IX Congresso
Novas Fronteiras em Medicina Cardiovascular
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The Village Praia D'El Rey - Óbidos

How we manage thoracoabdominal aneurysms in the CHULN.

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DISCLOSURES (LMP):

- **Proctorship for Cook Medical.**

CRAWFORD / SAFI CLASSIFICATION



EXTENT 1



EXTENT 2



EXTENT 3

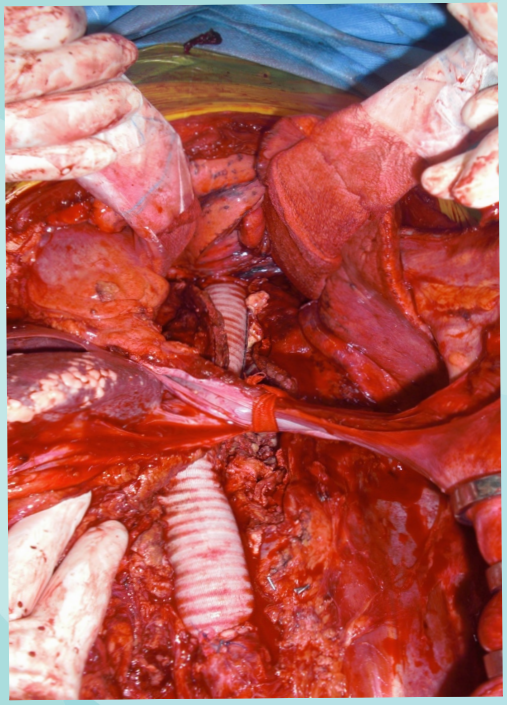


EXTENT 4



EXTENT 5

TREATMENT OPTIONS



OPEN



ENDOVASCULAR



HYBRID







How we manage thoracoabdominal aneurysms in the CHULN.

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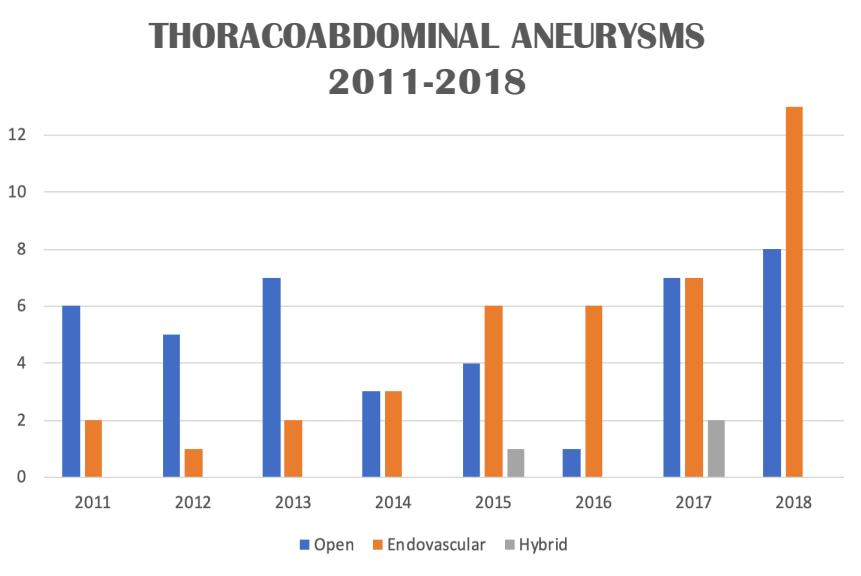
THORACOABDOMINAL ANEURYSMS IN THE CHULN 2011-2018

TAAA 2011-2018
N=84

- **Endovascular** 40
- **Hybrid** 3
- **Open** 41



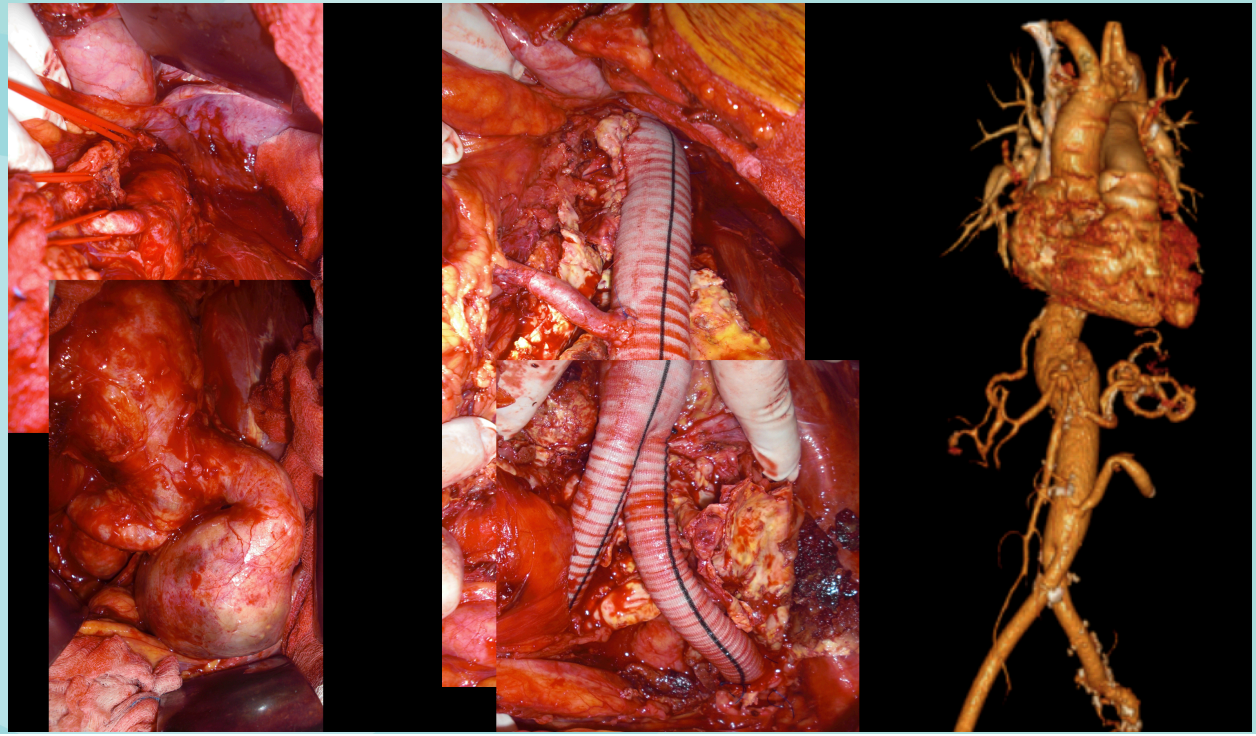
OPEN REPAIR

- Very young patients.
- Connective tissue disorders.
- Infection.
- Fit patients without appropriate anatomy for endovascular repair.
- Complications of previous endovascular repair.

