

THE 24TH INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
IN AORTIC ENDOGRAFTING



How should we perform and monitor CSFD to reduce its morbidity

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I do not have any potential conflict of interest related to this presentstion



Reimplant I.C.

LH BP

Preserve I.C.

OPEN

MEP & SSEP

**ACCEPTED
CLINICAL
PRACTICE**

Preserve Subcl
& Hypog

ENDO



CSFD

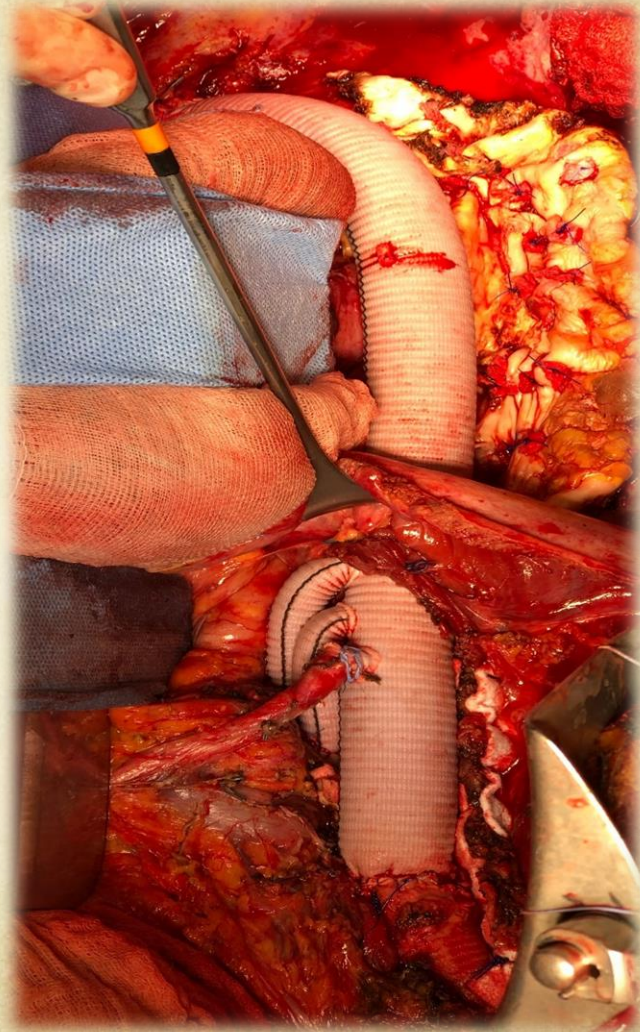


Clinical Neuro
Monitoring



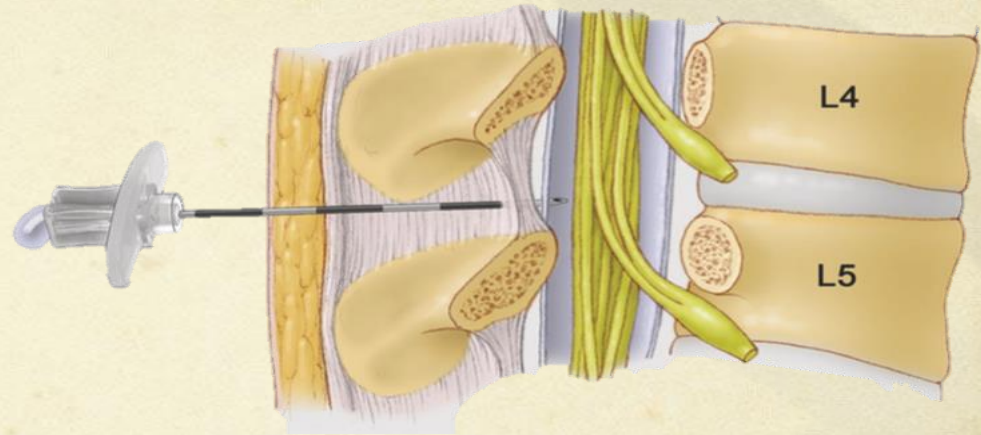
CSFD: When ?

TAAA Open repair



Cerebro Spinal Fluid Drainage GL

CSFD prevents Spinal
Cord Ischemia during
TAAA open repair



Recommendation 6

Cerebrospinal fluid drainage has a role in the prevention of paraplegia and paraparesis and should be considered during extensive open repair of the descending thoracic aorta

