CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES IN VASCULAR SURGERY
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Does reintervention influence the late results of EVAR?

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Faculty Disclosure

I disclose the following financial relationships:

• I have **no financial relationships** to disclose.

Use of baseline factors to predict complications and reinterventions after endovascular repair of abdominal aortic aneurysm†

L. C. Brown[1], R. M. Greenhalgh[1], J. T. Powell[1] and S. G. Thompson[2] on behalf of the EVAR Trial Participants

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British Journal of Surgery 2010; **97**: 1207–1217

756 Pts randomized for EVAR in **EVAR 1** and **EVAR 2** trials:

- 179 serious graft complications *(6.5 x 100 person years)*
- 114 reinterventions *(3.8 x 100 person years)*

	Complications		Reinterventions	
Time interval	Events/patients	Rate per 100 person years	Events/patients	Rate per 100 person years
Total follow-up	179/756	6·5 (5·6, 7·5)	114/756	3·8 (3·2, 4·6)
EVAR to 30 days	60/756	103·1 (80·0, 132·7)	39/756	65·9 (48·1, 90·2)
30 days to 6 months	23/684	8·4 (5·6, 12·6)	16/703	5·6 (3·4, 9·2)
6 months to 2 years	27/638	3·0 (2·1, 4·4)	10/663	1·1 (0·6, 2·0)
> 2 years	69/534	4·4 (3·5, 5·6)	49/567	2·9 (2·2, 3·8)

Values in parentheses are 95 per cent confidence intervals. EVAR, endovascular aneurysm repair.

Background

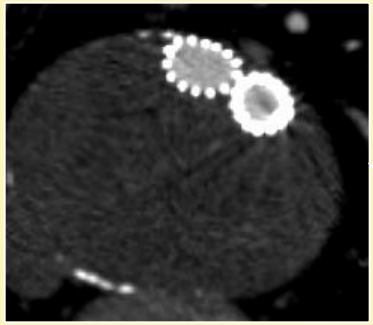
- *Identification of the cause of failure*
- *Indication for secondary endovascular procedures*

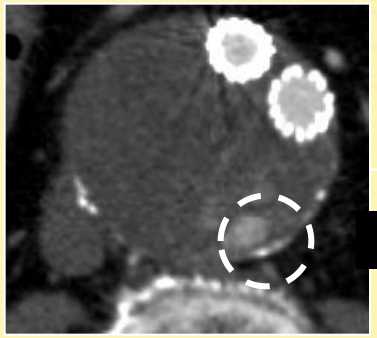
are not standardized,
and can lead to

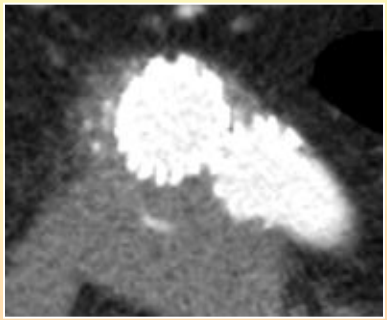
- *variable treatment options, different protocols*
- *disparate outcomes.*

Background

Early phase







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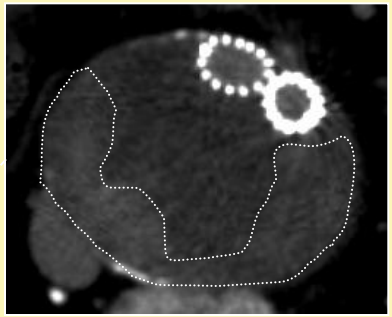
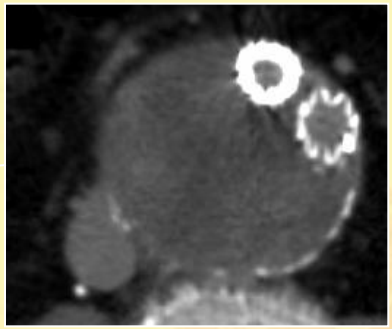
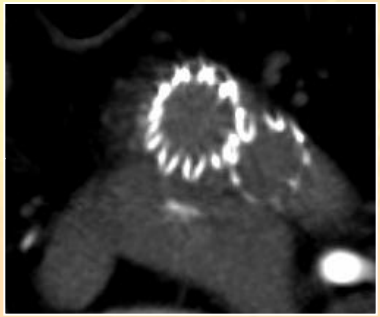
Late phase







Clinical Significance of Type II Endoleak after Endovascular Repair of Abdominal Aortic Aneurysm

Dmitri V. Gelfand, MD,[1] Geoffrey H. White, MD,[2] and Samuel E. Wilson, MD,[1]
Orange, California and Sydney, Australia

Ann Vasc Surg 2006; 20: 69-74

10 EVAR Trials (2000-2004)

2.617 patients

Secondary Interventions	0.3-30% (4.7%)
Conversion	10 (0.4%)
Rupture	0

Success of Secondary Interventions 11-100% (70%)

Perugia experience: Aim of the study

Does reintervention influence the late results of EVAR?

