

i-MEET

NEXT GENERATION

Multidisciplinary European Endovascular Therapy

Re-Interventions after EVAR

What should we do with Type-1 Endoleaks

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Disclosure of Interest

Speaker name: Colin Bicknell

I have the following potential conflicts of interest to report:

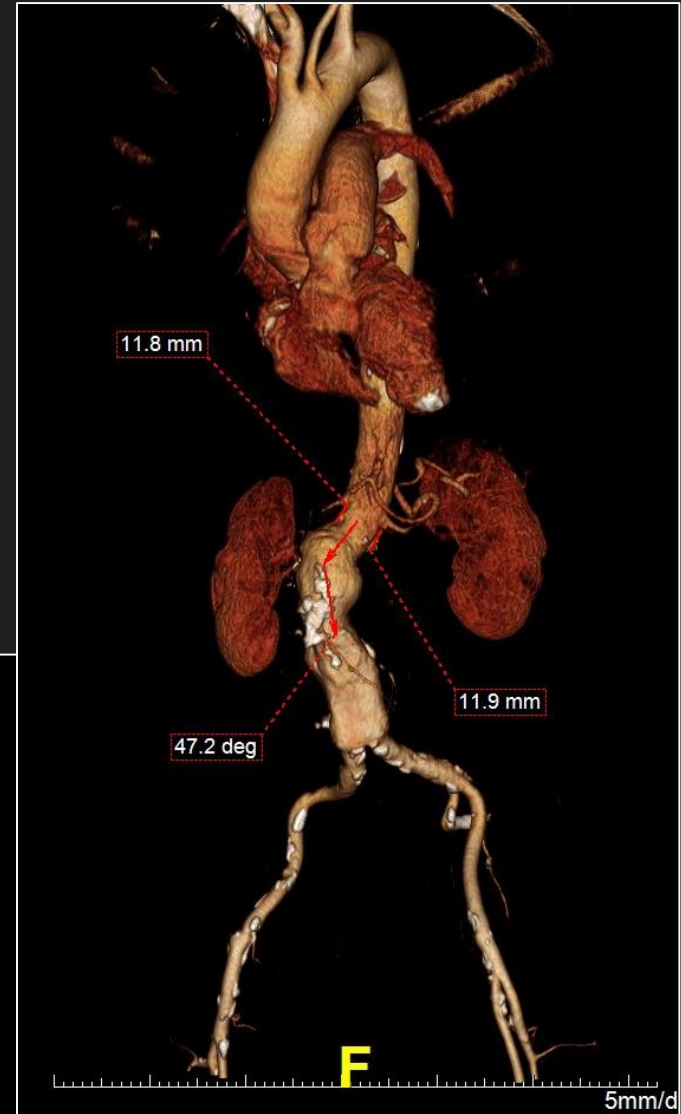
- Medtronic: Consultancy, Speakers fees, travel and conference fees
- Orzone: Institutional level capital funding
- Bolton Medical: Consultancy, speakers fees, travel and conference fees
- Gore: Travel and conference fees

Case presentation - 2009

69 year old man

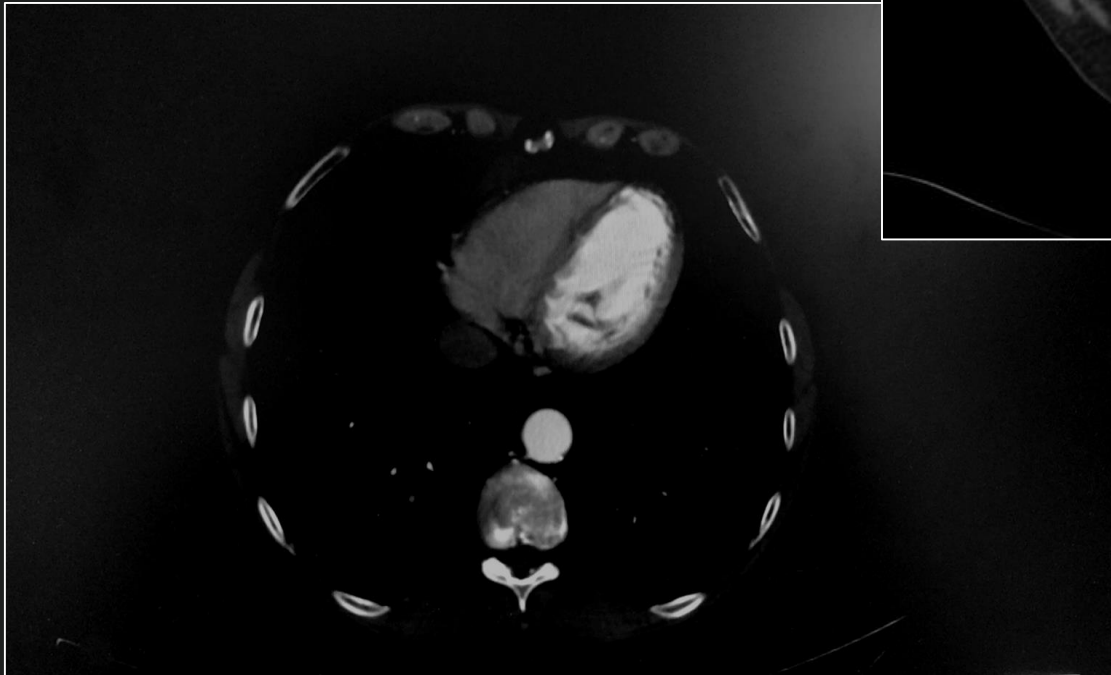
Hypertension, High Cholesterol, Ex smoker,
Asthma

- Creat 129 mmol/L
- No inducible ischaemia on DSE
- FEV₁ 1.5L, FEV₁ / FVC ratio 65%



2010

- Type 1 Endoleak



ENDOLEAK TYPES

...not all endoleaks are the same

- Endograft mal-deployment
- Excessive thrombus/calcium in seal zone
- Inadvertent creation of a leak channel
 - Excessive oversizing creating gutters
 - Non-circular or angulated neck – conformability challenges
- Migration and loss of seal
- Late insufficient apposition due to aortic expansion



What do we do with early type 1
endoleaks after EVAR?

What do we do with early type 1 endoleaks after EVAR?

FIRST:

Correct Endograft Mal-deployment

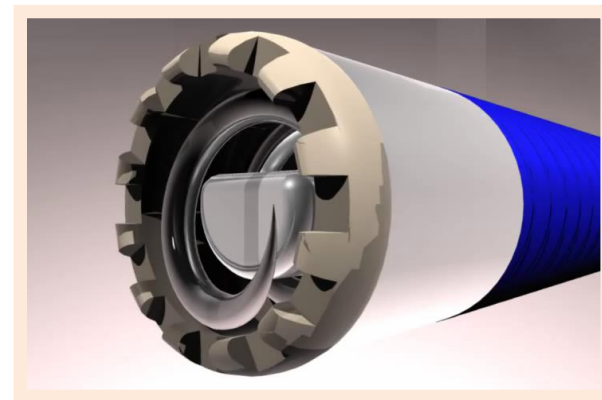
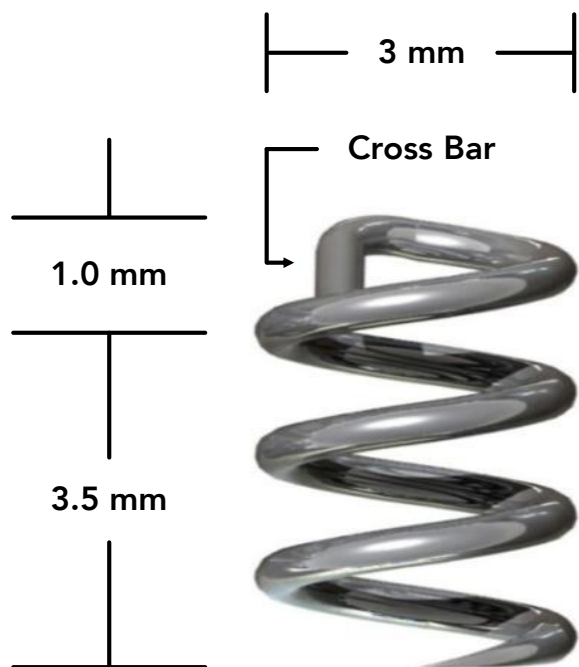
- Re-balloon
- Extend to renals ensuring max seal
- Palmaz