ENDOVASCULAR

- Suitable anatomy.
- Older and higher risk patients.
- No connective tissue disorders or infection.

OPEN REPAIR



MONITORIZATION / ANESTHESIA

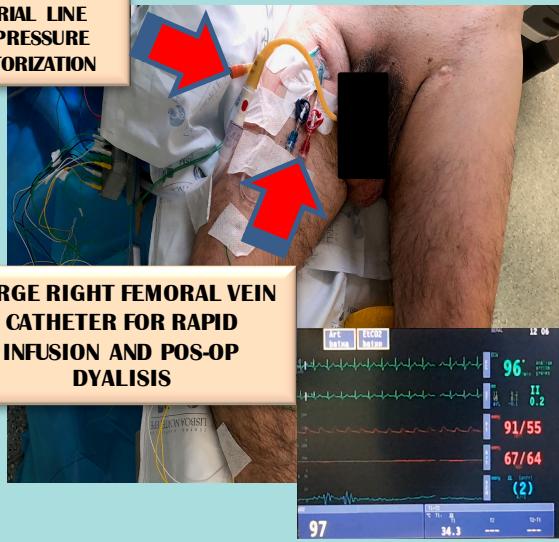


TRANSESOPHAGEAL ECHOCARDIOGRAPHY



DOUBLE-LUMEN TRAQUEAL TUBE FOR LEFT LUNG EXCLUSION

RIGHT FEMORAL ARTERIAL LINE FOR PRESSURE MONITORIZATION

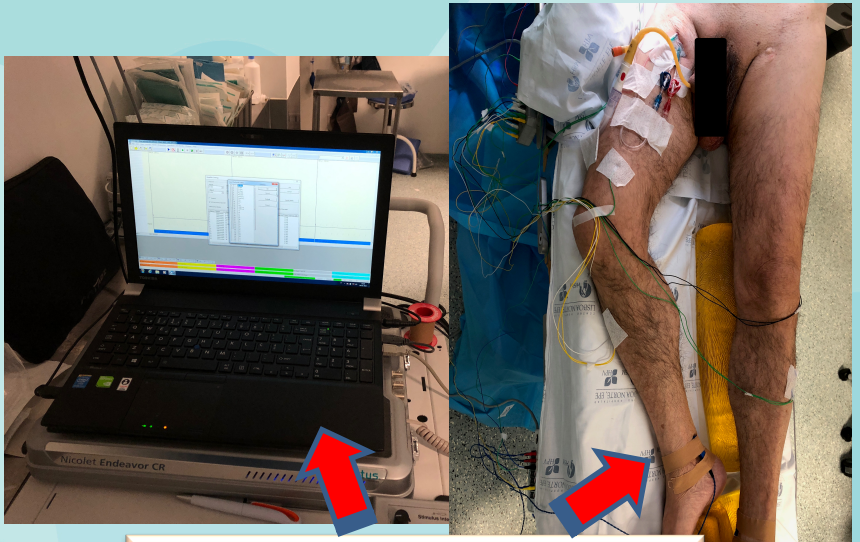


LARGE RIGHT FEMORAL VEIN CATHETER FOR RAPID INFUSION AND POS-OP DYALISIS

THROMBOELASTOGRAM



PREVENTION OF SCI

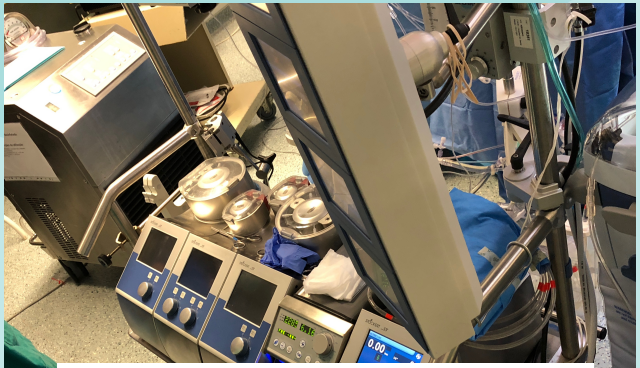


EVOKED POTENTIALS MONITORIZATION



CSF DRAINAGE AND PRESSURE MONITORIZATION

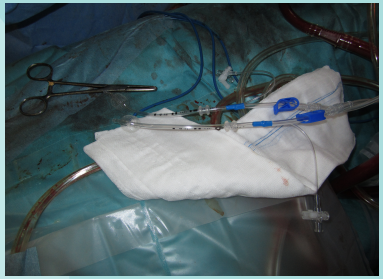