To evaluate the incidence of secondary procedures and late results after re-intervention in aortic endografting

Perugia experience: Patients

1997 – 2011:

1412 elective EVAR

Risk factors	N(%)
Male	1290 (91.4%)
Mean Age	72.9 ± 7.7 (SD)
Mean AAA diameter	54.79 ± 9.7 (SD)
Diabetes	175 (12.4%)
Smoking habit	817 (57.9%)
Hypertension	1084 (76.8%)
Hyperlipemia	497 (35.2%)
Cardiac disease	657 (46.5%)
COPD	696 (49.3%)
Renal Failure	201 (14.2)
ASA IV	218 (15.4%)

Perugia experience: Methods

Reinterventions: *all the procedures aiming to preserve the efficacy of aortic aneurysm endovascular treatment; surgical conversions with endograft complete or partial removal were excluded.*

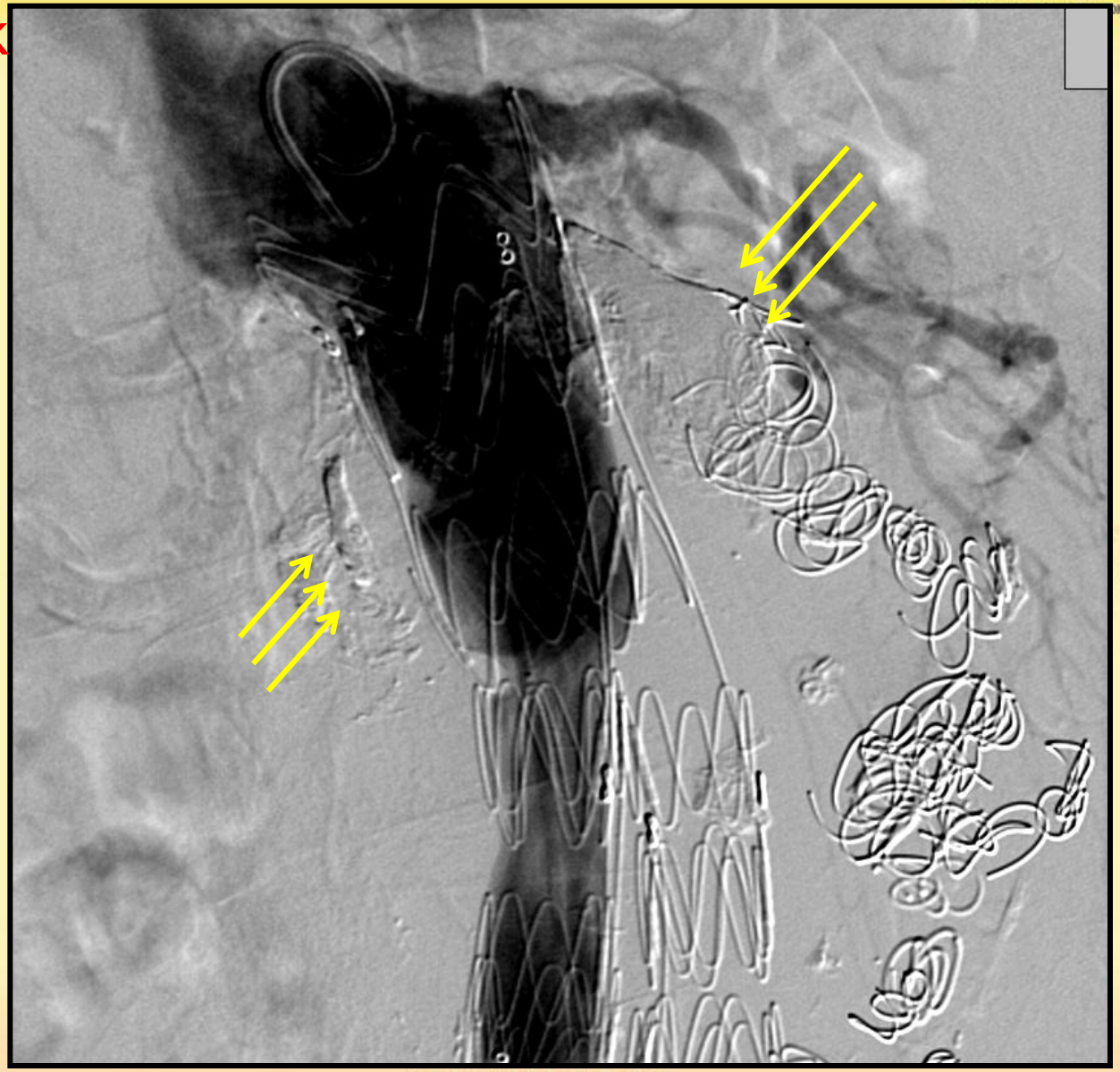
Indication

Type of treatment

Primary re-intervention

	Type I	Type II	Type III	Type IV	Type V	Migration	Limb Occlusion	Landing zone enlargement	RF	Impending disconnection
AUI + crossover	10	0	7	1	0	6	0	0	0	2
Proximal Cuff	23	0	3	0	1	4	0	0	0	2
Distal Cuff	13	0	5	0	0	1	0	8	0	0
Relining	0	0	0	1	0	0	0	0	0	0
AMI Embolization	0	12	0	0	0	0	0	0	0	0
CT Embolization	0	7	0	0	0	0	0	0	0	0
Trans-caval Embolization	0	1	0	0	0	0	0	0	0	0
Lumbar Embolization	0	12	0	0	0	0	0	0	0	0
Diagnostic Angiography	2	13	1	0	0	0	0	0	0	0
Distal cuff + hypogastric embolization	8	2	0	0	0	0	0	1	0	0
Iliac stent and/ or trombectomy	0	0	1	0	0	0	7	0	0	0
Crossover by-pass	0	0	0	0	0	0	18	0	0	0
Iliac side branch	2	0	0	0	0	0	0	1	0	0
Fenestrated proximal cuff	0	0	0	0	0	0	0	3	0	0
Splenorenal Bypass	0	0	0	0	0	0	0	0	2	0
Renal stenting	0	0	0	0	0	0	0	0	5	0

