SURGICAL & RADIOLOGICAL ENDOVASCULAR SYMPOSIUM
SRES
11-12 SEPT. 2025
• Radiologie Interventionnelle
• Chirurgie Vasculaire
• Chirurgie cardio-vasculaire et thoracique
• Médecine vasculaire
PALAIS DU PHARO
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TBE : résultats et techniques

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Centre Aorte – CHU Lyon

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Centre aorte lyon

Conflits d’intérêt

- Gore
- Terumo aortic
- Medtronic
- Cook

Gore® TAG®
Thoracic Branch Endoprosthesis TBE

Endoprothèse thoracique avec une branche interne

Traitement des pathologies de l'aorte thoracique descendante (anévrysme, dissection, rupture de isthme)

En maintenant le flux dans l'artère sous clavière gauche

Dispositif sur l'étagère

Device Overview

Design modulaire avec 3 composants

- Module Aortique avec une branche interne (portal)
- Branche sous clavière G
- Extension Aortique proximale

Module Aortique

Endoprothèse Aortique Tubulaire Droite

Diamètre 21 à 45 mm, Intro 20 à 26 Fr

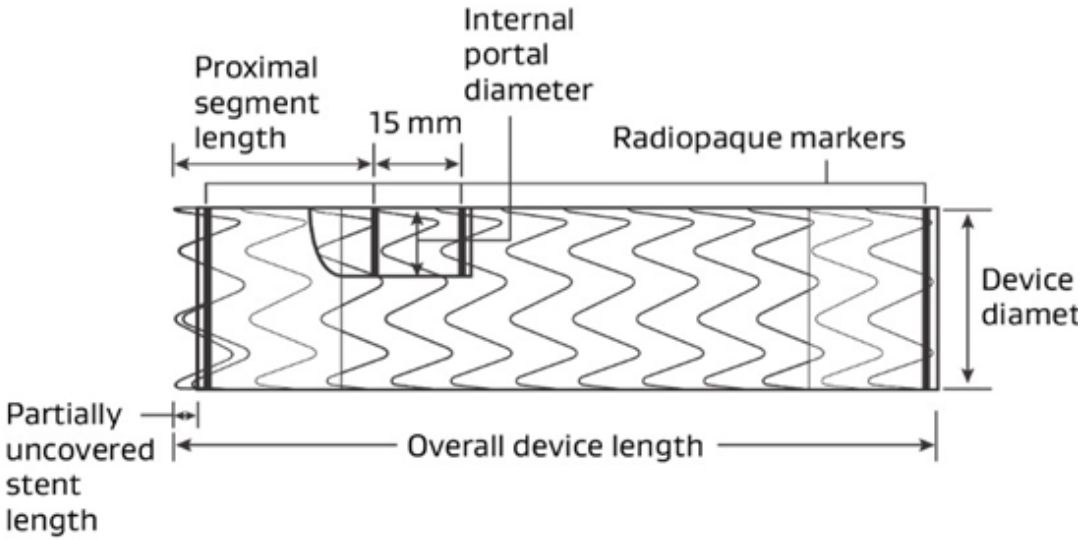
Branche interne 8 -12mm D et de 15 mm L

Segment Proximal 25-40mm L

Cathéter pré-chargé

TAG - Non conformable - Déploiement par les 2 extrémités

« Chemise » résiduelle positionnée en antérieure (à distance des ostias des TSA)



Branche Sous Clavière Gauche

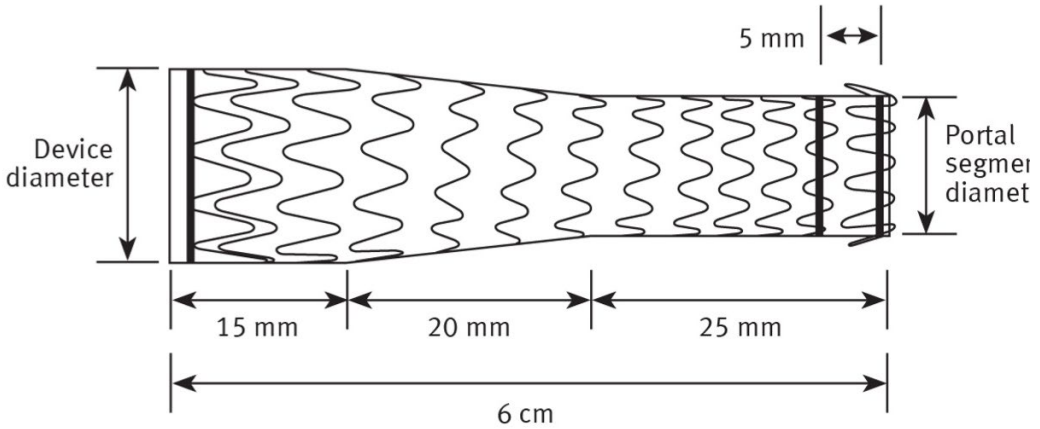
Branche dédiée

ePTFE + Nitinol stent – Heparine

Apex de fixation dans la branche interne

3 segments :

- proximal (branche interne) : 25mm L et 8-12mm D
- intermediaire : 20mm L
- distal (ss clav) : 15mm L et 8-20mm D

