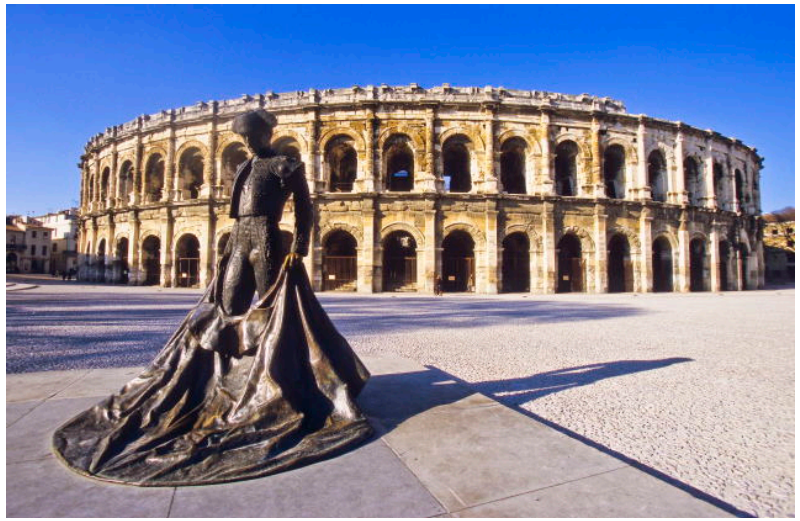
Controverse: Anévrisme de l' Aorte Abdominale

LOUIS Nicolas, Chirurgien ENDOvasculaire
Hôpital Privé les Franciscaines, Nîmes
France



APPAC juin 2018,
Biarritz

Chirurgie ouverte est le

Gold standard….

Le traitement endovasculaire: endoprothèse

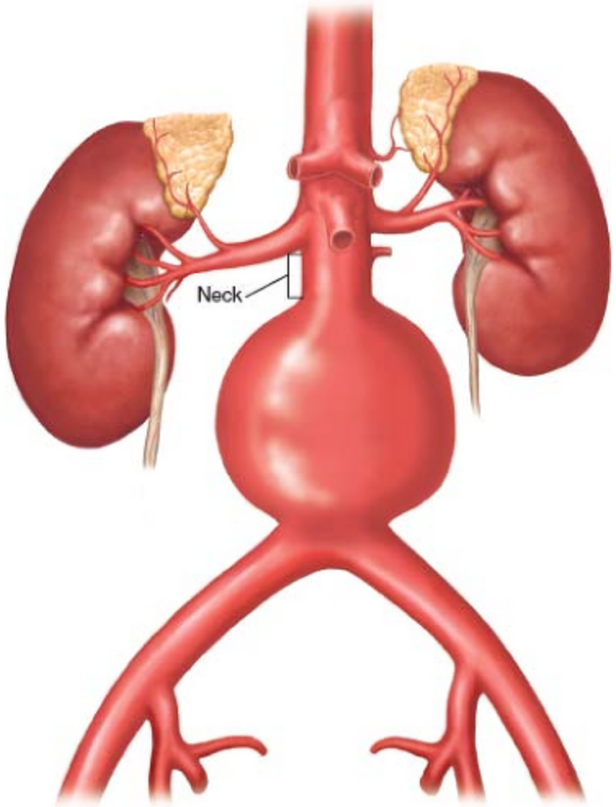


Figure 32.1 Aortic neck anatomy.

Le traitement chirurgical: Prothèse

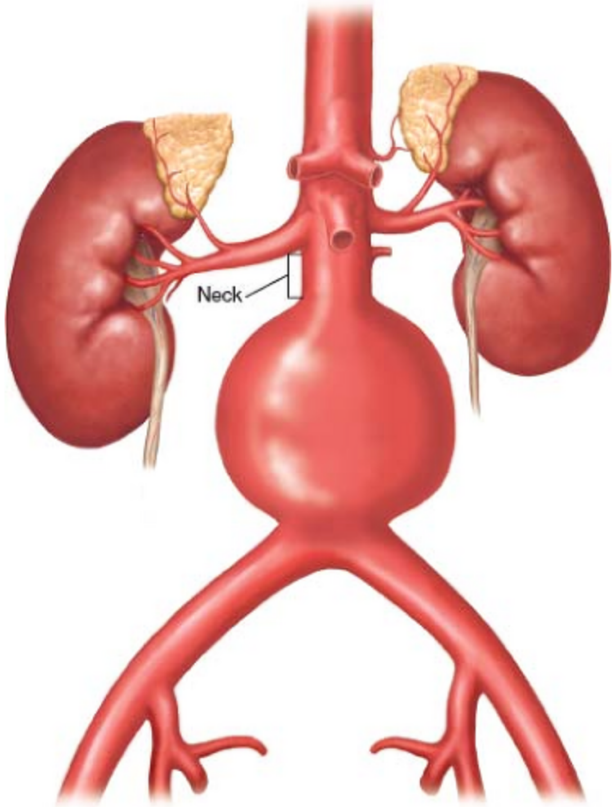
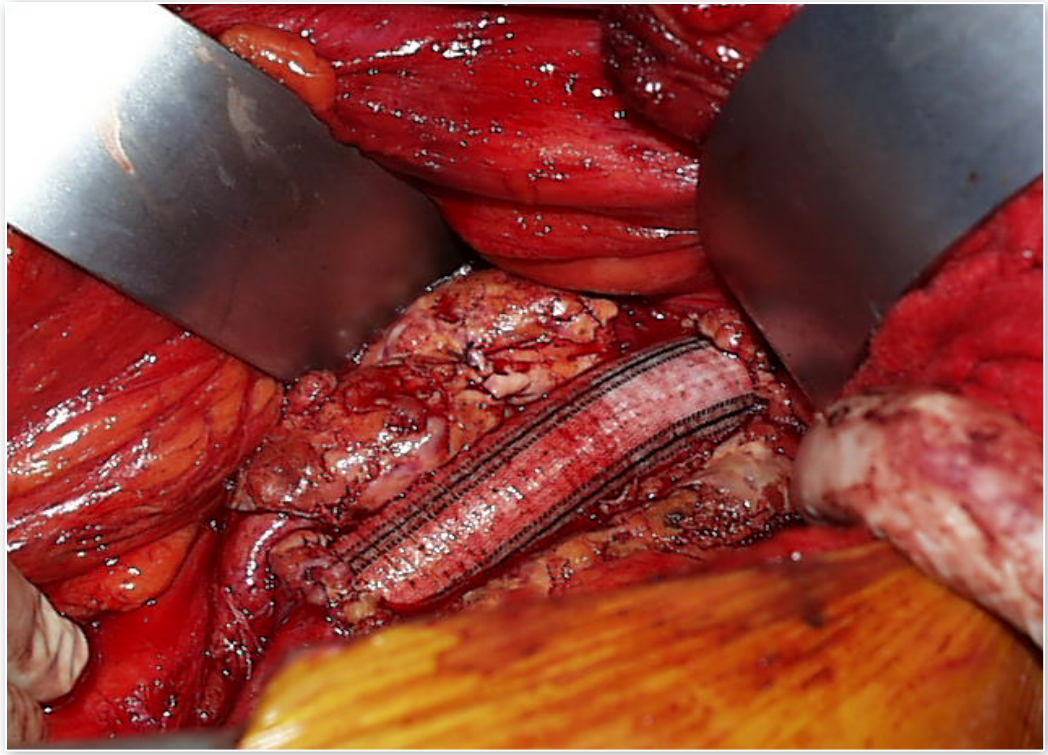
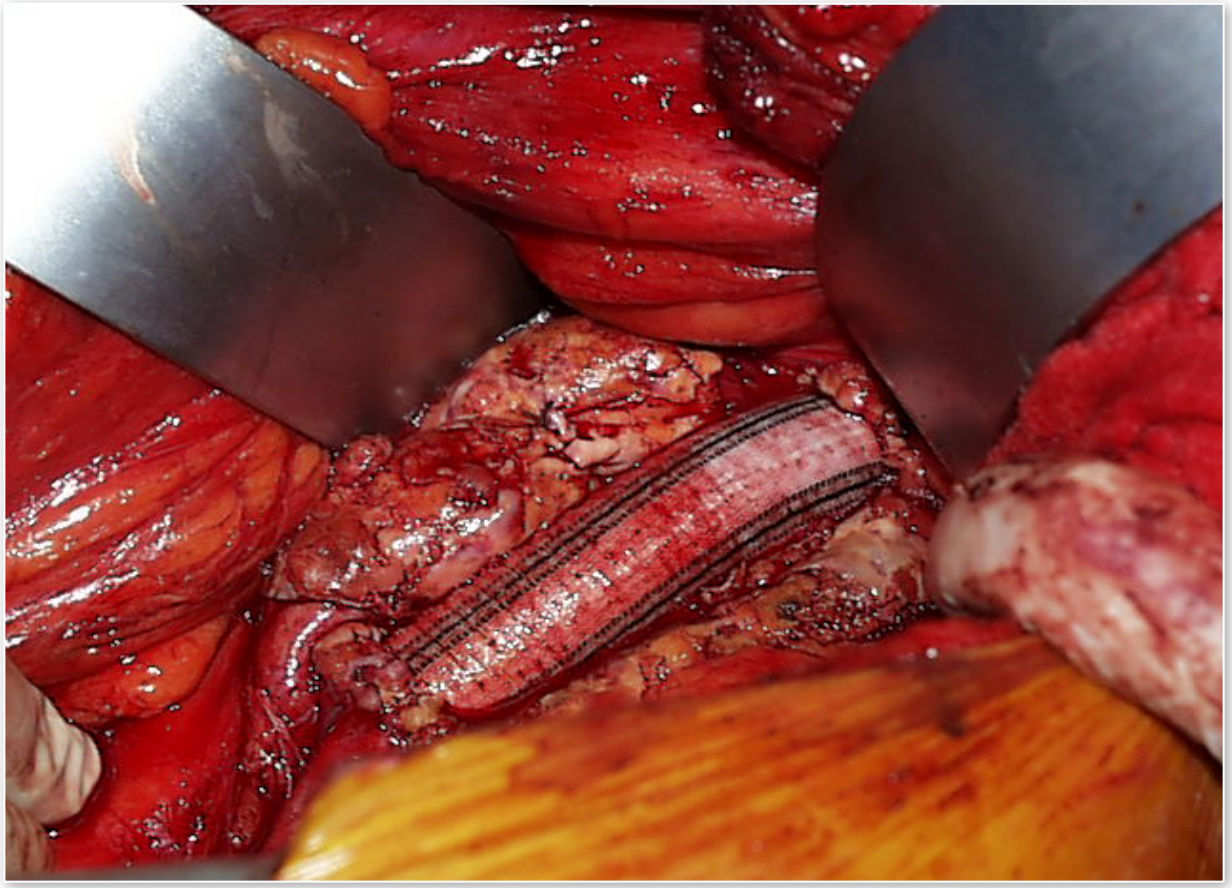


Figure 32.1 Aortic neck anatomy.



Problématique



Problématique

Endovascular versus open repair of abdominal aortic aneurysm in 15-years' follow-up of the UK endovascular aneurysm repair trial 1 (EVAR trial 1): a randomised controlled trial

*Rajesh Patel, Michael J Sweeting, Janet T Powell, Roger M Greenhalgh, for the EVAR trial investigators**

Lancet 2016; 388: 2366–74

Published Online
October 12, 2016
http://dx.doi.org/10.1016/S0140-6736(16)31135-7

See Comment page 2326

*The EVAR trial investigators are listed in the appendix

Vascular Surgery Research Group, Imperial College London, London, UK (R Patel PhD, Prof J T Powell MD, Prof R M Greenhalgh MD); **and Cardiovascular Epidemiology Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK** (M J Sweeting PhD)

Correspondence to:
Prof Roger M Greenhalgh, Vascular Surgery Research Group, Imperial College London, London W6 8RP, UK
r.greenhalgh@imperial.ac.uk

See Online for appendix

Summary

Background Short-term survival benefits of endovascular aneurysm repair (EVAR) versus open repair of intact abdominal aortic aneurysms have been shown in randomised trials, but this early survival benefit is lost after a few years. We investigated whether EVAR had a long-term survival benefit compared with open repair.