Balloon, extend, Palmaz



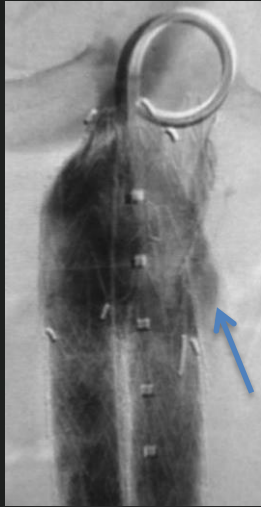
SECONDLY, FOR LEAK CHANNEL

HELI-FX™ ENDOANCHOR™ IMPLANT SYSTEM ENDOVASCULAR INTERRUPTED SUTURE SYSTEM



Principles of Endoleak treatment

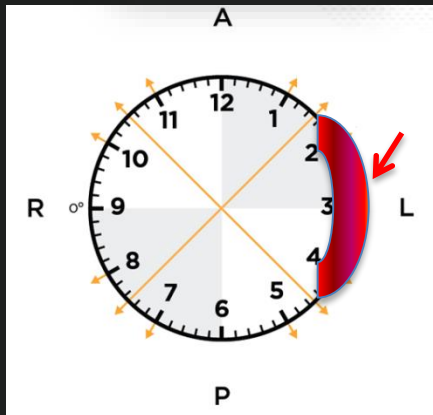
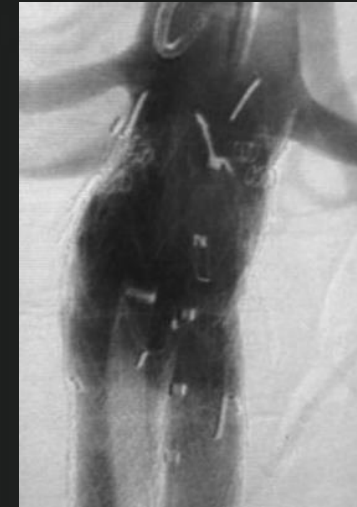
Spatial approximation
of source



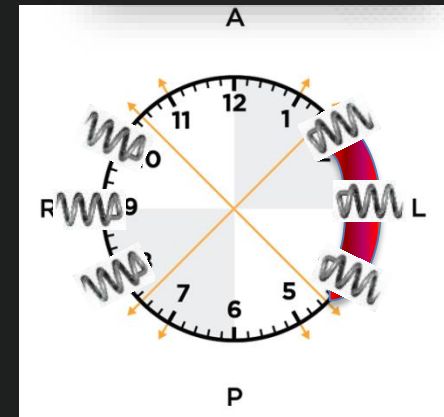
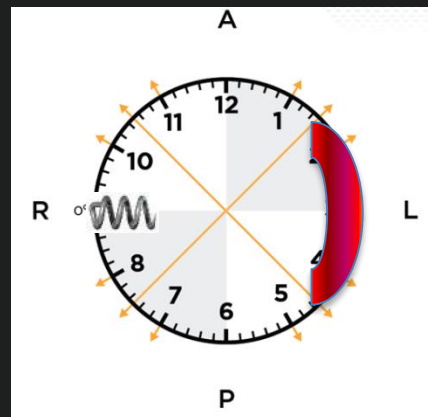
Targeted EndoAnchor
placement