Treatment of Type 1 a endoleak

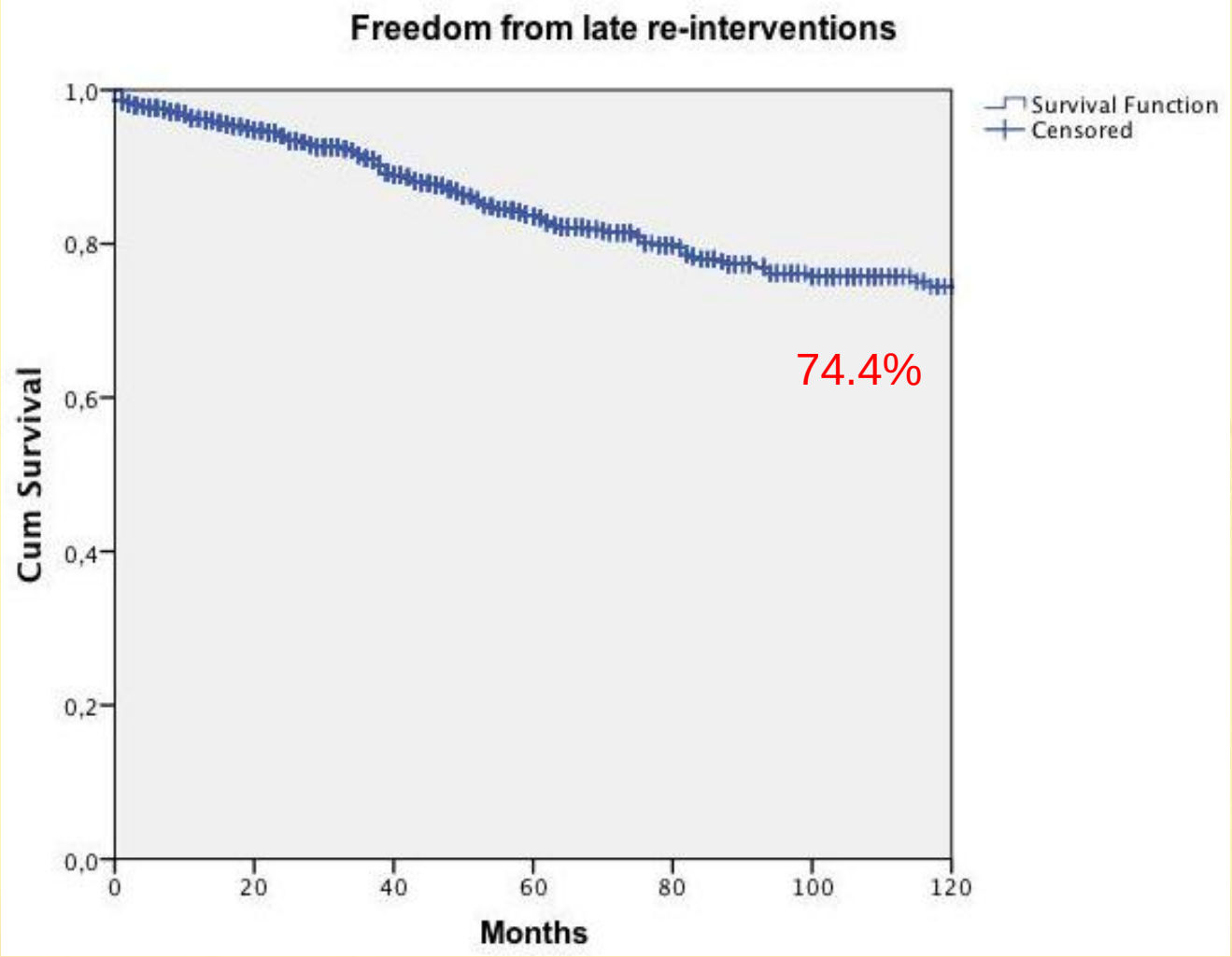


Perugia experience: Results

1412 EVAR Mean follow-up 54 ±42 months

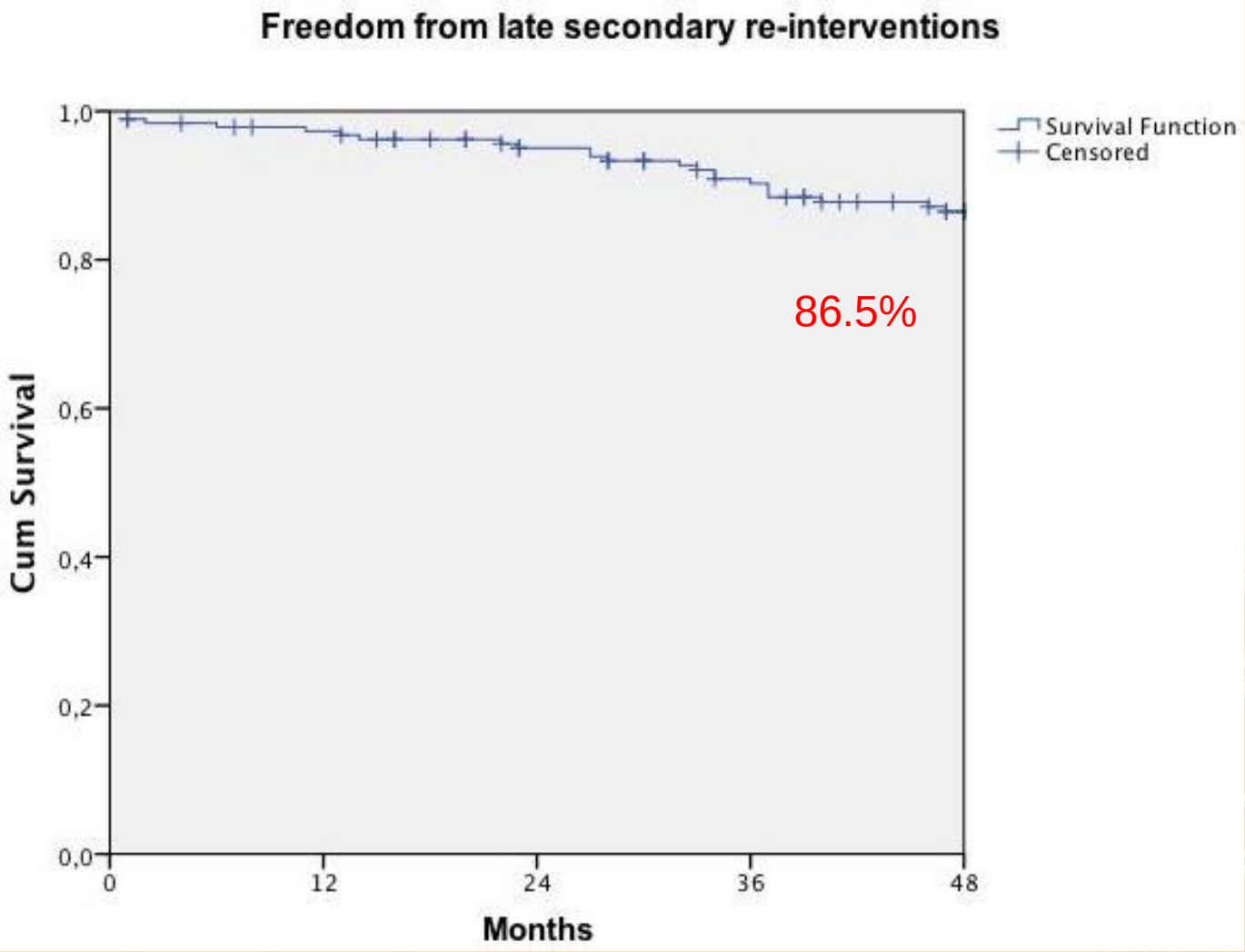
	N	%
• Late surgical conversion:	57	4%
• Primary reinterventions:	187	13%
• 30-day mortality (elective)	1	0.6%
• 30-day mortality (emergent)	3	43%
• Secondary re-interventions:	42	22%
• Tertiary re-interventions:	12	29%