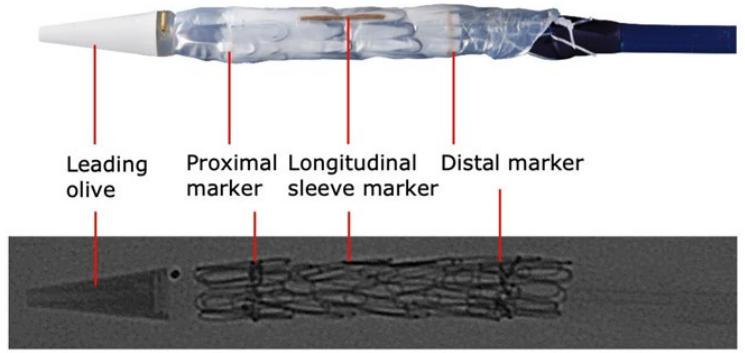


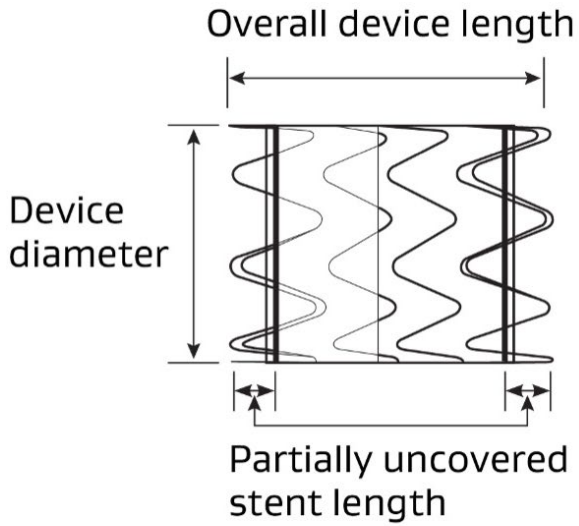
Extension Aortique proximale

D 21 à 45 mm

L 36 à 46 mm

Lanceur de 105 cm L et 20 à 26 Fr





Planification Préopératoire

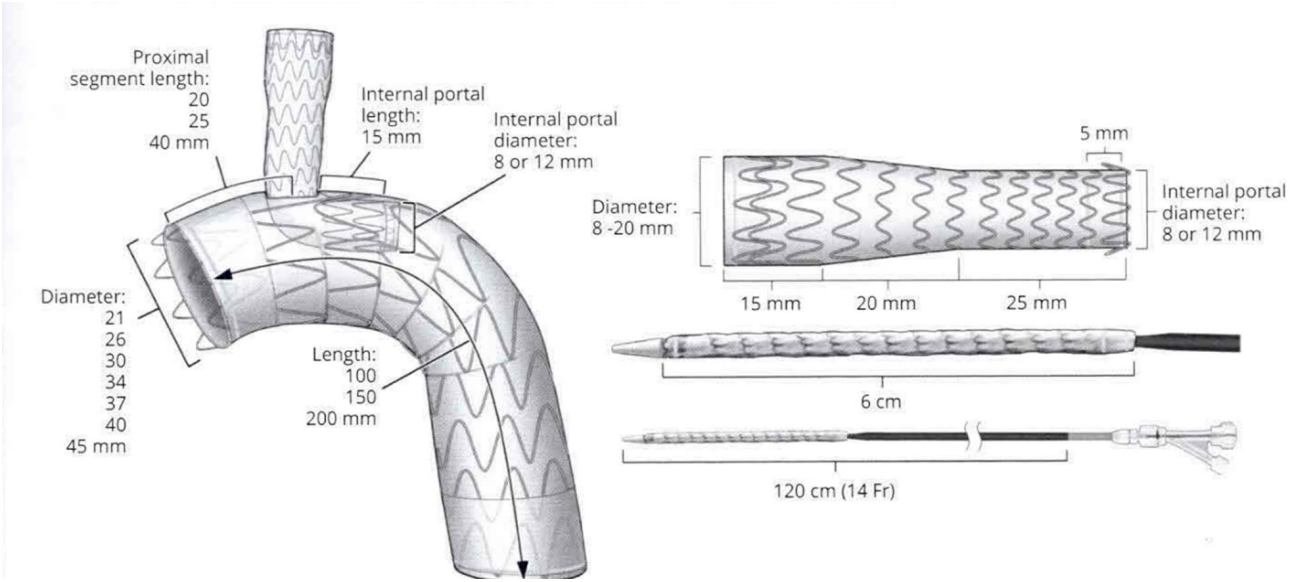
Sizing

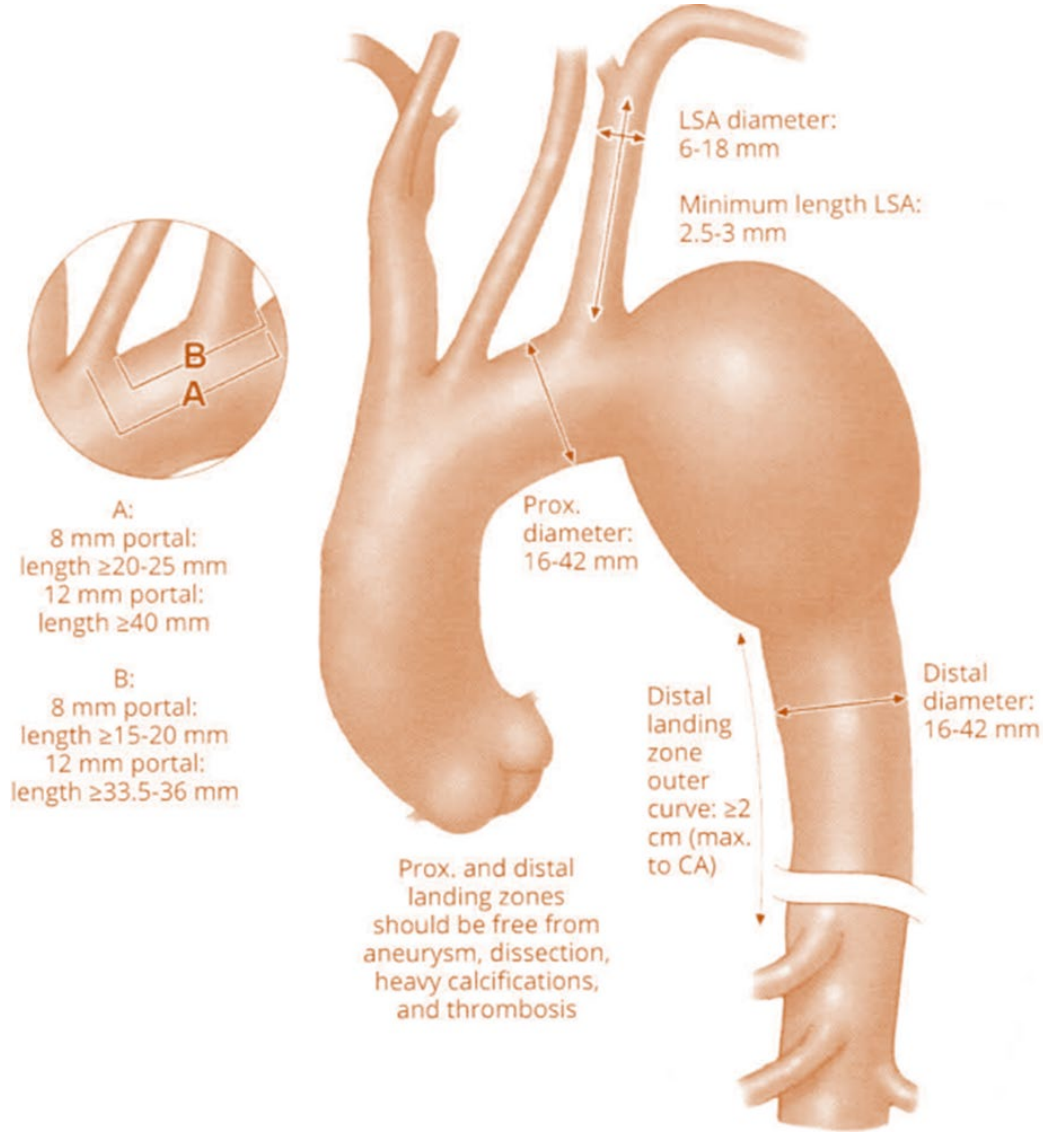
Longueur aortique en courbe externe milieu de CPG et fin de SCG

