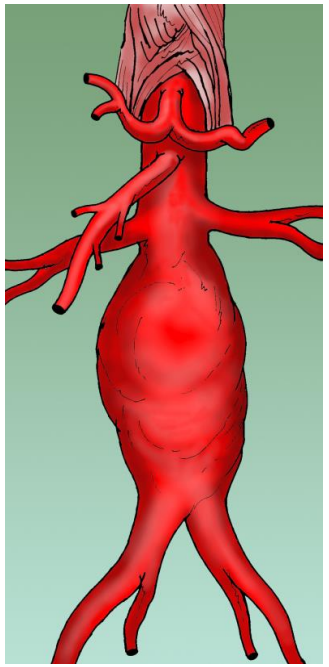
THE 24TH INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
IN AORTIC ENDOGRAFTING
DECEMBER 17 & 18 2021
PULLMAN PARIS BERCY PARIS - FRANCE

Urgent AAA repair with short necks: open, home made fen, in situ laser fen or BEVAR?

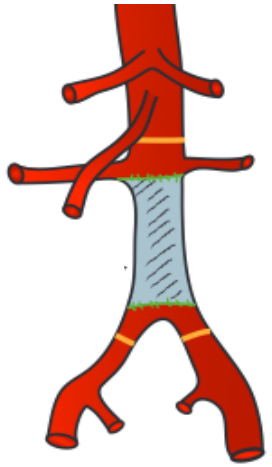
Frédéric Cochennec, Pascal Desgranges



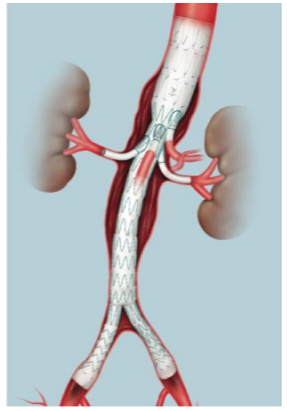
- **Diclosures:**

Proctor for Cook Medical

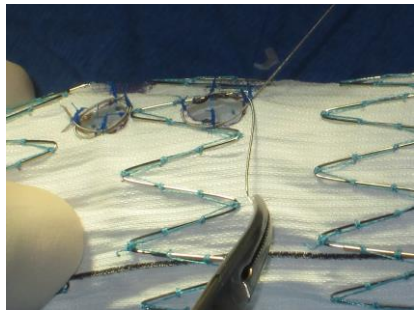
Options for JRAAA needing rapid treatment



OR

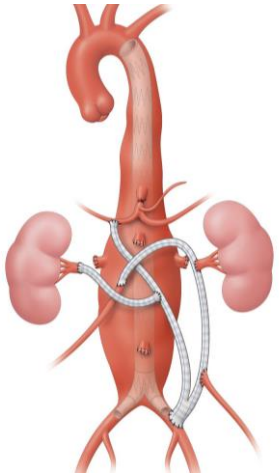


Off the shelf stent grafts
T-branch



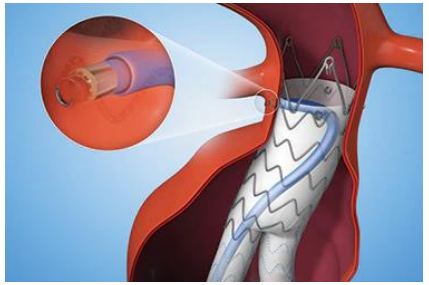
Modified stent grafts

Hand made fenestrations
In situ fenestrations (needle/laser)

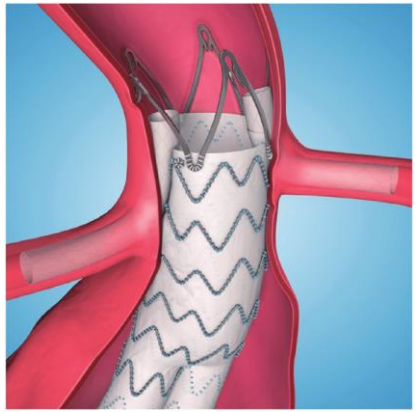


Hybrid repair

Still a major operation



EndoAnchors



ChEVAR

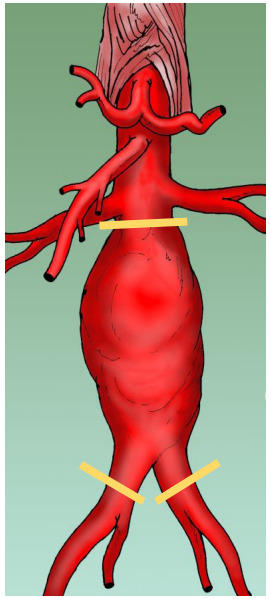
Limited to short neck/ JR AAA

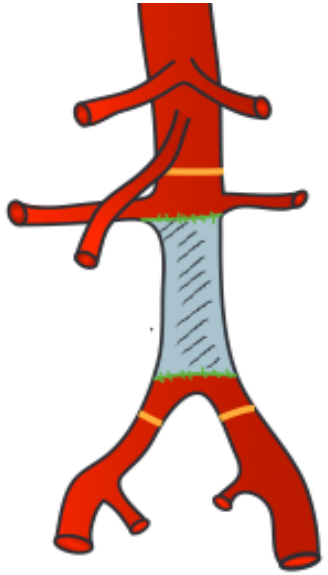
Gutters

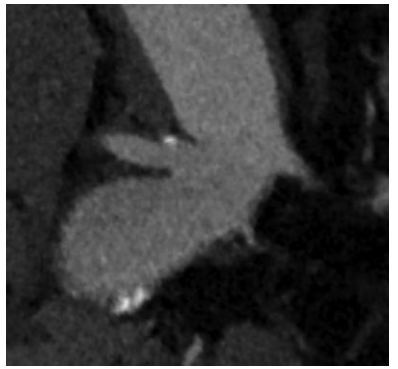
Long term durability?

