Anévrysmes rompus de l'aorte abdominale: Chirurgie ou EVAR ? Critères du choix thérapeutique

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Disclosure

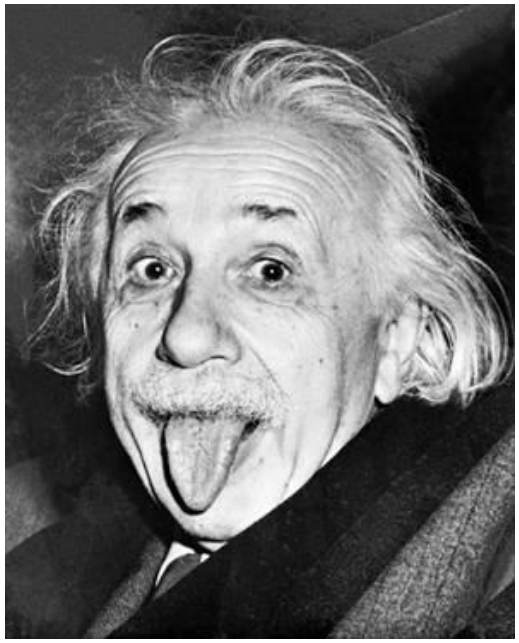
I do not have any potential conflict of interest

AAA ROMPUS

- **Mortalité globale: 80-90%**
- **Mortalité chirurgicale: 30-50%**
- **Identique pendant 30 ans**
- **Incidence des rAAA↑↑**

1970-80: 5.6 pour 100,000;

2000: 10.6 pour 100,000.



BETTER MANAGEMENT OF RAAA

- ✓ Screening
- ✓ Protocols
- ✓ Hemostatic hypotension
- ✓ **EVAR**

'94 US-Veith- New York

UK- Hopkinson-Nottingham

➡ **50 % risk reduction of mortality rates ?**

Van Beek '14 Eur J Endovasc Surg

LIMITS OF EVAR STUDIES

- ✓Retrospective **non randomized** series
- ✓**Historical** comparisons
- ✓**Preselection** :

  Unsuitable anatomy, unstable = OSR

« ENDOENTHUSIAST VS. ENDOSKEPTIC »

✓ **Three randomized studies (30-day mortality rates)**

UK : 53 % EVAR vs. 53 % OSR

AJAX : 21 % EVAR vs. 25 % OSR

IMPROVE: 35% EVAR vs. 37% OSR

RATIONALE

- ✓ Valid comparison between OSR and EVAR requires uniform population with 2 criteria :

  - HEMODYNAMIC STABILITY

  - CT SCAN - to show aorto/iliac rupture
    - to exclude pathologies
    - to allow planning

ECAR

- Essai multicentrique randomisé comparant le traitement **E**ndovasculaire et la **C**hirurgie conventionnelle des **A**névrysmes **R**ompus aorto-iliaques

HEMODYNAMIC STABILITY

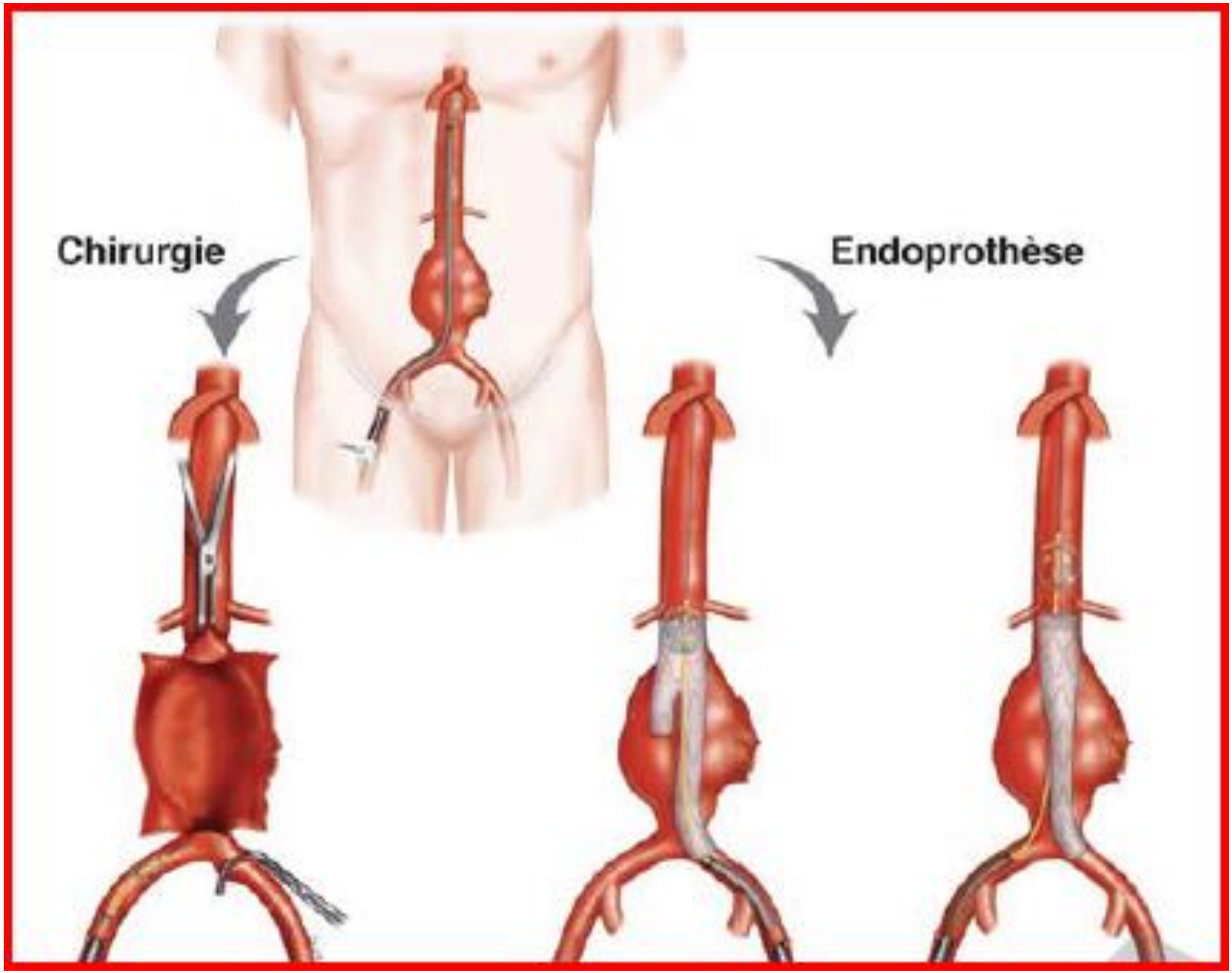
- ✓ Discrepancy in the definition of the hemodynamic unstability