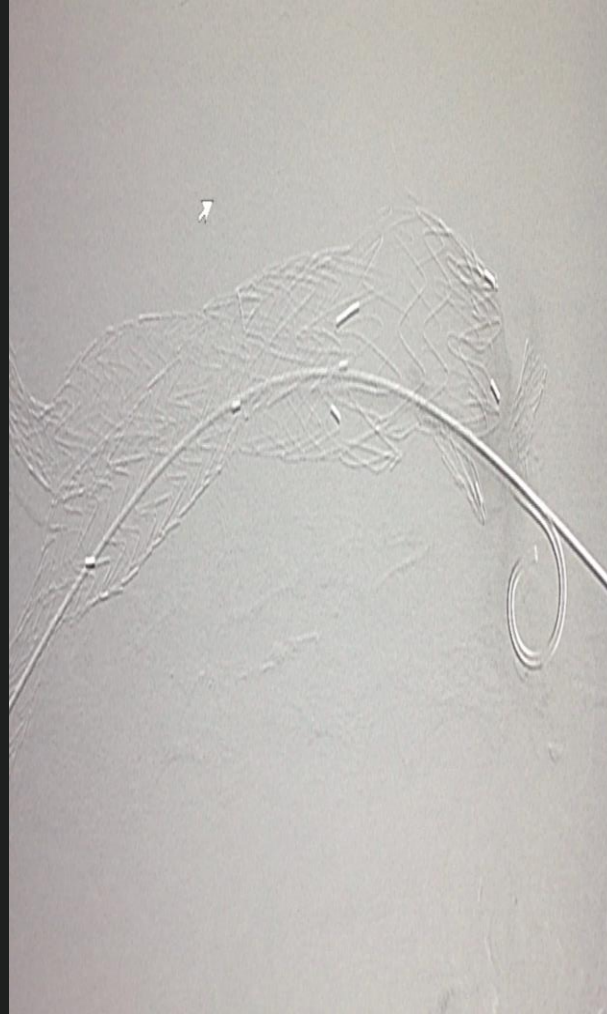
Circumferential
reinforcement



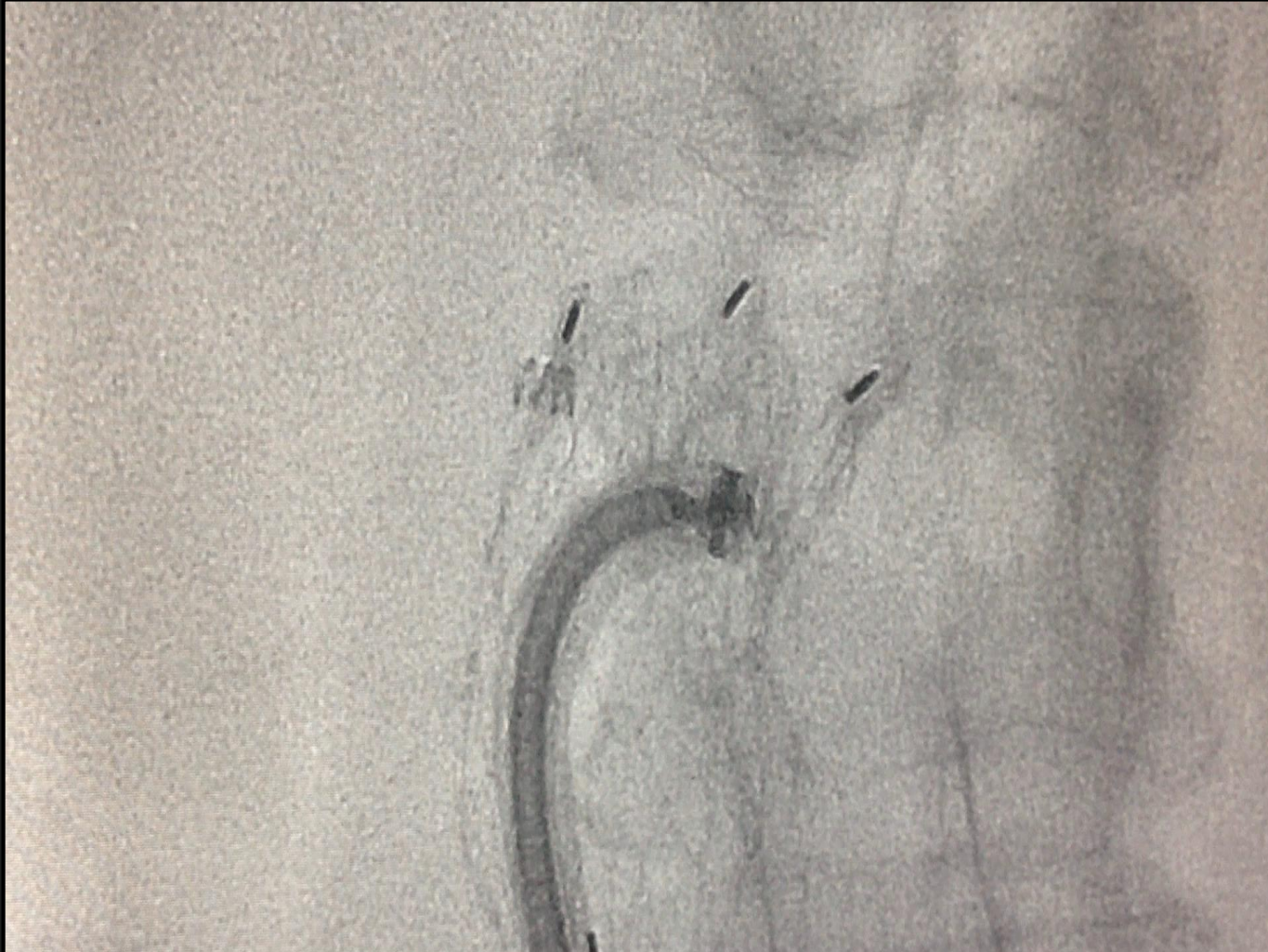
Approximated
endoleak
location



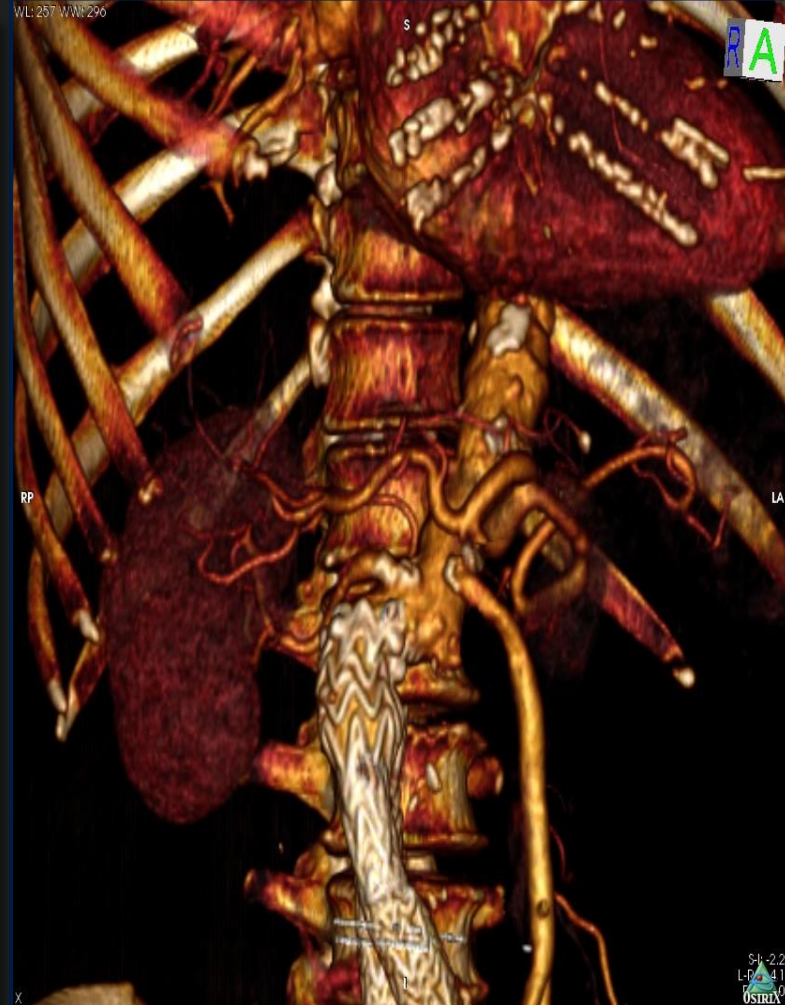
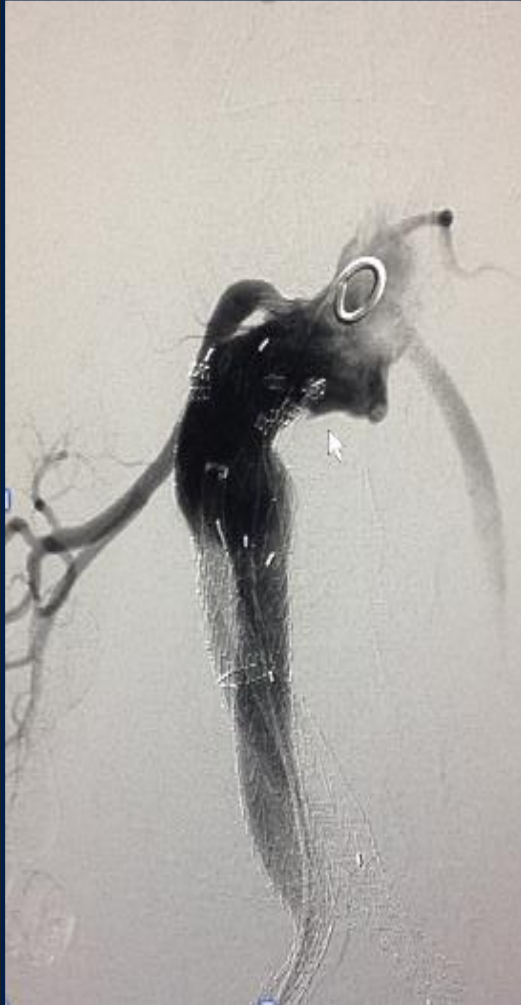
CONFORMABILITY CHALLENGES