Methods We used data from the EVAR randomised controlled trial (EVAR trial 1), which enrolled 1252 patients from 37 centres in the UK between Sept 1, 1999, and Aug 31, 2004. Patients had to be aged 60 years or older, have aneurysms of at least 5·5 cm in diameter, and deemed suitable and fit for either EVAR or open repair. Eligible patients were randomly assigned (1:1) using computer-generated sequences of randomly permuted blocks stratified by centre to receive either EVAR (n=626) or open repair (n=626). Patients and treating clinicians were aware of group assignments, no masking was used. The primary analysis compared total and aneurysm-related deaths in groups until mid-2015 in the intention-to-treat population. This trial is registered at ISRCTN (ISRCTN55703451).

Findings We recruited 1252 patients between Sept 1, 1999, and Aug 31, 2004. 25 patients (four for mortality outcome) were lost to follow-up by June 30, 2015. Over a mean of 12·7 years (SD 1·5; maximum 15·8 years) of follow-up, we recorded 9·3 deaths per 100 person-years in the EVAR group and 8·9 deaths per 100 person-years in the open-repair group (adjusted hazard ratio [HR] 1·11, 95% CI 0·97–1·27, p=0·14). At 0–6 months after randomisation, patients in the EVAR group had a lower mortality (adjusted HR 0·61, 95% CI 0·37–1·02 for total mortality; and 0·47, 0·23–0·93 for aneurysm-related mortality, p=0·031), but beyond 8 years of follow-up open-repair had a significantly lower mortality (adjusted HR 1·25, 95% CI 1·00–1·56, p=0·048 for total mortality; and 5·82, 1·64–20·65, p=0·0064 for aneurysm-related mortality). The increased aneurysm-related mortality in the EVAR group after 8 years was mainly attributable to secondary aneurysm sac rupture (13 deaths [7%] in EVAR *vs* two [1%] in open repair), with increased cancer mortality also observed in the EVAR group.

Interpretation EVAR has an early survival benefit but an inferior late survival compared with open repair, which needs to be addressed by lifelong surveillance of EVAR and re-intervention if necessary.

Funding UK National Institute for Health Research, Camelia Botnar Arterial Research Foundation.

Endovascular versus open repair of abdominal aortic aneurysm in 15-years' follow-up of the UK endovascular aneurysm repair trial 1 (EVAR trial 1): a randomised controlled trial

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Correspondenc
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r.greenhalgh@imperial.a

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Interpretation: EVAR has an **early survival benefit** but an **inferior late survival** compared with open repair, which needs to be addressed by **lifelong surveillance** of EVAR and **re- intervention** if necessary.

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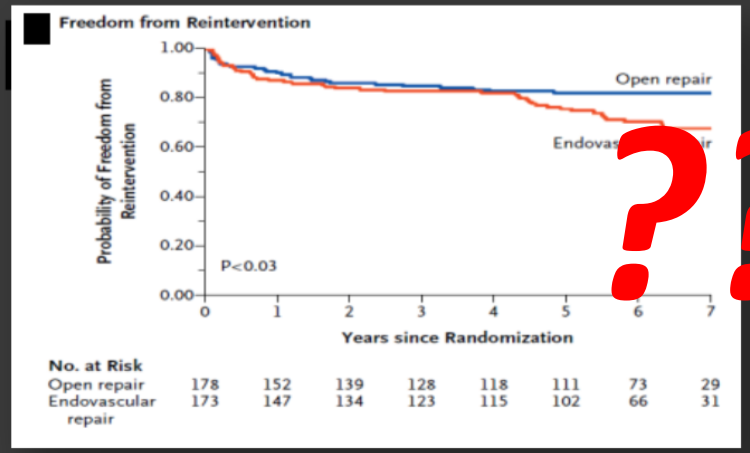
Etudes Multicentriques: taux de ré-interventions plus élevés pour le traitement endovasculaire

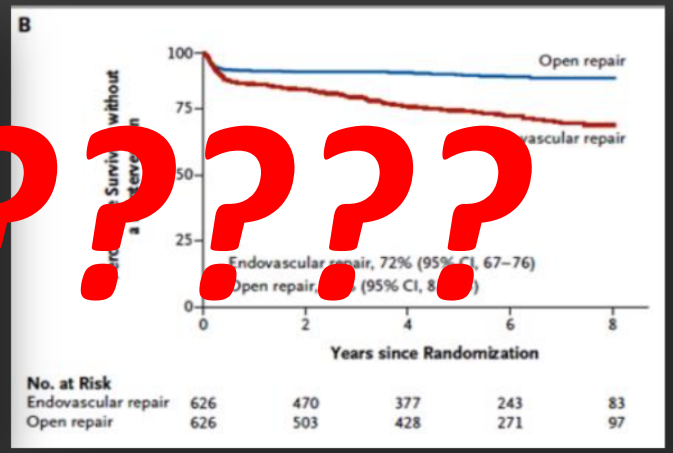
DREAM

De Bruin *et al.* N Engl J Med 2010;362:1881-9



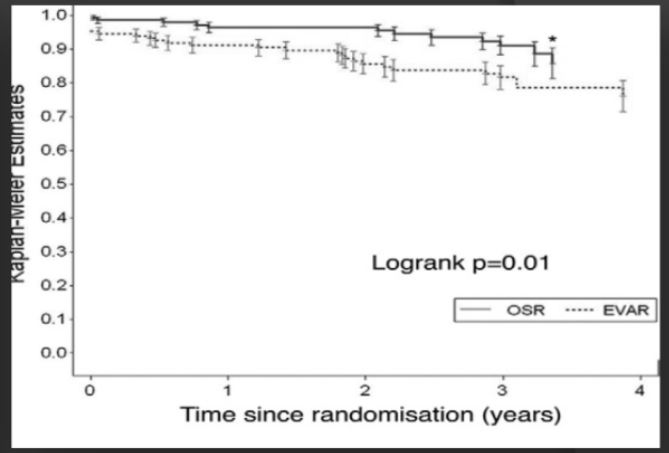
EVAR-1

R.M. Greenhalgh *et al.* N Engl J Med 2010, 10.1056/NEJM 0909305



ACE

Becquemin JP et al. J Vasc Surg 2011;53(5):1163-73.

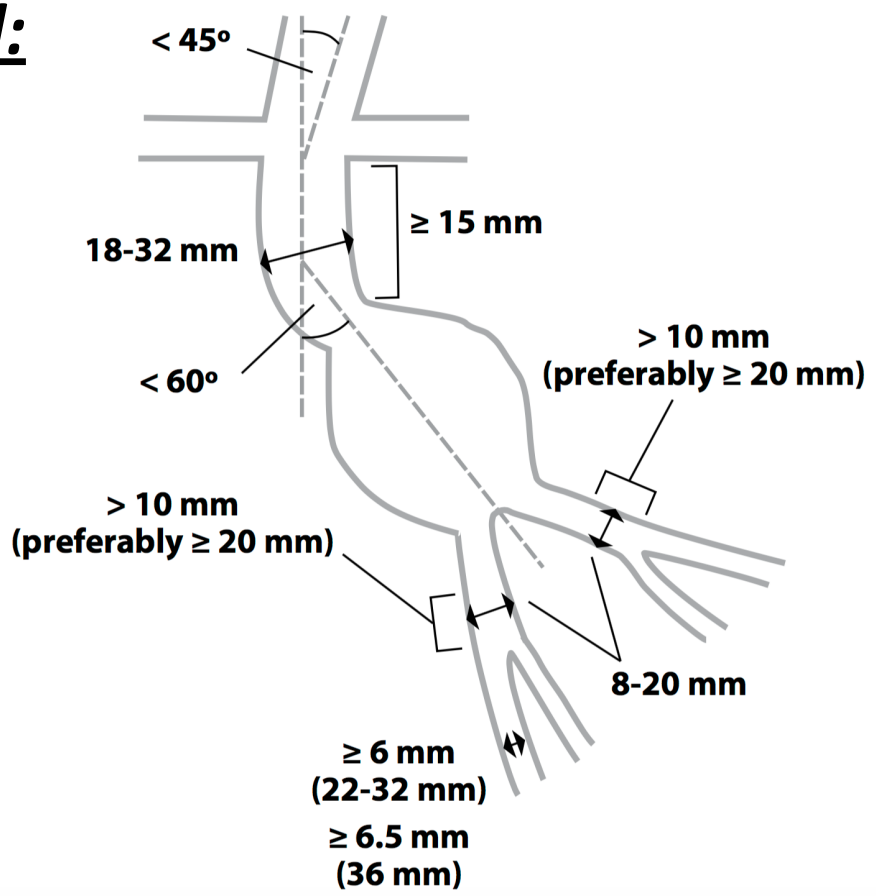


??????

2002 **1999** **2003**

Respecter les IFU

Collet sous rénal:



Respecter les IFU

Collet sous rénal:

Longueur: >15mm
>10mm

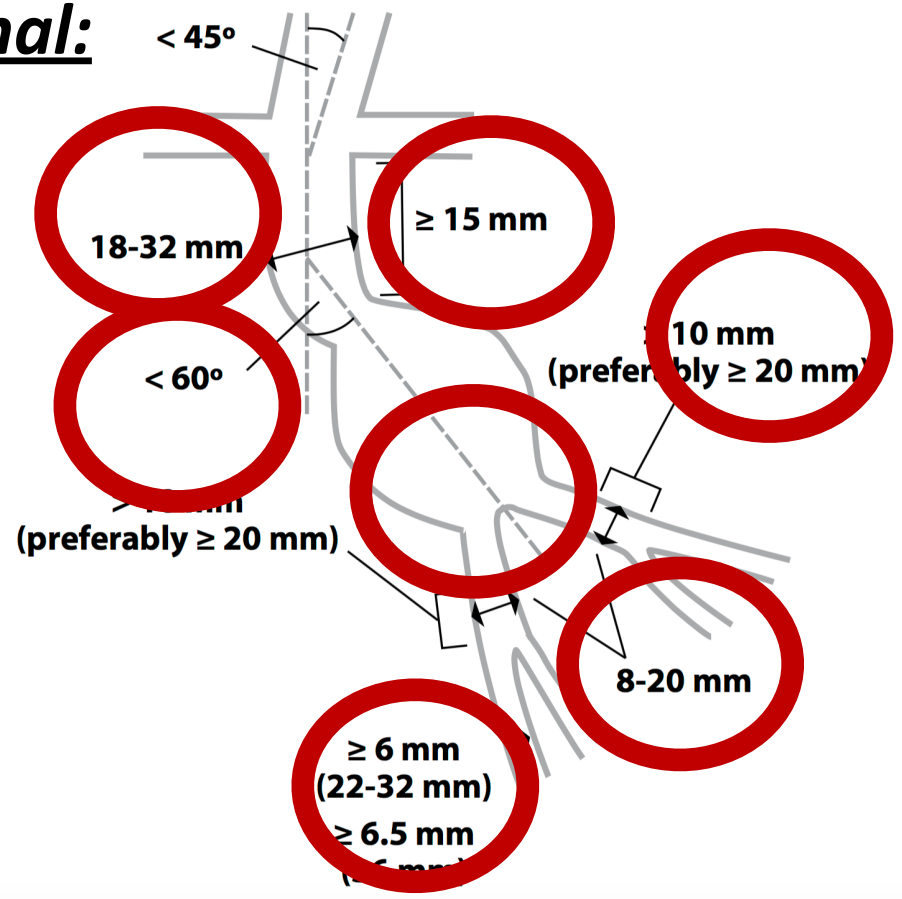
Diamètre: 18-32mm

Angulation: < 60°

Forme: Droit

Calcification

Thrombus



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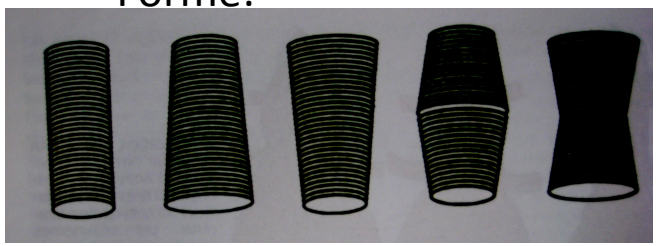
Collet sous rénal:

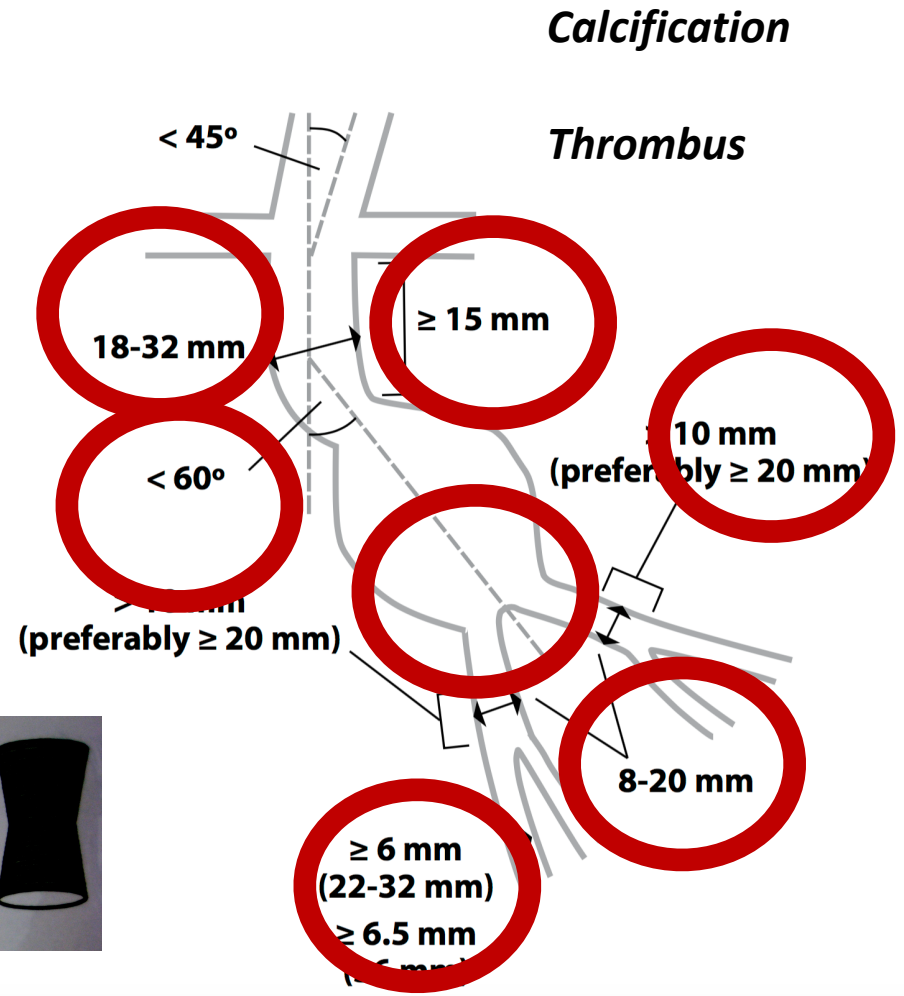
Longueur: >15mm
>10mm

Diamètre: 18-32mm

Angulation: < 60°

Forme:





Respecter les IFU

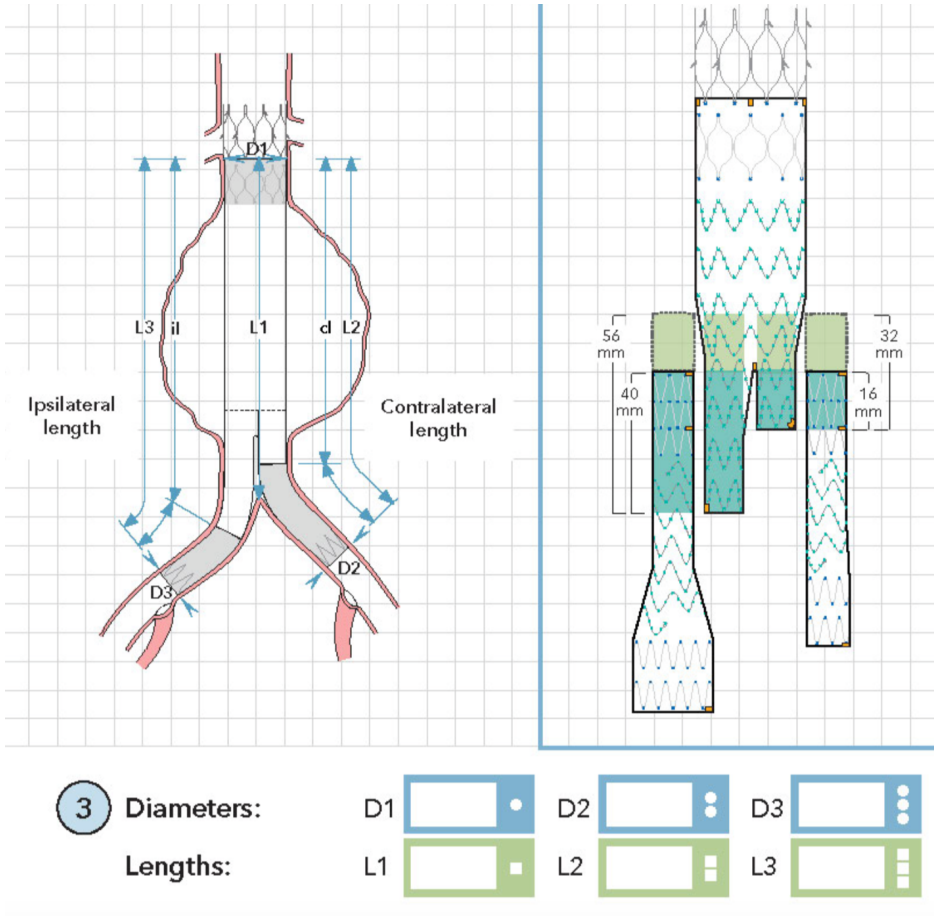
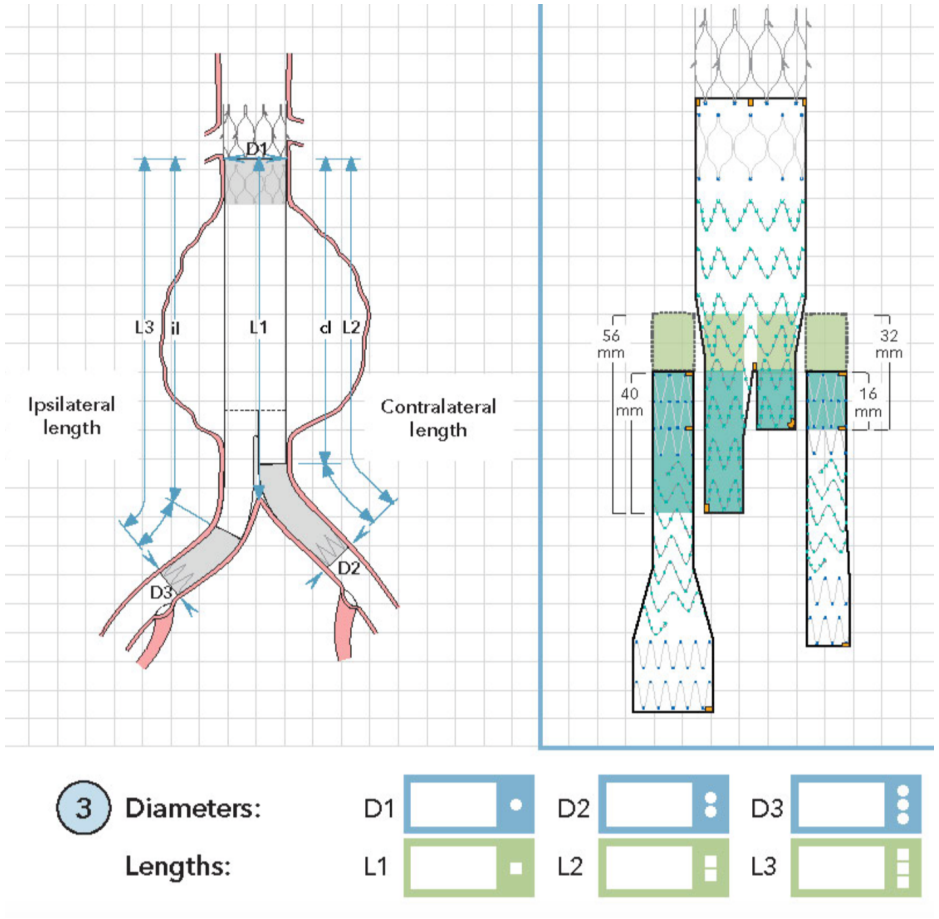


TABLE 1. INSTRUCTIONS FOR USE FOR THREE ENDOVASCULAR GRAFT MANUFACTURERS

	Gore Excluder*	Zenith Flex†	Endurant II‡
Aortic sealing zone diameter	19–29 mm	18–32 mm	19–32 mm
Aortic sealing zone length	≥ 15 mm	≥ 15 mm	≥ 10 mm
Angle from suprarenal aorta to neck	Not stated	≤ 45°	Not stated
Angle from neck to aneurysm	≤ 60°	≤ 60°	≤ 60°
Iliac sealing zone diameter	8–18.5 mm	7.5–20 mm	8–25 mm
Iliac sealing zone length	≥ 10 mm	≥ 10 mm	≥ 15 mm

*Gore & Associates; †Cook Medical; ‡Medtronic, Inc.

Respecter les IFU



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Angle from neck to aneurysm	≤ [illegible]	≤ 60°	≤ 60°
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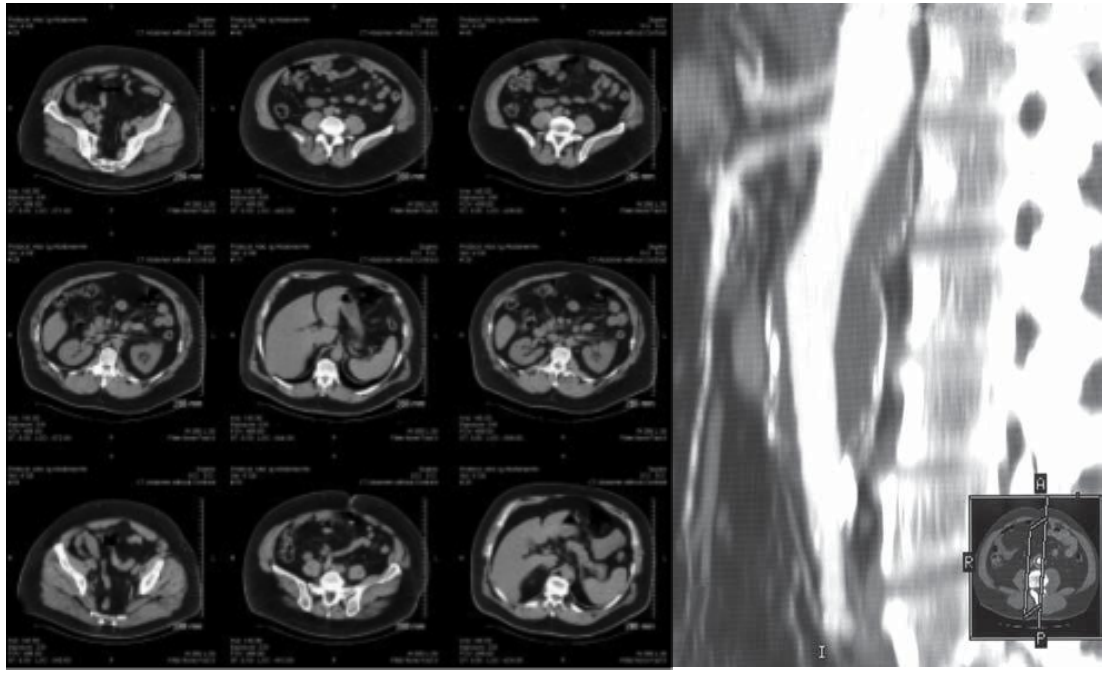
COLLET SOUS RENAUX HOSTILE HORS IFU