- ✓ For Veith, stability > 50 mmHg

- ✓ As most of the teams, we have chosen

  SBP > 80 mmHg

  Or after endoclamping *Raux et al JVS 2014*

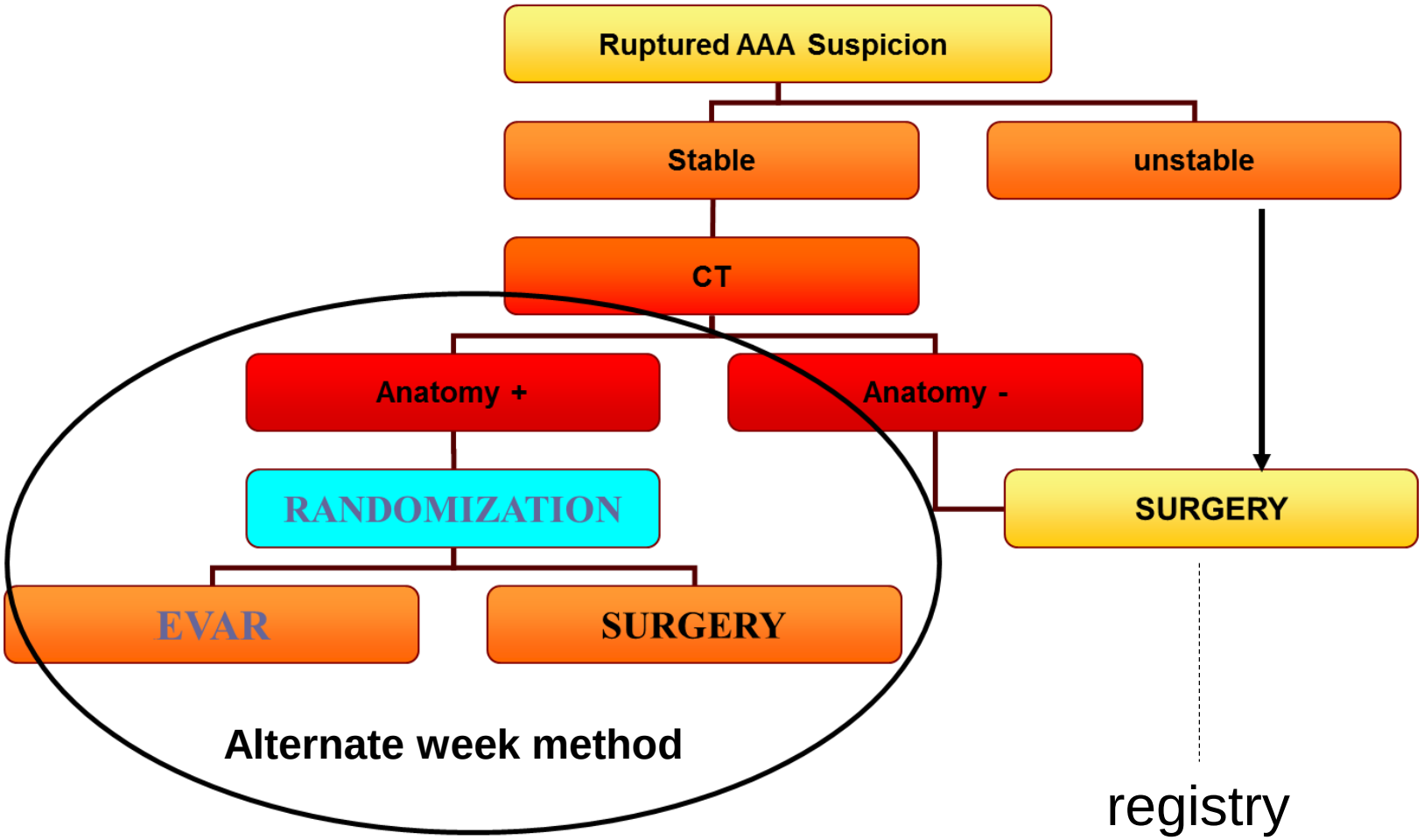


EMC Desgranges et col

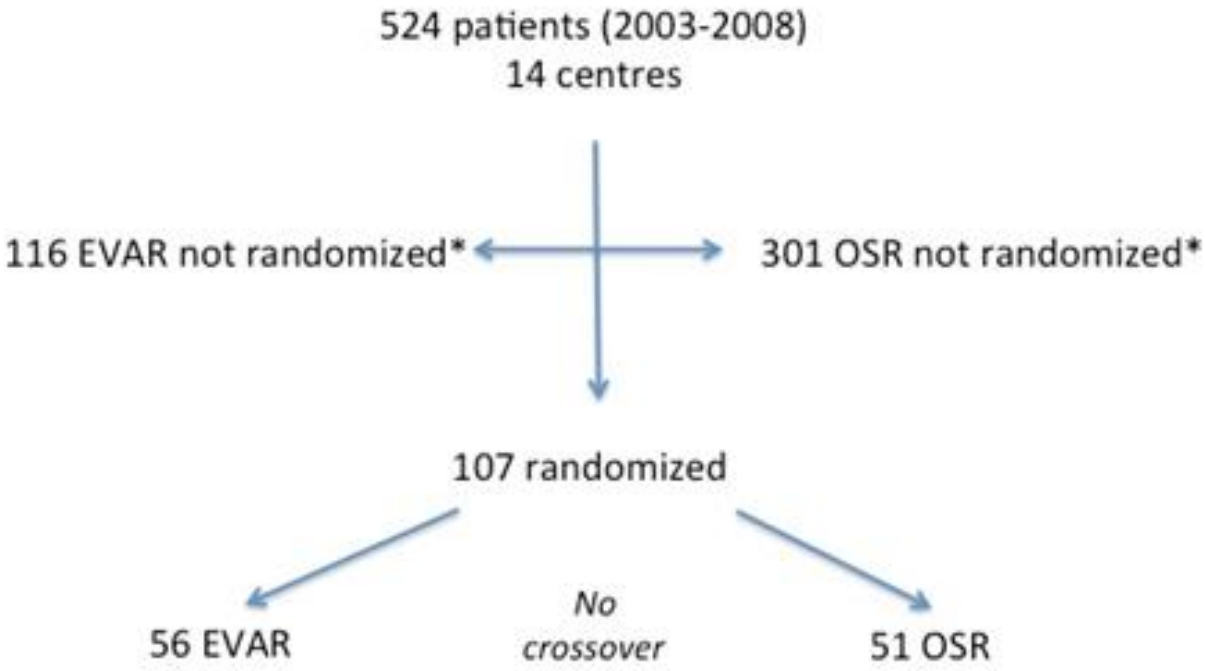
DESIGN (Jan'08 - jan'13)