Perugia experience: Results

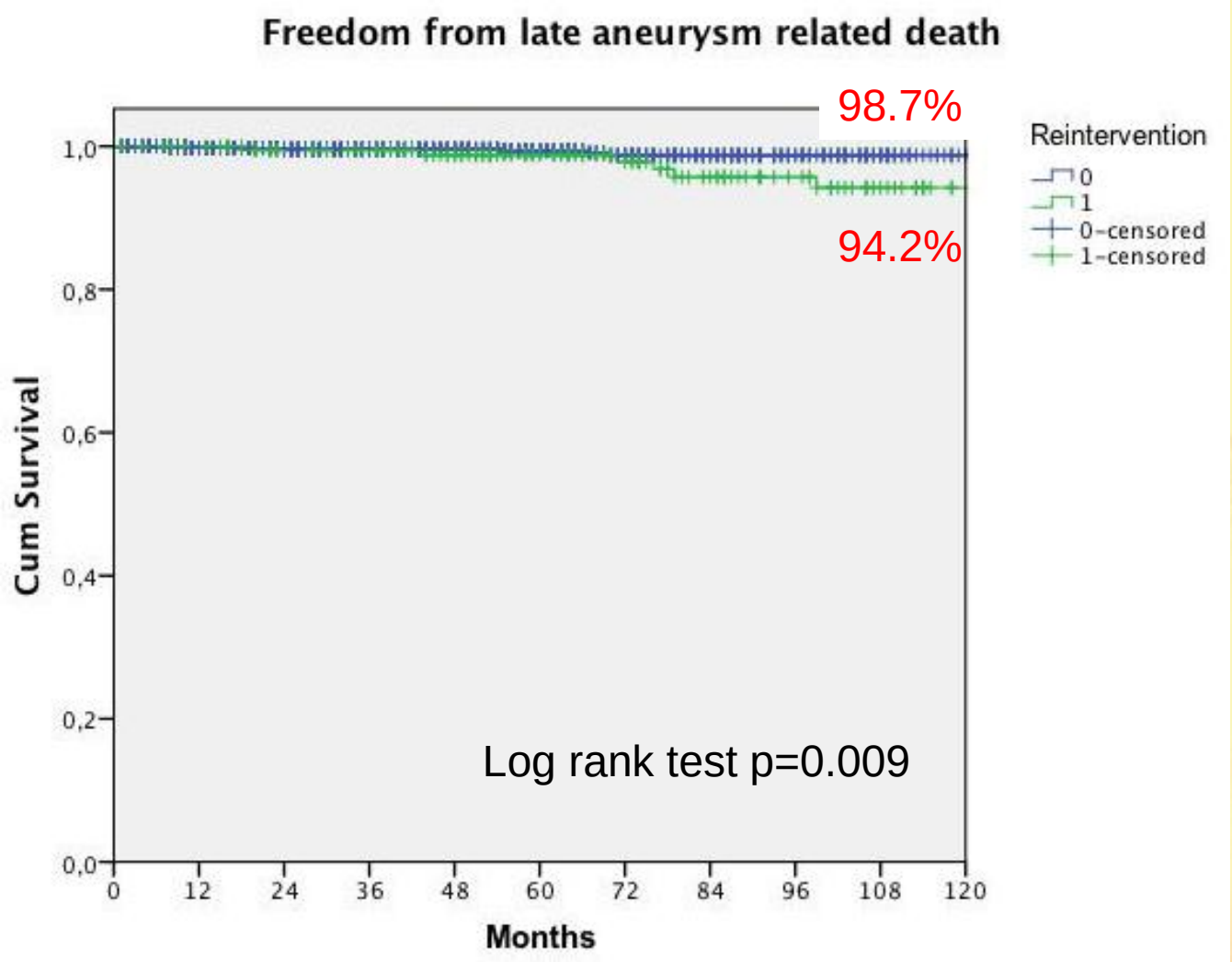


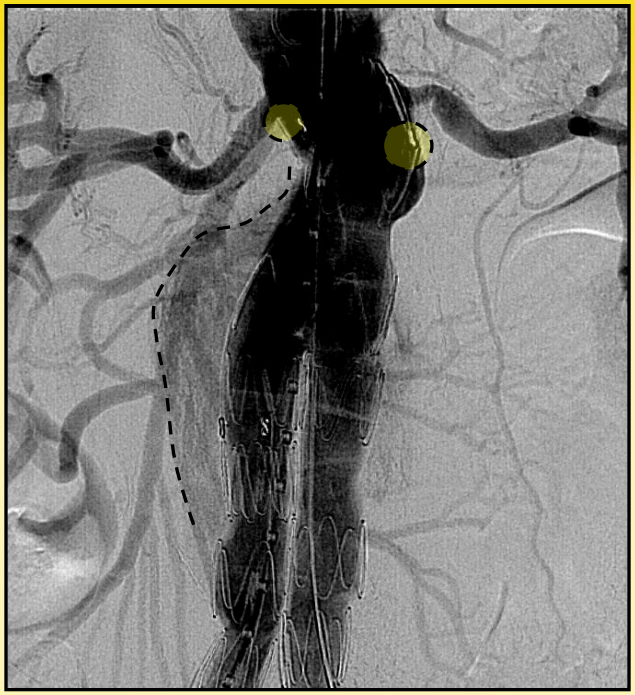
Perugia experience: Results

N° at risk 187

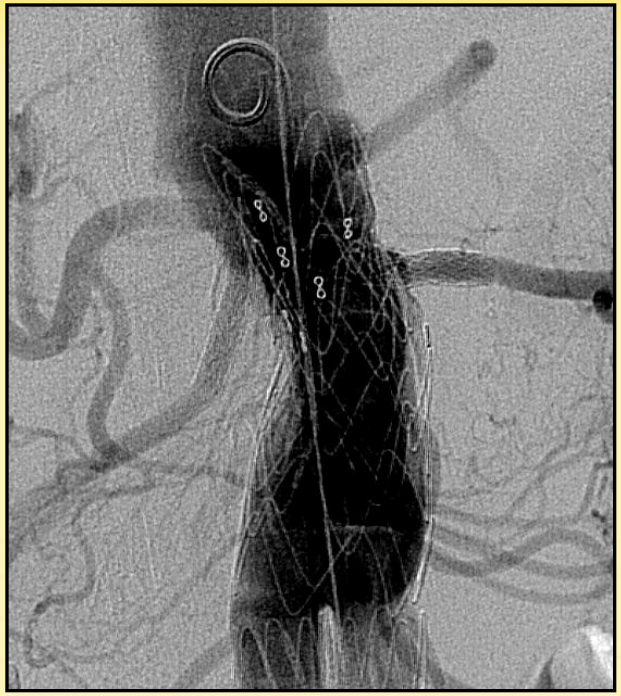