Longueur sous clavière G prévertébtale

Diamètre aortique et sous clavier G

Choix de l'endoprothèse fonction de la pathologie (Dissection-Rupture Isthme-Anévrysme) et risque de bird beak





Planification Préopératoire

Accès vasculaire

Artères fémorales communes et axes iliaques

Lanceur de large diamètre (Jusqu'à 26Fr)

Artères radiale, humérale ou axillaire G (5 ou 6Fr)

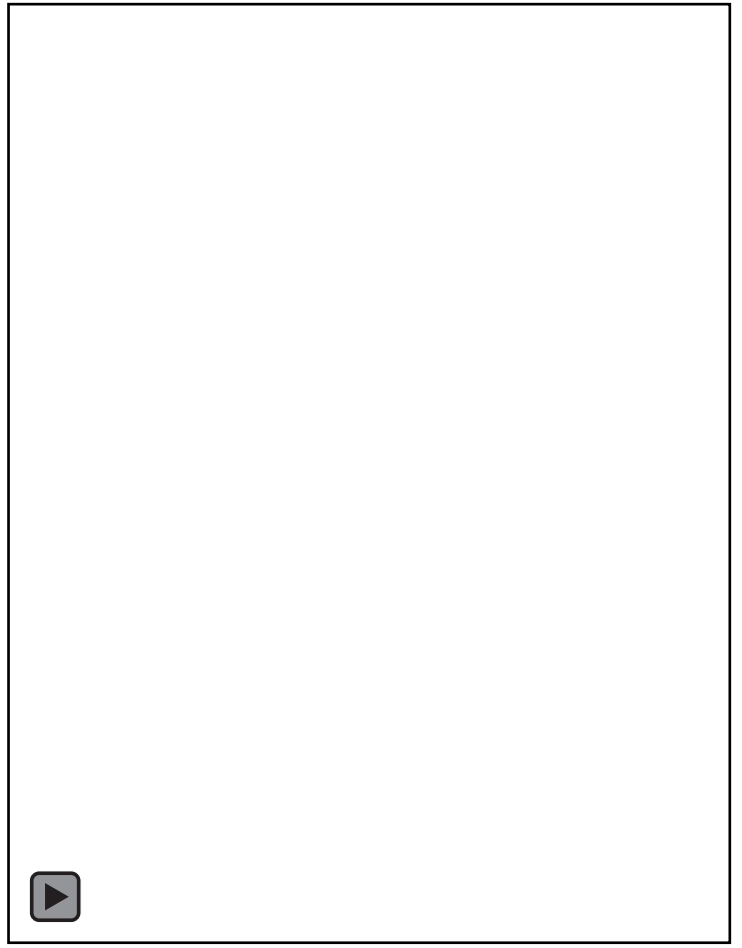
Navigation

Iliaque de petit diamètre/clacifiée : anticiper les difficultés de monter (RTIA, Anévrysme chez la femme…)

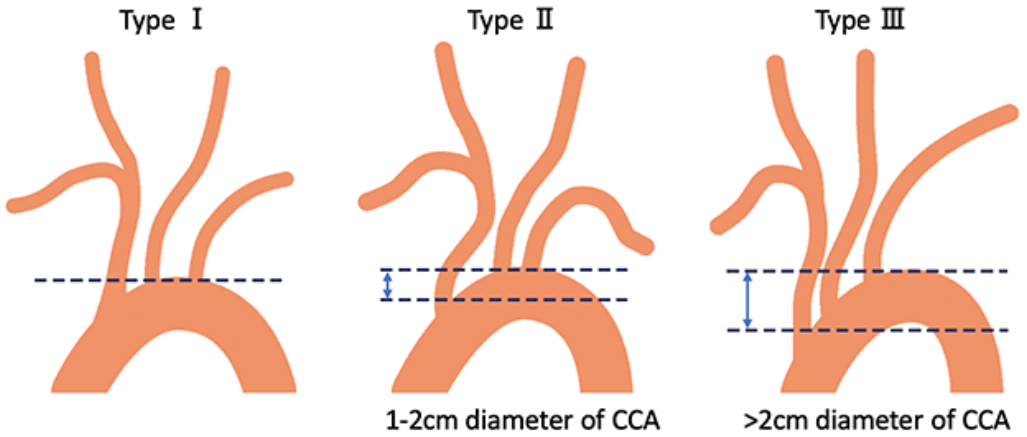
Dissection Aortique : anticiper la navigation dans le vrai chenal, fusion d'image