- ✓14 centers
- ✓**Total** inclusions = 107 patients (*160 theoritical*)
- ✓**Primary endpoints** : 30-day mortality rates
- ✓**Secondary endpoints** : 30-day morbidity rates, blood transfusion, time in ICU, M&M@ 1 year

ECAR RANDOMIZATION

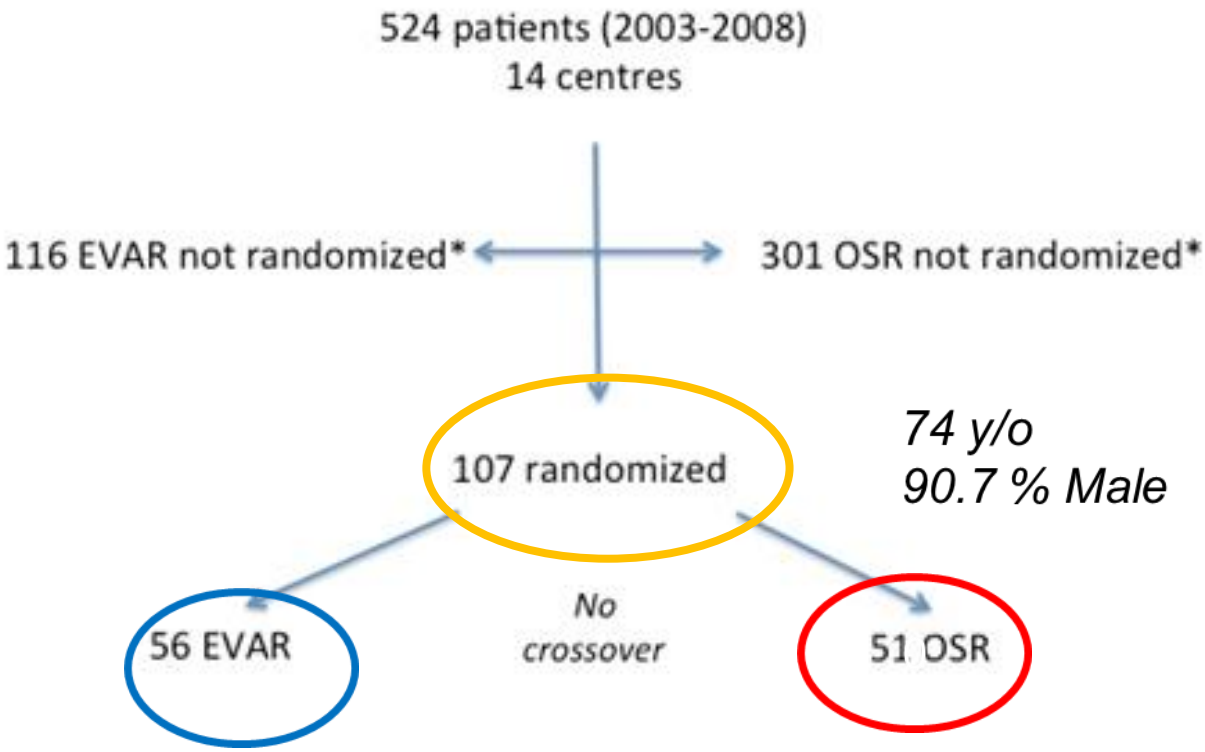


CONSORT DIAGRAM



* Registry of non inclusion

CONSORT DIAGRAM



* Registry of non inclusion

GROUPS AT INCLUSION-1

	OSR (n=51)	EVAR (n=56)	P-value
Age	73 (54-93)	75 (56-96)	0.548
Sex (M%)	90.2	91.0	0.877
Endoclamping (%)	21.5	12.5	0.21
Creatinin	123.7 (57-309)	137.4 (56-584)	0.355
SBP	110.9 (50-175)	105.8 (51-203)	0.393
Hemoglobin	10.55 (5-140)	13.53 (6-85)	0.45

GROUPS AT INCLUSION - 2

	OR (n=51)	EVAR (n=56)	P value
Loss of conscience	11.8	10.7	0.883
Hardman Index	1.1 (0-5)	0.9 (0-3)	0.88
Troponin	0.7 (0-15)	0.3 (0-5)	0.386
IGS II SCORE	40.0 (18-82)	35.9 (10-83)	0.128
Retrop rupture %	96	91	0.335
Delay to treatment	1.3 (0-5.5)	2.9	0.005