PERFUSION / BLOOD RECOVERY



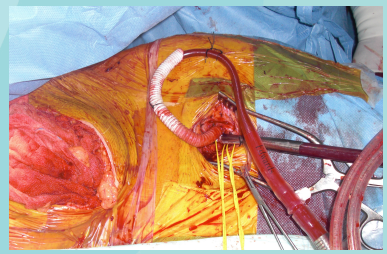
MECC System



Closed heparin-coated circuit









CELL-SAVER

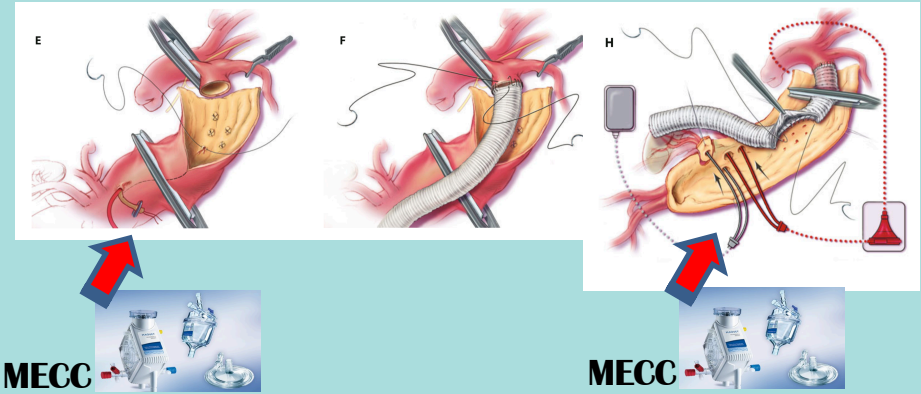
SURGICAL TECHNIQUE

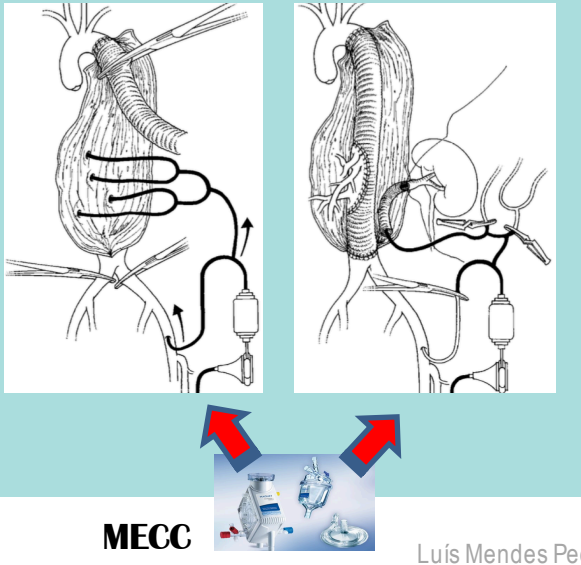
- Evoked potentials monitorization.
- CSF drainage and pressure monitorization.

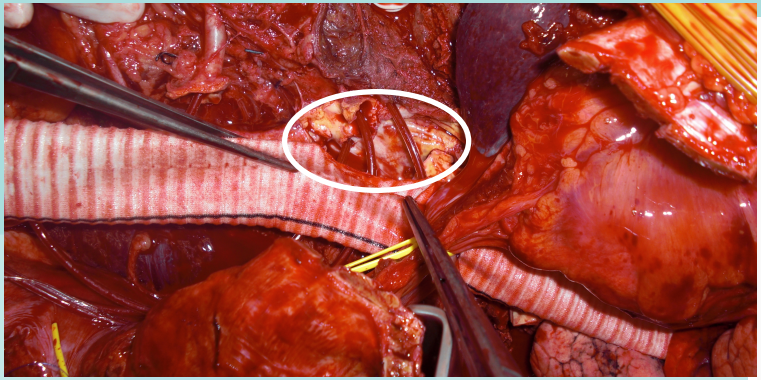
- **2 surgical teams (Cardiothoracic + Vascular).**

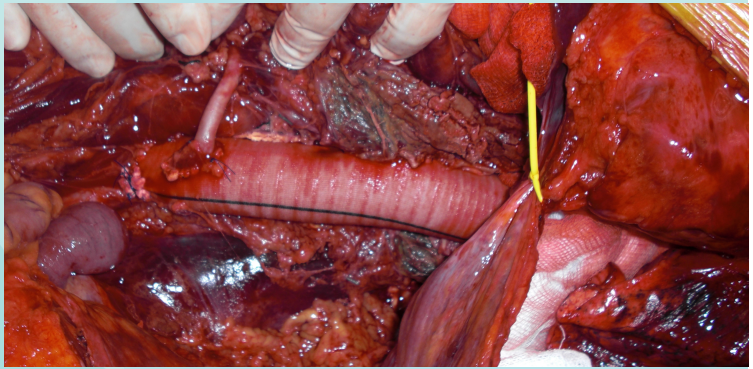
- **MECC** (**M**inimized **E**xtra**C**orporeal **C**irculation system) **system fem-fem** (ACT 250-300)**.**

- **Octopuss system** for selective renal and visceral perfusion.