Tortuosité Aorto-iliaque : prévoir un Intro DrySeal de 65 cm de long

Axillaire-humérale-radiale G : anticiper l'installation / Ampli



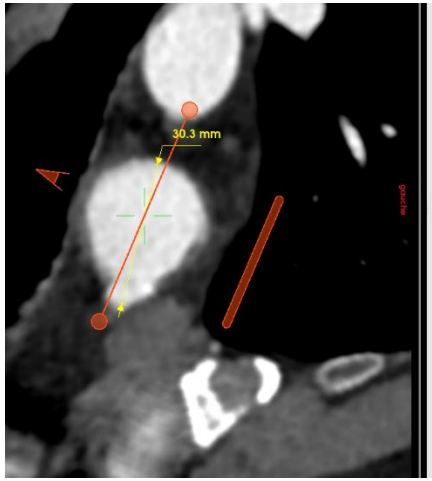
Planification Préopératoire

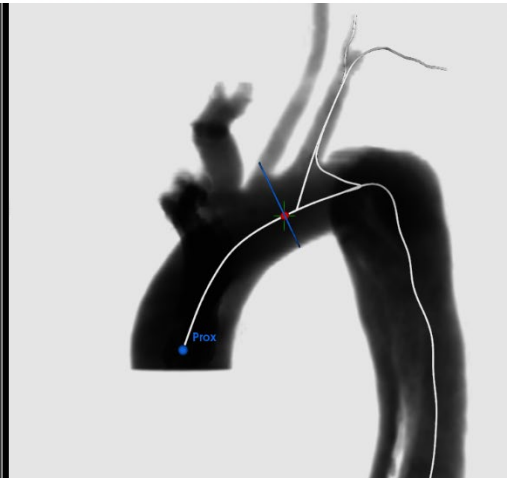


Anatomie de la Crosse Aortique et des TSA

Type

Athérome - Calcification





Angulation C-Arm

origine de la carotide primitive G

origine de l'artère vertébrale G

Traitement complémentaire

Couverture Distale de l'Aorte thoracique descendante

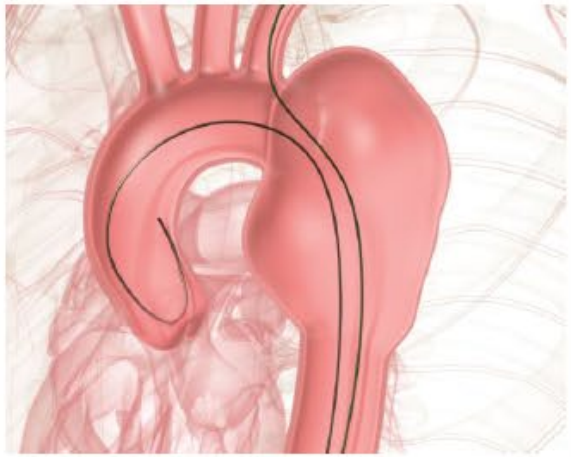
Traitement complémentaire (Candy plug, Stabilize, Knickerbocker, FEVAR…)

… Besoin de Rapid Pacing ? De drainage de LCR ? …

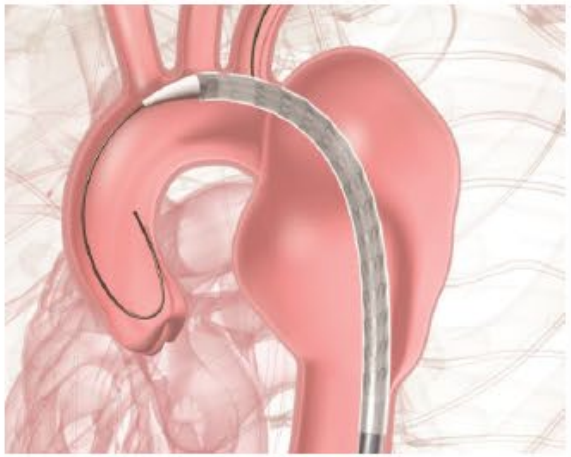
Commande Matériel : intro 5 ou 6F 90cm, guide 4m, Lasso

Techniques

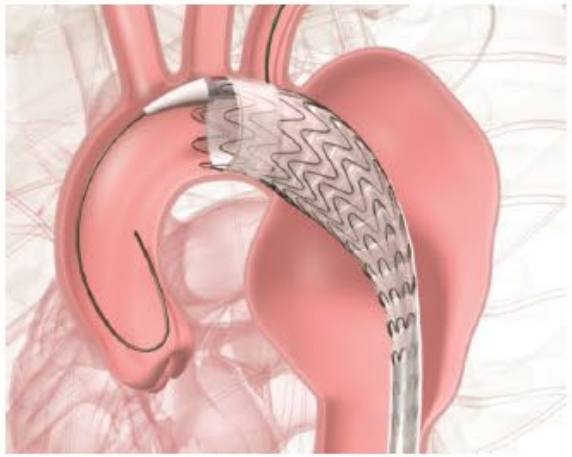
Procedure overview



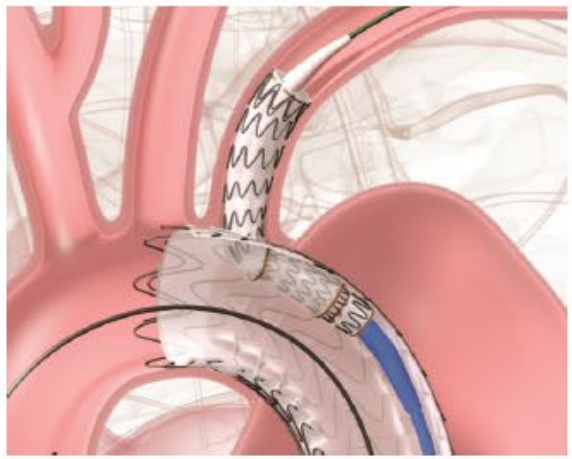
1 Insert guidewires in aorta and branch vessel