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RESULTS @ 30 days

	OSR	EVAR	p
Mortality	**24%**	**18 %**	**ns**

RESULTS @ 30 days

	OSR	EVAR	p
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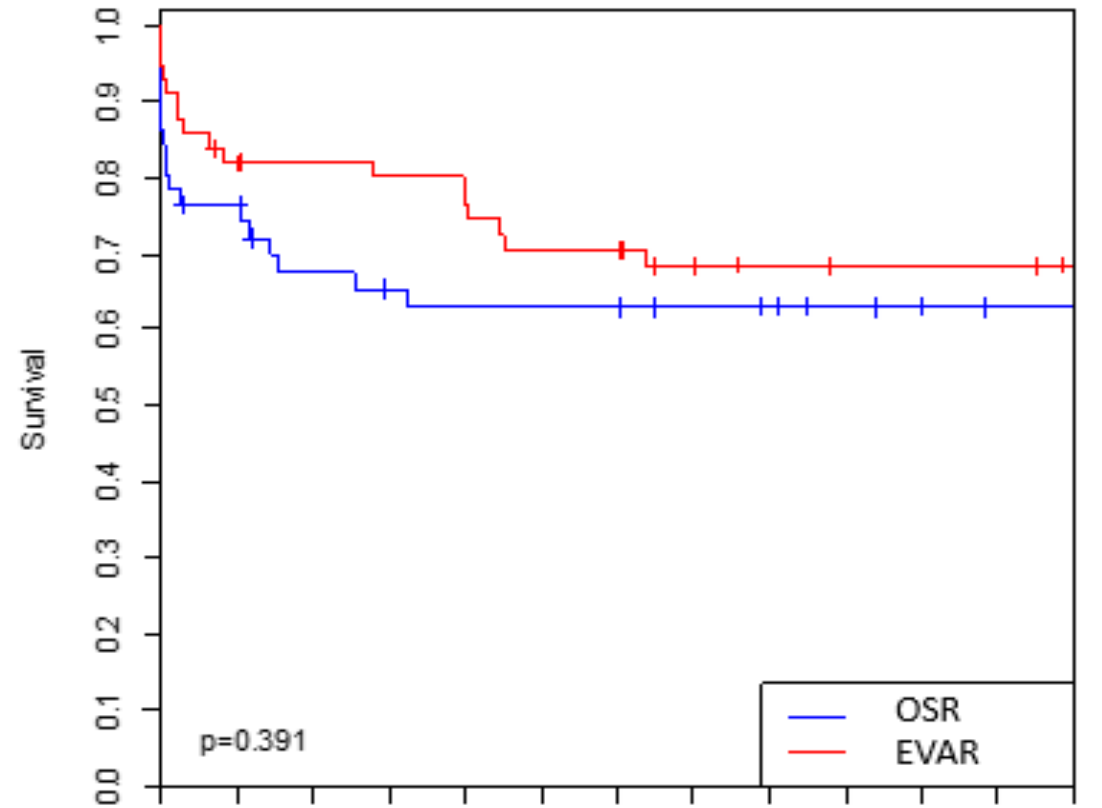
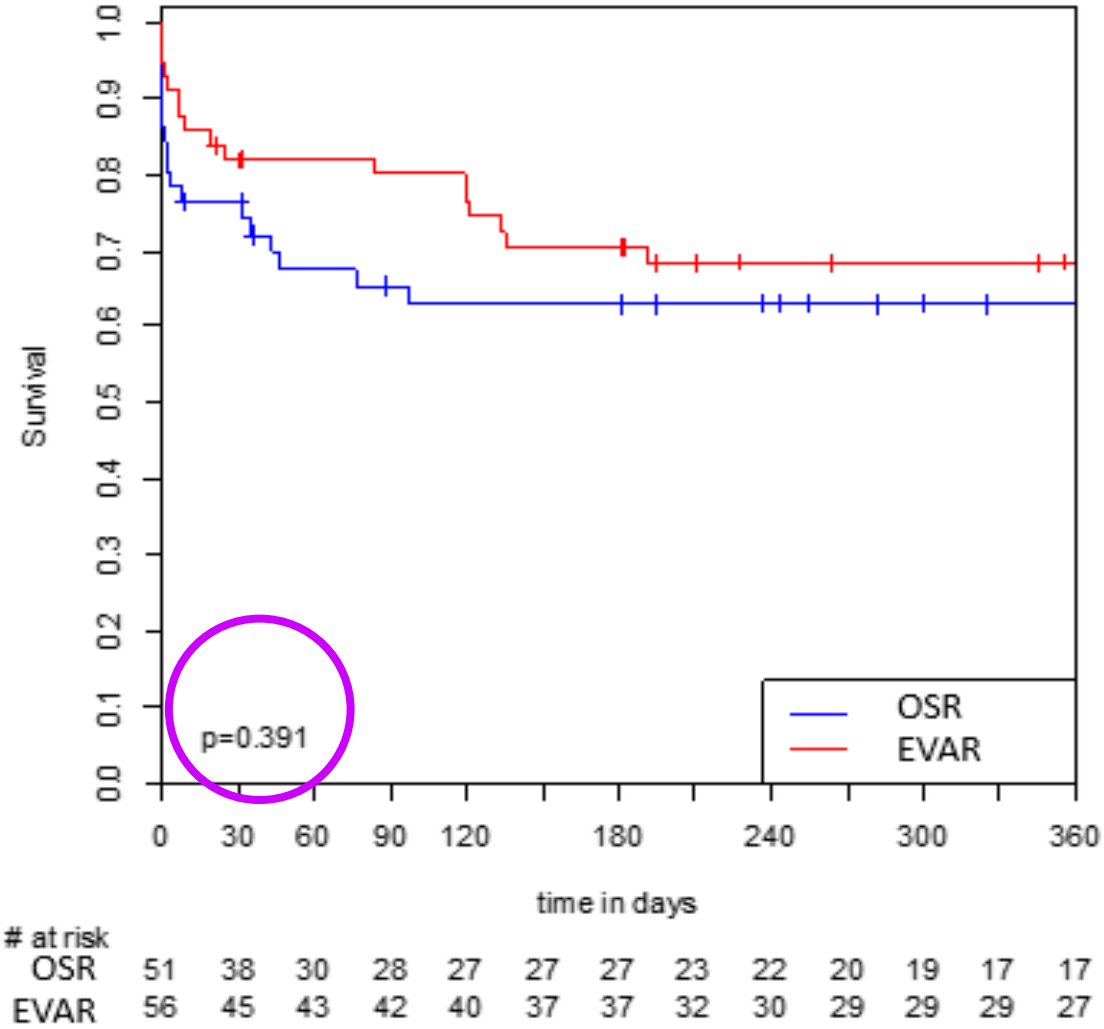
RESULTS @ 1 year

	OSR	EVAR	p
Mortality	**35%**	**30 %**	**ns**



# at risk													
OSR	51	38	30	28	27	27	27	23	22	20	19	17	17
EVAR	56	45	43	42	40	37	37	32	30	29	29	29	27


Survival
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
p=0.391
OSR
EVAR
0
30
60
90
120
180
240
300
360
time in days
at risk
OSR 51 38 30 28 27 27 27 23 22 20 19 17 17
EVAR 56 45 43 42 40 37 37 32 30 29 29 29 27

EVAR > OSR

	OSR	EVAR	P value
Total ventilation	**180.3 h**	**59.3 h**	**0.007**
Pulmonary complications	**58.6 %**	**15.4%**	**0.005**
Post-op dialysis	**12.2 %**	**1.9 %**	**0.08**
Abnormal colonoscopy	**19.2%**	**10.9%**	**0,05**
Total blood transfusion	**10.9**	**6.8**	**0,02**
Duration in ICU	**11.9**	**7**	**0,01**

EVAR > OSR

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Total blood transfusion	**10.9**	**6.8**	**0.02**
Duration in ICU	**11.9**	**7**	**0.01**

ECAR CONCLUSIONS

- ✓ ECAR Primary endpoint : EVAR = OSR
- ✓ EVAR is associated with less severe complications and consumption of hospital ressources
- ✓ Meta-analysis with IMPROVE, AJAX : what are the best candidate for EVAR ?

Accepted in Eur J Vasc Surg 2015

Results : dance on points !