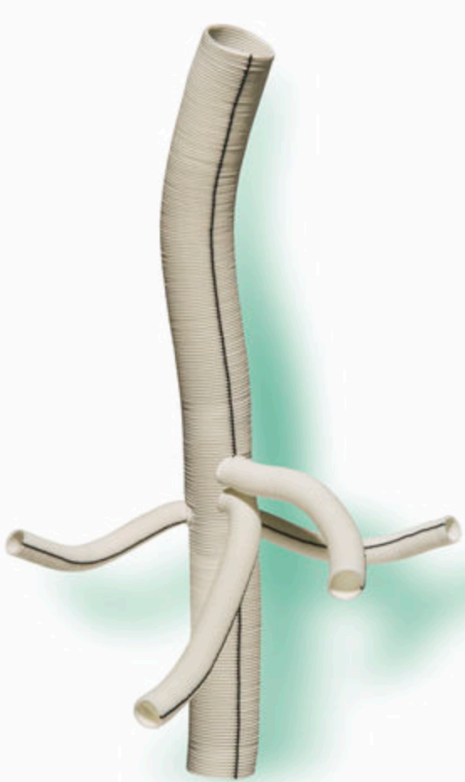


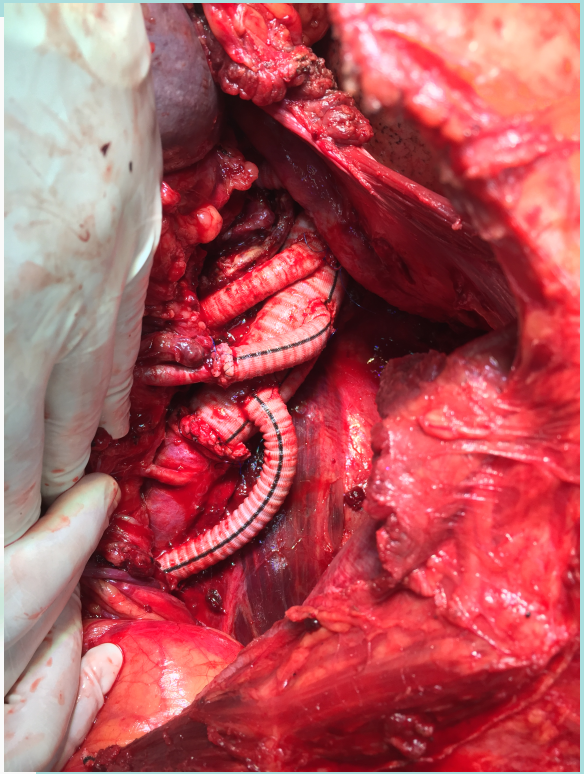






CRAWFORD TECHNIQUE

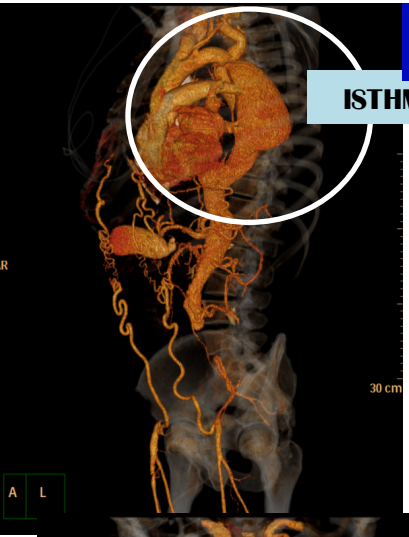




BRANCHED GRAFT

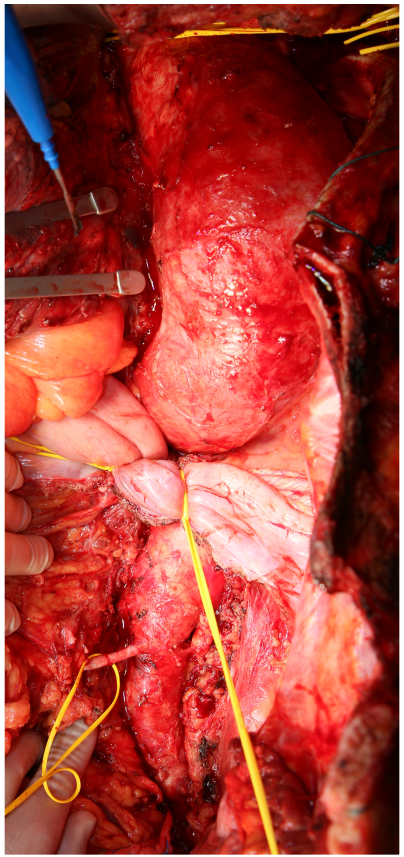
MALE, 46 years-old. Post-dissection.