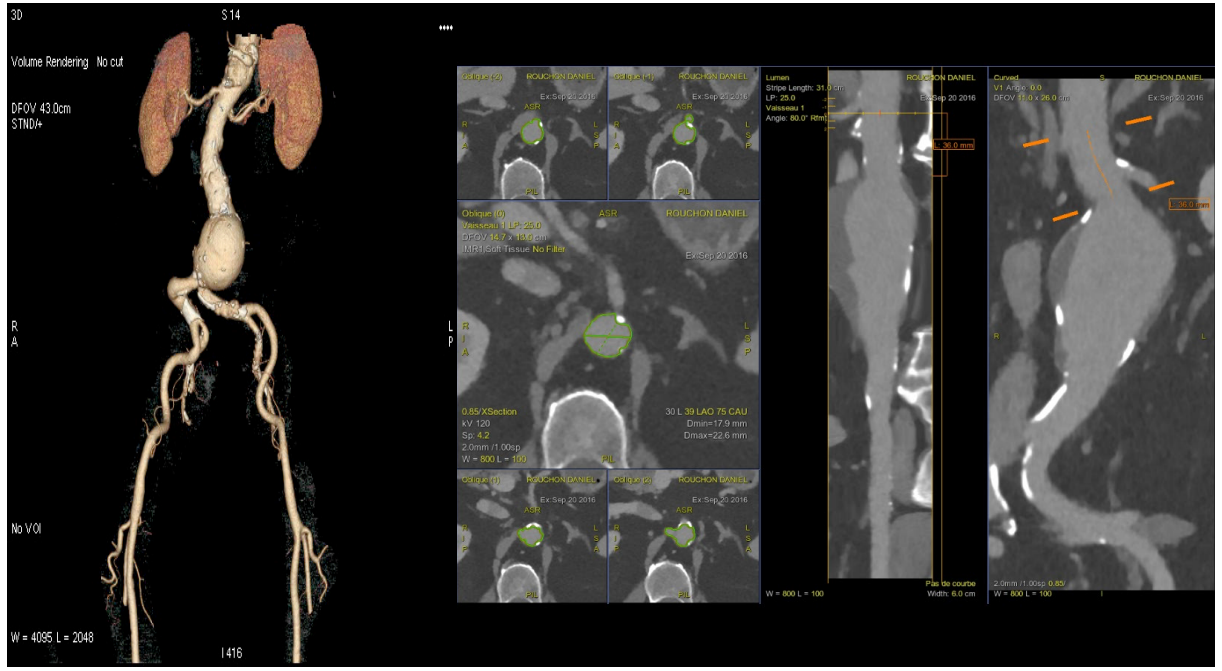
Sizing

1999-2004



- *Mesure sur des planches de Scan*
- *Règles de Pythagore*
- *Mesures au compas*

2018

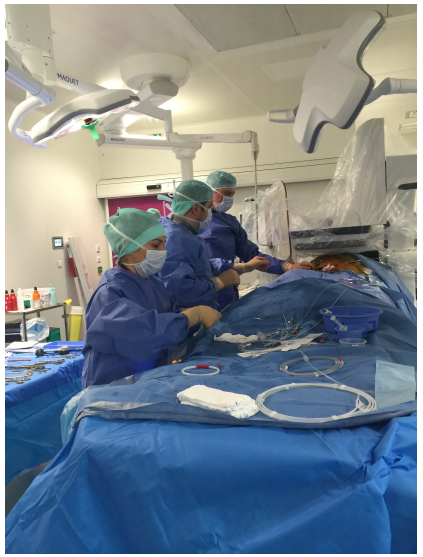


- *Console de sizing dédiée*
- *Création de centerline*
- *Mesures très précises*

Procedure

1999-2004

Ampli Mobile

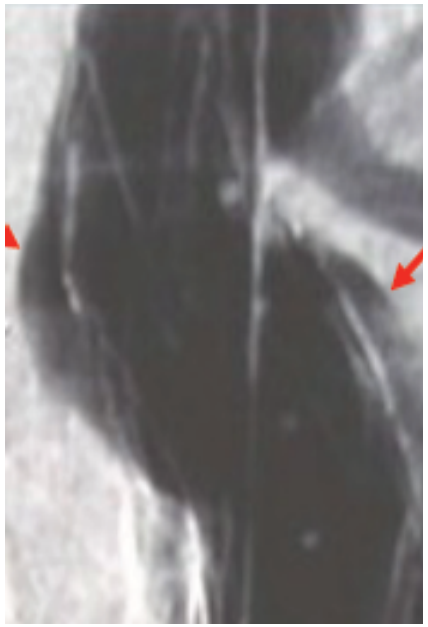


2018

Salle hybride
Fusion Imaging
Cercles de planifications

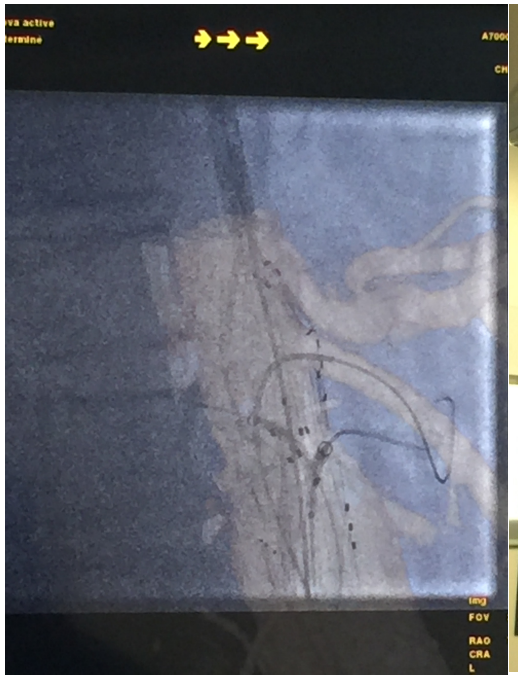
Procedure

1999-2004



Ampli Mobile

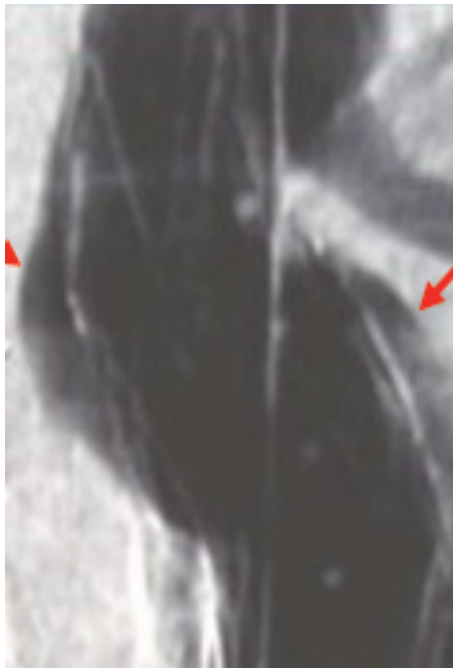
2018



Salle hybride
Fusion Imaging
Cercle de plannification

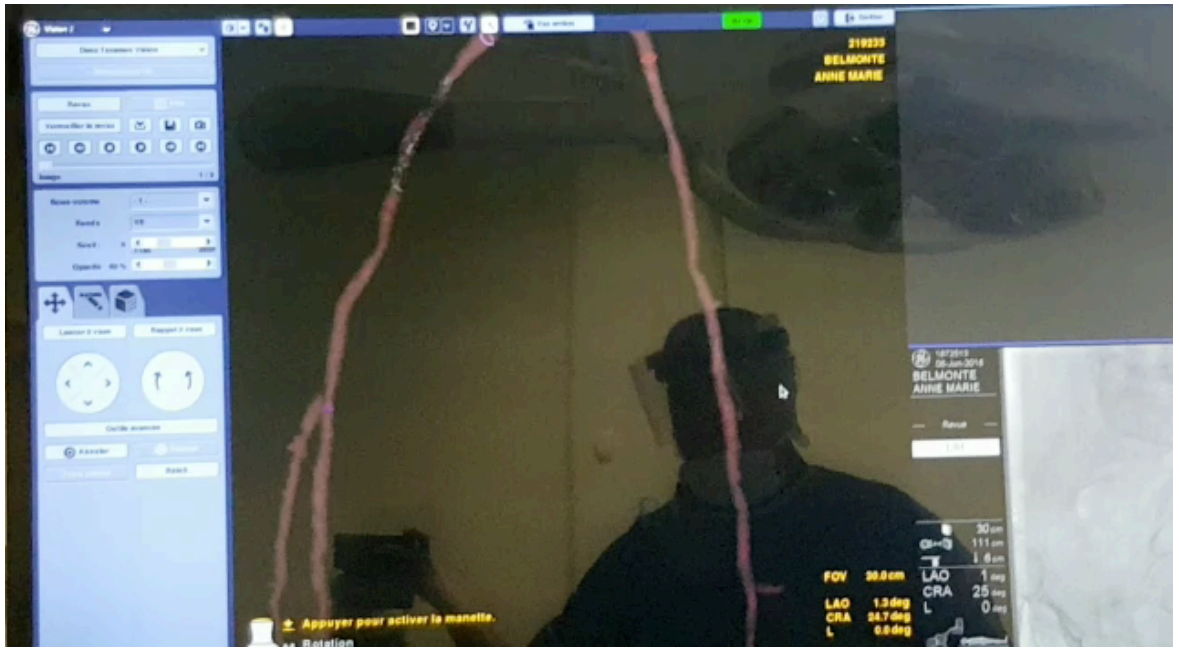
Procedure

1999-2004



Ampli Mobile

2018



Salle hybride
Fusion Imaging
Cercle de plannification

Résumé des Etudes multi-centriques

Trial	Site	Enrollment Start	30-d mortality OPEN	30-d mortality EVAR	Reintervention OPEN	Reintervention EVAR
EVAR-1	UK	1999	6.2%	2.1%	9%	20%
DREAM	Belgium Netherlands	2002	4.6%	1.2%	5%	14%
OVER	USA	2002	2.3%	0.2%	12.5%	13.7%

Résumé des Etudes multi-centriques

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Les résultats sont-ils corrèlés avec les différentes générations d'endoprothèses?

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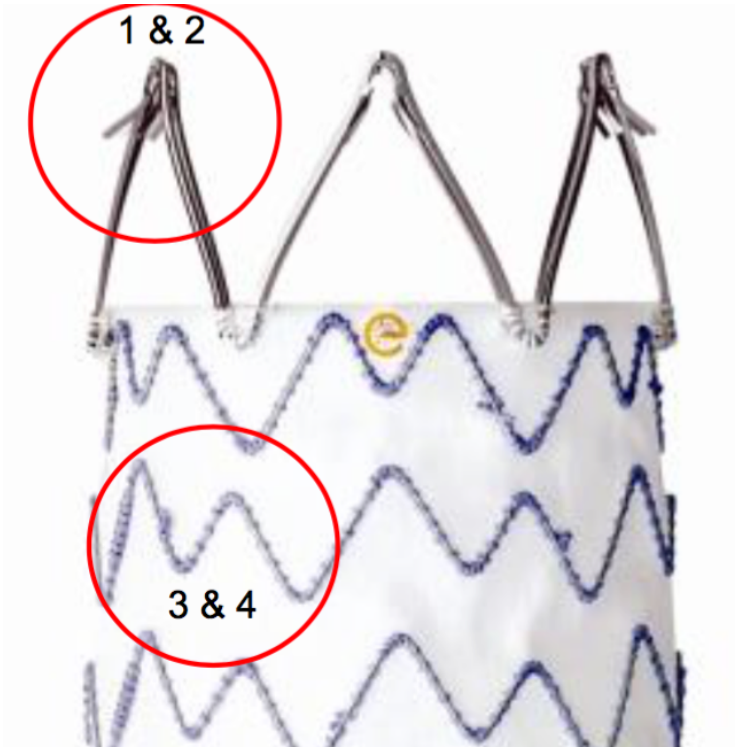