ECAR

=

IMPROVE

=

AJAX

Painful interpretation …

But…

- Meta analysis:
  - ⇨Discharge faster after EVAR than OSR
  - ⇨EVAR better for women
  - ⇨For OSR, mortality diminished with ↗ neck length

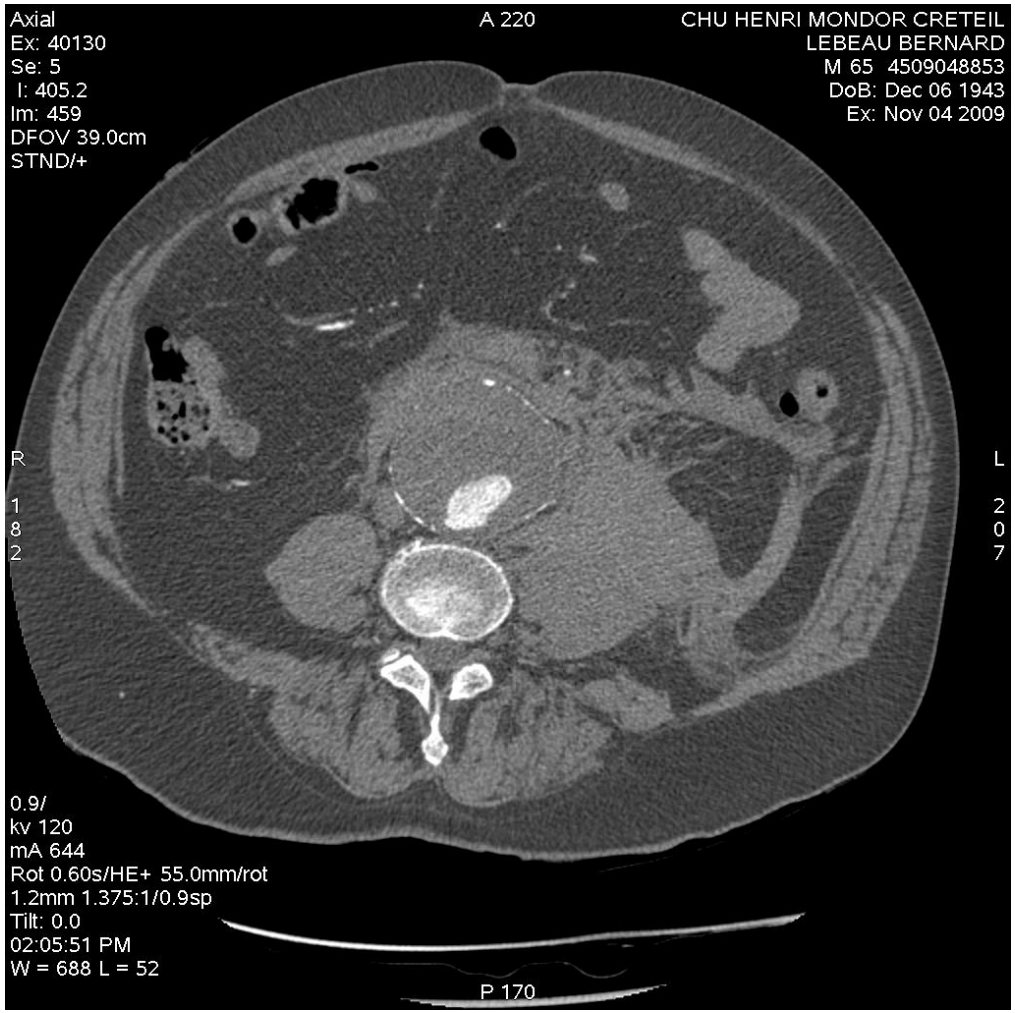
- ECAR :