CONFORMABILITY CHALLENGES

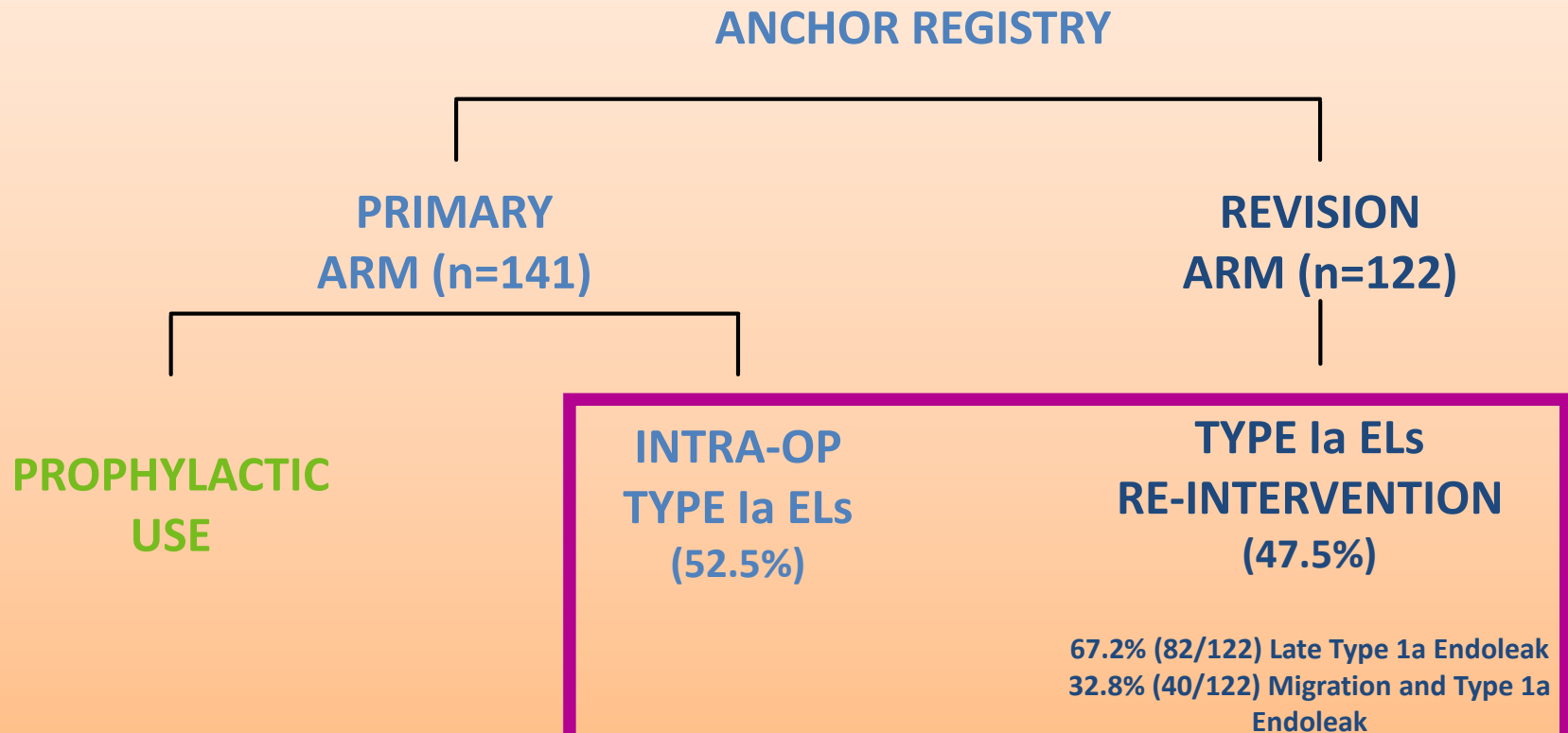


CONFORMABILITY CHALLENGES



ANCHOR Registry – Therapeutic USE

Therapeutic Use cohort (N=263) consists of patients receiving EndoAnchor™ implants to treat Type 1a Endoleaks in the Primary and Revision Arms.



ANCHOR Registry – Therapeutic Use for Proximal ELs

TECHNICAL SUCCESS

Deployment of desired number of EndoAnchor™ implants without fracture or loss of integrity

95.7% Intra-op T1 EL

93.4% Revision

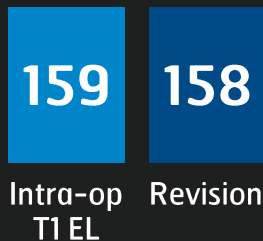
PROCEDURAL SUCCESS

Technical success without type Ia endoleak at completion arteriography

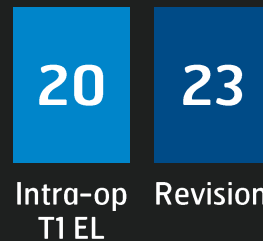
85.1% Intra-op T1 EL

82.8% Revision

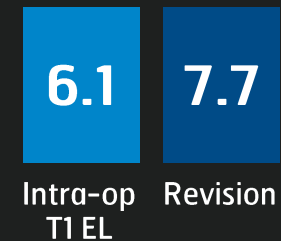
Avg. duration of Procedure (min)



Avg. time to EndoAnchor™ implants (min)



Avg. number of EndoAnchor™ implants



* Site-reported data

ANCHOR Registry – Therapeutic Use for Proximal ELs

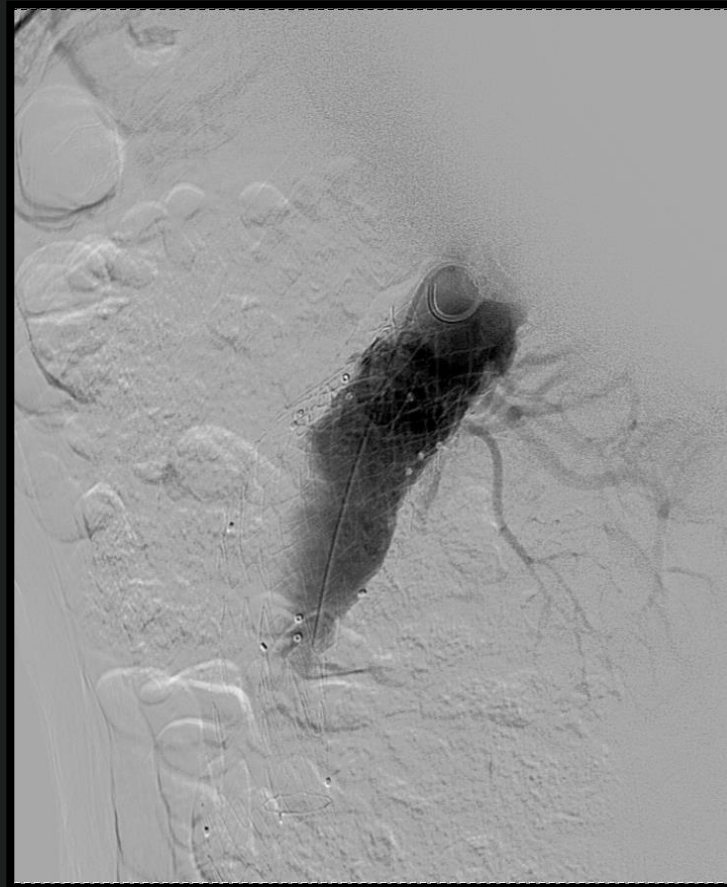
Persistent/Recurrent Type 1a Endoleaks

Mean follow-up 10.4 months

	Type 1a ELs	CTs	%
Intra-op T1 EL	3	76	3.9%
Revision	21	66	31.8%
All	24	142	16.9%

18/24 had no subsequent interventions to repair the persistent/recurrent type 1a endoleaks