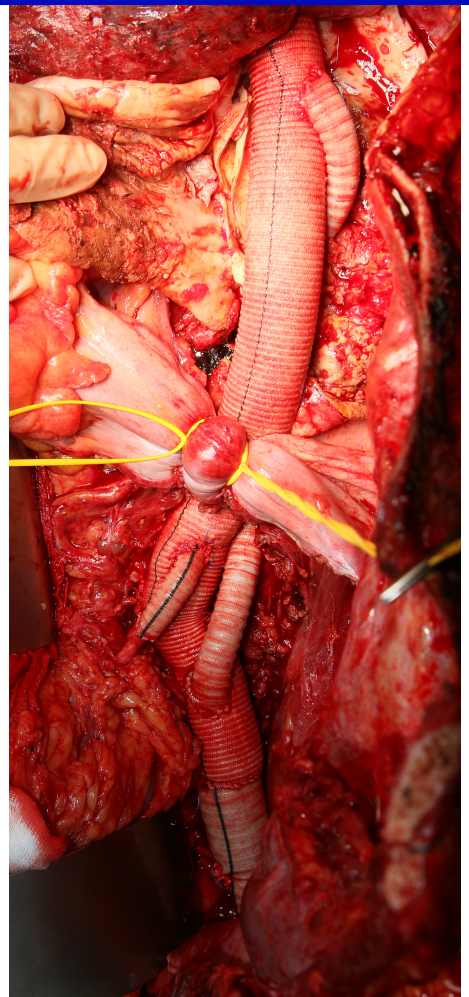
ISTHMIC COARTATION + TAAA dissection





AORTIC OCCLUSION



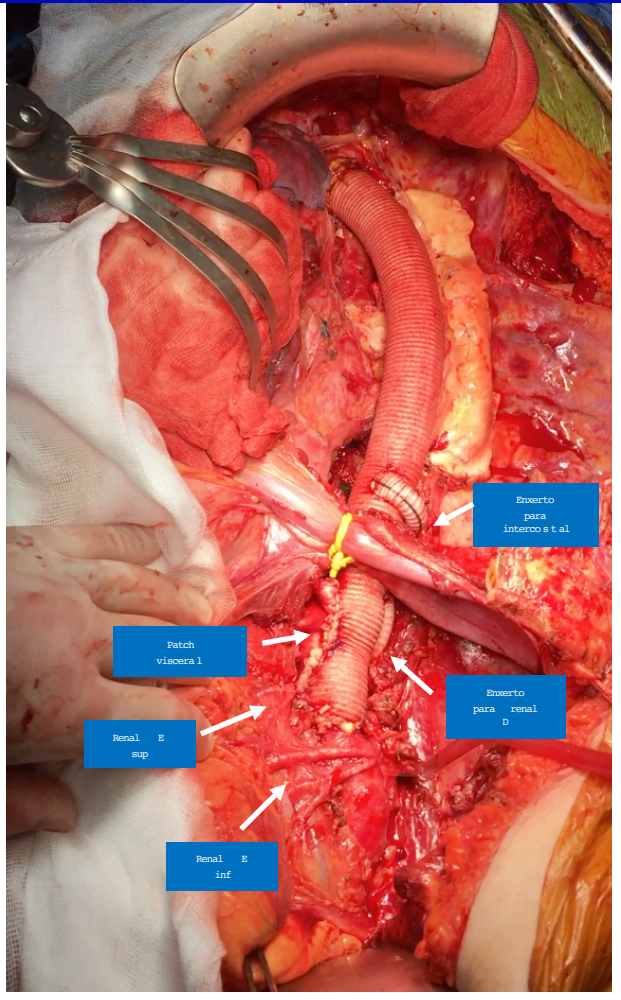




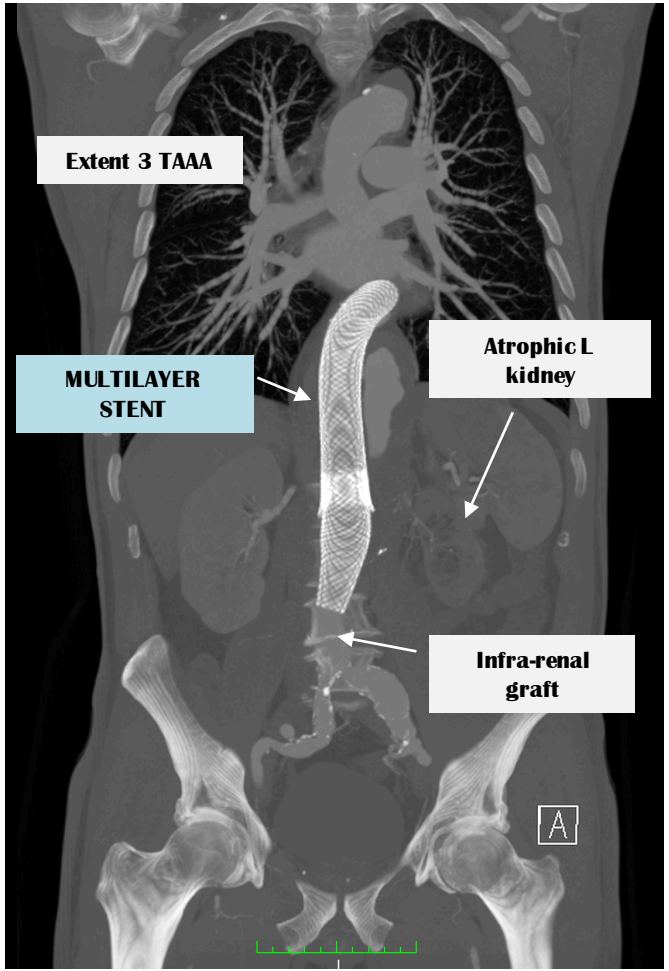
FEMALE, 54 years-old. Post-dissection.

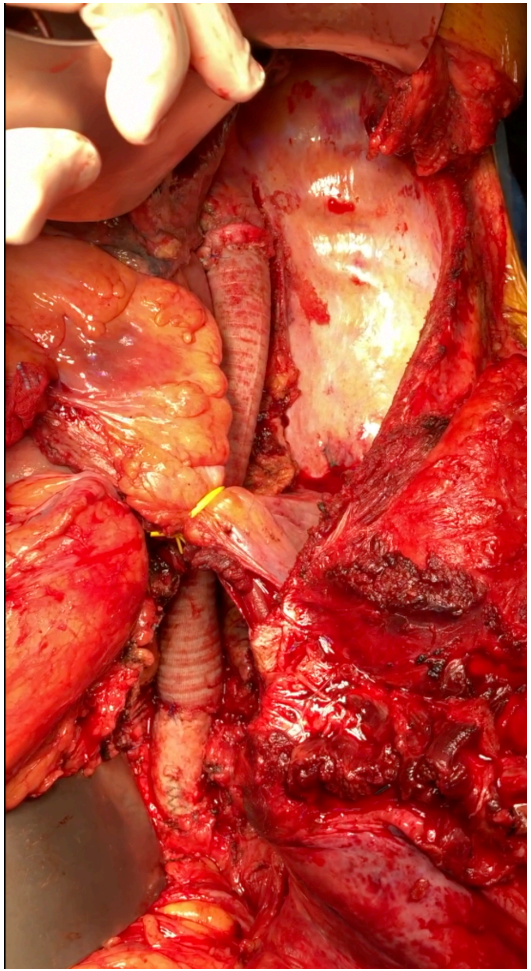


TWO LEFT RENAL ARTERIES WITH EARLY BIFURCATION



MALE, 68 years-old. Degenerative.





HOW WE DO IT IN THE CHLN: preoperative workup / organization.

PATIENT

- CARDIO-PULMONARY REHABILITATION PROGRAM (HPV) (**Service of Cardiology**).
- Complete blood testing (renal function-creatinine and GFR).
- EKG
- Echocardiogram (M,2D, Doppler)
- Coronariogram.
- Respiratory function testing.
- Carotid and lower limb ultrasound.
- Multidisciplinary protocols for SCI prevention (**Service of Vascular Surgery**).
- Imagiology- Angio CT (**Service of Imagiology**).

HOSPITAL–ORGANIZATION

- Dedicated Surgeons (**Heart and Vessels Department**).
- Dedicated Anesthesiologists (**Service of Anesthesiology**).
- Dedicated Nurses and Perfusionists (**Service of Cardiothoracic Surgery**)
- Dedicated Intensive Care Unit (**Service of Cardiothoracic Surgery**).
- Blood products management (**Service of Imunohemotherapy**).
- Evoked potentials monitorization (**Service of Neurology**).
- Bronchoscopy for double-lumen traqueal tube positioning (**Service of Pneumology**).