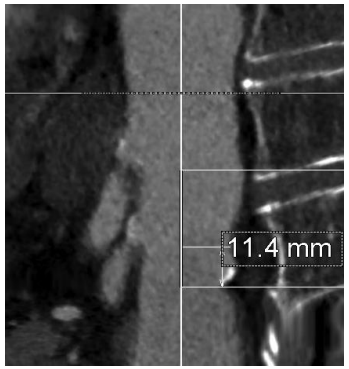
Mitigate results in France
Touma et al, EJVES 2019

OR: Remains the Gold Standard









Opening of the sac and **ligation** of lumbar arteries: **infrarenal** aortic clamping

Proximal **suture: Suprarenal/supramesenteric** aortic clamping

→ Suprarenal aortic clamping < 15 minutes

OR: Remains the Gold Standard

Eur J Vasc Endovasc Surg (2020) 59, 40–49

Editor's Choice – Durability of Open Repair of Juxtarenal Abdominal Aortic Aneurysms: A Multicentre Retrospective Study in Five French Academic Centres

Xavier Chaufour [a], Jean Segal [a], Raphael Soler [b], Guillaume Daniel [c], Eugenio Rosset [c], Jean-Pierre Favre [d], Pierre-Edouard Magnan [d], Jean Baptiste Ricco [e,*], on behalf of the Association Universitaire de Recherche en Chirurgie (AURC)

[a] University Hospital of Toulouse, Rangueil, France
[b] University Hospital of Marseille, la Timone, France
[c] University Hospital of Clermont-Ferrand, Clermont-Ferrand, France
[d] University Hospital of Saint-Etienne, Saint-Etienne, France
[e] University Hospital of Poitiers, Poitiers, France

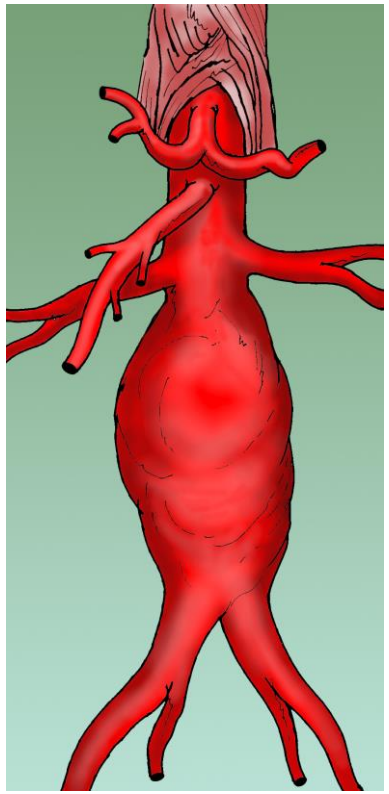
N=**315** JRAA (short neck < 10 mm)

30 day mortality: **0.9%**
1 chronic dialysis

Follow-up: 4.3 years

Renal artery occlusion: 0.7%

Freedom from chronic renal decline: 89% at 5 years
Risk factors: AKI and chronic renal disease



Our preferred option
in low/moderate risk patients
without chronic renal disease.

T-Branch Off the shelf device

> J Vasc Surg. 2021 Sep 1;S0741-5214(21)01980-7. doi: 10.1016/j.jvs.2021.07.237.
Online ahead of print.

Early outcomes of t-Branch off-the-shelf multibranched stent-graft in urgent and emergent repair of thoracoabdominal aortic aneurysms

Ahmed Eleshra [1], Mohamed Hatm [2], Konstantinos Spanos [2], Giuseppe Panuccio [2], Fiona Rohlffs [2], E Sebastian Debus [2], Christian-A Behrendt [2], Nikolaos Tsilimparis [2], Tilo Kölbel [2]

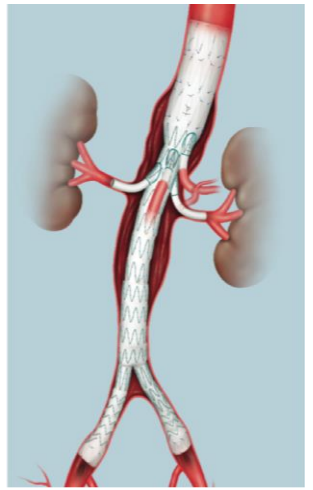
Meta-Analysis > J Vasc Surg. 2020 Aug;72(2):716-725.e1. doi: 10.1016/j.jvs.2020.01.049.
Epub 2020 Apr 1.

Systematic review and meta-analysis of published studies on endovascular repair of thoracoabdominal aortic aneurysms with the t-Branch off-the-shelf multibranched endograft

Nikolaos Konstantinou [1], Constantine N Antonopoulos [2], Thomas Jerkku [3], Ramin Banafsche [3], Tilo Kölbel [4], Beatrice Fiorucci [3], Nikolaos Tsilimparis [3]

Early outcomes of the t-Branch off-the-shelf multi-branched stent graft in 542 patients for elective and urgent aortic pathologies – a retrospective observational study

Tilo Kölbel, MD,[a] Konstantinos Spanos, MD,[a,b] Katarzyna Jama, MD,[c] Christian-Alexander Behrendt, MD,[a] Giuseppe Panuccio, MD,[a] Ahmed Eleshra, MD,[a] Fiona Rohlffs, MD,[a] *and* Tomasz Jakimowicz, MD,[c] *Hamburg, Germany; Larissa, Greece; and Warsaw, Poland*



TAAA almost exclusively

Complex AAA ?

T-Branch

- **Anatomical constraints**
  - Posterior RAs
  - target artery CTO

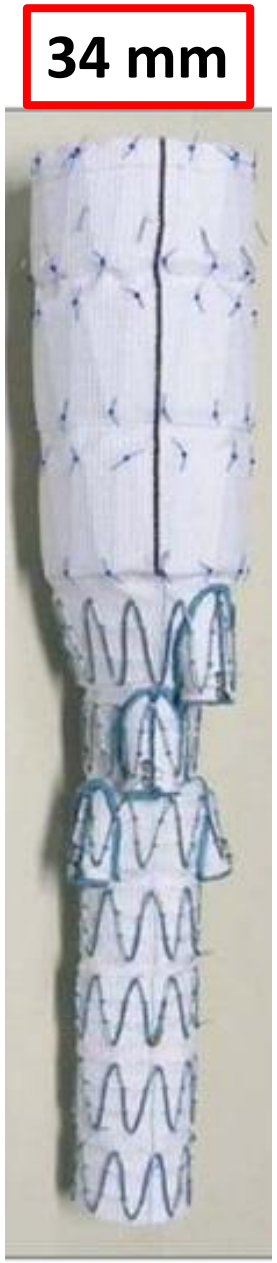
- **Only one diameter**
- **Only one lenght (SCI)**
- **technical issues during branch canulation**
  - Aortic angulations
  - Diameter <26-28 mm
- **Long term stability of branches?**
  - Upward oriented target vessels

J Vasc Surg. 2021 Nov 5;S0741-5214(21)02342-9. doi: 10.1016/j.jvs.2021.09.050.
Online ahead of print.