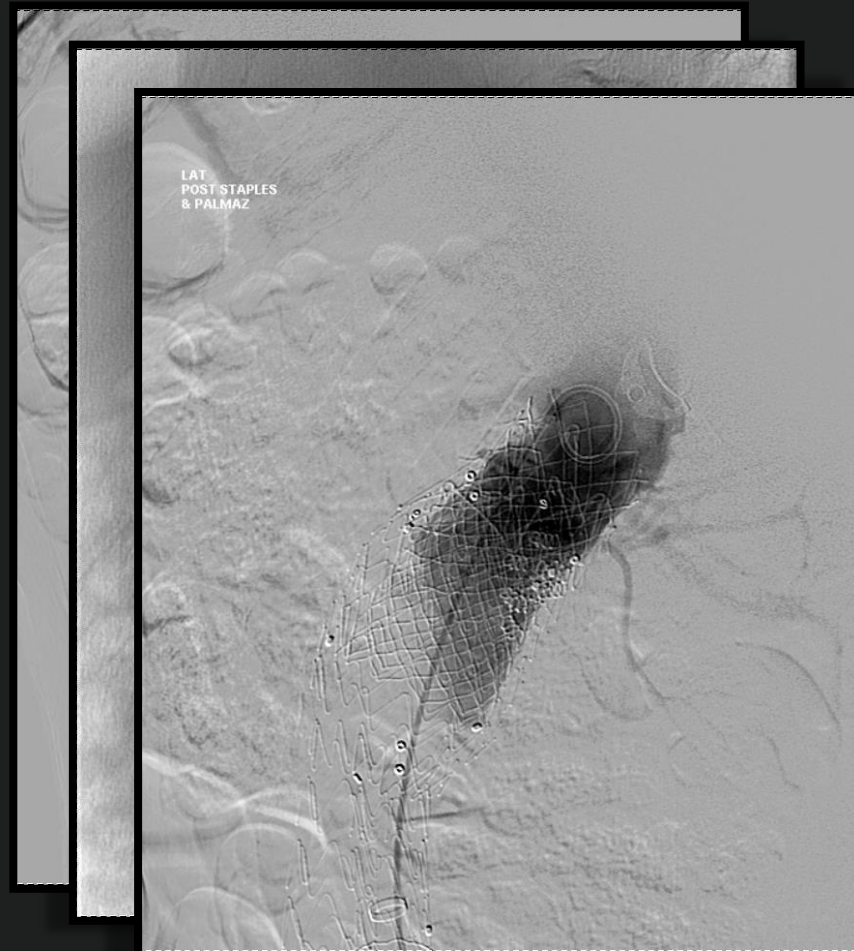
ENDOANCHOR USE: REPAIR



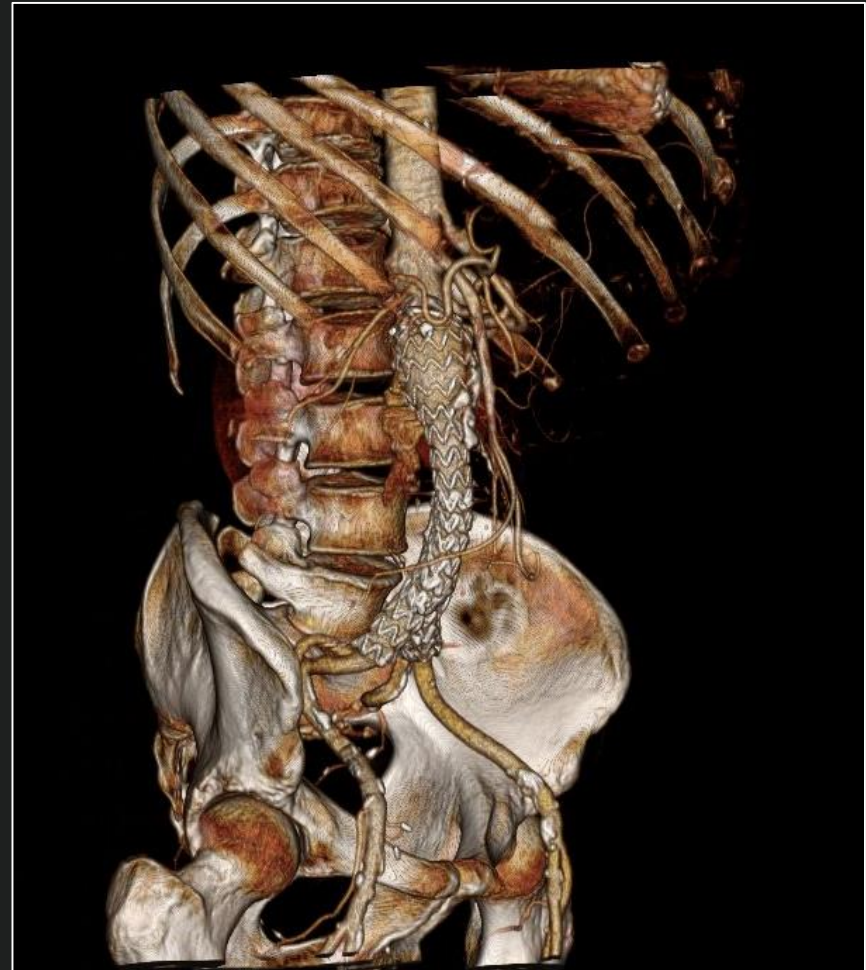
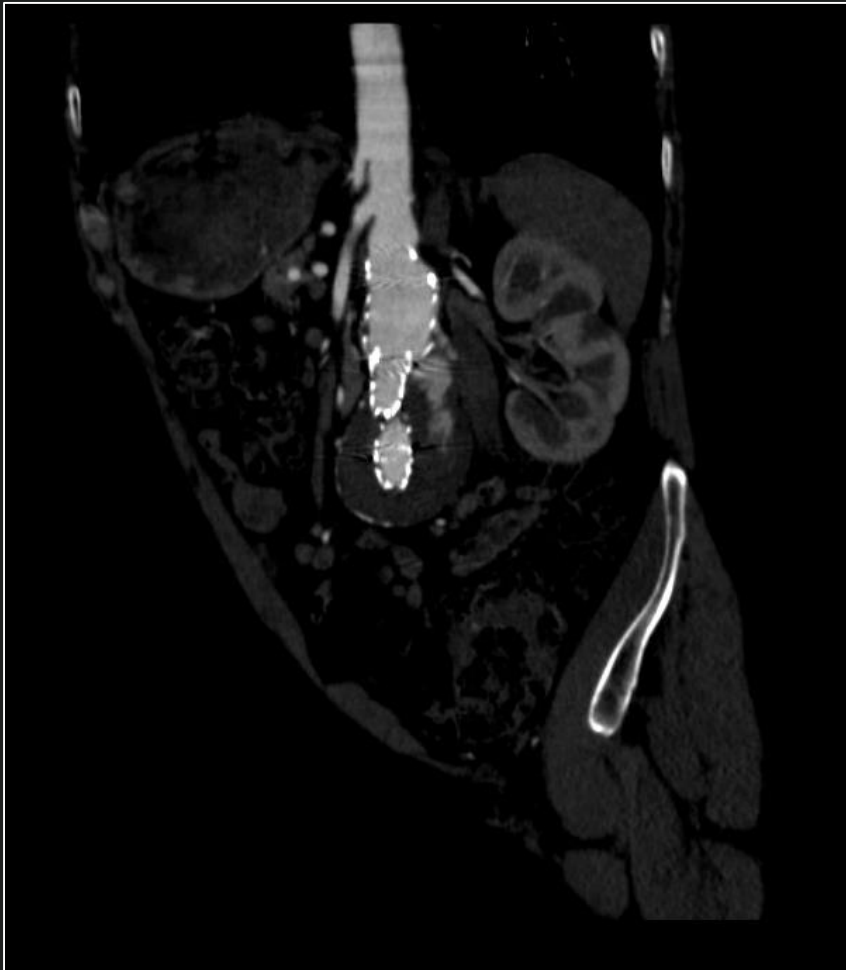
ENDOANCHOR USE: REPAIR