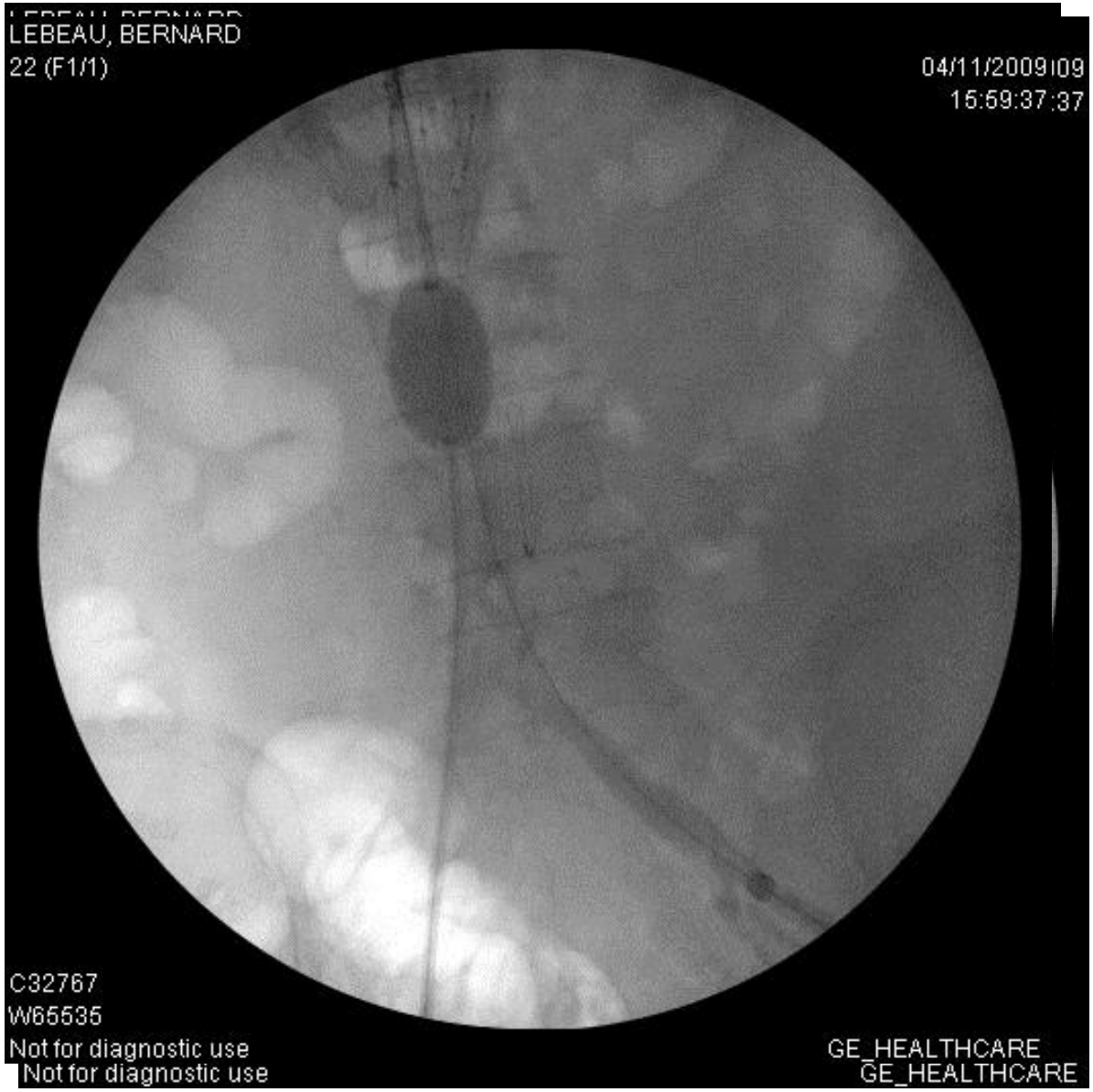
EVAR is cost-effective compared to OSR

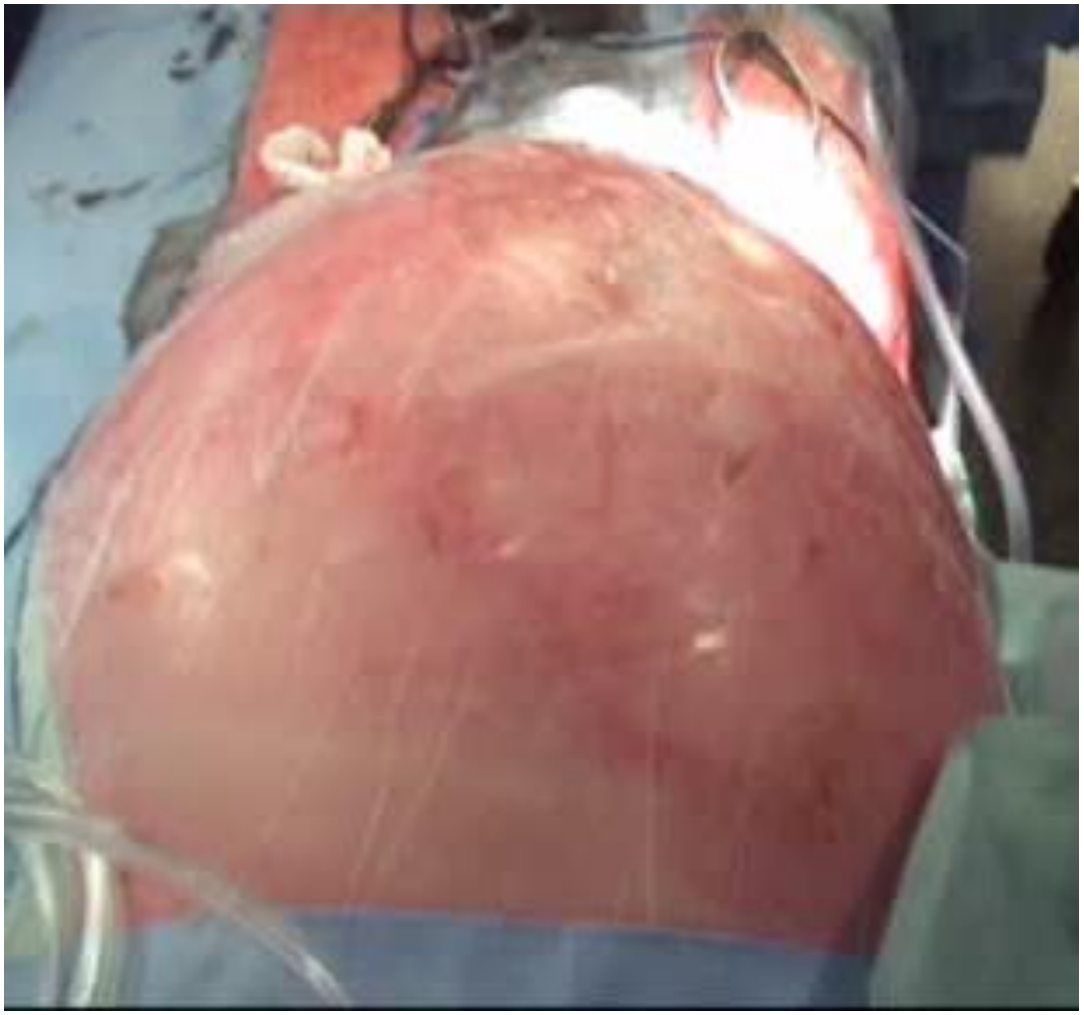
Possible improvements

- Management of abdominal compartimental syndrom
- Chimney Technique

Coronal
Ex: 40130
Se: 5
A: 36.8
DFOV 39.2cm
STND/+
S 32
CHU HENRI MONDOR CRETEIL
LEBEAU BERNARD
M 65 4509048853
DoB: Dec 06 1943
Ex: Nov 04 2009
R
1
8
4
L
2
0
9
31.2/MP
kv 120
mA Mod.
Rot 0.60s/HE+ 55.0mm/rot
1.2mm 1.375:1/0.9sp
Tilt: 0.0
02:05:51 PM
W = 800 L = 100
L. Iliac
I 654

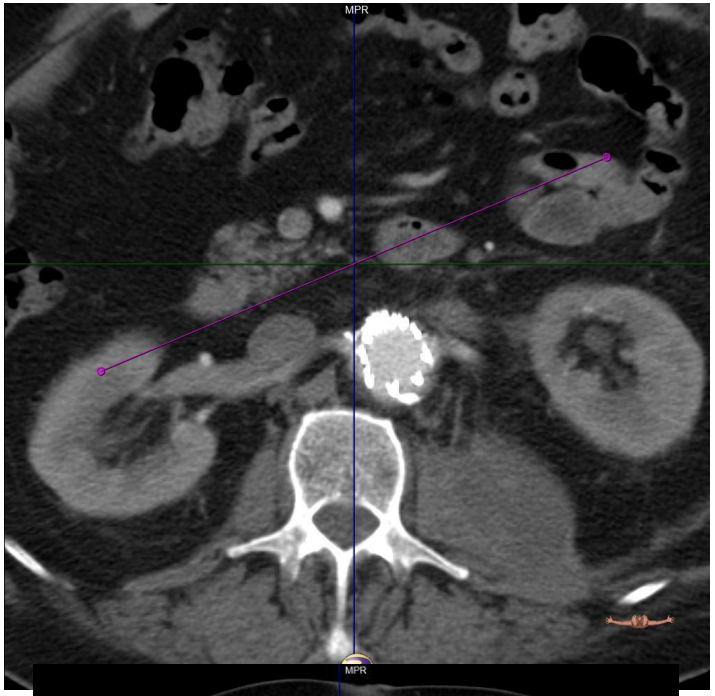

Axial
Ex: 40130
Se: 5
I: 405.2
Im: 459
DFOV 39.0cm
STND/+
A 220
CHU HENRI MONDOR CRETEIL
LEBEAU BERNARD
M 65 4509048853
DoB: Dec 06 1943
Ex: Nov 04 2009
R
1
8
2
L
2
0
7
0.9/
kv 120
mA 644
Rot 0.60s/HE+ 55.0mm/rot
1.2mm 1.375:1/0.9sp
Tilt: 0.0
02:05:51 PM
W = 688 L = 52
P 170

