CIRA Case of the Week

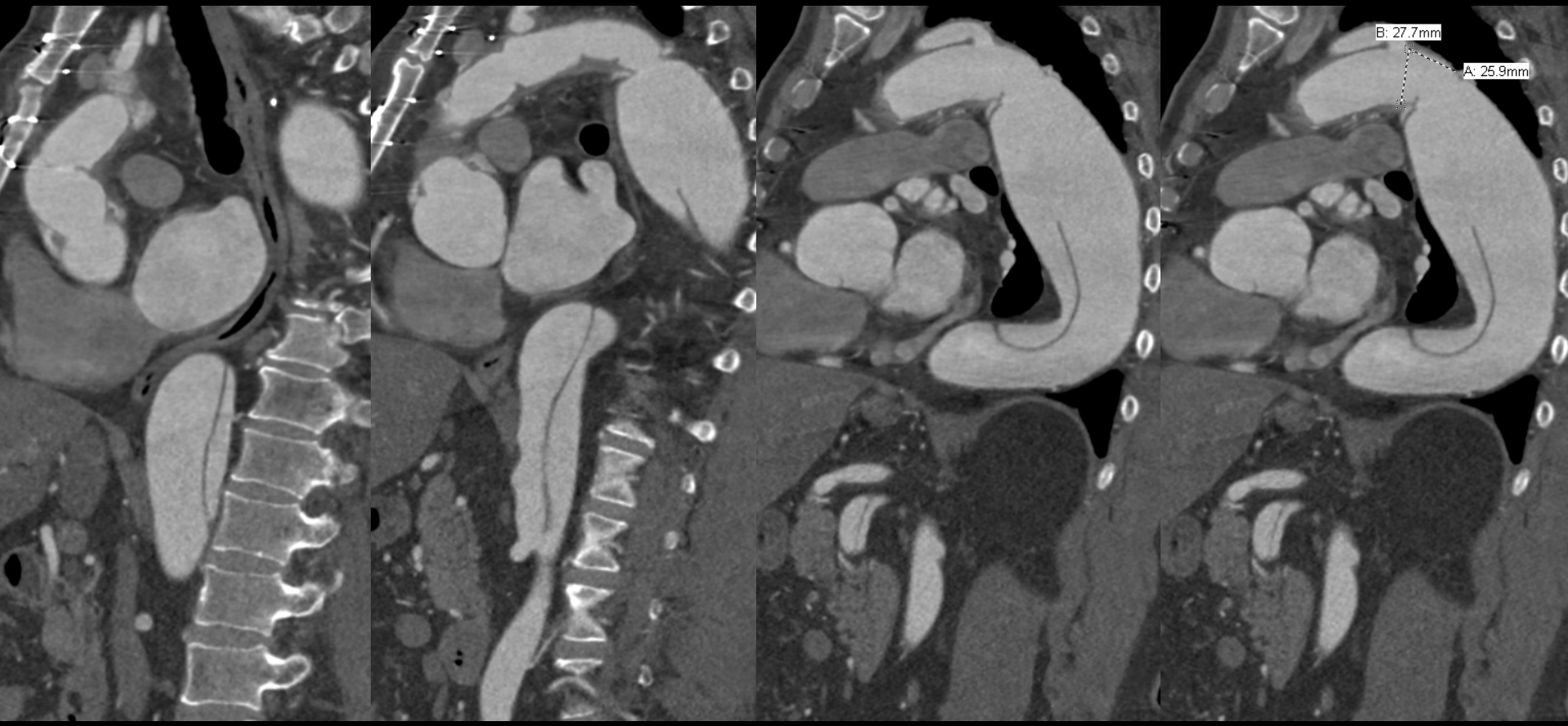
Case Courtesy of Dr. Hannah M. Warner
Vancouver General Hospital

K.L. 69 year old male

- Chronic type B aortic dissection
  - Increasing diameter 6.2 x 5.8 cm
- Previous type A dissection
- Chronic HTN
- Previous left nephrectomy