Class

Ila

Level of evidence

B

San Raffaele CSFD indications

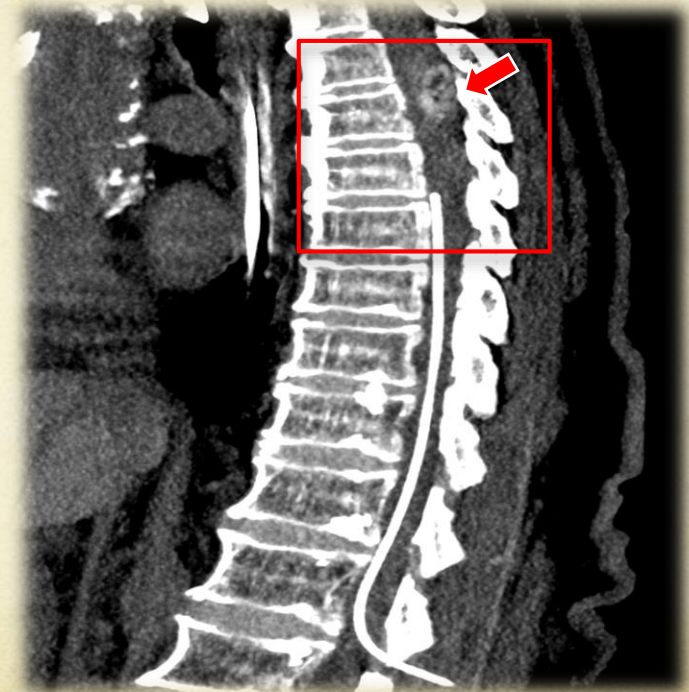
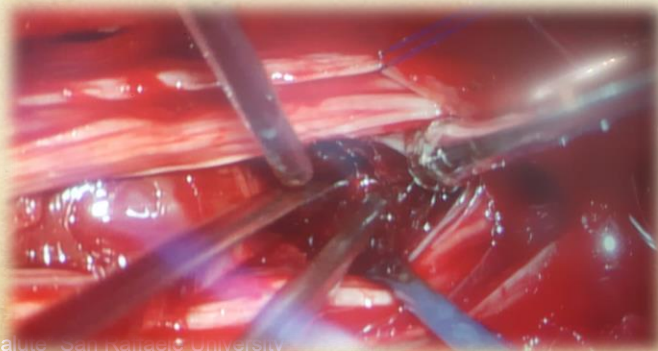
652 TAAA in the last 8 years

- Always when not contraindicated:
 - Extent I (94.7%)
 - Extent II (94.0%)
 - Extent III (92.9%)
- Selectively:
 - Extent IV (51.6%)



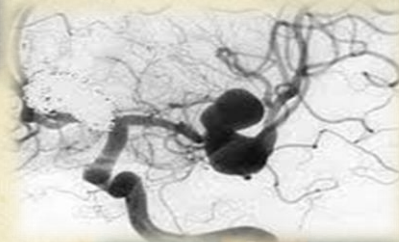
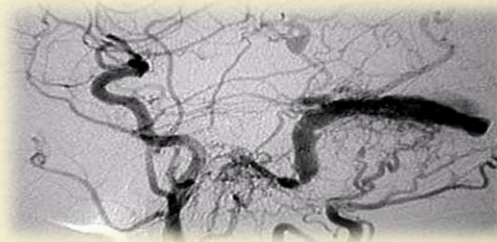
CSFD possible complications

- Headache (4.9 %)
- Tonsillar sagging (0 %)
- Intracranial bleeding (0.4%)
- Subdural hematomas (0.4%)



Contraindication to CSFD

- Intracranial hypertension
- Tonsillar herniation
- Ventriculo-peritoneal shunt
- Arteriovenous fistula
- Cerebral aneurysm
- SC malformations / previous surgery
- Altered coagulation parameters
- Anti-coagulants / double anti-platelets



CSFD: When ?

TAAA Endo repair



CSFD during Endo repair

Prophylactic CSFD should be considered in high risk patients for SCI

Recommendation 10	Class	Level of evidence
Patients with planned extensive thoracic aorta coverage (>200 mm) or previous AAA repair have a high risk for spinal cord ischemia and prophylactic cerebrospinal fluid drainage should be considered in endovascular thoracic aorta repair.	IIa	C



CSFD complications

Cerebrospinal fluid drainage complications during first stage and completion fenestrated-branched endovascular aortic repair

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- 293 F/B-EVAR (2013-2018) → CSFD: 187 pts

“Of 13 study patients who developed spinal cord injuries during aortic procedures, 4 (31%) were attributed to CSFD”



San Raffaele CSFD in Endo repair

	N° procedures	CSFD		
		Preoperative n (%)	Postoperative n (%)	Total n (%)
1 st step	66	0 (0)	3 (4.5%)	3 (4.5%)
2 nd step	97	11 (11.3%)	3 (3.1%)	14 (14.4%)
3 rd step	34	2 (5.9%)	0 (0)	2 (5.9%)

Procedures performed under local / general anaesthesia



Automated Drainage System Strengths

- Continuous and Simultaneous Monitoring and Drainage
- No Manipulation
- Limited Sources Of Error
- Patient Comfort In The Ward



Comparative study

	Drip Chamber	Automated	P
Spinal Cord Ischemia	6.8% (5 cases)	6.3 % (5 case)	NS
Intracranial Haemorrhage	5.4% (4 cases)	0	0.03
Postdural Puncture Headache	15.1% (11 cases)	5.1 % (4 case)	0.03
30-days Mortality	8.2% (6 cases)	3.8% (3 cases)	NS



Optimize coronary reserve

TEE
Monitor

Staging
Procedures

OPEN

ROTEM

STABILITY
HYPERTENSION
Hgb > 12

Rapid
Pacing

ENDO

CUSTODIOL

MISACE

Lower Limbs Perfusion



Conclusions

- SCI prevention requires optimizing all aspects of the procedures
- CSFD is a valid adjunct, however it comes with several potential serious complications
- The problem is still not solved, more research is needed