HOSPITAL–TECHNICAL RESOURCES

- CSF drainage and pressure monitorization.
- Evoked potentials monitorization.
- TEE monitorization.
- Double-lumen traqueal tube for left lung exclusion.
- Arterial lines: right radial + right femoral.
- Rapid infusion systems.
- Thromboelastogram.
- MECC system and Cell-Saver.
- Thompson Retractor.

LEARNING CURVES

6th LISBON VASCULAR FORUM

Management of thoracoabdominal and complex abdominal aneurysms - a patient-tailored approach.

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Academic Department of Vascular Surgery, Hospital de Santa Maria - CHLN, Faculty of Medicine, University of Lisbon, Lisbon Academic Medical Centre Lisbon Cardiovascular Institute

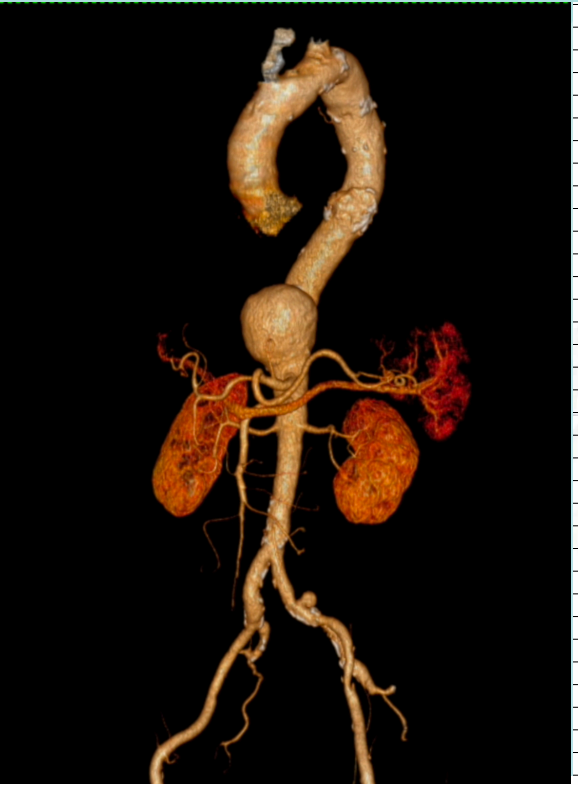
CENTRO ACADÉMICO DE MEDICINA DE LISBOA

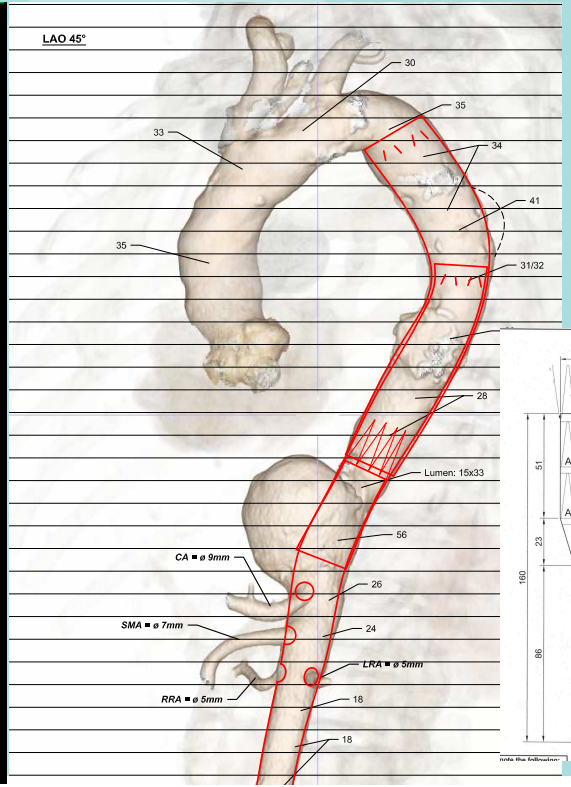
Results (elective)

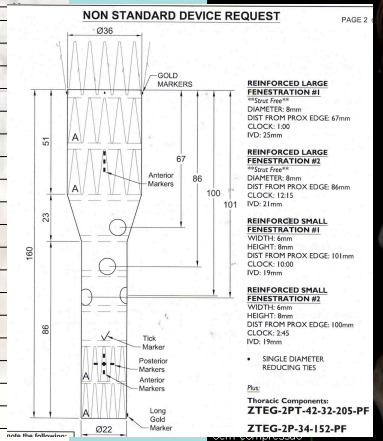
TAAA

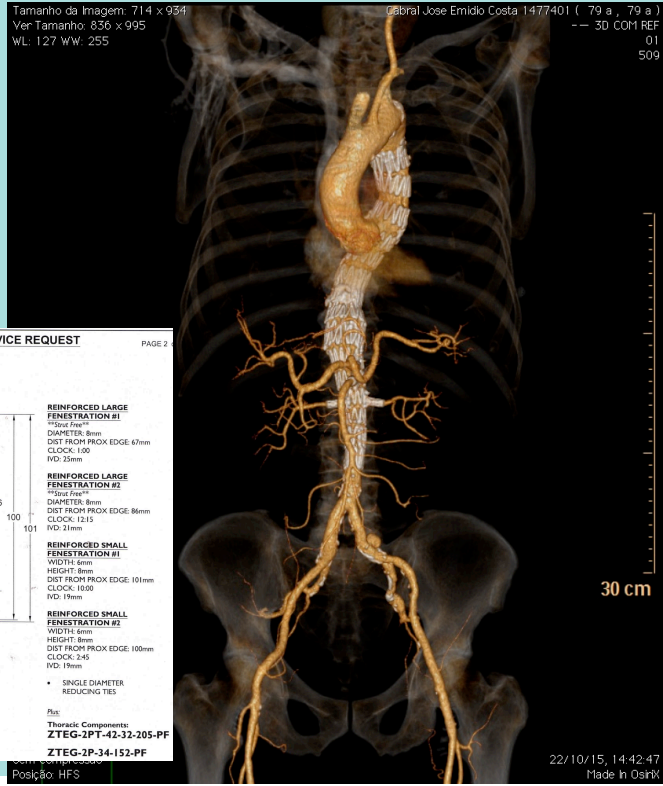
	Open Surgery *(n=36)*	
	N	*(%)*
Mortality	**4**	***(11.1)***
II/III	1/9	*(11.1)*
IV	3/27	*(11.1)*
Hospital stay (median)	**20**	
Spinal cord ischemia	**2**	***(5.5)***
reversible	-	
paraparesis	1	
paraplegia	1	
Acute Kidney injury	**16**	***(44.4)***
AKIN 1	2	*(5.5)*
AKIN 2	6	*(16.6)*
AKIN 3	8	*(22.2)*
Permanent dialysis	2	*(5.5)*
Invasive ventilation >72h	5	*(13.9)*

ENDOVASCULAR REPAIR









How we manage thoracoabdominal aneurysms in the CHULN.