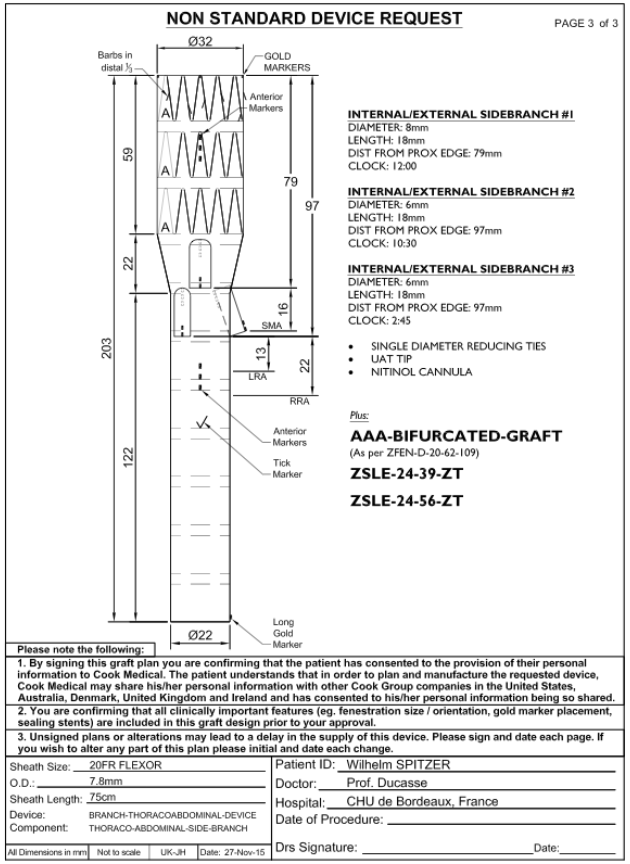

NON STANDARD DEVICE REQUEST PAGE 3 of 3

Ø32 — GOLD MARKERS — Barbs in distal ⅓ — Anterior Markers

59 — 79 — 97 — 22 — 16 — SMA — 13 — LRA — 22 — RRA — 203 — 122 — Ø22

Anterior Markers — Tick Marker — Long Gold Marker

INTERNAL/EXTERNAL SIDEBRANCH #1
DIAMETER: 8mm
LENGTH: 18mm
DIST FROM PROX EDGE: 79mm
CLOCK: 12:00

INTERNAL/EXTERNAL SIDEBRANCH #2
DIAMETER: 6mm
LENGTH: 18mm
DIST FROM PROX EDGE: 97mm
CLOCK: 10:30

INTERNAL/EXTERNAL SIDEBRANCH #3
DIAMETER: 6mm
LENGTH: 18mm
DIST FROM PROX EDGE: 97mm
CLOCK: 2:45

- SINGLE DIAMETER REDUCING TIES
- UAT TIP
- NITINOL CANNULA

Plus:

AAA-BIFURCATED-GRAFT
(As per ZFEN-D-20-62-109)
ZSLE-24-39-ZT
ZSLE-24-56-ZT

Please note the following:

1. By signing this graft plan you are confirming that the patient has consented to the provision of their personal information to Cook Medical. The patient understands that in order to plan and manufacture the requested device, Cook Medical may share his/her personal information with other Cook Group companies in the United States, Australia, Denmark, United Kingdom and Ireland and has consented to his/her personal information being so shared.
2. You are confirming that all clinically important features (eg. fenestration size / orientation, gold marker placement, sealing stents) are included in this graft design prior to your approval.
3. Unsigned plans or alterations may lead to a delay in the supply of this device. Please sign and date each page. If you wish to alter any part of this plan please initial and date each change.

Sheath Size: 20FR FLEXOR
O.D.: 7.8mm
Sheath Length: 75cm
Device: BRANCH-THORACOABDOMINAL-DEVICE
Component: THORACO-ABDOMINAL-SIDE-BRANCH

Patient ID: Wilhelm SPITZER
Doctor: Prof. Ducasse
Hospital: CHU de Bordeaux, France
Date of Procedure:

Drs Signature: Date:

All Dimensions in mm | Not to scale | UK-JH | Date: 27-Nov-15

The impact of stent graft evolution on the results of endovascular abdominal aortic aneurysm repair

Rami O. Tadros, MD, Peter L. Faries, MD, Sharif H. Ellozy, MD, Robert A. Lookstein, MD, Ageliki G. Vouyouka, MD, Rachel Schrier, MD, Jamie Kim, MD, and **Michael L. Marin, MD,** *New York, NY*

Objective: **There have been four eras in the development of endovascular aneurysm repair (EVAR): physician-made grafts, early industry devices, intermediary commercial endografts, and modern stent grafts. This study analyzes differences in outcomes between these four groups and the impact of device evolution and increased physician experience.**

Methods: **From 1992 to 2012, 1380 patients underwent elective EVAR. Fourteen different devices were used during this time. The four generations were defined as follows: era 1, all physician-made devices; era 2, June 1994 to June 2003; era 3, June 2003 to January 2008; and era 4, January 2008 to July 2012. Grafts used in each era were the following: era 1, physician made; era 2, early industry, such as EVT, Talent, AneuRx, Excluder, Quantum LP, Vanguard, Ancure, and Teramed; era 3, Talent, Endologix, Excluder, AAAdvantage, Zenith, and Aptus; and era 4, Zenith, Endurant, and Excluder.**

Results: **Mean age was 75.2 years, and 84.5% were men. Adjunctive procedures decreased from era 1 to era 2 ($P < .001$) but rose again in eras 3 and 4 ($P < .001$). Procedure times ($P < .001$), blood loss ($P < .001$), and length of stay ($P < .001$) have decreased in eras 2, 3, and 4 compared with era 1. Major perioperative complications (era 1, 23%; era 2, 5.9%; era 3, 4.9%; and era 4, 4.7%; $P < .001$), abdominal aortic aneurysm-related perioperative mortality (era 1, 4.3%; era 2, 0.2%; era 3, 0.06%; and era 4, 0.5%; $P < .001$), and all-cause perioperative mortality (era 1, 7.7%; era 2, 1.9%; era 3, 1.5%; and era 4, 0.47%; $P < .001$) have also decreased in eras 2, 3, and 4 compared with era 1. Type I and type III endoleaks ($P < .001$) and the need for reintervention ($P < .001$) have decreased. Freedom from aneurysm-related mortality has significantly improved.**

Conclusions: **EVAR has evolved during the last 20 years, resulting in an improvement in efficiency, outcomes, and procedural success. The most significant advance is seen in the transition from era 1 to the later eras. (J Vasc Surg 2014;59:1518-27.)**

The impact of stent graft evolution on the results of endovascular abdominal aortic aneurysm repair

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Nov 1992-May 2012 **1380 EVAR Performed**

JVS 2014

Table I. Summary of Devices by Era

Device and manufacturer	*No.*	*Dates used*
Era 1: Physician made		
Juan Parodi	9	11/92-01/95
Michael Marin	108	06/94-06/03
Era 2: Early industry		
Endovascular Technologies (EVT)	5	06/94-05/96
Boston Scientific (Vanguard)	18	08/97-03/00
Guidant (Ancure)	9	05/00-03/01
Teramed (Ariba)	6	07/00-08/00
Cordis (Quantum LP)	31	04/02-04/03
Early Gore (Excluder)	20	05/98-06/03
Early Medtronic (Talent)[a]	402	04/98-03/11
Early AneuRx (AAAdvantage)	34	11/99-06/03
Era 3: Intermediary industry		
Aptus Endovascular (Aptus)[a]	3	12/07-02/08
Powerlink (Endologix)[a]	3	12/06-05/12
Intermediary Gore (Excluder)	175	06/03-01/08
Late Medtronic (Talent)[a]	241	04/98-03/11
Late AneuRx (AAAdvantage)[a]	86	06/03-10/10
Early Cook (Zenith)	18	12/03-01/08
Era 4: Modern industry		
Late Cook (Zenith)	9	01/08-02/12
Medtronic (Endurant)	69	09/08-07/12
Late Gore (Excluder)	134	01/08-07/12

Mortality Rate:

7.7%

1.9%

1.5%

0.47%

Table VIII. Endoleak and reintervention rates

Era	*No. (%)*
Type I	
1	11 (11.0)
2	75 (15.5)
3	47 (9.3)
4	6 (3.0)
Type II	
1	16 (16.0)
2	114 (23.5)
3	147 (29.2)
4	58 (29.3)
Type I or III	
1	11 (11.0)
2	83 (17.1)
3	49 (9.7)
4	6 (3.0)
Reintervention rate	
1	39 (33.3)
2	143 (27.25)
3	97 (18.4)
4	21 (9.9)

Les résultats chez les patients à faible risque ?

Comparative safety of endovascular and open surgical repair of abdominal aortic aneurysms in low-risk male patients

Jeffrey J. Siracuse, MD, Heather L. Gill, MD, Ashley R. Graham, MD, Darren B. Schneider, MD, Peter H. Connolly, MD, Art Sedrakyan, MD, PhD, and Andrew J. Meltzer, MD, *New York, NY*

Objective: The prevalence of significant comorbidities among patients with abdominal aortic aneurysms (AAAs) has contributed to widespread enthusiasm for endovascular AAA repair (EVAR). However, the advantages of EVAR in patients at low risk for open surgical repair (OSR) remain unclear. The objective of this study was to assess perioperative outcomes of EVAR and OSR in low-risk patients.

Methods: Patients undergoing EVAR and OSR for infrarenal AAAs were identified in the 2007 to 2010 National Surgical Quality Improvement Program data sets. AAA-specific risk stratification, by the Medicare aneurysm scoring system, was used to create matched low-risk (score <3) cohorts. Perioperative morbidity and mortality were assessed by crude comparisons of matched groups and regression models.

Results: Of 11,753 elective patients undergoing EVAR, 4339 (37%) were deemed low risk (score <3). A matched cohort of 1576 low-risk patients was developed from a total of 3804 (41%) undergoing OSR. The low-risk cohorts included only male patients and those <75 years of age, without significant cardiac, pulmonary, or vascular comorbidities. Mean age in both low-risk groups was 67 ± 6 years (P = NS). EVAR patients had higher rates of obesity (40% vs 33%; $P < .001$), diabetes (16% vs 13%; $P = .005$), history of cardiac intervention (24% vs 19%; $P < .001$), cardiac surgery (23% vs 20%; $P = .02$), steroid use (4% vs 2%; $P = .002$), and bleeding disorders/anticoagulation (9% vs 6%; $P = .001$) compared with OSR patients. There were no other differences between the matched cohorts. EVAR was associated with reduced 30-day mortality (0.5% vs 1.5%; $P < .01$) and reduced rates of major complications, including the following: sepsis (0.7% vs 3.2%; $P < .01$), unplanned intubation (1.0 vs 5.4%; $P < .001$), pneumonia (0.8% vs 6.1%; $P < .001$), acute renal failure (0.4% vs 2.7%; $P < .001$), and early reoperation (3.7% vs 6.0%; $P < .001$). Furthermore, EVAR was associated with reduced perioperative morbidity across organ systems, including venous thromboembolism (0.1% vs 0.3%; $P = .001$), transfusion requirement of more than 4 units (2.0% vs 13.0%; $P < .001$), cardiac arrest (0.2 vs 0.8; $P = .001$), neurologic deficits (0.2% vs 0.5%; $P = .032$), and urinary tract infections (1.2% vs 2%; $P = .02$).

Conclusions: Our results demonstrate that even among those male patients at low risk for OSR on the basis of comorbidities, EVAR is associated with reduced perioperative mortality and major complications. Whereas clinical decisions must account for safety and long-term effectiveness, the short-term benefit of EVAR is evident even among male patients at the lowest risk for OSR. (J Vasc Surg 2014;60:1154-8.)

able I. Medicare aneurysm scoring system[10]

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Risk factor	*Score*
Age >80 years	11
Age 76-80 years	6
Age 71-75 years	1
Female	4
ESRD	9
CRI, no dialysis	7
CHF	6
PVD or CBVD	3

CBVD, Cerebrovascular disease; *CHF,* congestive heart failure; *CRI,* chronic renal insufficiency; *ESRD,* end-stage renal disease; *PVD,* peripheral vascular disease.
High risk, >11; moderate risk, 3-11; low risk, <3.

Data set: ***NSQIP***
Propective
Multicenter
Data base: 11753 EVAR

Faible risque:
OR: ***3804***
EVAR: ***4339***

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Conclusion: Réduction significative de la mortalité péri-opératoire et des complications majeures

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Table III. Systemic complications

Complications	*Total, No. (%)*	*EVAR, No. (%)*	*OSR, No. (%)*	P *value*
Total	5527	4068	1459	N/A
Mortality, 30-day	46 (0.8)	24 (0.5)	22 (1.5)	.001
Return to the OR within 30 days	239 (4.3)	151 (3.7)	88 (6.0)	<.001
Deep venous thrombosis	30 (0.5)	14 (0.3)	16 (1.1)	.001
Graft complications	35 (0.6)	29 (0.7)	6 (0.4)	.21
Postoperative blood transfusion	28 (0.5)	8 (0.2)	20 (1.4)	<.001
Myocardial infarction	39 (0.7)	18 (0.4)	21 (1.4)	<.001
Cardiac arrest	20 (0.4)	8 (0.2)	12 (0.8)	<.001
Neurologic deficit	16 (0.3)	8 (0.2)	8 (0.5)	.032
Stroke	8 (0.1)	5 (0.1)	3 (0.2)	.48
Acute renal failure	54 (1.0)	15 (0.4)	39 (2.7)	<.001
Postoperative intubation >48 hours	130 (2.4)	26 (0.6)	104 (7.1)	<.001
Pulmonary embolism	16 (0.3)	10 (0.2)	6 (0.4)	.31
Unplanned reintubation	120 (2.2)	41 (0.1)	79 (5.4)	<.001

EVAR, Endovascular aneurysm repair; *N/A*, not applicable; *OR*, operating room; *OSR*, open surgical repair.