2 Introduce aortic component over both guidewires into position within the arch

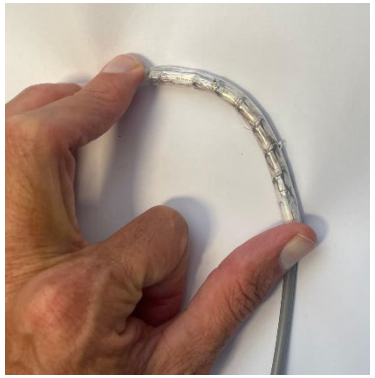


3 Deploy aortic component and withdraw catheter

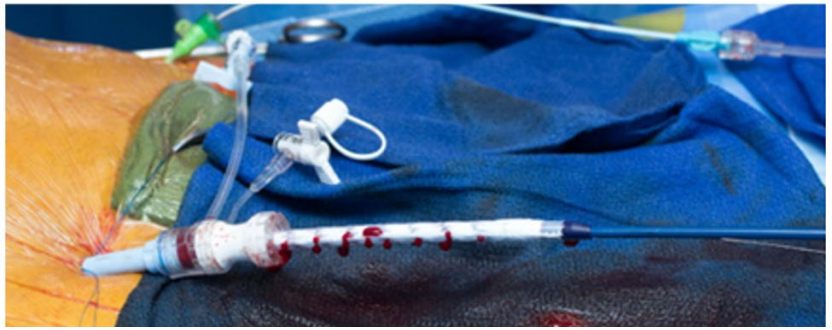


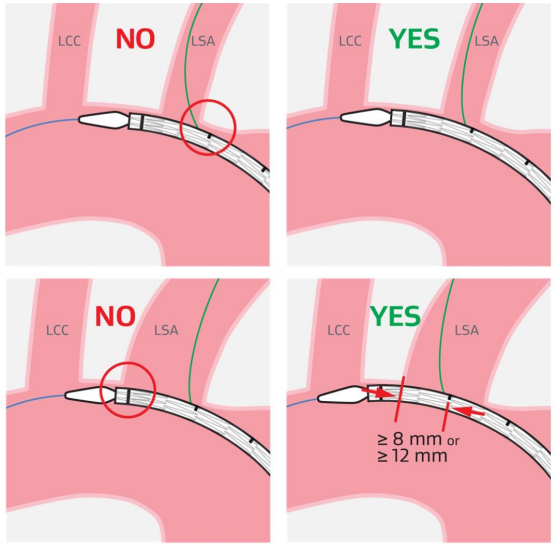
4 Advance and deploy side branch component

Techniques
Trucs et Astuces



- Ponction radiale Gauche : kit de microponction + vasodilatateur
- Téléphérique / Lasso à éviter dans la aorte ascendante ou crosse en cas d'athérome
- Guide téléphérique de 4m souple facilitera la montée de la branche sous Clavière G
- Pré-courber la prothèse facilitera son bon positionnement dans la crosse et diminue le risque de croisement des guides
- Flush au sang de endoprothèse et du système de largage
- En fonction du positionnement souhaité du composent aortique (traction + ou – forte sur le téléphérique)
- Déploiement du corps aortique peut être progressif
- Petit train progressif avec 5 ou 6Fr et le cathéter de la branche SCG





Résultats
Faisabilité anatomique

ARTICLE IN PRESS

Eur J Vasc Endovasc Surg (xxxx) xxx, xxx

Anatomical Feasibility of a Thoracic Branched Endograft for Aortic Pathology Requiring Proximal Sealing in Zone 2 ☆

Andrea Vacirca *, Gianluca Faggioli, Stefania Caputo, Antonino Di Leo, Enrico Gallitto, Mauro Gargiulo

Vascular Surgery, Department of Medical and Surgical Sciences (DIMEC), University of Bologna, Bologna, Italy

Etude de cohorte rétrospective 2018-2025

Patients présentant un syndrome aortique aigue (n=93) ou anévrysme thoracique (n=28) nécessitant une zone d'étanchéité en zone 2

Faisabilité « Aortique » (IFU) **92%**

- Distance trop courte entre CPG-SCG **3 patients**
- Porte d'entrée à moins de 1 mm ostium SCG **5 patients**
- Longueur SCG prevertébrale < 25 mm **3 patients**

Faisabilité globale (incluant les accès iliofemoraux) **85%**

Résultats
Techniques

From the Society for Clinical Vascular Surgery

Percutaneous radial access is safe and effective for subclavian branch treatment during zone 2 endovascular aortic repair with thoracic branch endoprosthesis

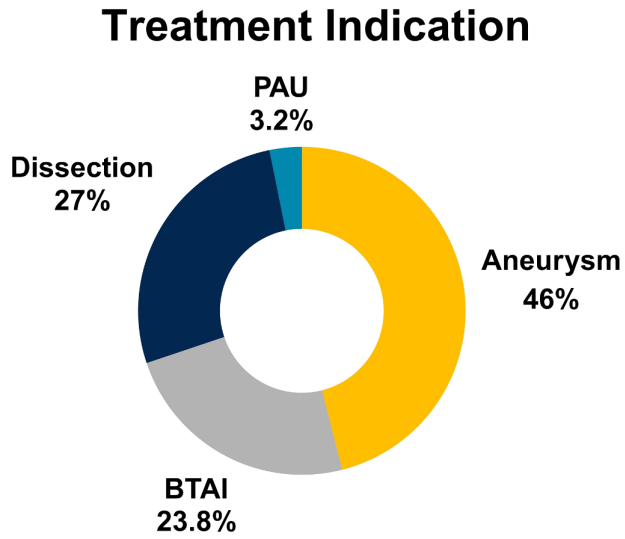
Matthew Schneck, MD,[a] Kathryn Dilosa, MD, MPH,[a] Matthew Mell, MD, MS,[a] Rachael Callcut, MD, MSPH,[b] *and* Steven Maximus, MD,[a,c] *Sacramento, CA; and Houston, TX*