Luís Mendes Pedro

OUR EXPERIENCE

- **Inclusion criteria:** Consecutive patients treated by **F/B-EVAR** for complex aortic aneurysms.
- **Study period:** 5 years.
- Retrospective analysis of prospective collected data; Case-series.

I. Thoraco-abdominal aneurysms (**TAA n=28**) ***versus*** Juxta/para-renal aneurysms (**C-AAA n=28**).

II. Patients treated **with Proctor *versus* without Proctor**.

SPINAL CORD ISCHEMIA

Paraparesia/Paraplegia (only TAA group):

- **TAA patients (all patients):**
  - CSF drainage (CSFP<10mmHg)
  - Spinal cord ischemia protocol (Hb>10g/dl); SpO2 >95%; MBP>90; SPP>=80mmHg)
  - STAGING

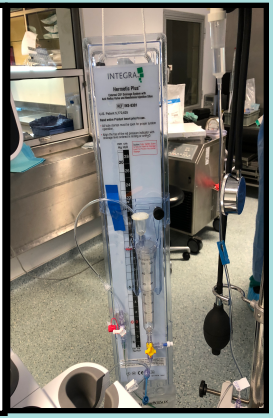
- **Temporary paraplegia / paraparesis**:

  4 patients (**14,2%**)

- **Permanent paraplegia:**

  1 patient (**3,6%**)

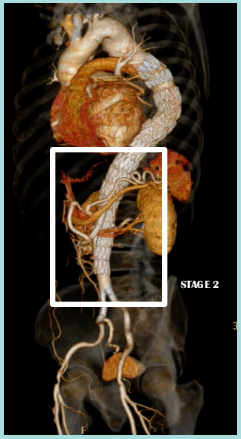
	Intervenção *COPS modificado*
C (*Cerebrospinal fluid drainage*)	- Verificar o sistema de drenagem (obstrução, kinking ou secção), com eventual substituição do mesmo - Doente em decúbito dorsal - PLCR < 10mmHg - Drenagem intermitente de volumes de 10mL (não exceder os 20mL; avaliação imediata pelo anestesiologista) - Manter SDLCR durante 7 dias
O (*Oxygen delivery*)	- SpO_2> 95% - Hb adequada às co-morbilidades do doente e à melhor entrega de oxigénio - Optimizar débito cardíaco
P (*Pressure management*)	- PAM > 90mmHg (se necessário recorrer a fármacos vasopressores) - PPME > 80mmHg - Monitorização invasiva/não-invasiva do débito cardíaco (se necessário recorrer a fármacos inotrópicos) - Optimizar pré-carga
S (*Status o fpatient*)	- Avaliação neurológica frequente - Ponderar realizar TC cerebral e coluna, especialmente se drenagem hemática de LCR



Protocolo para uso da drenagem de líquido cefalorraquidiano em cirurgia de aneurisma toraco-abdominal. Miguel Ferreira. Centro Hospitalar Lisboa Norte - Hospital de Santa Maria Departamento de Anestesiologia