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Les résultats chez les patients à faible risque chirurgical

SONT ILS DURABLES?

Durability and survival are similar after elective endovascular and open repair of abdominal aortic aneurysms in younger patients

Kevin Lee, MD, Elaine Tang, Luc Dubois, MD, MSc, Adam H. Power, MPhil (Cantab), Guy DeRose, MD, and **Thomas L. Forbes, MD,** *London, Ontario, Canada*

Objective: **The role of endovascular repair (EVAR) of aortic aneurysms in young patients is controversial. The purpose of this study was to determine the long-term outcomes and reintervention rates in patients 60 years of age or younger who underwent elective open or endovascular repair of an abdominal aortic aneurysm.**

Methods: **Retrospective review of a prospectively collected vascular surgery database at a university-affiliated medical center was performed to identify all patients who underwent elective repair of an abdominal aortic aneurysm between 2000 and 2013 and were 60 years of age or younger at the time of the repair. Preoperative anatomic measurements were performed and compared with instructions for use (IFU) criteria for the endografts.**

Results: **The study cohort comprised 169 patients 60 years of age or younger (mean age, 56.7 ± 2.8 years) who underwent elective repair (119 open repair, 50 EVAR). Patients treated with open repair and EVAR had similar comorbidities, except that EVAR patients were more likely to have hypertension ($P = .03$) and poor left ventricular function ($P = .04$). The open repair group had significantly larger suprarenal ($P = .004$) and infrarenal ($P = .005$) neck angles, shorter neck lengths ($P < .001$), and larger maximum aneurysm diameter ($P = .02$) compared with the EVAR group. Only five patients (13%) in the EVAR group did not meet all IFU criteria. The overall in-hospital mortality rate was 1.8% (0% EVAR, 2.5% open repair; $P = .56$). Overall mean life expectancy was 11.5 years (9.8 years EVAR, 11.9 years open repair; $P = .09$). The 1-year (98% EVAR, 96% open repair), 5-year (86% EVAR, 88% open repair), and 10-year (54% EVAR, 75% open repair) survival did not differ between EVAR and open repair ($P = .16$). Long-term survival (78% EVAR, 85% open repair; $P = .09$) and reintervention rates (12% EVAR, 16% open repair; $P = .80$) did not differ. No late aneurysm rupture or aneurysm-related deaths were observed. The most common causes of long-term mortality were malignant disease and cardiovascular events. Reinterventions in the open repair group were exclusively laparotomy related (incisional hernia repairs), whereas all reinterventions in the EVAR group were aortic related, including one conversion to open repair.**

Conclusions: **After elective aneurysm repair, younger patients have a moderate life expectancy related to malignant disease and cardiovascular health. EVAR offers durability and long-term survival similar to those with open repair in these younger patients as long as aneurysm anatomy and IFU are adhered to. (J Vasc Surg 2015;61:636-41.)**

Durability and survival are similar after elective endovascular and open repair of abdominal aortic aneurysms in younger patients

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Table IV. Long-term survival and reintervention rates

	EVAR (n = 50)	*Open (n = 116)*
Survival rate, % (No.)	78 (39)	85 (86)
Cause of mortality		
AAA-related death	0	0
Non-AAA-related death	7	13
Unknown	4	2
Lost to follow-up	0	15
Mean follow-up length, months		
Reintervention rate, % (No.)	**12 % NS**	**16 %**
Endovascular	2	0
Surgical	4	16

Mortalité: ***0%*** ***2.5%***

Table III. Early in-hospital results

	EVAR (n = 50), No. (%)	*Open (n = 119), No. (%)*	P *value*
In-hospital mortality rate	0 (0)	3 (2.5)	.56
In-hospital reintervention rate	1 (2)	3 (2.5)	.66
Endovascular reintervention	1	0	
Surgical reintervention	0	3	
Length of hospital stay, days	3.2	7.9	<.001

	EVAR	*Open*
Cause of death	3 Cancer 1 Gastrointestinal 3 Cardiac 4 Unknown	1 Perforated bowel 8 Cancer 3 Cardiac 1 Trauma 2 Unknown

Conclusion: le traitement des AAA chez les patients jeunes **montre un espérance de vie plus limitée** par rapport à la population générale. **Le traitement endovasculaire offre un durabilité équivalente à la chirurgie ouverte si les IFU sont respectées.**

Complications inavouées de la chirurgie?

Erectile Function after Open or Endovascular Abdominal Aortic Aneurysm Repair

E.S. Xenos, MD, S.L. Stevens, MD, M.B. Freeman, MD, J.P. Pacanowski, MD, D.C. Cassada, MD, M.H. Goldman, MD
Department of Surgery, University of Tennessee, Knoxville, TN, USA

Annals of Vascular Surgery 2003

293 Questionnaires

Groupe chirurgie: Aucune corrélation avec l'âge, diabète, et la perméabilité des artères hypogastriques

Conclusion: ***le traitement chirurgicale*** *des AAA est associé de façon significative avec une* ***diminution de la fonction érectile, et orgasmique et une augmentation de risque d'éjaculation rétrograde*** *par rapport au traitement endovasculaire.*
La préservation de la fonction sexuelle chez les hommes doit apparaitre dans l'arbre décisionnel.

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Le patient dans tout ça?

Preferences for endovascular (EVAR) or open surgical repair among patients with abdominal aortic aneurysms under surveillance

Rebecca J. Winterborn, MD, MRCS,[a] Irum Amin, MRCS,[b] Georgios Lyratzopoulos, MD, FFPH, MRCP,[c] Nicola Walker, RN,[a] Kevin Varty, MD, FRCS,[b] and W. Bruce Campbell, MS, FRCP, FRCS,[d] *Exeter, United Kingdom*

Objectives: **There is no evidence about patient preferences for treatment of abdominal aortic aneurysms (AAA) by endovascular aneurysm repair (EVAR) or open surgical repair (OSR). This study examined patient preferences for elective future aneurysm repair and factors that may influence such preferences.**

Methods: **Patients with small AAAs under ultrasound scan surveillance at two United Kingdom (UK) hospitals participated in a semi-structured telephone interview. Features of the two techniques were assessed with regard to their influence on the preferences of participants for EVAR or OSR, using a Likert scale. In addition, participants ranked the relative importance of 14 features against each other.**

Results: **Fifty-six out of 100 eligible participants (56%) completed the semi-structured telephone interview. Of those, 84% (47 patients) said they would prefer a future EVAR repair. Patients who expressed a preference for OSR were significantly younger. Risks of major organ failure and death were most commonly judged as important features in influencing patient preference (Likert scale score 5/5). Risk of death was also most frequently ranked above all other features. Postoperative morbidity and mortality were regarded by patients as more important than the need for surveillance and risk of long-term problems with EVAR. Type of incision and radiation exposure were both given low Likert scale scores of 1/5, and the risk of sexual dysfunction was most frequently ranked as the least important feature of either operation, out of 14 other features.**

Conclusion: **When presented with detailed information about EVAR and OSR, most patients with small aneurysms would prefer EVAR. (J Vasc Surg 2009;49:576-81.)**

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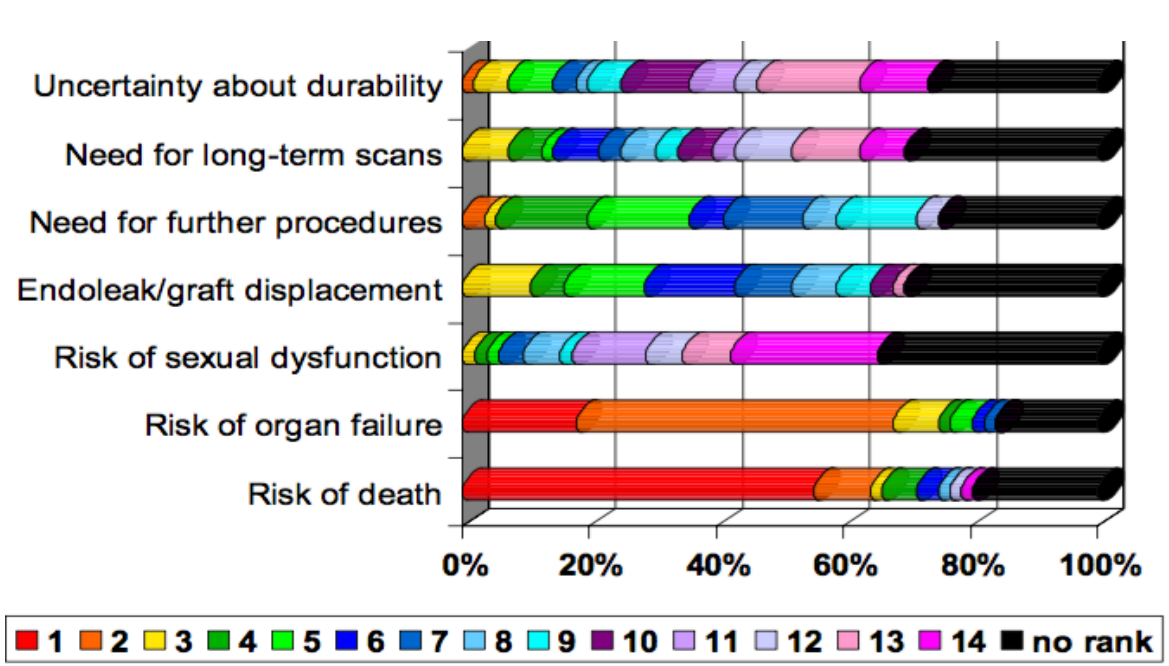