Perugia experience: Results

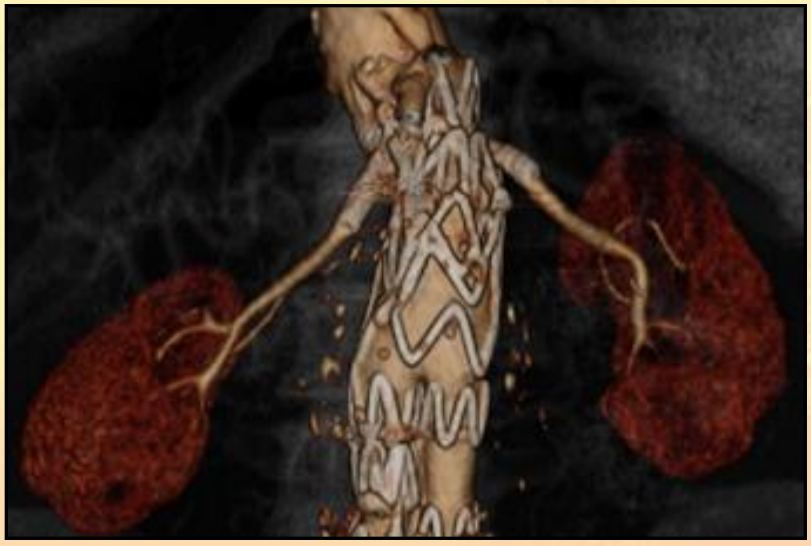




Type I endoleak



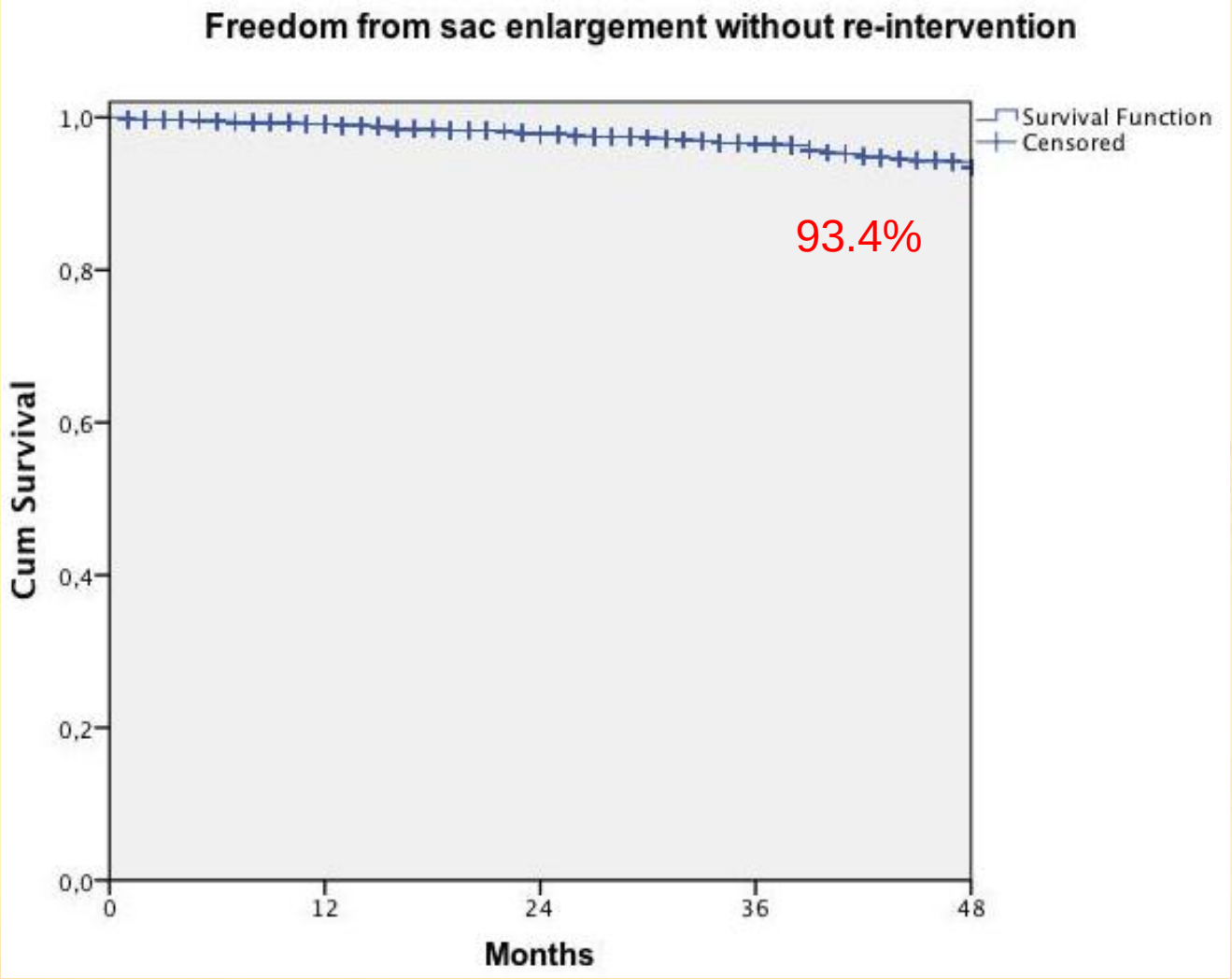
Bilateral renal Chimney