Etude Retrospective 2022-2024

63 patients TBE

Accès radial percutané chez 60 patients (95,2%) avec 100% de succès technique

1 complication observée (1,7%) : occlusion radiale asymptomatique



Résultats Préliminaires
Anévrysme

	Zone 2 arm (n = 31)	Zone 0/1 arm (n = 9)
Demographics		
Age − y	74.1±10.4	72.8±8.0
Male sex	16 (51.6)	7 (77.8)
Hypertension	28 (90.3)	9 (100)
Active nicotine use	16 (51.6)	7 (77.8)
Chronic obstructive pulmonary disease	12 (38.7)	6 (66.7)
Coronary artery disease	12 (38.7)	7 (77.8)
Lesion characteristics		
Aneurysm morphology		
Fusiform	12 (38.7)	2 (22)
Saccular	19 (61.3)	7 (78)
Mean aneurysm maximum diameter − mm	55 ± 11	63 ± 7
Mean treatment length − cm	17.3±8.2	20 (15, 26)
Proximal sealing zone		
Zone 0	–	8 (89)
Zone 1	–	1 (11)
Zone 2	31 (100)	–
30 day peri-operative outcomes		
Successful access	31 (100)	9 (100)
Successful device deployment	31 (100)	9 (100)
Side branch patency	31 (100)	9 (100)
Death	0 (0)	0 (0)
Procedure related stroke	1 (3.2)	2 (22)
Spinal cord ischaemia	1 (3.2)	0 (0)

Aorta and Major Branches

Eur J Vasc Endovasc Surg (2022) 64, 639–645

Midterm Outcomes of Endovascular Repair of Aortic Arch Aneurysms with the Gore Thoracic Branch Endoprosthesis

Nathan L. Liang [a,*], Michael D. Dake [b], Michael P. Fischbein [c], Joseph E. Bavaria [d], Nimesh D. Desai [d], Gustavo S. Oderich [e], Michael J. Singh [a], Mark Fillinger [f], Bjoern D. Suckow [f], Jon S. Matsumura [g], Himanshu J. Patel [h], Michel S. Makaroun [a]

Zone 2

Freedom from re-intervention 97% à 1 et 3 ans
Endofuite type 1A (TBE en zone 0)

Perméabilité primaire 97% à 1 an, 93% à 3 ans
2 occlusions de branche SCG

Résultats Préliminaires
Syndrome Aortique Aigu

From the Western Vascular Society

Check for updates

Multi-center experience with an off-the-shelf single retrograde thoracic branch endoprosthesis for acute aortic pathology

Kathryn L. DiLosa, MD, MPH,[a] Michelle Manesh, MD,[b] Lucas Ruiter Kanamori, MD,[c] Mabel Chan, MD,[d] Gregory A. Magee, MD,[b] Fernando Fleischman, MD,[b] Jason T. Lee, MD,[e] Sara L. Zettervall, MD,[f] Matthew P. Sweet, MD,[f] Joel P. Harding, DO,[g] Shahab Toursavadkohi, MD,[g] Javairiah Fatima, MD,[d] Gustavo S. Oderich, MD,[c] Sukgu M. Han, MD, MS,[b] *and* Steven Maximus, MD,[c] *Sacramento, Los Angeles, and Stanford, CA; Houston, TX; Washington, DC; Seattle, WA; and Baltimore, MD*

Pathology	Procedure time, minutes	Fluoroscopy time, minutes	Dose area product, mGycm^2	Contrast volume, mL
Aneurysm/pseudoaneurysm (n = 21)	148 ± 84	27 ± 16	31395 ± 21646	121 ± 72
Complicated dissection (n = 70)	141 ± 101	27 ± 24	125846 ± 460424	130 ± 76
BTAI (n = 16)	120 ± 72	18 ± 7	5712 ± 5111	111 ± 47
Total cohort (N = 107)	140 ± 94	25 ± 21	80745 ± 353190	124 ± 71

BTAI, Blunt thoracic aortic injury.
Data are presented as mean ± standard deviation.

Case Report

JOURNAL OF ENDOVASCULAR THERAPY

Journal of Endovascular Therapy
1–9

DOI: 10.1177/15266028251318957
www.jevt.org
Sage

Gore Tag Thoracic Branch Endoprosthesis in Acute Aortic Syndromes: A Case Series

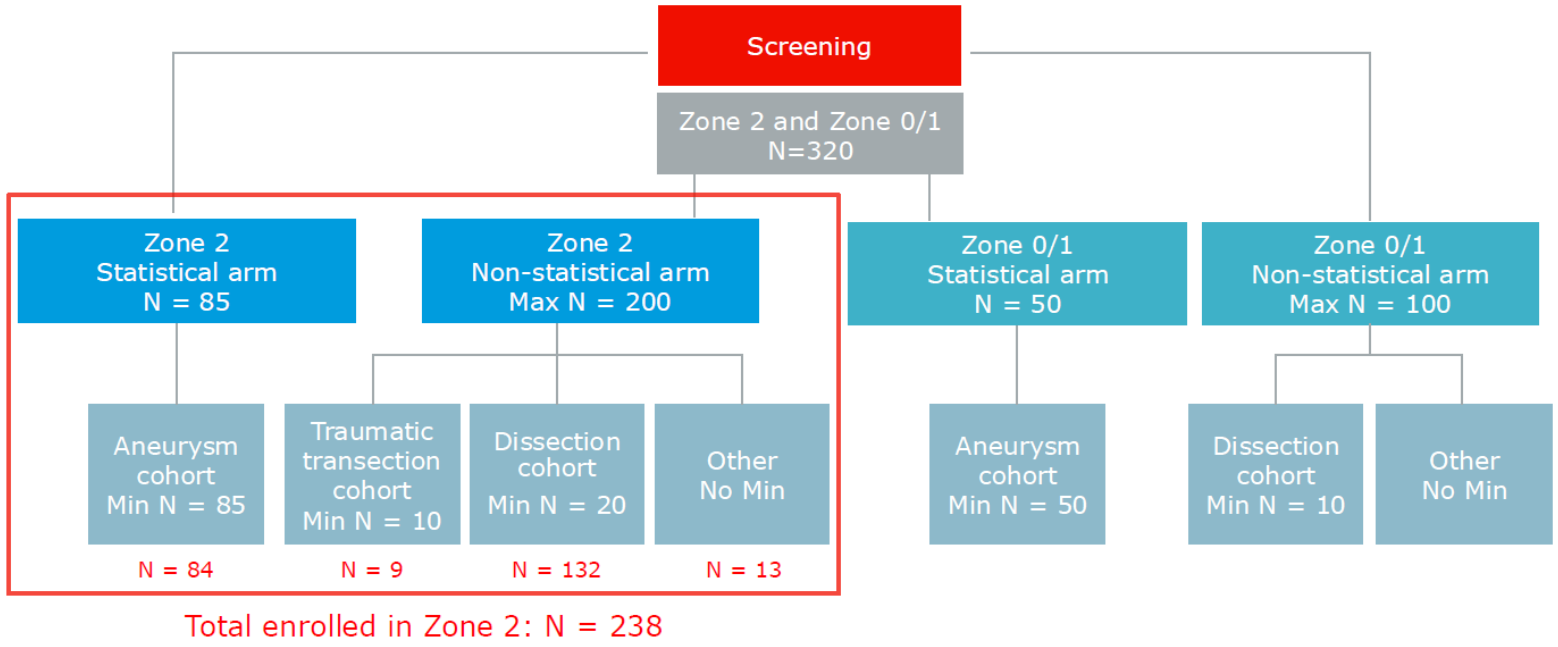
Andrea Spertino, MD[I], Simona Marrocco, MD[I], Marco Zavatta, MD[I], Francesco Squizzato, MD[I], Michele Piazza, MD[I], and Michele Antonello, PhD, MD[I]