Outcomes of off-the-shelf multi-branched stent grafts with intentional occlusion of directional branches using endovascular plugs during endovascular repair of complex aortic aneurysms

Emanuel R Tenorio [1], Gustavo S Oderich [2], Tilo Kölbel [3], Mauro Gargiulo [4], Carlos H Timaran [5], Luca Bertoglio [6], Bijan Modarai [7], Katarzyna Jama [8], Ahmed Eleshra [3], Guilherme B B Lima [1], Carla Scott [5], Roberto Chiesa [6], Tomasz Jakimowicz [8], Trans-Atlantic Aortic Research Consortium

T-Branch



- Anatomical constraints
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  - target artery CTO

- **Only one diameter**

- Only one lenght (SCI)

- technical issues during branch canulation
  - Aortic angulations
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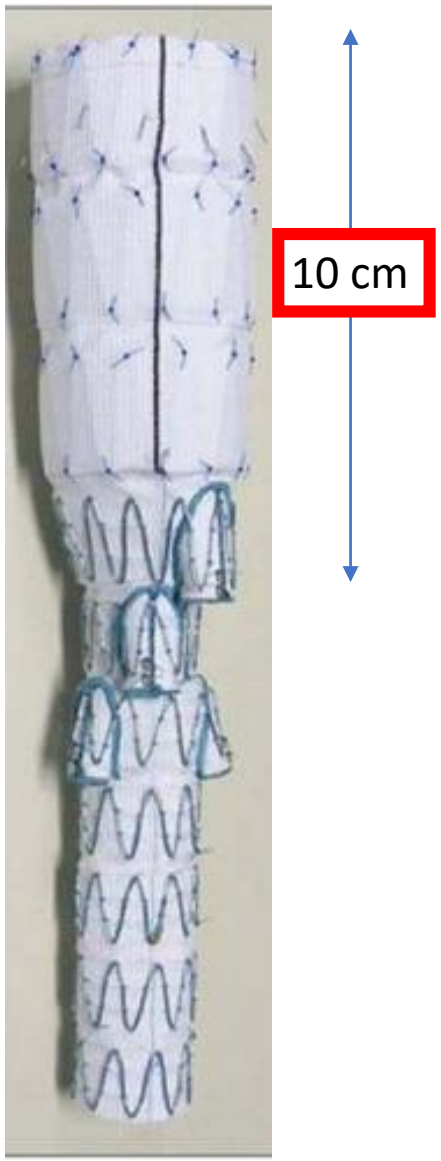
- Long term stability of branches?
  - Upward oriented target vessels

But: **34 mm fits 24-30 mm aortic diameters**

T-Branch



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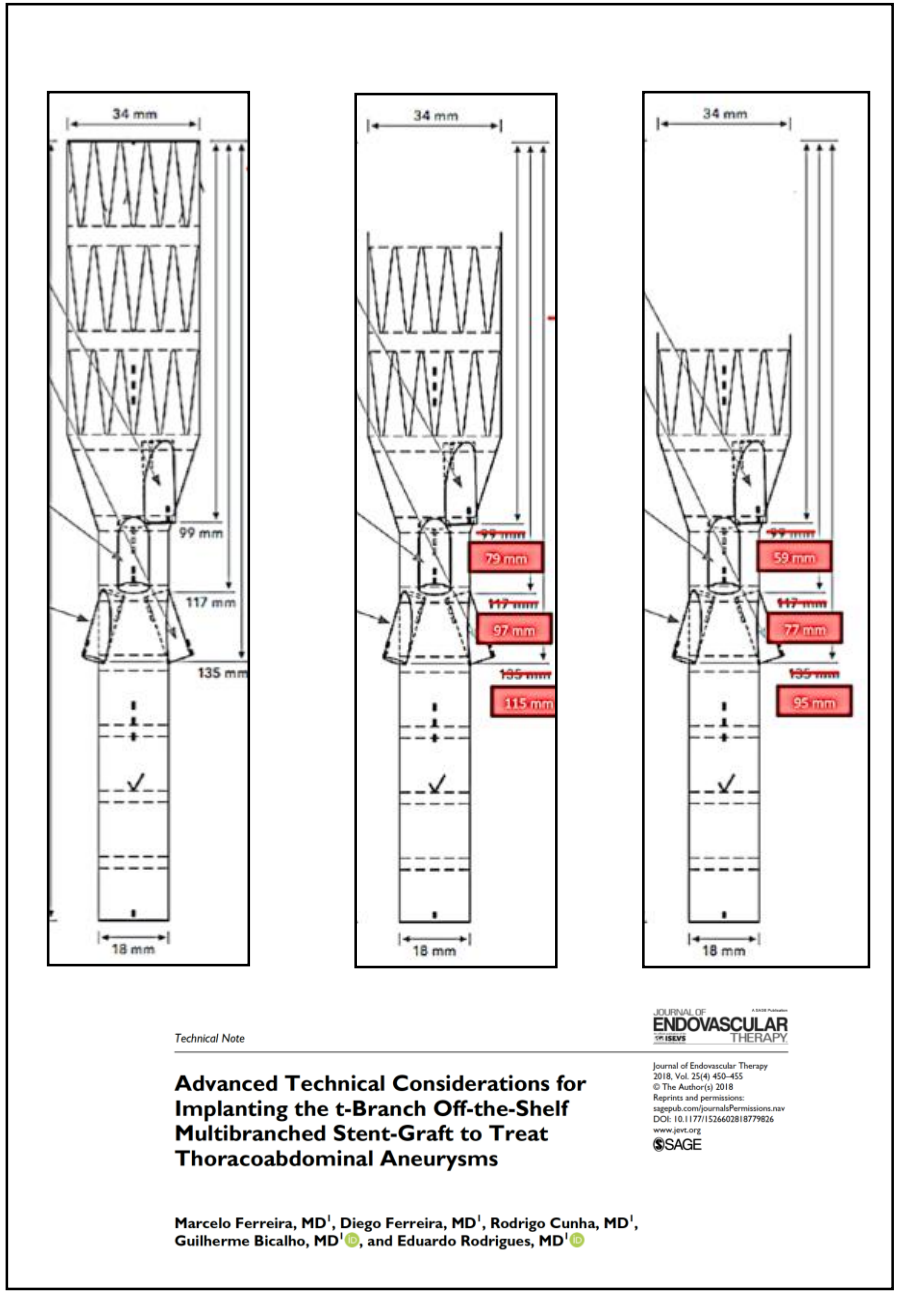