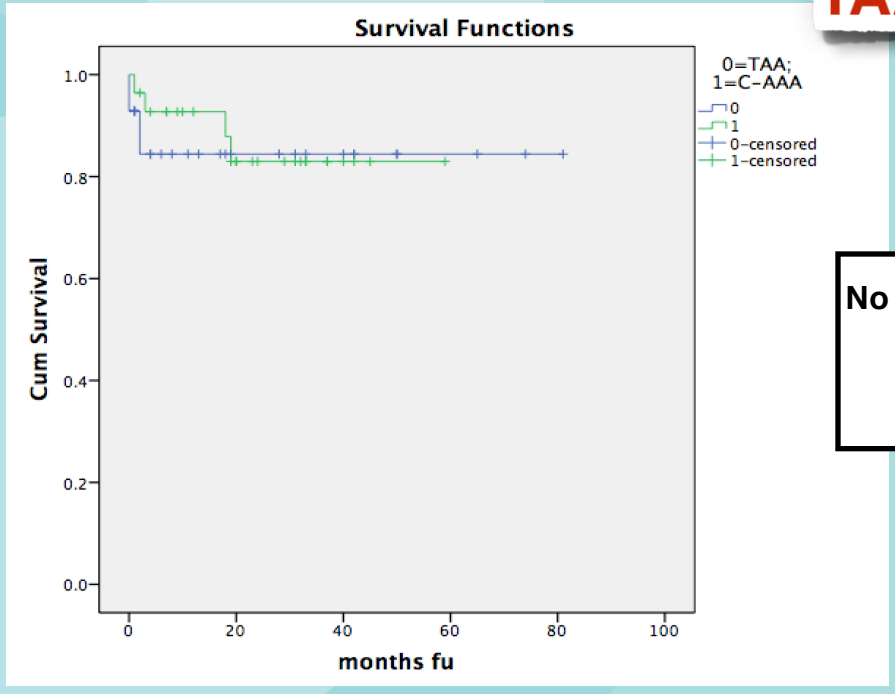




OUTCOMES: MORTALITY

HOSPITAL MORTALITY: 3.6%

TAA *versus* C-AAA

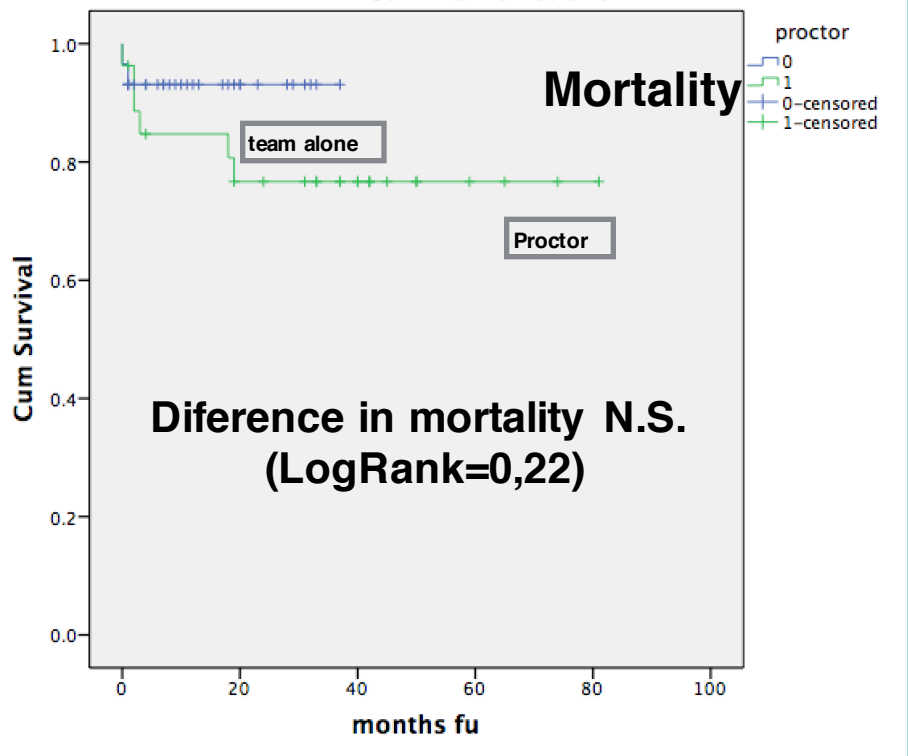


No diferences between TAA and C-AAA (LogRank = 0,78)

PROCTOR

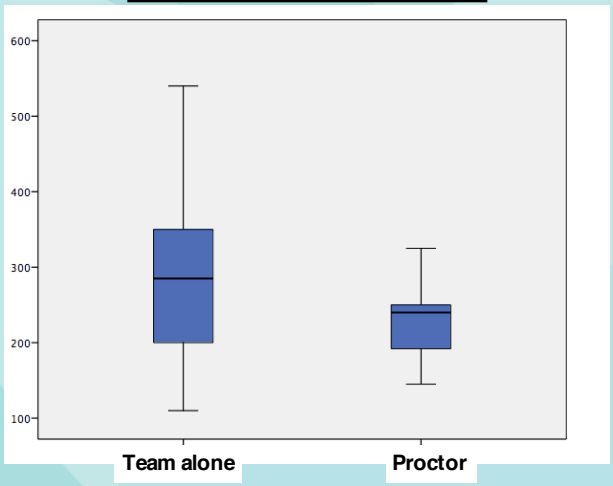
With Proctor *versus* Without Proctor

- **27 cases (16 TAA/ 11 C-AAA)**:
  - 17 FEVAR
  - 4 BEVAR
  - 6 F/B-EVAR
- **Initial and more complex cases**



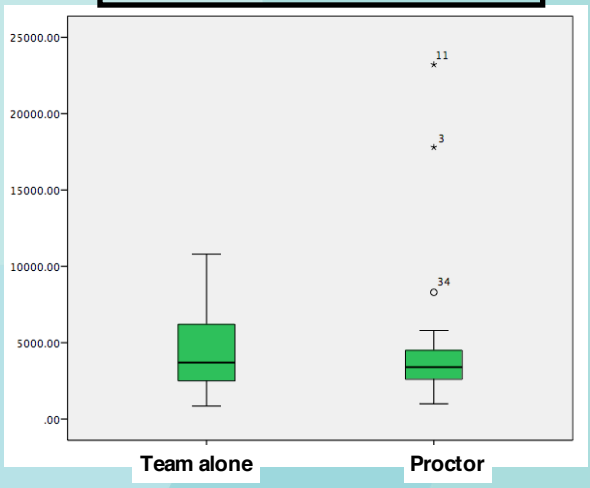
With Proctor *versus* Without Proctor

Procedure time



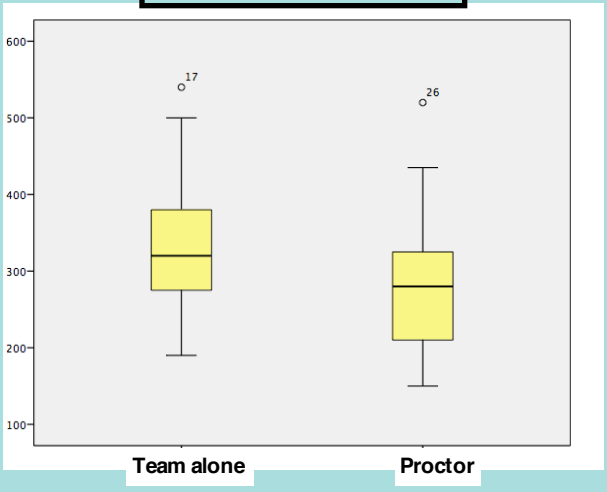
Diference N.S. (p=0,54)

Radiation entry dose



Diference N.S. (p=0,1)

Contrast used



Diference N.S. (p=0,2)

REMARKS

- The modern management of TAA includes **open**, **hybrid** and **endovascular** options in a patient-tailored approach.
- There is still a role for open surgery in a small cohort of patients.
- The success of all these procedures implies a multidisciplinary cooperation and long learning curves.
- As the number of cases is limited and the required setup very complex, these patients should referred for dedicated centres.