ENDOANCHOR USE: REPAIR

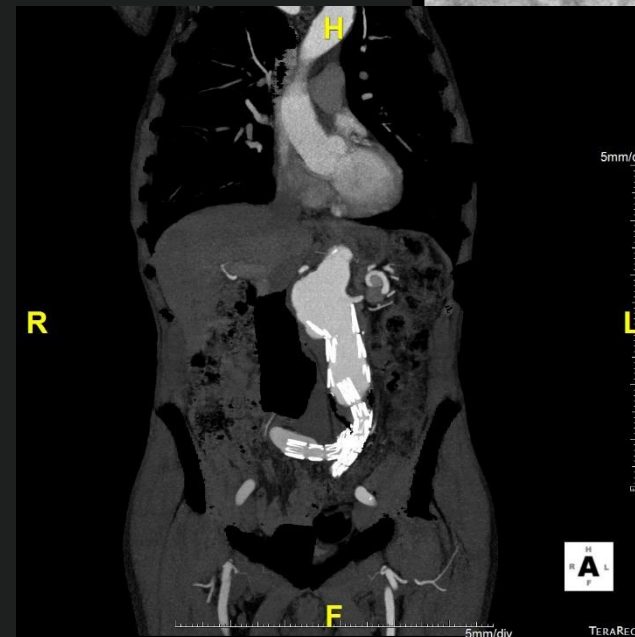


Further Sac Expansion by 2011 with persistent type 1 endoleak



LATE type 1

- Migration and loss of seal
 - Extend, re- balloon
- Neck degeneration
 - Fenestrated cuff
 - Chimney / CHEVAS
 - Hybrid
 - Open explant
 - Embolisation



Fenestrated Cuff



- Imperial Experience
- 2010-16
- Type IA endoleak following EVAR
- 10 patients
- Mean age 78 years; seven patients
- ASA grade \geq III
- Five cuffs, five fenestrated re-lining
- Technical success was 9/10
- Median hospital stay of 6.5 (6-16) days
- No 30-day mortality
- Mean follow up was 22.4 ± 13 months.
- One patient died at 51 months following the FEVAR from a ruptured abdominal aortic aneurysm. Known to have type 2 endoleak
- No other aneurysm related death

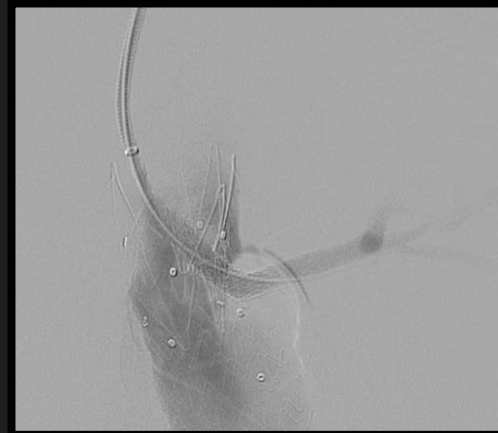
The Chimney Option

Techniques evolving

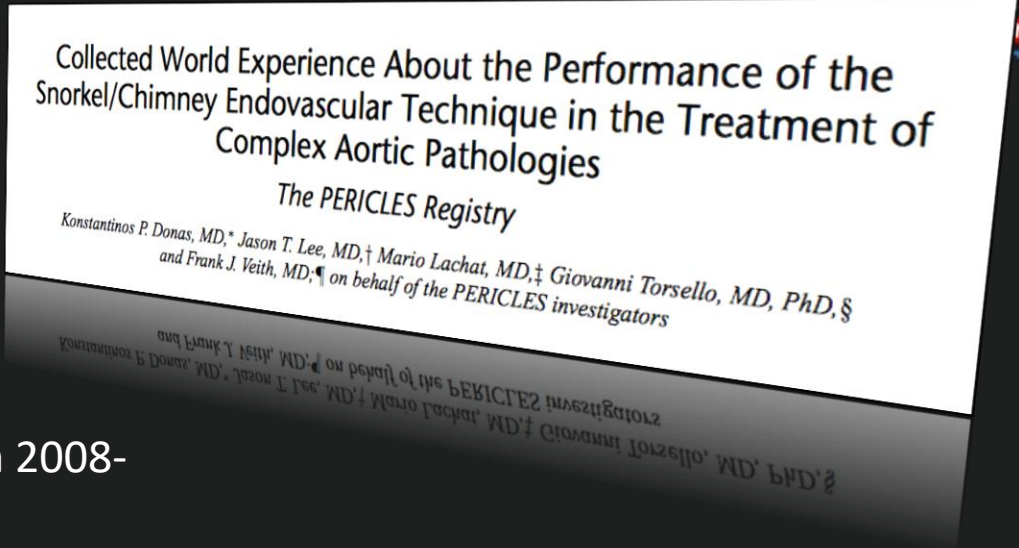
Experience increasing

Results more convincing

Not in this case - Palmaz



PERICLES



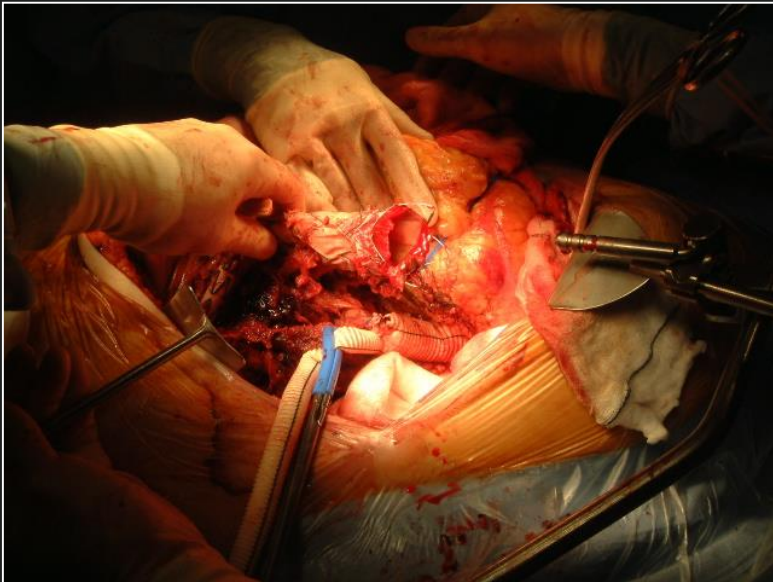
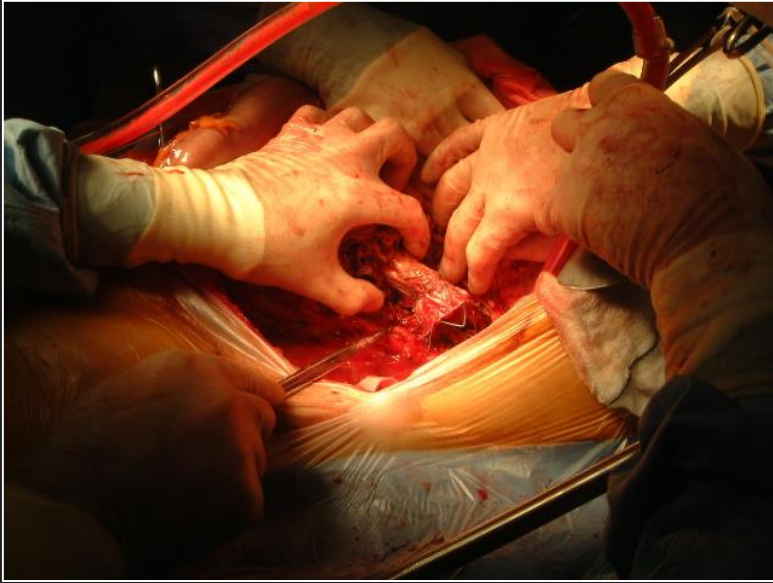
- Retrospective
- 517 patients treated by ch-EVAR from 2008-2014
- Mean follow-up of 17.1 months (range: 1-70 months)
- Primary patency 94%, secondary patency 95.3%.