T-Branch

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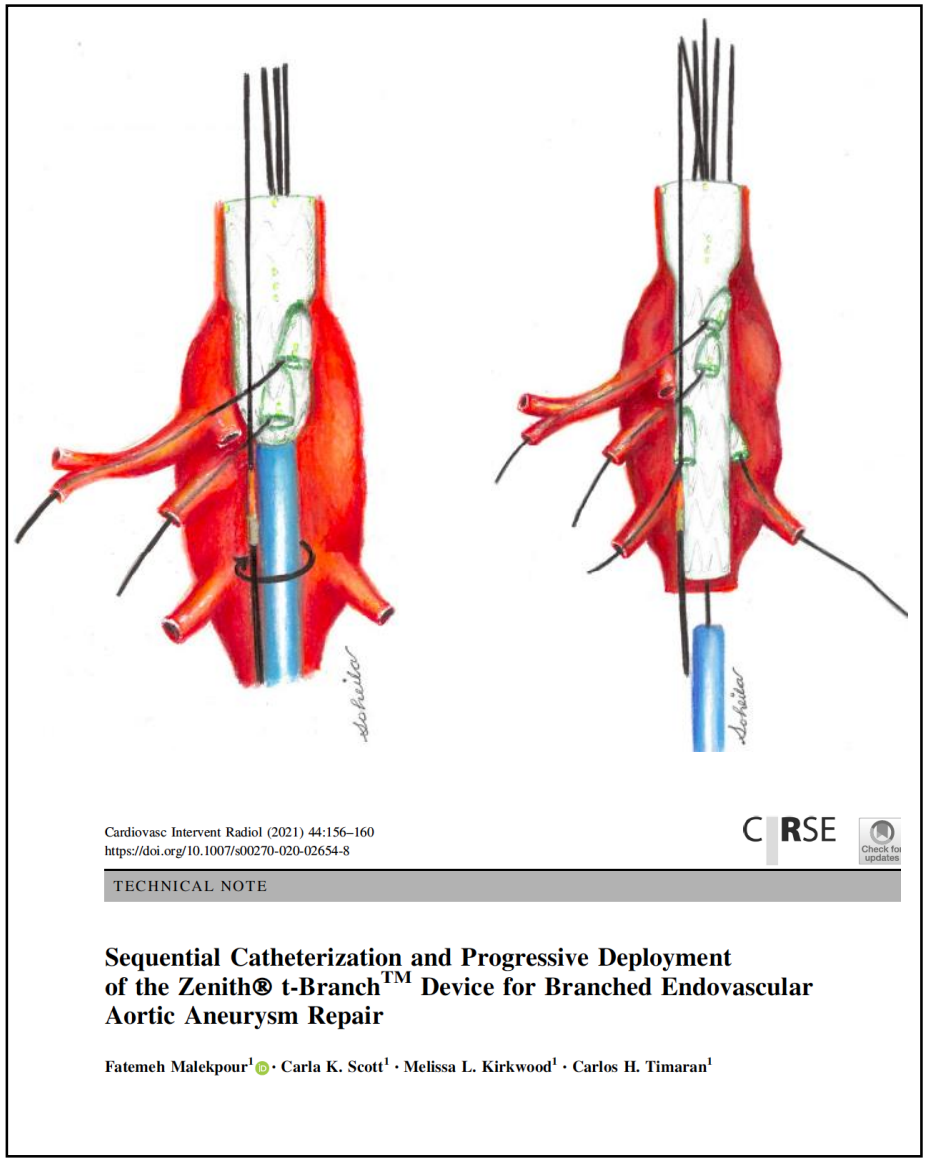


Cardiovasc Intervent Radiol (2021) 44:156–160
https://doi.org/10.1007/s00270-020-02654-8

CIRSE

TECHNICAL NOTE

Sequential Catheterization and Progressive Deployment of the Zenith® t-Branch™ Device for Branched Endovascular Aortic Aneurysm Repair

Fatemeh Malekpour[1] · Carla K. Scott[1] · Melissa L. Kirkwood[1] · Carlos H. Timaran[1]

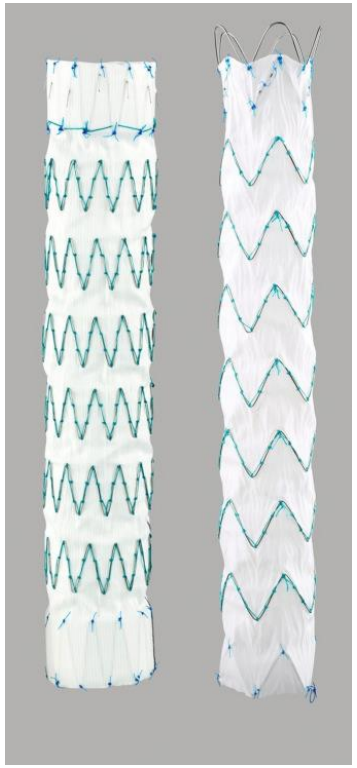
Off the shelf device: T-Branch

- **Anatomical constraints**
  - Posterior RAs
  - target artery CTO
- **Only one diameter**
- **Only one lenght (SCI)**
- **technical issues during branch canulation**
  - Aortic angulations
  - Diameter <26-28 mm