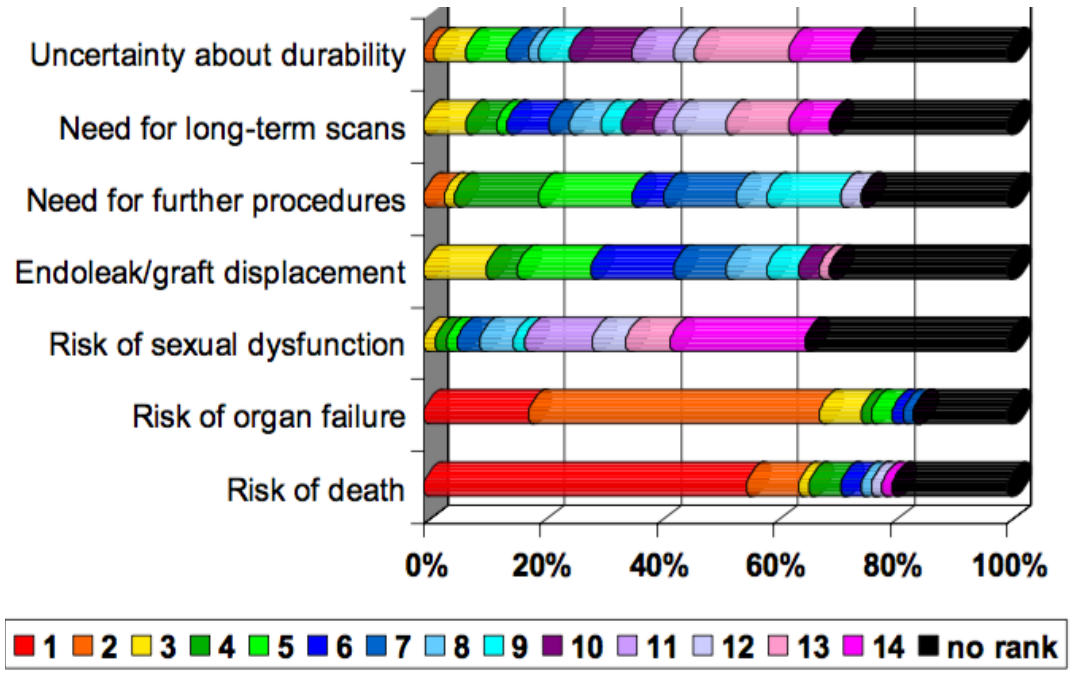

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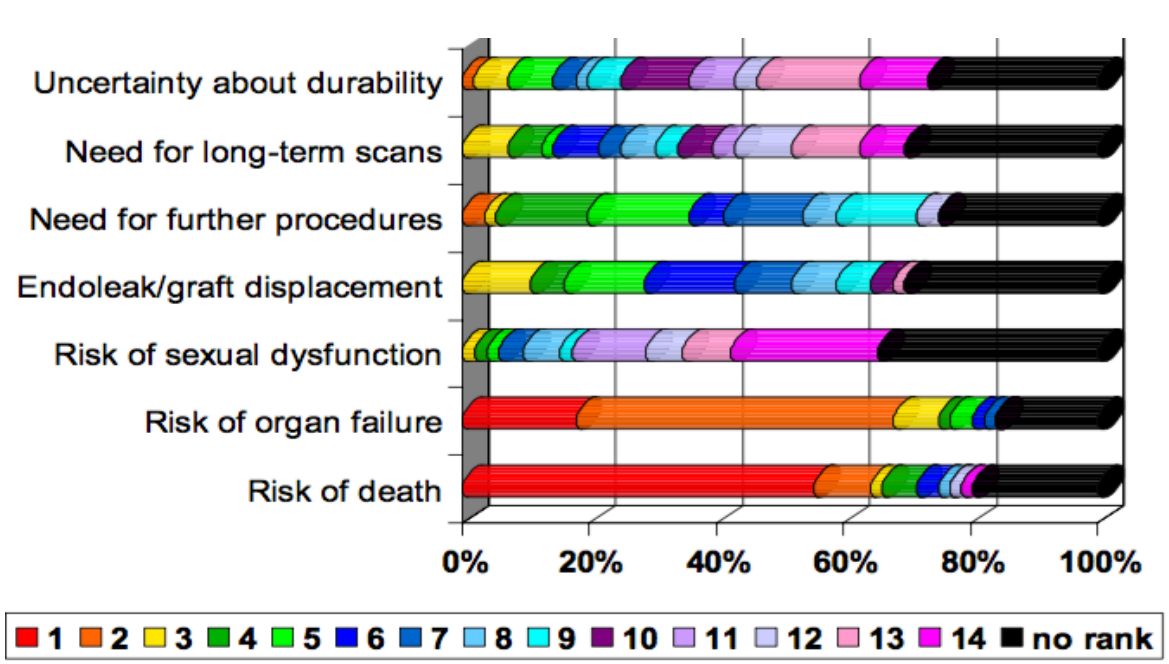

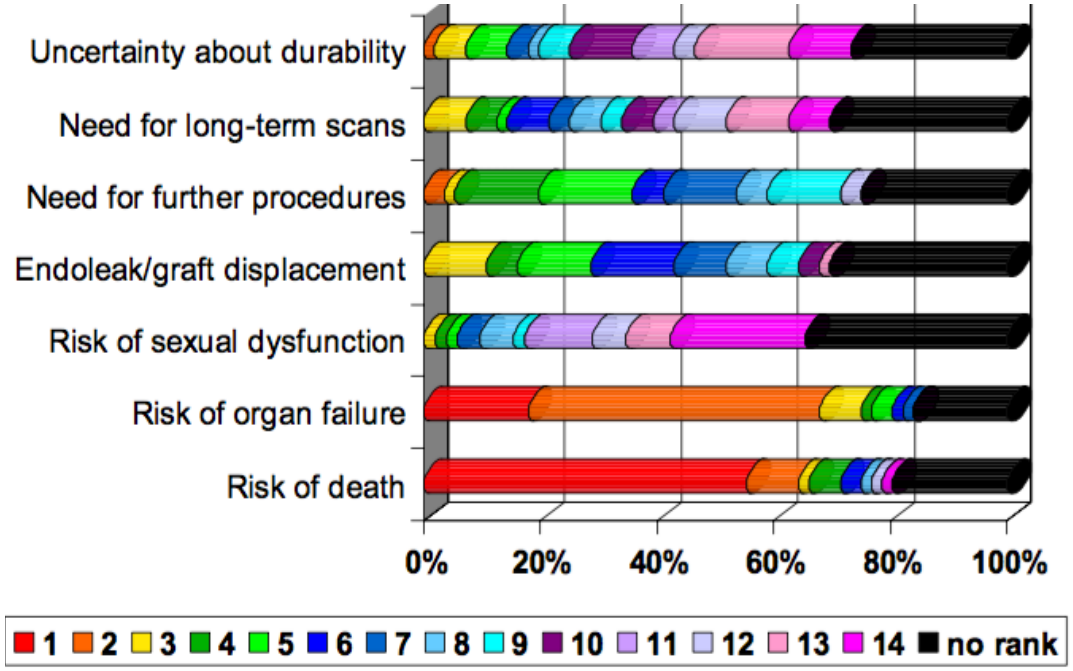

Conclusion: *Traitement endovasculaire 1 CHOIX*

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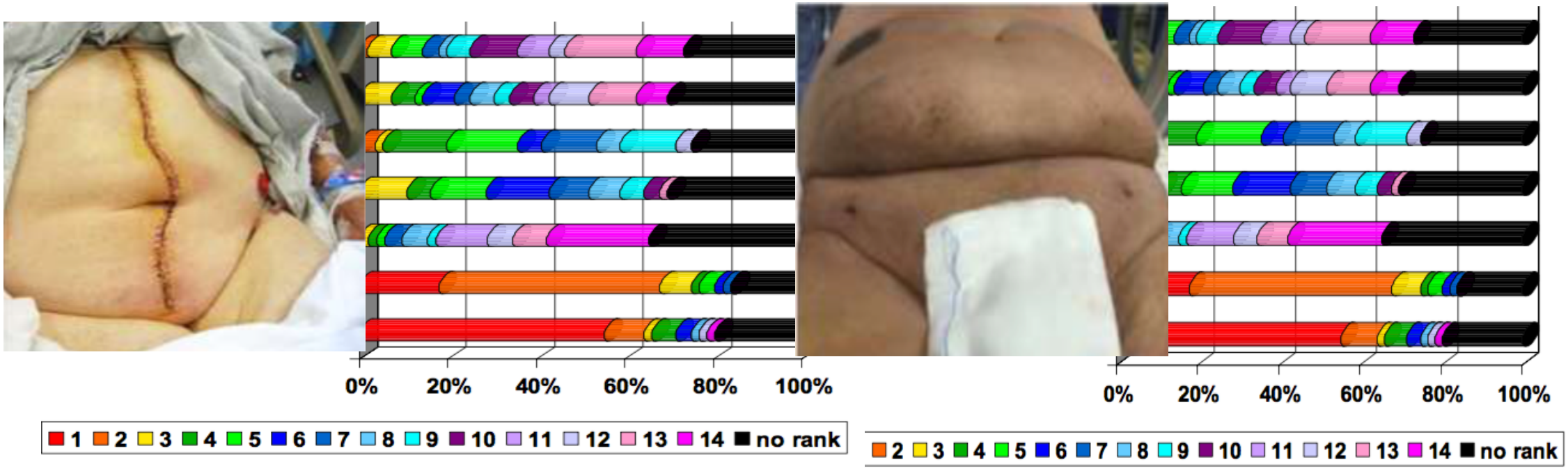

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- Les biais négatifs d’EVAR -1

- Aujourd'hui suffisamment de données pour proposer le traitement endovasculaire en 1ère intention

- **Comment maintenir le traitement endovasculaire en intention?**

Les gestions des collets hostiles et collets courts

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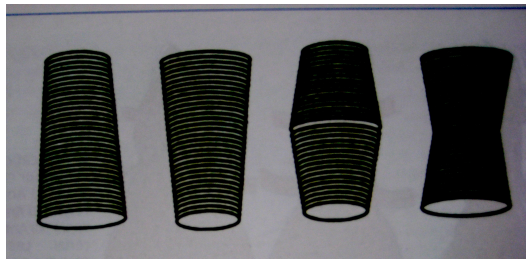
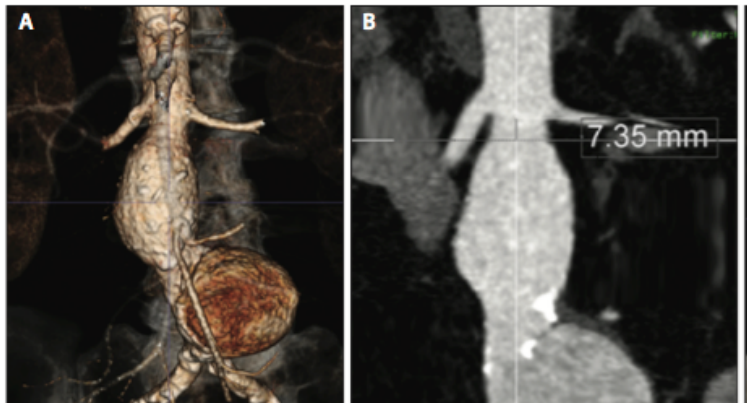
- Longueur: <10-15mm
- Angulation: >60°
- Forme: Variation diamètre> 10%
- Calcification, thrombus





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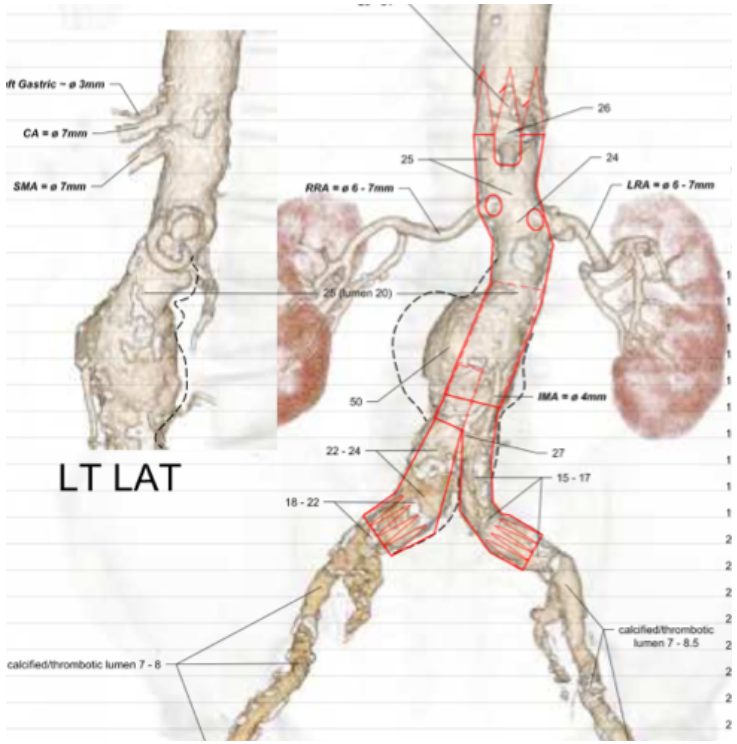
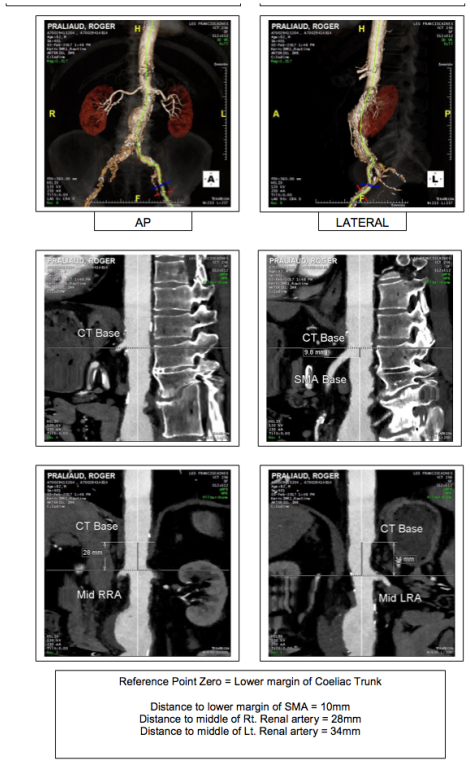
- ***Data base US: 58% EVAR hors IFU***
- ***Etudes: Variation entre 18 à 40%***