Results affected by:

- Conformity technique
- Device sizing
- Device selection

Intra-op type Ia endoleak:	7.9%
Persistent intra-op type Ia endoleak:	2.9%
Type IA endoleak at latest FU:	5.8%
Technical Success	97%

...for 517 patients from 13 international centers

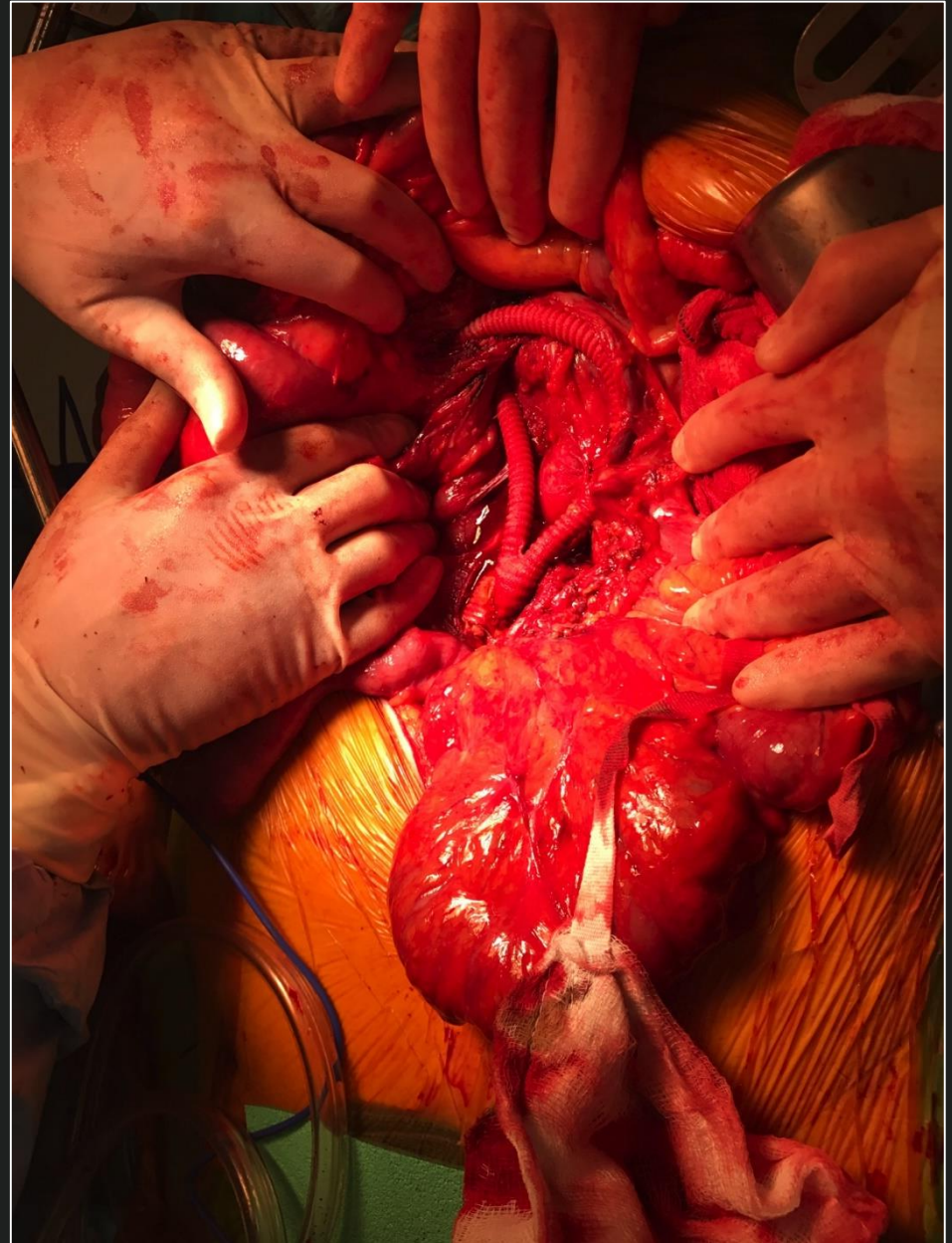


EXPLANTATION



The hybrid approach

- Retrograde/antegrade or extra-anatomical revascularisation of renals , SMA and/or coeliac
- Stenting to normal segment
- An adequate rescue, careful planning needed

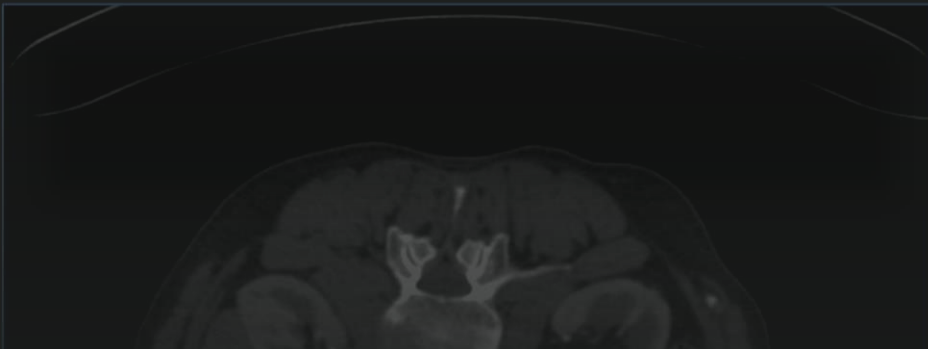


The conclusion...