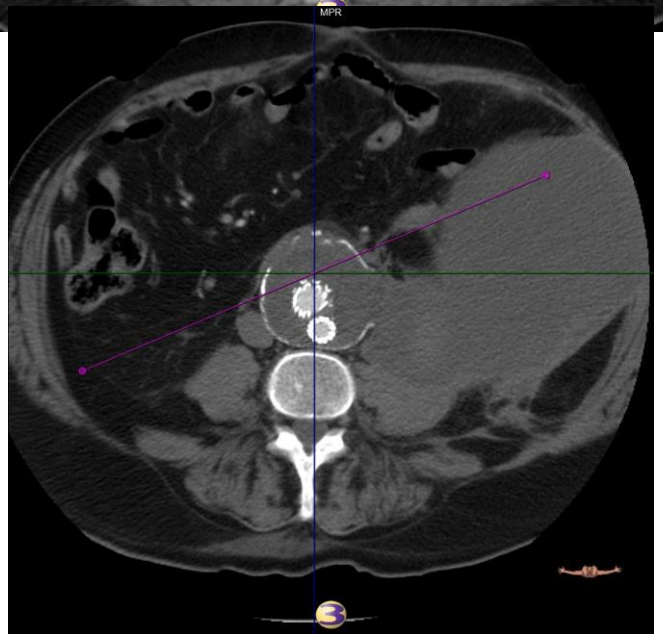

LEBEAU, BERNARD
22 (F1/1)
04/11/2009|09
15:59:37:37
C32767
W65535
Not for diagnostic use
Not for diagnostic use
GE_HEALTHCARE
GE_HEALTHCARE