Pathology	Complication	Acute TBE cohort (n = 107)
Aneurysm/pseudoaneurysm (n = 21)	All-cause mortality	1 (4.8)
	Rupture	1 (4.8)
Acutely complicated aortic dissection (n = 70)	All MAEs	19 (27)
	Death within 30 days	2 (2.9)
	Rupture	2 (2.9)
	Stroke	6 (8.6)
	Spinal cord ischemia	6 (8.6)
	Dialysis	1 (1.4)
	Prolonged intubation/pneumonia	2 (2.9)
	Retrograde dissection	5 (7.1)
	All-cause mortality	4 (5.7)
	Rupture	2 (2.9)
	Unknown causes	2 (2.9)
BTAI (n = 16)	None	0

BTAI, Blunt thoracic aortic injury; *MAE*, major adverse event; *TBE*, thoracic branch endoprosthesis.
Data are presented as number (%).

TBE Clinical Study 11-02 NCT027777593
Evaluation de la TBE implantée en zone 2

Pivotal trial design[1]



Total enrolled in Zone 2: N = 238

Primary endpoint definition

The primary endpoint was a composite of the following events from the time of enrollment through one year:

- Device technical success
- Absence of the following:
  - Aortic rupture
  - Lesion-related mortality
  - Disabling stroke
  - Permanent paraplegia
  - New onset renal failure requiring permanent dialysis
  - Additional unanticipated post-procedural surgical or interventional procedure related to the device, procedure or withdrawal of the delivery system

1. Brown J, Gorman J, Sondreaal M, Powis S. Evaluation of the GORE® TAG® Thoracic Branch Endoprosthesis (TBE Device) in the Treatment of Lesions of the Descending Thoracic Aorta (Pivotal): Zone 2. Flagstaff, AZ: W. L. Gore & Associates, Inc; 2021. [Pre-Market Approval Study Report]. MD185099. Rev 1.

Zone 2 aneurysm — Primary endpoint[1]

	Endovascular procedure	Post-procedure	1 month	6 months	12 months	Total (through 12 months)
Number of enrolled subjects*	84	84	84	84	80	84
Number of subjects with imaging in follow-up window	-	13	73	74	69	84
Subjects with imaging or primary endpoint event in window	-	16	73	74	69	84
Subjects with primary endpoint event below†	9/84 (10.7%)	5/16 (31.3%)	0/73 (0%)	0/74 (0%)	1/69 (1.4%)	11/73 (15.1%)
Device technical success failure‡	7/84 (8.3%)	(0%)	-	-	-	7/84 (8.3%)
Access or device delivery failure	4/84 (4.8%)	-	-	-	-	-
Access failure	0/84 (0%)	-	-	-	-	-
Accurate deployment failure	3/84 (3.6%)	-	-	-	-	-
Device delivery system retrieval failure	1/84 (1.2%)	-	-	-	-	-
Patency failure	0/84 (0%)	-	-	-	-	-
Unanticipated additional procedure related to device/procedure	4/84 (4.8%)	-	-	-	-	-
Aortic rupture	0/84 (0%)	0/84 (0%)	0/84 (0%)	0/84 (0%)	0/80 (0%)	0/84 (0%)
Lesion-related mortality	0/84 (0%)	0/84 (0%)	0/84 (0%)	0/84 (0%)	0/80 (0%)	0/84 (0%)
Disabling stroke‡	1/84 (1.2%)	2/84 (2.4%)	0/84 (0%)	-	-	3/84 (3.6%)
Permanent paraplegia‡	1/84 (1.2%)	0/84 (0%)	0/84 (0%)	-	-	1/84 (1.2%)
Permanent paraparesis‡	1/84 (1.2%)	2/84 (2.4%)	0/84 (0%)	-	-	1/84 (1.2%)
New onset renal failure requiring permanent dialysis‡	0/84 (0%)	0/84 (0%)	0/84 (0%)	-	-	0/84 (0%)
Unanticipated additional procedure related to device/procedure	0/84 (0%)	1/84 (1.2%)	0/84 (0%)	0/84 (0%)	1/80 (1.3%)	1/84 (1.2%)

Zone 2 dissection — Primary endpoint[1]

