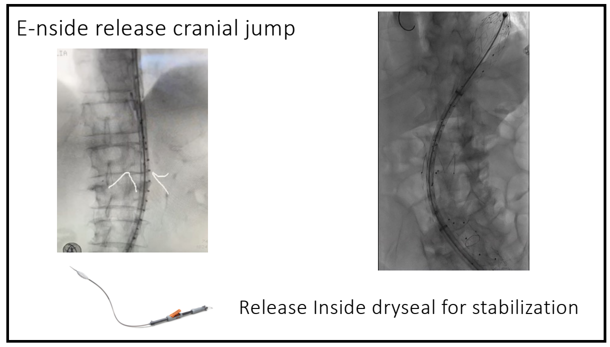




Journal of Vascular Surgery Cases and Innovative Techniques December 2019

Fig 3. Postoperative three-dimensional volume rendered image showing the correct t-Branch positioning with the branches' iliac axis patency and aneurysm exclusion.


Technical Aspects of Implanting the t-Branch Off-the-Shelf Multibranched Stent-Graft for Thoracoabdominal Aneurysms
Nikolaos Tsilimparis, MD, PhD, Beatrice Fiorucci, MD, Eike Sebastian Debus, MD, PhD, Fiona Rohlffs, MD, and Tilo Kölbel, MD, PhD
tion at the end of sheath retraction. Despite the presence of diameter-reducing ties, the operator cannot rely on the ability to rotate the graft once it is completely unsheathed.
Accurate Orientation of the t-Branch Off-the-Shelf Multibranched Endograft After Deployment in Urgent Cases
Spanos et al
Conclusion
The implantation of the t-Branch device in urgent cases is not associated with severe rotational deviation between the target vessels and the position of the branches. The t-Branch device appears to have a "forgiving" nature even for higher rotational deviation (>2 hours) with no effect on target vessel revascularization, procedure time, or early patency. Gender may have an impact on accurate orientation of the device.

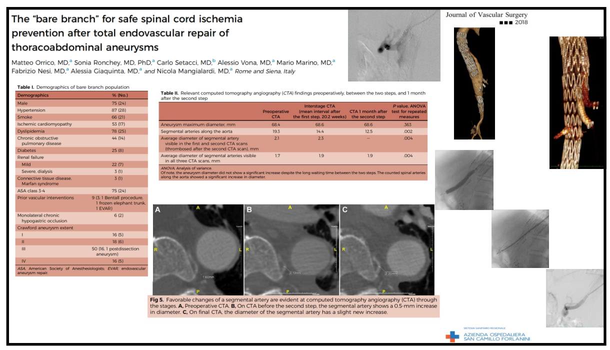


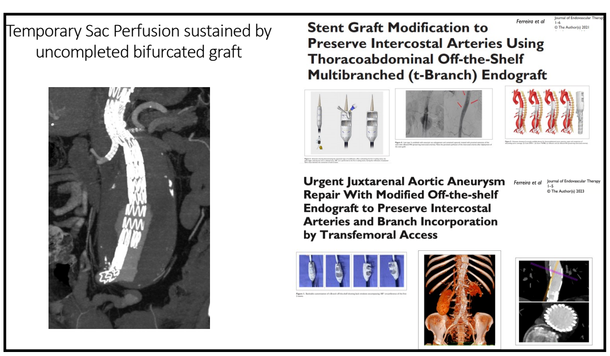
t-Branch & E-nside for J-PAAs
when

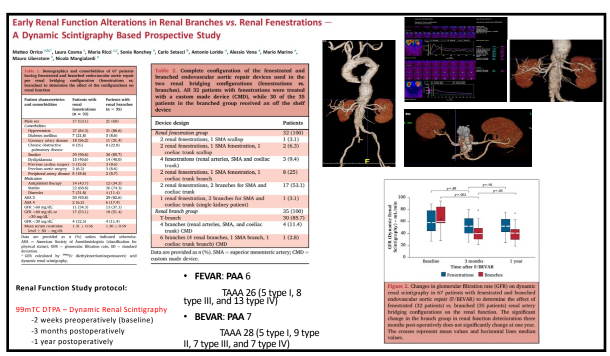
1 - Urgent/Emergent J-PAAAs
2- Aortic renovisceral anatomy hostile for FEVAR
Angle/ Target Vessels DiamLarge Aortic Diameter at renal level
4 - T1EL with Free Flow→ RA difficult to access from below
5 - Previous distal surgical repair

but…

- **Spinal Cord Ischemia**
- **Native Anatomy**




Temporary Sac Perfusion sustained by uncompleted bifurcated graft
Stent Graft Modification to Preserve Intercostal Arteries Using Thoracoabdominal Off-the-Shelf Multibranched (t-Branch) Endograft
Urgent Juxtarenal Aortic Aneurysm Repair With Modified Off-the-shelf Endograft to Preserve Intercostal Arteries and Branch Incorporation by Transfemoral Access


Early Renal Function Alterations in Renal Branches vs. Renal Fenestrations — A Dynamic Scintigraphy Based Prospective Study
Renal Function Study protocol:
99mTC DTPA – Dynamic Renal Scintigraphy
-2 weeks preoperatively (baseline)
-3 months postoperatively
-1 year postoperatively
FEVAR: PAA 6
TAAA 26 (5 type I, 8 type III, and 13 type IV)
BEVAR: PAA 7
TAAA 28 (5 type I, 9 type II, 7 type III, and 7 type IV)

Conclusions

- t-branch and E-nside are both valuable options also in J-PAAAs
- Knowledge and experience with both devices allow to address each particular TAAA/J-PAAAS to the best treatment choice
- In emergent J-PAAAs multibranched devices should be considered
- Some anatomical conditions like an angulated paravisceral aorta/hostile target vessel take off could be better treated with multibranched devices rather than challenging FEVAR
- SCI is a major concern when treating J-PAAAs with a multibranched device
- Hindrance between components may result in anti-anatomical result after J-PAAAs multibranch repair with issued in the long run