Type I endoleak + migration + R iliac landing zone enlargement

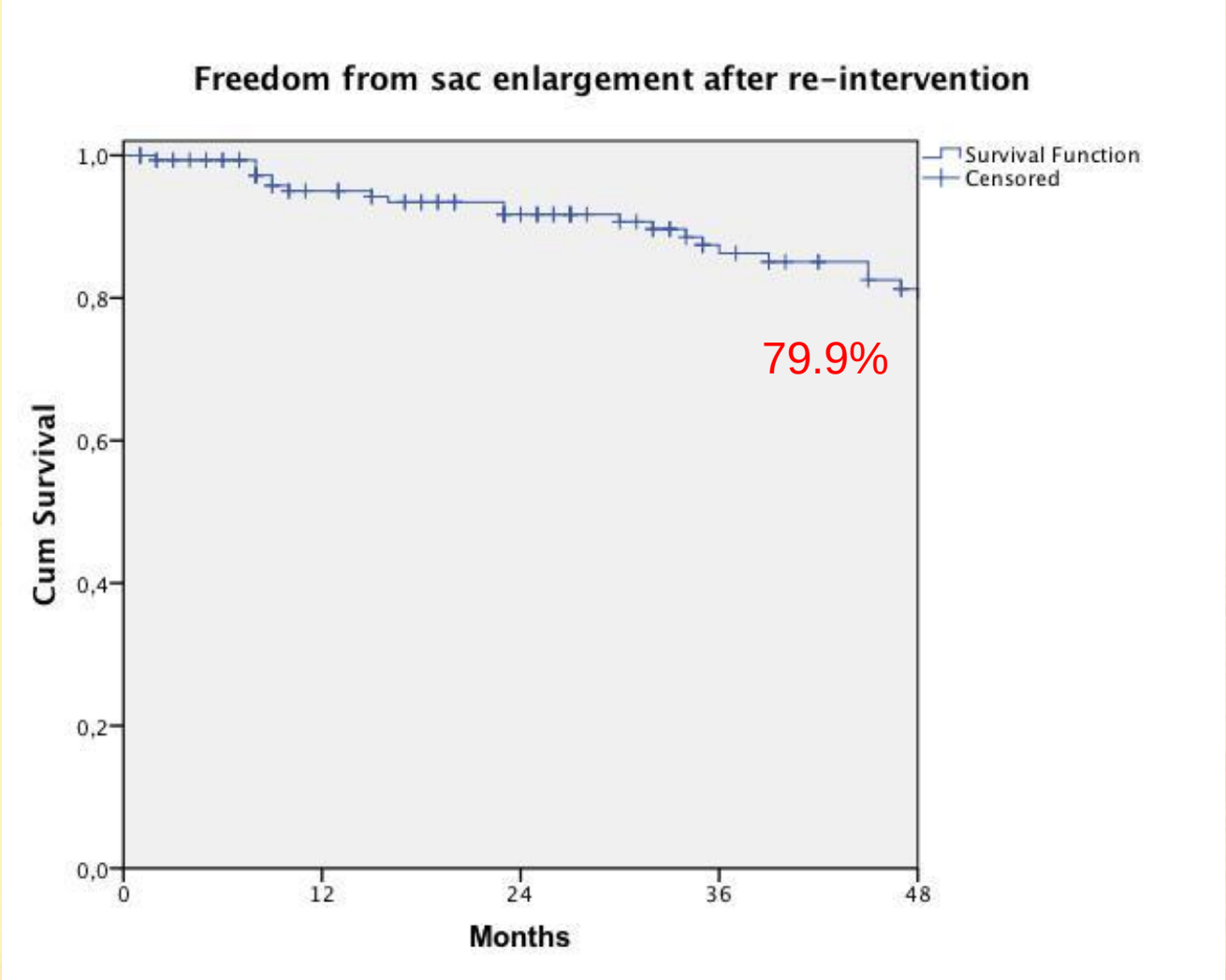
Aorto-uni-iliac fenestrated stent-graft + fem-fem by pass + ext-int stentgraft