	Endovascular procedure	Post-procedure	1 month	6 months	12 months	Total (Through 12 months)
Number of enrolled subjects*	132	132	128	125	114	132
Number of subjects with imaging in follow-up window	-	17	109	109	98	124
Number of subjects with imaging or primary endpoint event in window	-	18	110	109	98	127
Subjects with primary endpoint event below†	4/132 (3.0%)	2/18 (11.1%)	2/110 (1.8%)	4/109 (3.7%)	0/98 (0%)	12/103 (11.7%)
Device technical success failure‡	3/132 (2.3%)	-	-	-	-	3/132 (2.3%)
Access or device delivery failure	2/132 (1.5%)	-	-	-	-	-
Access failure	0/132 (0%)	-	-	-	-	-
Accurate deployment failure	2/132 (1.5%)	-	-	-	-	-
Device delivery system retrieval failure	0/132 (0%)	-	-	-	-	-
Patency failure	0/132 (0%)	-	-	-	-	-
Unanticipated additional procedure related to device/procedure	3/132 (2.3%)	-	-	-	-	-
Aortic rupture	1/132 (0.8%)	0/132 (0%)	0/128 (0%)	0/125 (0%)	0/114 (0%)	1/132 (0.8%)
Lesion-related mortality	0/132 (0%)	1/132 (0.8%)	1/128 (0.8%)	1/125 (0.8%)	0/114 (0%)	3/132 (2.3%)
Disabling stroke‡	1/132 (0.8%)	0/132 (0%)	0/128 (0%)	-	-	1/132 (0.8%)
Permanent paraplegia‡	0/132 (0%)	0/132 (0%)	0/128 (0%)	-	-	0/132 (0%)
Permanent paraparesis‡	0/132 (0%)	0/132 (0%)	0/128 (0%)	-	-	0/132 (0%)
New onset renal failure requiring permanent dialysis‡	0/132 (0%)	0/132 (0%)	0/128 (0%)	-	-	0/132 (0%)
Unanticipated additional procedure related to device/procedure (Protocol-defined reintervention)	0/132 (0%)	1/132 (0.8%)	1/128 (0.8%)	4/125 (3.2%)	0/114 (0%)	6/132 (4.5%)

Zone 2 traumatic transection — Primary endpoint[2]

There have not been any traumatic transection subjects that had any primary endpoint event occur (6/6, 100% free from endpoint event). One subject in this cohort was excluded from all analysis.

	Endovascular procedure	Post-procedure	1 month	6 months	12 months	Total (through 12 months)
Number of enrolled subjects*	9	9	9	9	7	9
Number of subjects with imaging in follow-up window	-	0	9	7	6	9
Number of subjects with imaging or primary endpoint event in window	-	0	9	7	6	9
Subjects with primary endpoint event† below‡	0/9 (0%)	0 (0%)	0/9 (0%)	0/7 (0%)	0/6 (0%)	0/6 (0%)
Device technical success failure§	0/9 (0%)	-	-	-	-	0/9 (0%)
Access or device delivery failure	0/9 (0%)	-	-	-	-	-
Access failure	0/9 (0%)	-	-	-	-	-
Accurate deployment failure	0/9 (0%)	-	-	-	-	-
Device delivery system retrieval failure	0/9 (0%)	-	-	-	-	-
Patency failure	0/9 (0%)	-	-	-	-	-
Unanticipated additional procedure related to device/procedure	0/9 (0%)	-	-	-	-	-
Aortic rupture	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/7 (0%)	0/9 (0%)
Lesion-related mortality	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/7 (0%)	0/9 (0%)
Disabling stroke§	0/9 (0%)	0/9 (0%)	0/9 (0%)	-	-	0/9 (0%)
Permanent paraplegia§	0/9 (0%)	0/9 (0%)	0/9 (0%)	-	-	0/9 (0%)
Permanent paraparesis§	0/9 (0%)	0/9 (0%)	0/9 (0%)	-	-	0/9 (0%)
New onset renal failure requiring permanent dialysis§	0/9 (0%)	0/9 (0%)	0/9 (0%)	-	-	0/9 (0%)
Unanticipated additional procedure related to device/procedure (Protocol-defined reintervention)	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/9 (0%)	0/7 (0%)	0/9 (0%)

Résultats
Médico-Economique

PROC (BAYL UNIV MED CENT)
2023;36(4):422–426
https://doi.org/10.1080/08998280.2023.2212585

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Real-world comparative claims analysis of a novel single-branched aortic stent graft device versus thoracic endograft placement with extra-anatomic debranching/revascularization in zone 2 aortic disease

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ABSTRACT

Background: Thoracic endovascular aortic repair (TEVAR) involving landing zone 2 can require extra-anatomic debranching (SR-TEVAR) to ensure left subclavian artery perfusion, resulting in increased costs. A single-branch device (Thoracic Branch Endoprosthesis [TBE], WL Gore, Flagstaff, AZ) provides a total endovascular solution. Comparative cost analysis of patients undergoing zone 2 TEVAR requiring left subclavian artery preservation with TBE versus SR-TEVAR is presented.

Methods: A single-center retrospective cost analysis was performed for aortic diseases requiring a zone 2 landing zone (TBE vs. SR-TEVAR) from 2014 to 2019. Facility charges were collected from the universal billing form UB-04 (form CMS 1450).

Results: Twenty-four patients were included in each arm. There were no significant differences in the overall mean procedural charges between the two groups: TBE, $209,736 ($57,761) vs. SR-TEVAR $209,025 ($93,943), $P = 0.94$. TBE resulted in reduced operating room charges ($36,849 [$8750] vs. $48,073 [$10,825], $P = 0.02$) and reduced intensive care unit and telemetry room charges, which did not reach statistical significance ($P = 0.23$ and 0.12, respectively). Device/implant charges were the primary cost driver in both groups. Charges associated with TBE were significantly higher: $105,525 ($36,137) vs. $51,605 ($31,326), $P > 0.01$.

Conclusions: TBE had similar overall procedural charges despite higher device/implant-related expenses and reduced facility resource utilization (lower operating room, intensive care unit, telemetry, and pharmacy charges).

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GORE TBE

Investigateur coordonnateur: **Pr Antoine Millon**

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Attachée de recherche clinique: BENANTAR Amel

- Etude de **cohorte, observationnelle, prospective** et rétrospective multicentrique

- **40 patients à inclure**

- **8 centres participants**

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