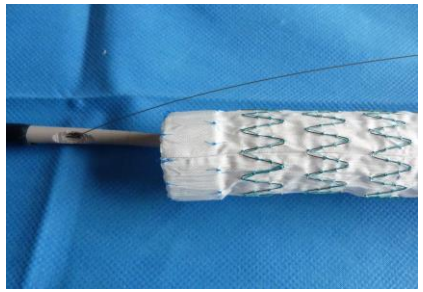
- **Long term stability of branches?**
  - Upward oriented target vessels

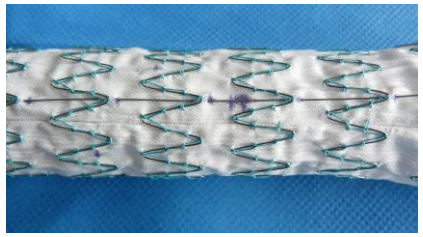
Home made fenestrations: basics

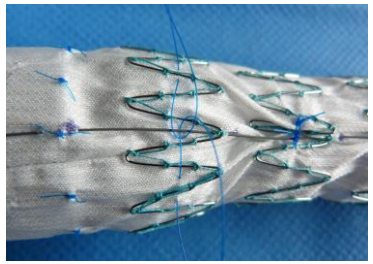
TX2 /Alpha
Cook Devices



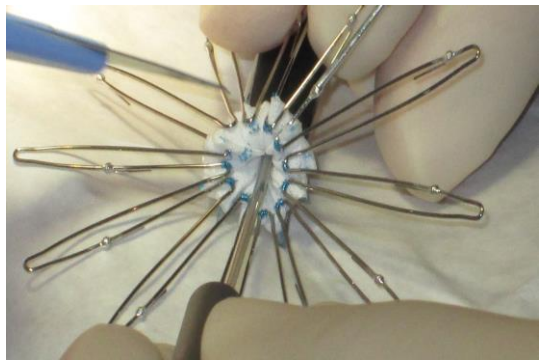
Reducing ties



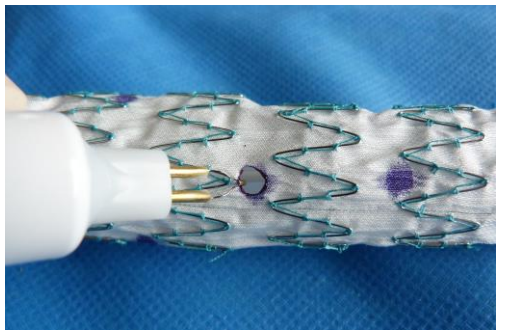




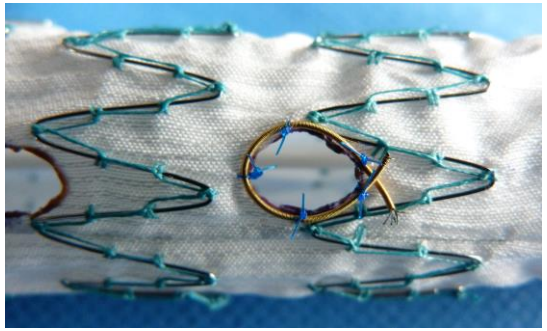
Proximal barbs/bare
metal stent cut off



Ophthalmologic cautery



EV3 Snare



Locking suture of CV5 (Gore)

2 hours for 4 fens

Home made fenestrations: our results

Mid-term results of Physician-Modified Stent Grafts for Thoraco-abdominal and Complex Abdominal Aortic Aneurysms Repair

Sénémaud J.[1], Becquemin J-P. [1], Touma J. [1] ; Kobeiter H. [1], Desgranges P. [1], Cochennec F.[1]

[1] Service de Chirurgie Vasculaire et Endocrinienne, Centre Hospitalier Universitaire Henri Mondor, 51 Avenue du Maréchal de Lattre de Tassigny, 94010 Créteil

Unpublished

N= 33 (2012-2019)

Mainly compassionate cases

- 21 TAAAs, 12 complex AAA
- Symptomatic aneurysms
- > 70 mm rapidly growing aneurysms

Short term

1/125 canulation failure related to fenestration misalignment

In-hospital and 30 mortality: **12%**

Spinal cord ischemia: 2 (**6%**), regressive

Home made fenestrations: our results

Mid-term results of Physician-Modified Stent Grafts for Thoraco-abdominal and Complex Abdominal Aortic Aneurysms Repair

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Unpublished

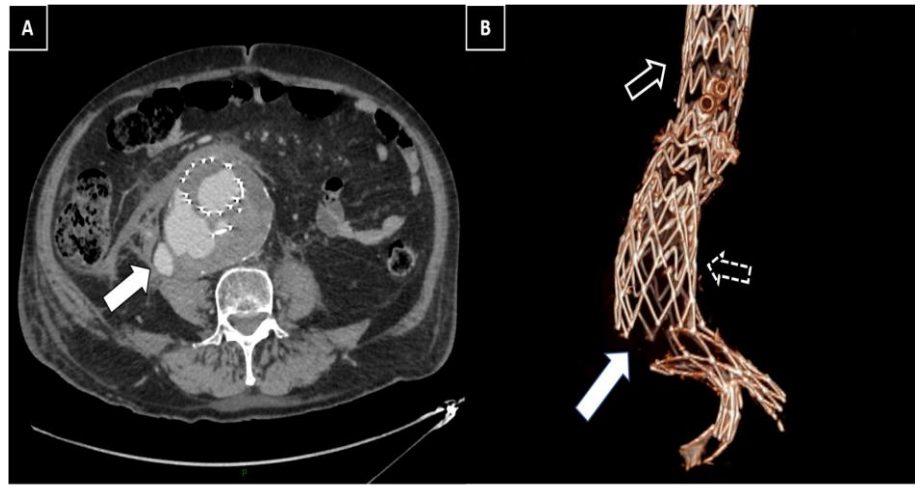
Mid-term: mean follow-up 31 (2-79) months

1 rupture

overall survival at 2 years: 71.6% (CI95%: 52.6-84.1)

Freedom from target vessel occlusion at 2y: **97.7%** (CI95%: 90.7-99.4)