Compartment syndrom

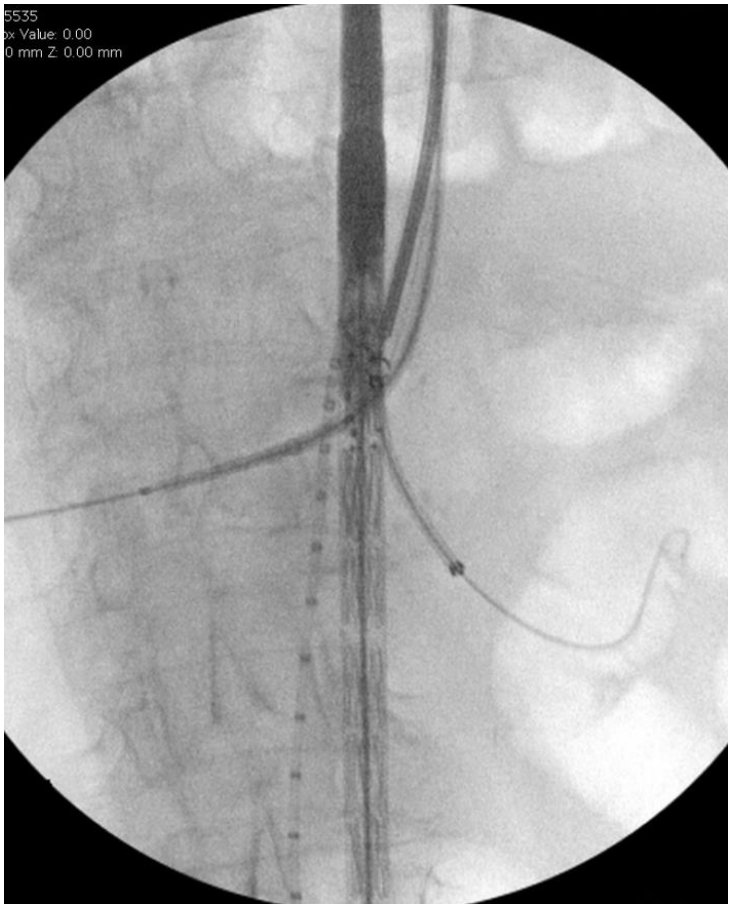
VAC


MPR


MPR

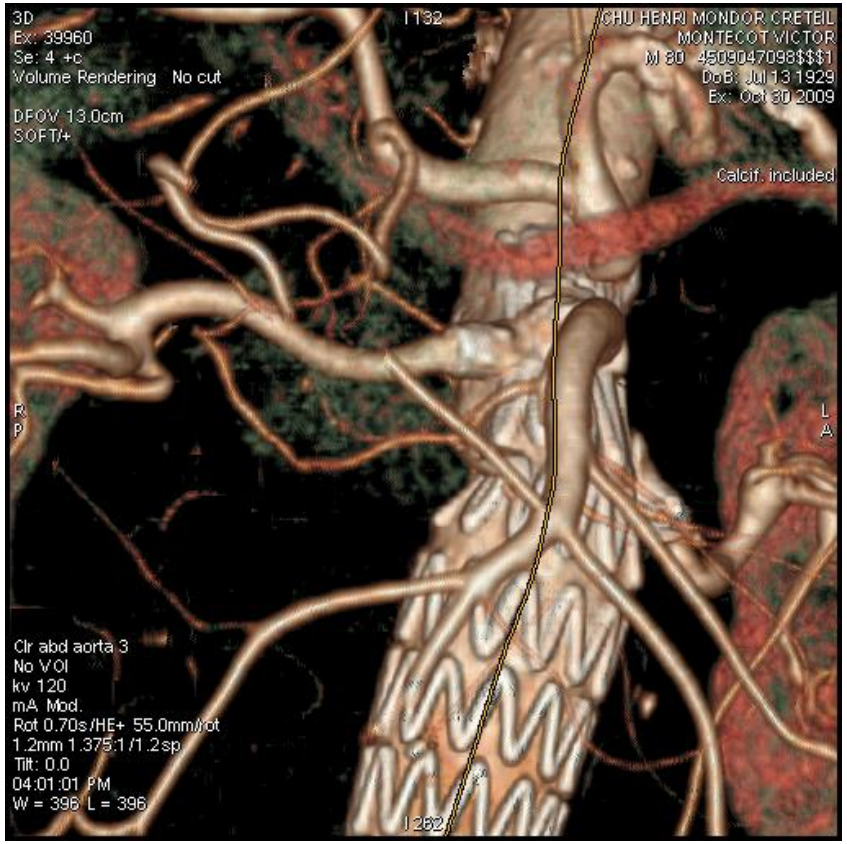
rAAA with short neck

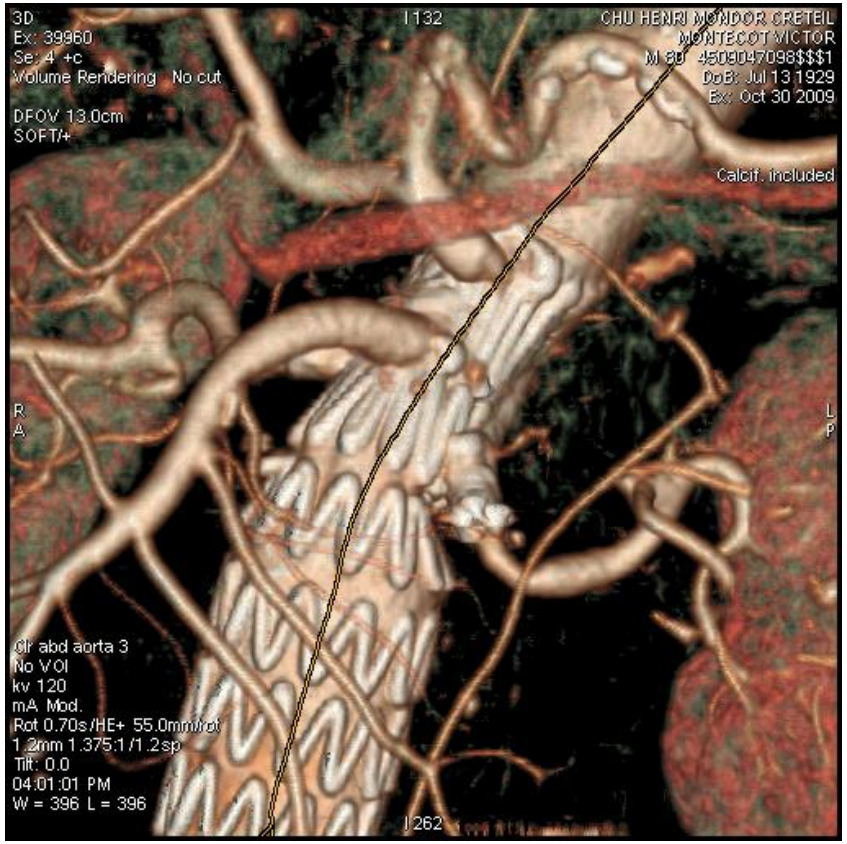
Chymney


5535
ox Value: 0.00
0 mm Z: 0.00 mm

Axial
A 130
Ex: 39960
Se: 4 +c
Left External Iliac I: 184.3
Im: 152
DFOV 26.0cm
SOFT/+
CHU HENRI MONDOR CRETEIL
MONTECOT VICTOR
M 80 450904709$$$1
DoB: Jul 13 1929
Ex: Oct 30 2009
R
L
1
3
7
1
2
3
1.3/
kv 120
mA 619
Rot 0.70s/HE+ 55.0mm/rot
1.2mm 1.375:1/1.2sp
Tilt: 0.0
04:01:01 PM
W = 1797 L = 101
P 130

Chymney


3D
Ex: 39960
Se: 4 +c
Volume Rendering No cut
DFOV 13.0cm
SOFT/+
I132
CHU HENRI MONDOR CRETEIL
MONTECOT VICTOR
M 80 450904709 8$$$1
DoB: Jul 13 1929
Ex: Oct 30 2009
Calcif. included
R
P
L
A
Clr abd aorta 3
No VOI
kv 120
mA Mod.
Rot 0.70s/HE+ 55.0mm/rot
1.2mm 1.375:1 /1.2sp
Tilt: 0.0
04:01:01 PM
W = 396 L = 396
I262


3D
Ex: 39960
Se: 4 +c
Volume Rendering No cut
DFOV 13.0cm
SOFT/+
I132
CHU HENRI MONDOR CRETEIL
MONTECOT VICTOR
M 80 450904709 8$$$1
DoB: Jul 13 1929
Ex: Oct 30 2009
Calcif. included
R
A
L
P
Clr abd aorta 3
No VOI
kv 120
mA Mod.
Rot 0.70s/HE+ 55.0mm/rot
1.2mm 1.375:1 /1.2sp
Tilt: 0.0
04:01:01 PM
W = 396 L = 396
I262

CONCLUSION/FUTURE

- **Endoclamping, chimney technique in emergency and better management of compartimental abdominal syndrome will probably enhance the results of EVAR in RAAA.**

Endovasculaire ou Chirurgie dans Anévrysmes Rompus = ECAR

1°CHU Henri Mondor (services de Chirurgie Vasculaire Pr Becquemin, Pr Desgranges, Pr Allaire, Dr Marzelle d'Imagerie Médicale Pr Rahmouni, Dr Kobeiter, d'Anesthésie-Réanimation Pr Marty, Dr Sénéchal)

2° CHU Bichat (service de Chirurgie Vasculaire Pr Lesèche, Dr Castier, dr Alsac, d'Imagerie Médicale Pr Laissy)

3° Hôpital Saint Joseph (service Chirurgie Vasculaire Dr Anidjar, d'Imagerie Médicale Dr Marteau)

4° CHRU Lille (service de Chirurgie Vasculaire Pr Haulon, Dr Koussa, d'Imagerie Médicale Pr. Beregi)

5° CHU Brest La Cavale Blanche (Service de chirurgie vasculaire Pr Gouny, Dr Badra)

6° CHU Nice Saint Roch (Service de chirurgie vasculaire Pr Batt, Pr Hassen Khodja)

7°CHU Hopital Nord (Marseille) (service de Chirurgie Vasculaire Pr Alimi, Dr Hartung, Dr Bouffi)

8° CHU Sainte Marguerite (Marseille) (service de Chirurgie Vasculaire Pr Piquet, Dr Amabile, d'Imagerie Médicale Pr Bartoli)

9° CHU Hôpital Nord (Saint-Etienne) (service de Chirurgie Vasculaire Pr Barral, Pr Favre)

10° CHU Arnaud de Villeneuve (Montpellier) (service de Chirurgie Vasculaire Pr Mary, Pr Alric, d'Imagerie Médicale Pr Vernhet)

11° CHU Dijon (Service de chirurgie vasculaire Pr Brenot, Pr Steinmetz)

12° CHU Tours (Service de chirurgie vasculaire Dr Martinez)

13° CHU HEGP (service de Chirurgie Vasculaire Pr Fabiani, Pr Julia, Dr Alsac d'Imagerie Médicale Pr Sapoval)

14° CHRU Lyon (Pr Lermusiaux, Pr Feugier)