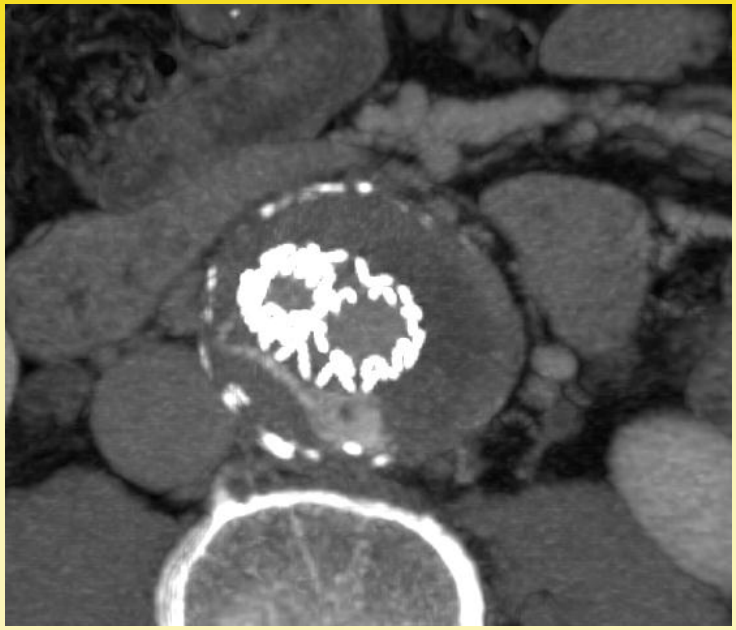
Perugia experience: Results



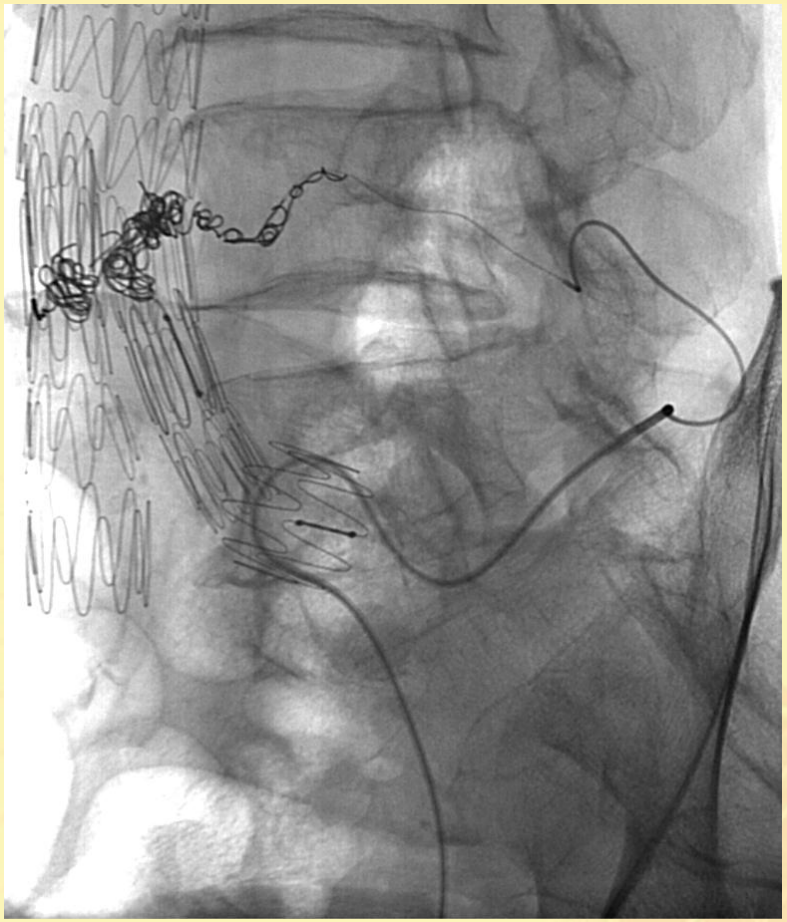
Perugia experience: Results

N° at risk 187



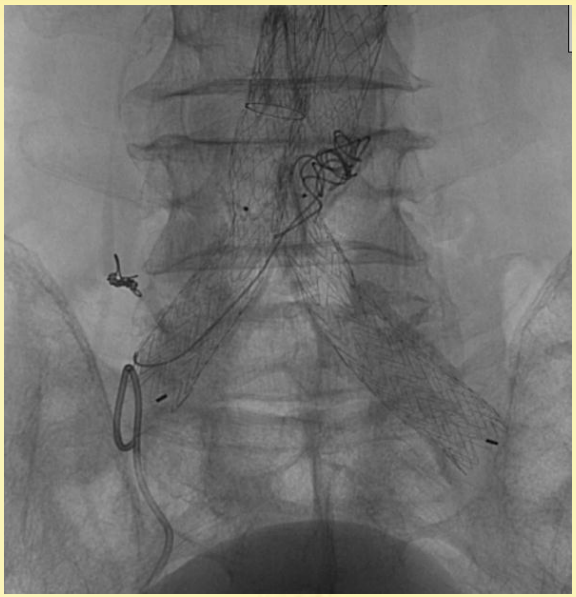


Type II b endoleak

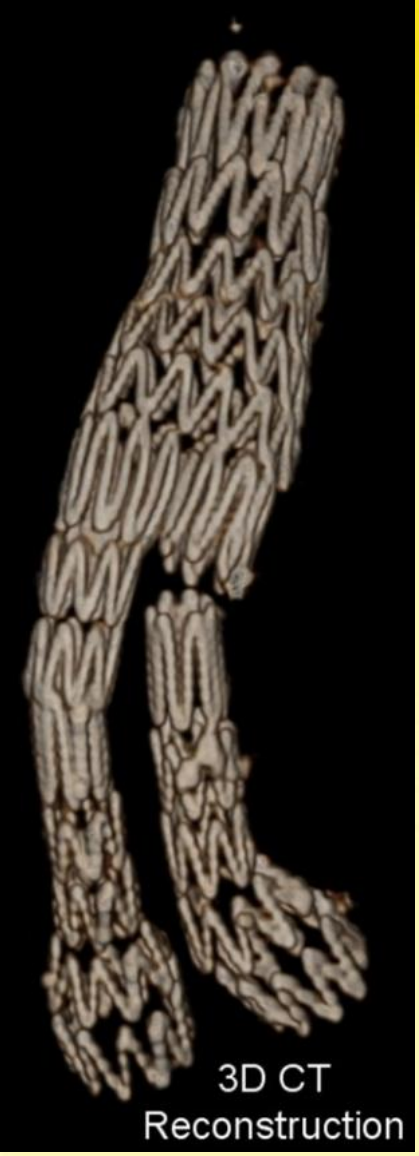


Trans-arterial (hypogastric) embolization

Type II b endoleak

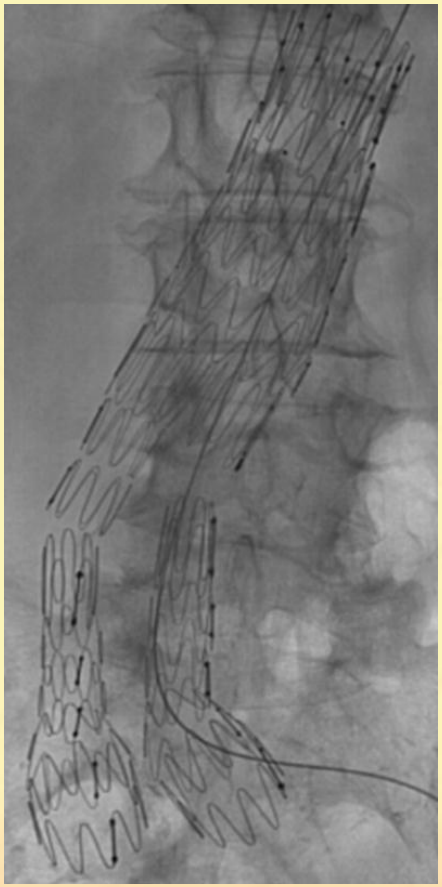


Peri-prosthetic lumbar embolization



Type III endoleak

CT @ 84 mths after EVAR



+Zenith TLFE
22-90 & 24-90

Conclusions

- Repeated therapeutic procedures: in 20% of patients, up to 10 years after the original intervention.
- The effectiveness is high, at least in the mid term
- Careful and lifelong clinical and imaging follow up is mandatory (even for newer endografts)
- Early detection of complications and aggressive posture toward correction of potential risk factors for failure may reduce the risk of late ruptures.
- Risk of AAA related death & AAA growth in pts with re-interventions remains higher than in controls