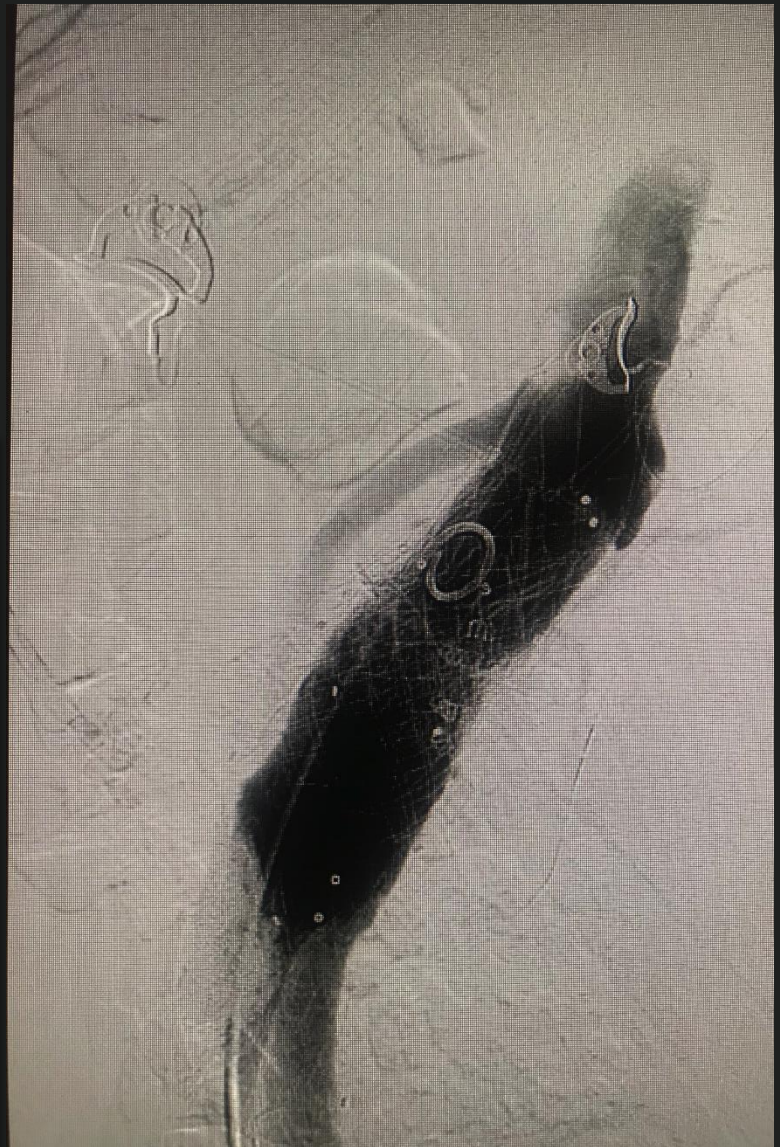
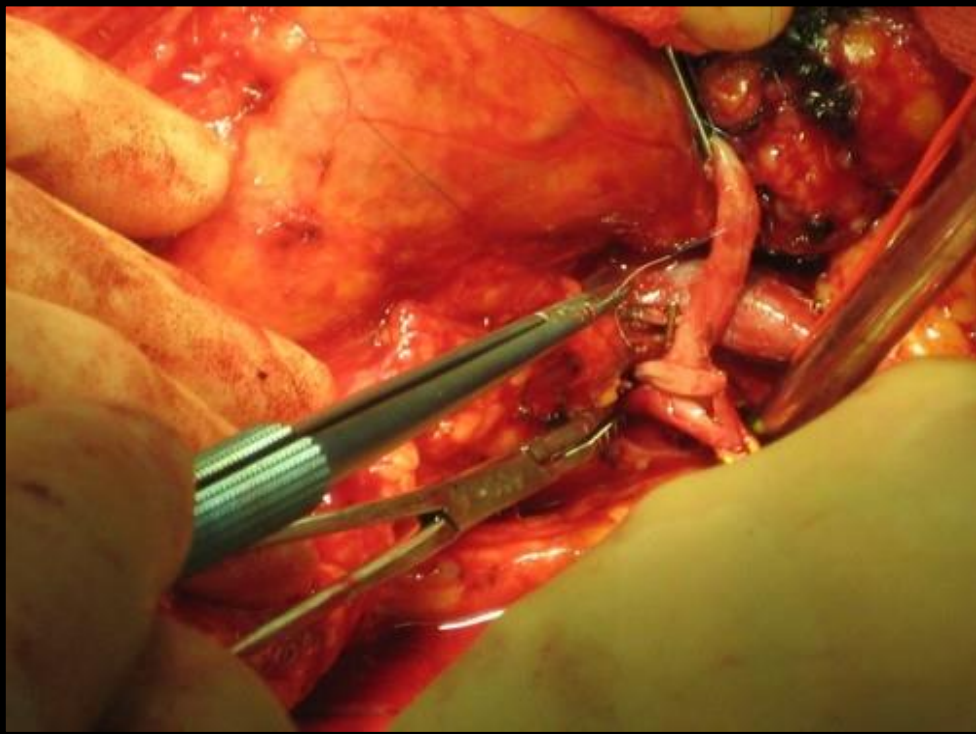
CT 2012

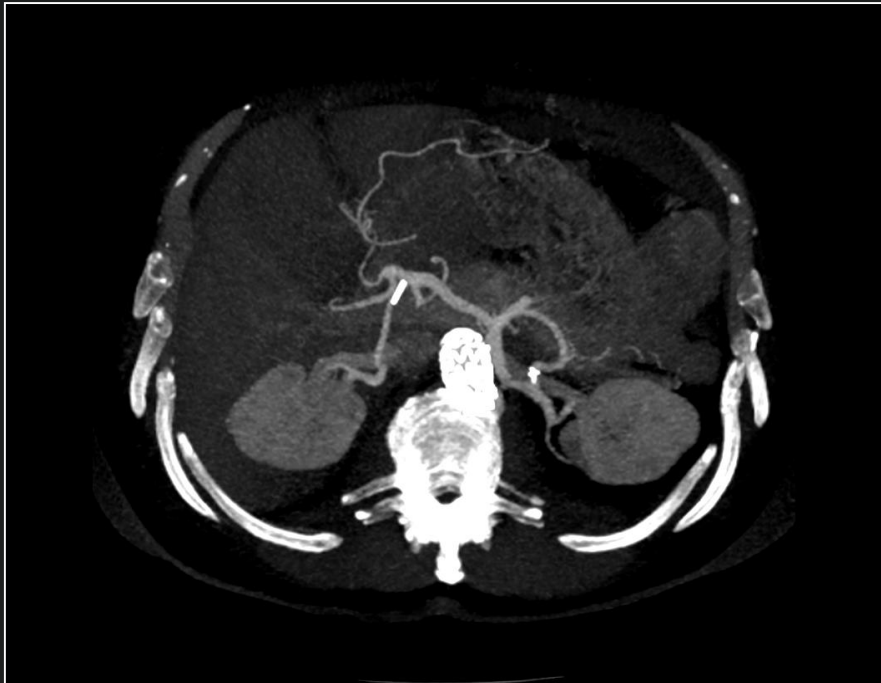
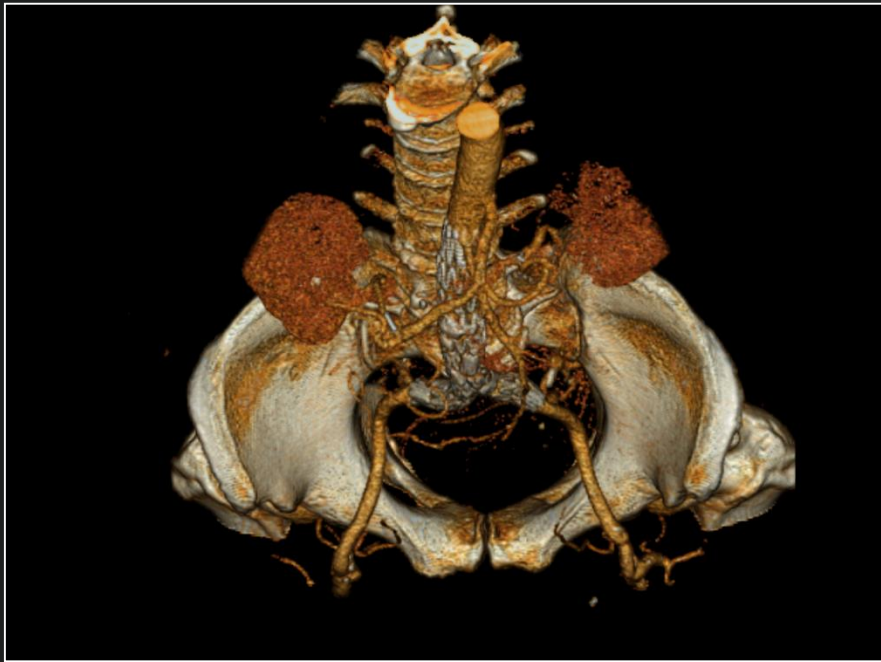


Neck dilated
Renal artery disease (5mm)
Now 73 Years, and less fit!



Hepato/spleno – renal bypass and stenting





Previous EVAR and Type 1 Endoleak

Early/intra-operative

Re-balloon

Extend

Endoanchor if
conformability issues
or leak channel
identified

Late, due to migration

Extension piece

Late, due to degeneration

Fenestrated cuff

Chimney

Hybrid or open
approach

Fill with onyx if no
other solution

Algorithm for type 1