Freedom from reintervention rates at 2 y: **57.4%** (CI95%: 37.9-72.8)



Home made fenestrations: reinterventions are the Achilles' heel

Early/late Reinterventions: n=15

Stent graft instability: 6

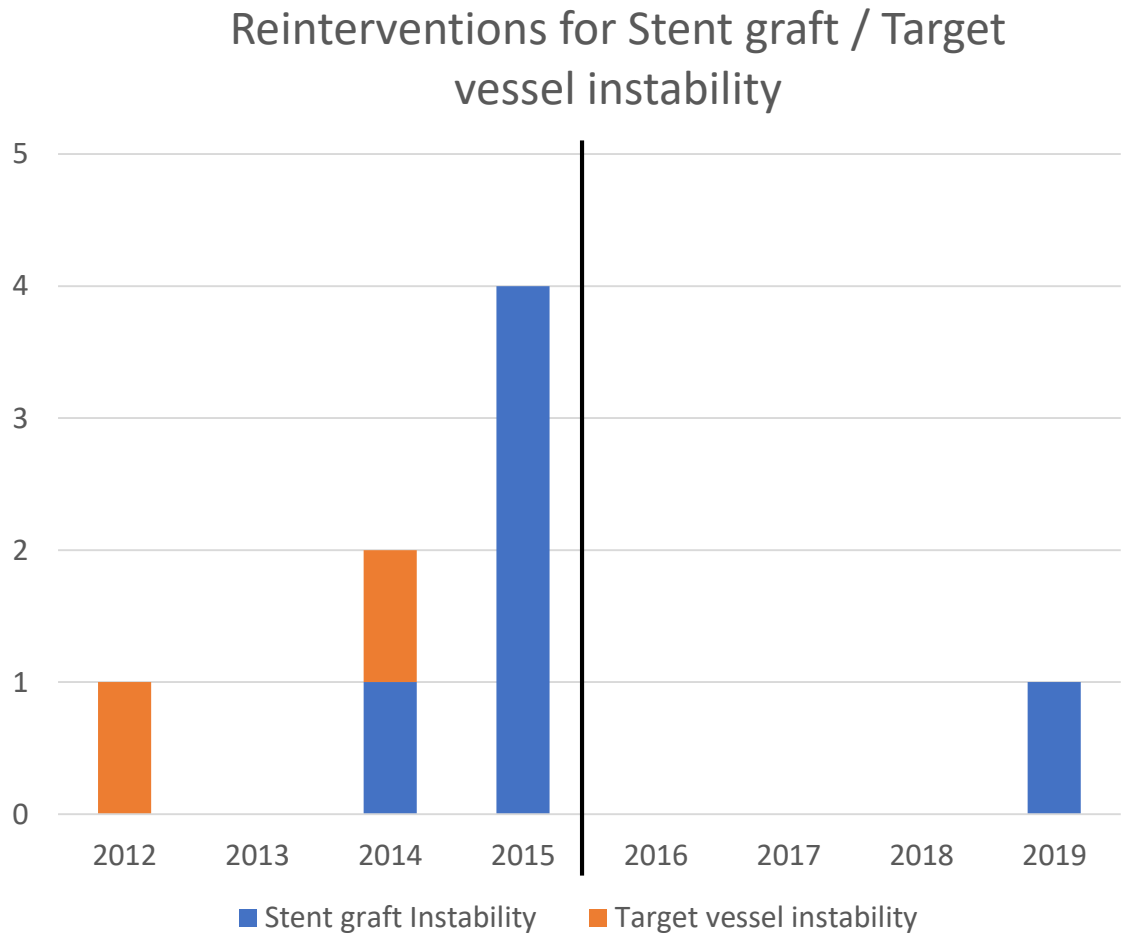
Target vessel instability: 2

CA Canulation from above: 2

Haemorrage: 2

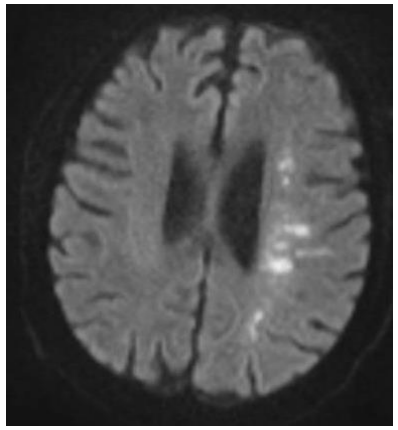
Limb ischemia: 2

Lymphorrhea: 1



Recent adjustements: Patient selection

- Shaggy aortas



- Diameter threshold for home-made stent grafts in asymptomatic patients

>70 mm → >80 mm

Aorta and Major Branches

Eur J Vasc Endovasc Surg (2020) 60, 44–48

Aneurysm Rupture and Mortality During the Waiting Time for a Customised Fenestrated/Branched Stent Graft in Complex Endovascular Aortic Repair

Athanasios Katsargyris *, Vasuki Uthayakumar, Pablo Marques de Marino, Balazs Botos, Eric L. Verhoeven

Department of Vascular and Endovascular Surgery, Paracelsus Medical University Nuremberg, General Hospital Nuremberg, Germany

906 FEVAR with CM devices

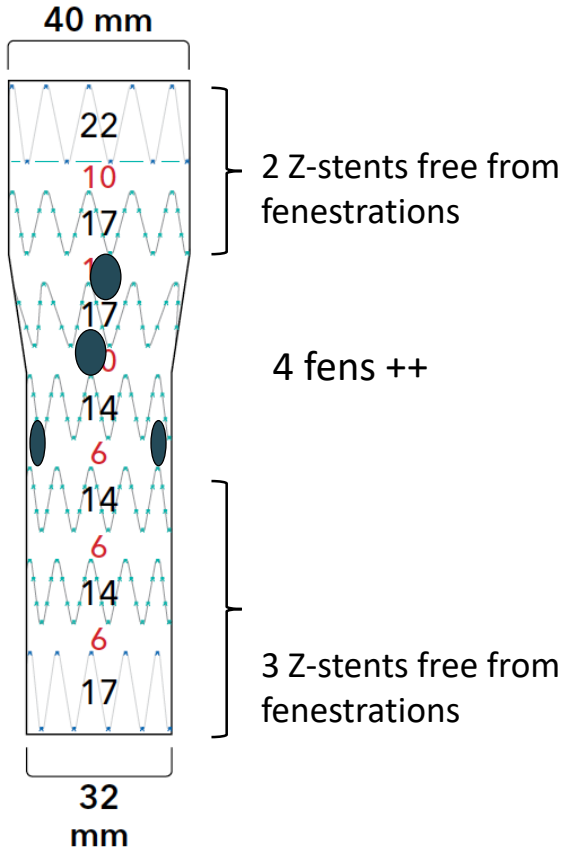
Ruptures during waiting time: **1,7%**

Mean diameter of ruptured AAA : **79 +/- 13** mm

Technical adjustements to avoid stent-graft instability

juxtarenal/suprarenal AAAs:

4/8 mm tapered Cook Dissection Stent grafts

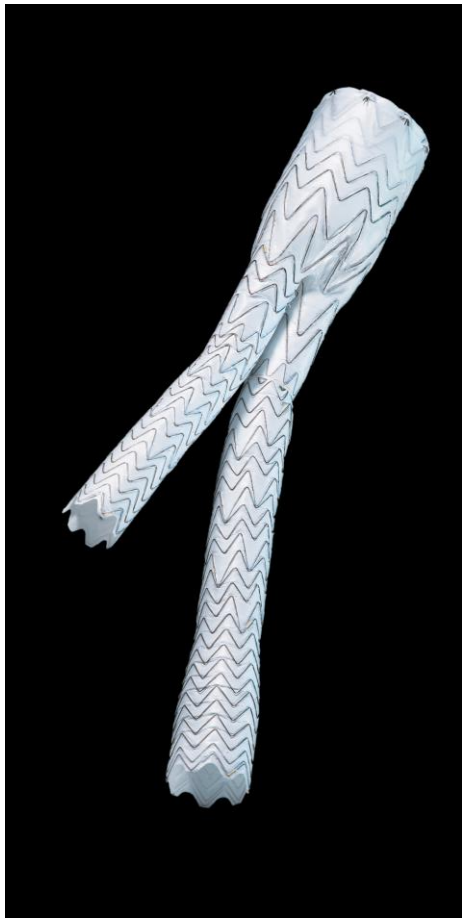


2 Z-stents free from fenestrations

4 fens ++

3 Z-stents free from fenestrations

Distal bifurcated component

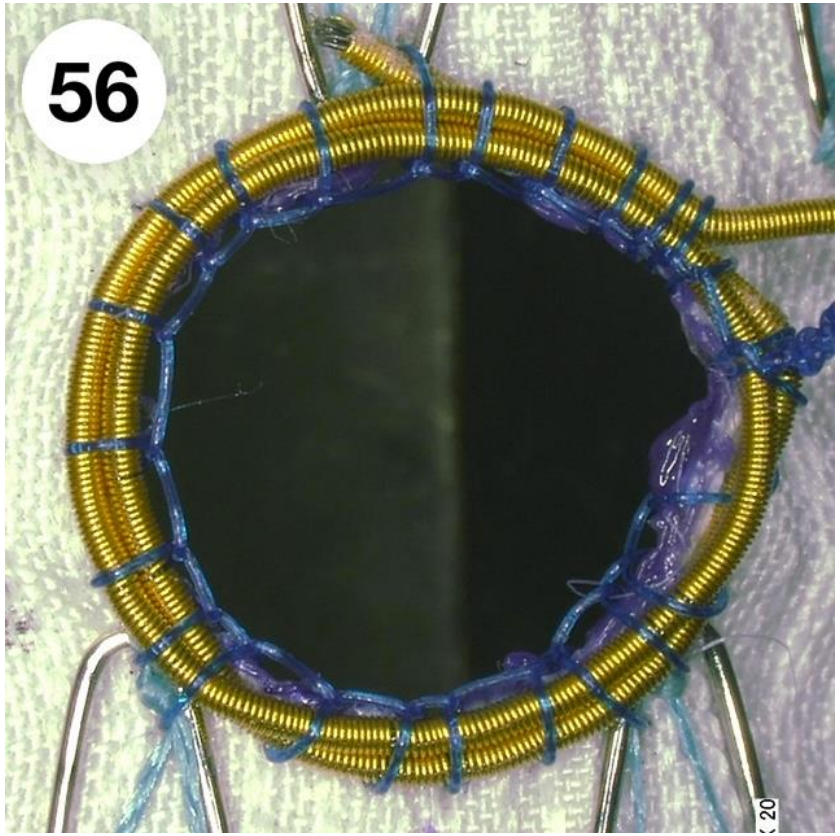


Proximal oversizing: 2-4 mm

Technical adjustements to avoid Target Vessel Instability

Alpha

Double loop



Laser fenestrations: Procedural steps

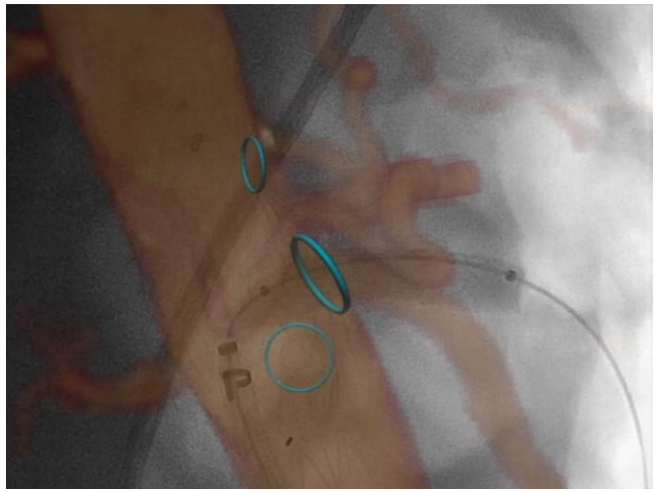
CBCT for 3D/3D image fusion

Aortic stent-graft deployment

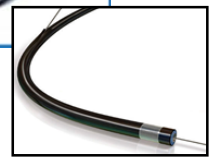
Sequential stenting:

- 16F Aptus Heli-FX steerable sheath positionning
- Fenestration using a 0.9mm Spectranetics probe and target vessel cannulation with a 0.014 wire
- Pre-dilatation with 2.5mm cutting balloon
- Second pre-dilatation with 4-20 balloon
- Insertion of a 6/7F Flexor sheath on a stiff wire
- Covered stent deployed and flared

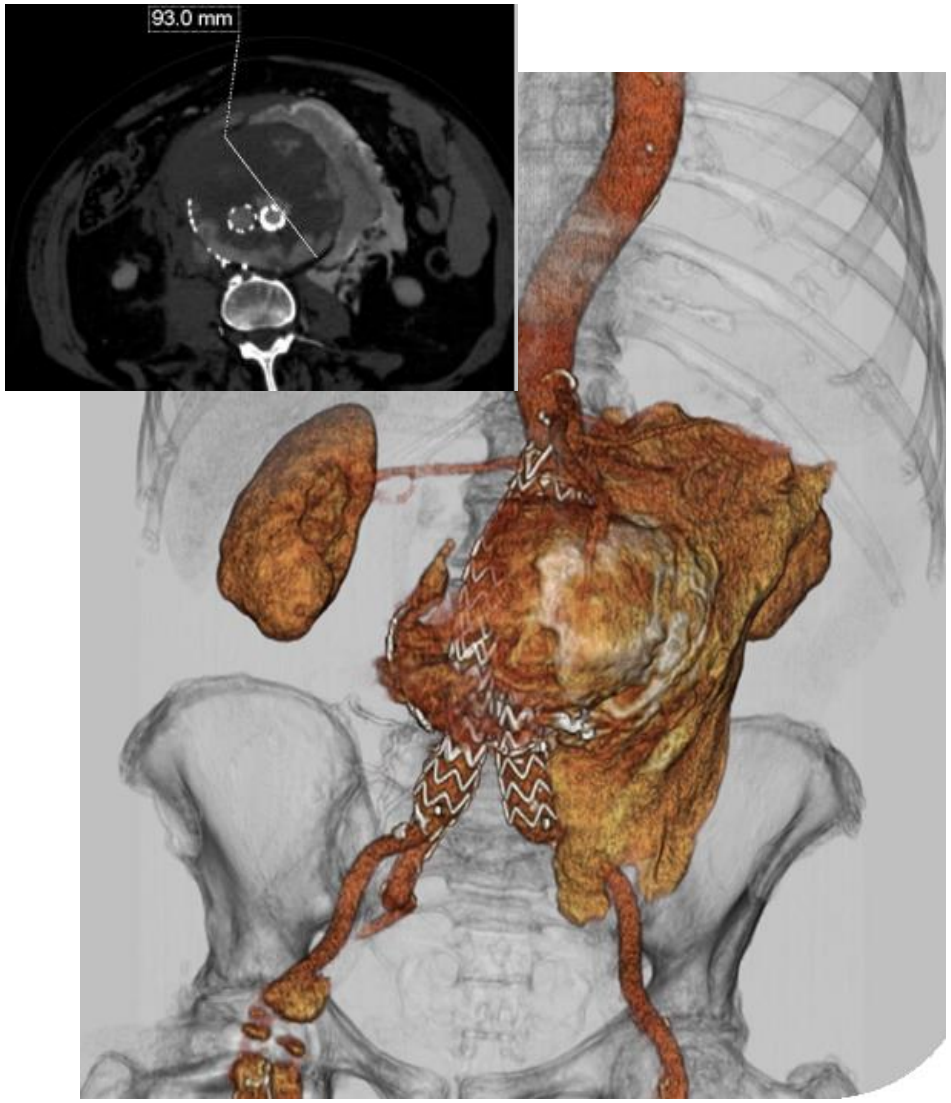
Deployment of distal stent graft components

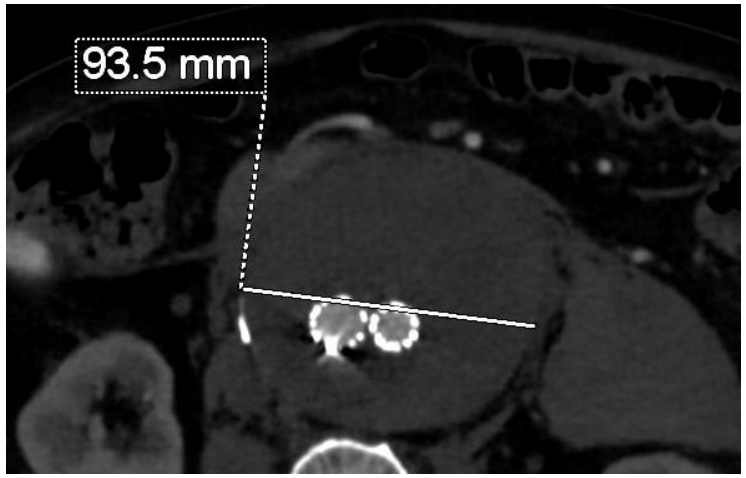


(Courtesy Pascal Desgranges)



Rupture, Type Ia EL, No time for hand made fens…





Laser fenestrations: Results

Initial Results of Antegrade Laser Fenestrations Using Image Fusion Guidance and Company Manufactured Stent Grafts in Complex Aortic Aneurysm Repair

Jean Sénémaud [a], Guillaume Fadel [a], Joseph Touma [a], Vania Tacher [b], Marek Majewski [a], Frédéric Cochennec [a], Hicham Kobeiter [b], Pascal Desgranges [a,*]

[a] Centre Hospitalier Universitaire Henri Mondor, Department of Vascular Surgery, Créteil, France
[b] Centre Hospitalier Universitaire Henri Mondor, Medical Imaging Service, Interventional and Therapeutic Vascular and Oncologic Radiology Unit, Créteil, France

N=22 (21 complex AAA, 1 TAAA)

17: Asymptomatic

5: Painful

In-hospital mortality: 9%

1-year target vessel patency: 95%

1-year freedom from reintervention: 58%

Conclusion

Ruptured JRAA

Low/moderate risk	High risk
OR	T-branch Laser fens ChEVAR

> 80 mm JRAA
Painful JRAA

Low/moderate risk patients	High risk
OR	T-branch Home made fens Laser fens