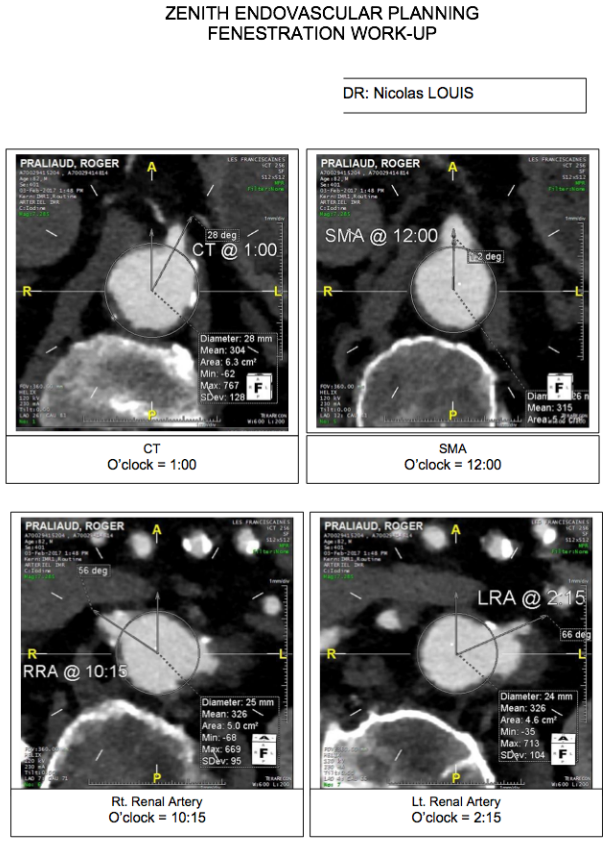
7. Antoniou GA, Georgiadis GS, Antoniou SA, et al. A meta-analysis of outcomes of endovascular abdominal aortic aneurysm repair in patients with hostile and friendly neck anatomy. J Vasc Surg. 2013;57:527-538.
8. Schanzer A, Greenberg RK, Hevelone N, et al. Predictors of abdominal aortic aneurysm sac enlargement after endovascular repair. Circulation. 2011;123:2848-2855.
9. van Keulen JW, van Prehn J, Prokop M, et al. Dynamics of the aorta before and after endovascular aneurysm repair: a systematic review. Eur J Vasc Endovasc Surg. 2009;38:586-596.
10. Hager ES, Cho JS, Makaroun MS, et al. Endografts with suprarenal fixation do not perform better than those with infrarenal fixation in the treatment of patients with short straight proximal aortic necks. J Vasc Surg. 2012;55:1242-1246.

Les gestions des collets hostiles et collets courts

. Augmenter la zone d'aorte saine….

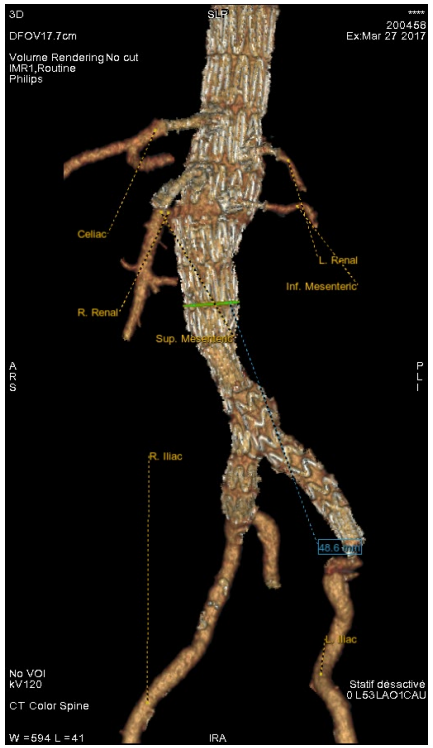






Les gestions des collets hostiles et collets courts: Augmenter la zone d'aorte saine….

Endoprothèses fenestrées (1 à 5 fenêtres)



Chimneys technique (2 chimneys)

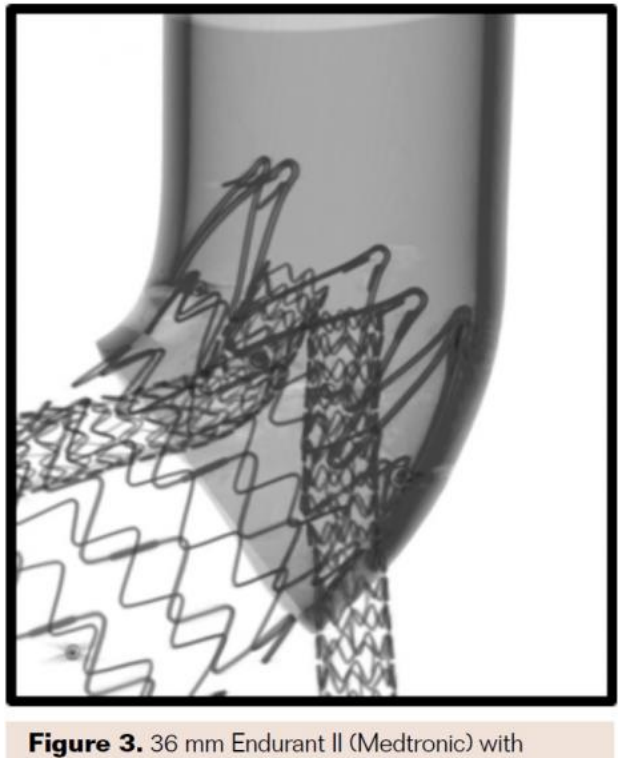
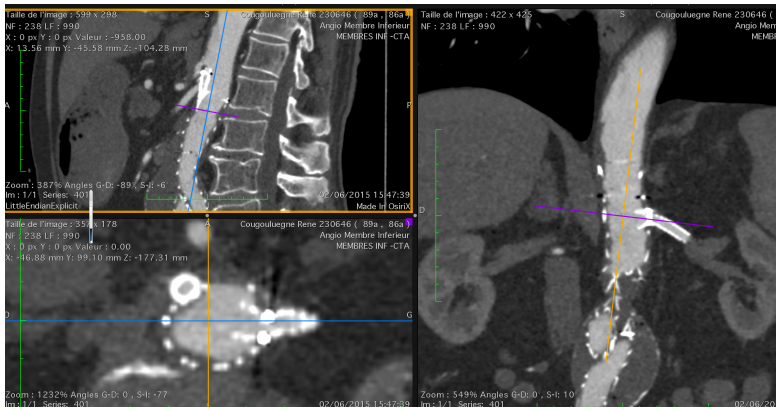


Figure 3. 36 mm Endurant II (Medtronic) with

Homemade+ Chimney Technique d'ancrage



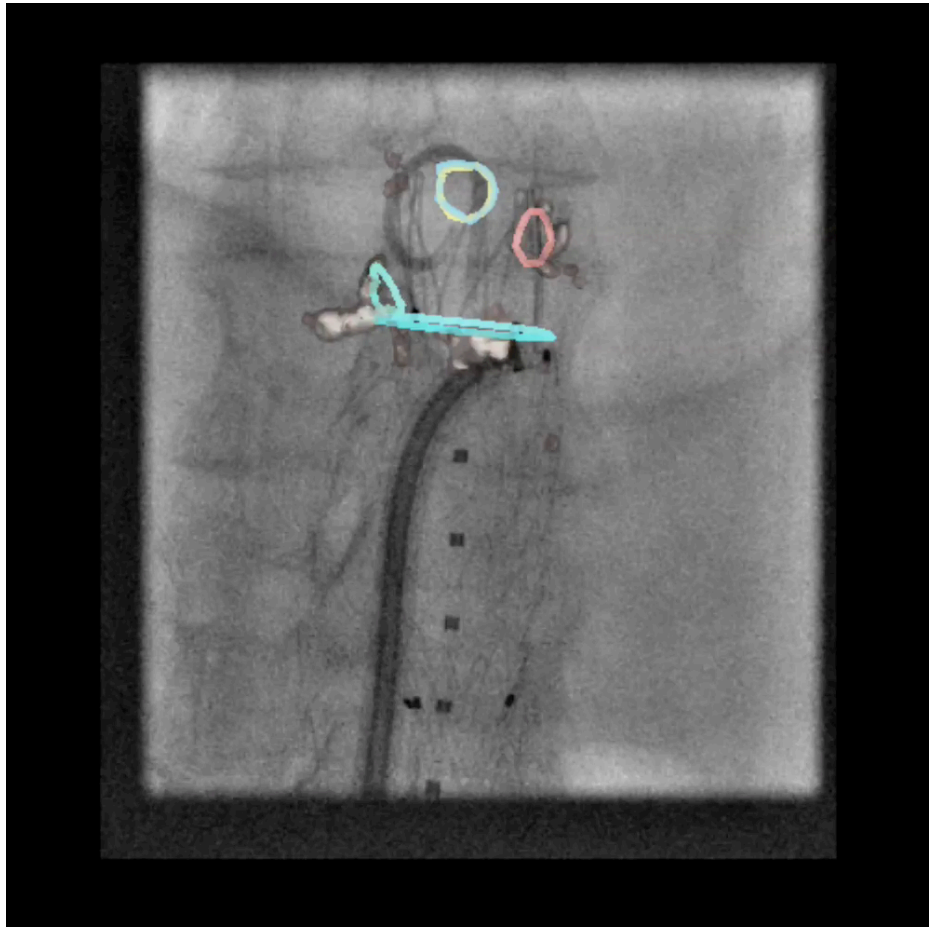
En Conclusion

. Le traitement endovasculaire est le traitement de 1ère intention chez tout les patients avec respecter des IFU

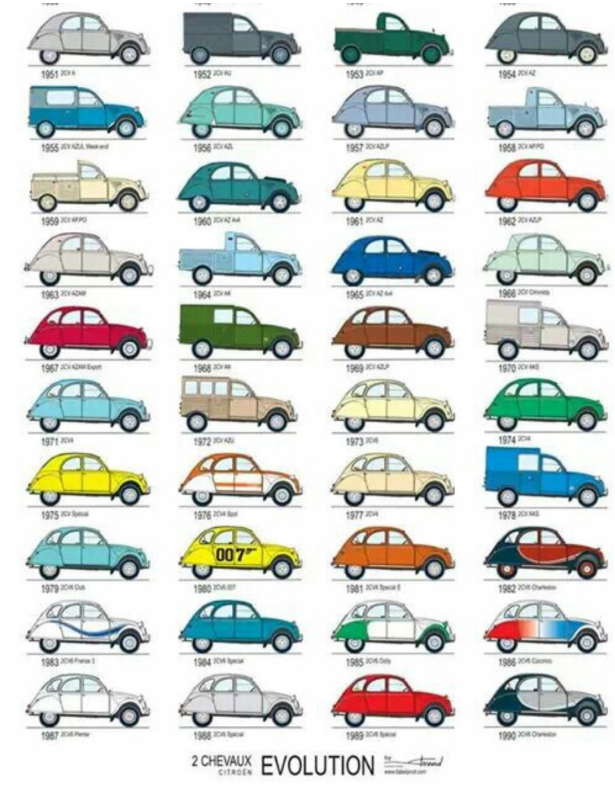
. **Collets courts < 10 mm :** Endoprothèses fenestrées

Collets hostiles : Chimneys techniques, ou techniques d'ancrages

En Conclusion



La chirurgie



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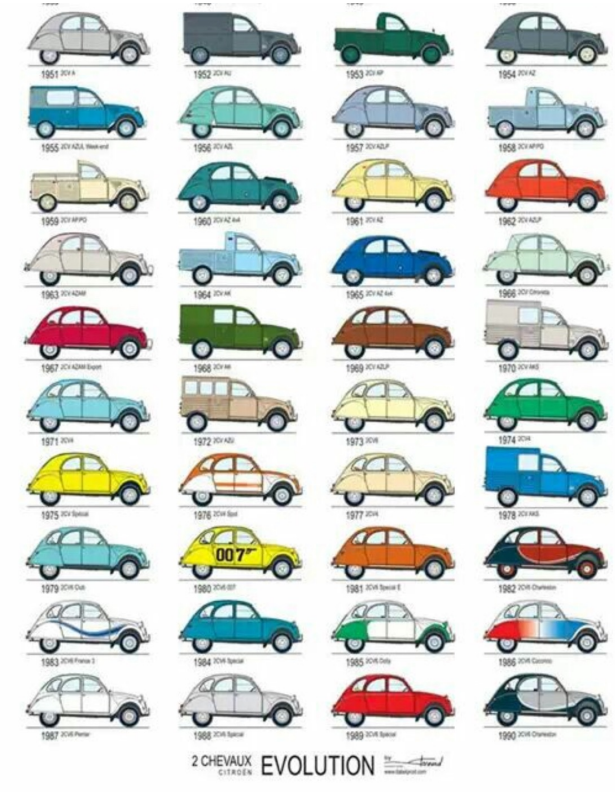

L’endovasuclaire

A l' année prochaine