K.L. 69 year old male

- Hgb - 125
- Platelets - 135
- Creatinine - 123
- eGFR - 51
- INR - 1.1

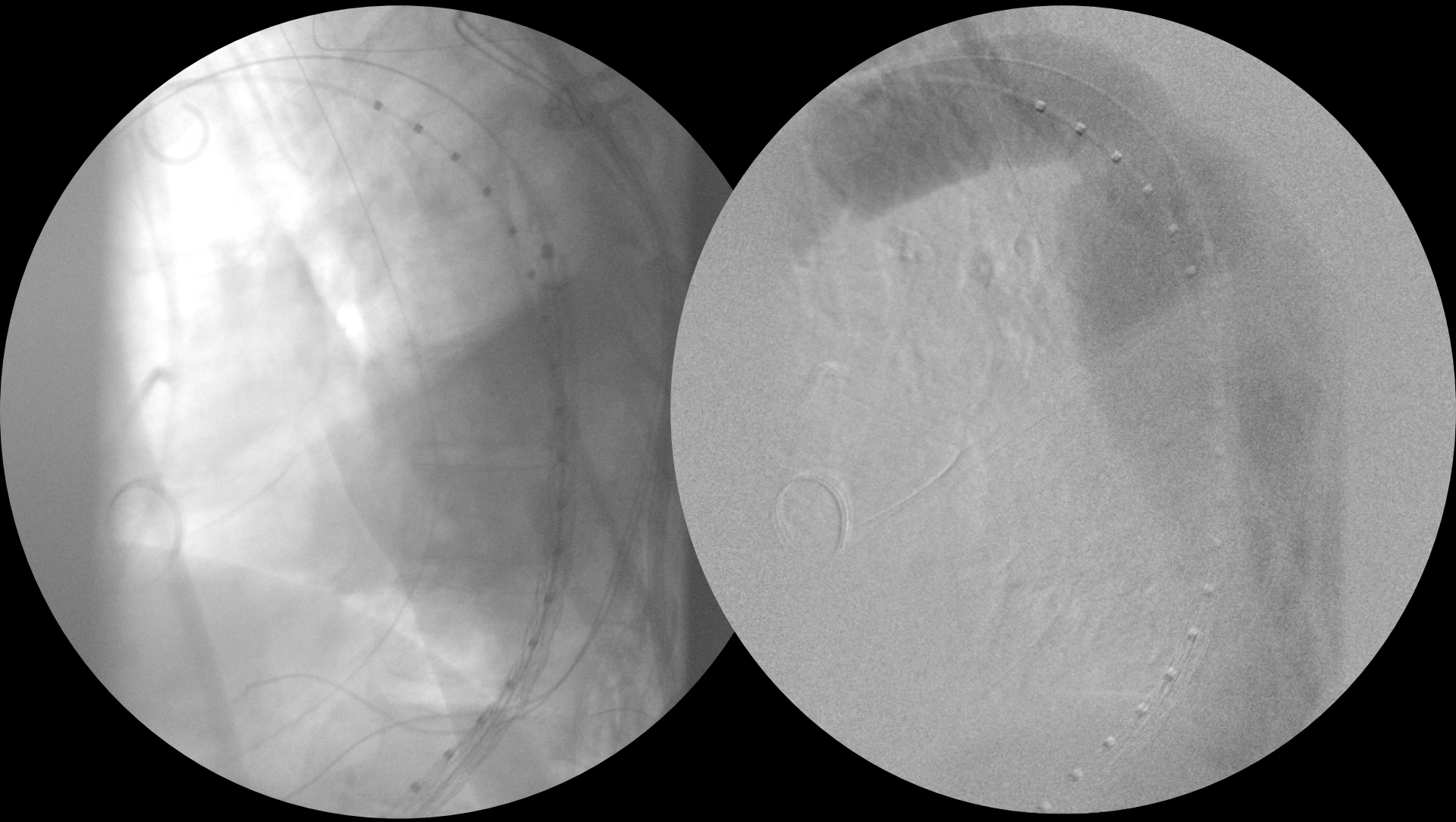

B: 27.7mm
A: 25.9mm

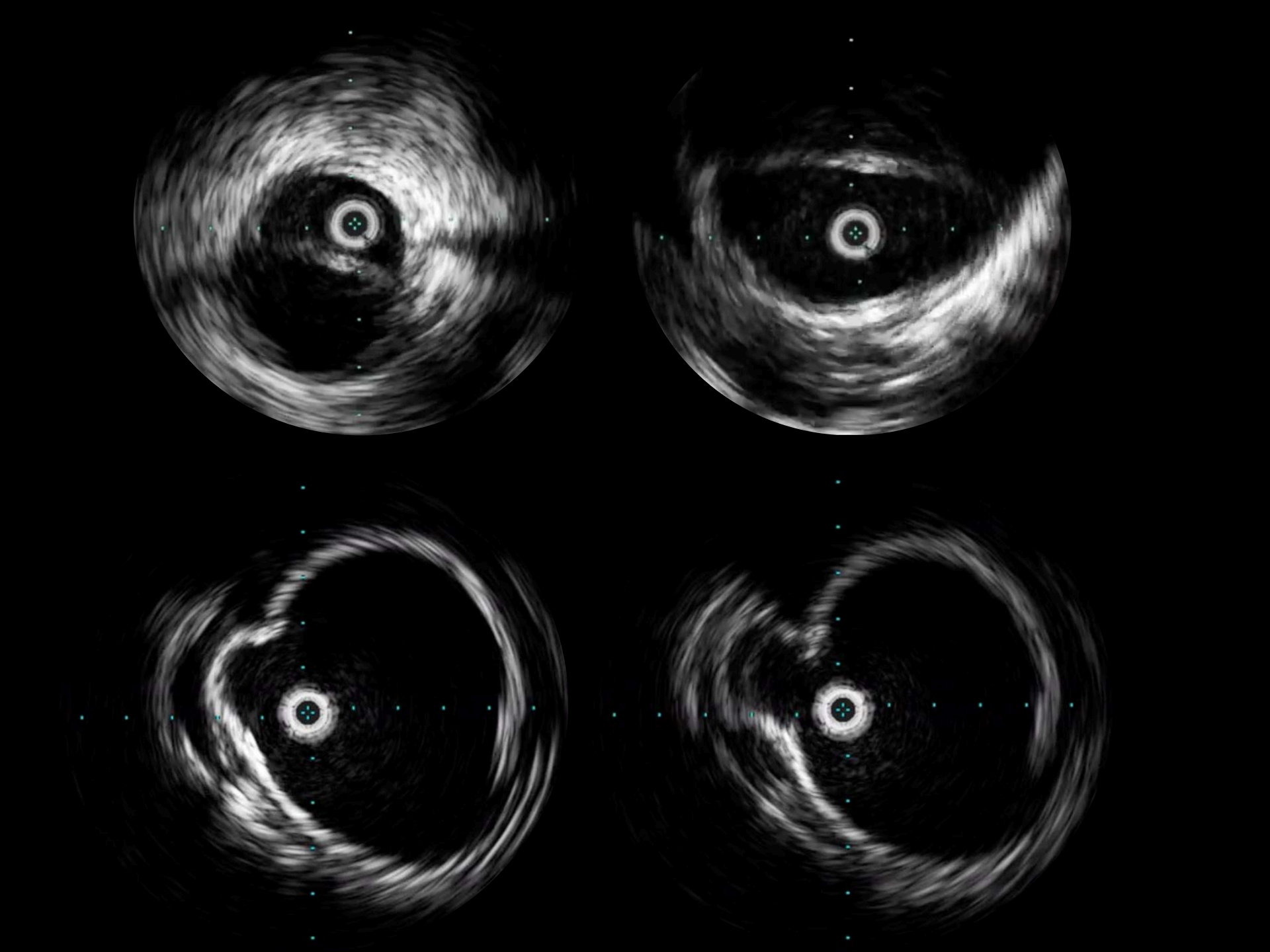
Elective repair

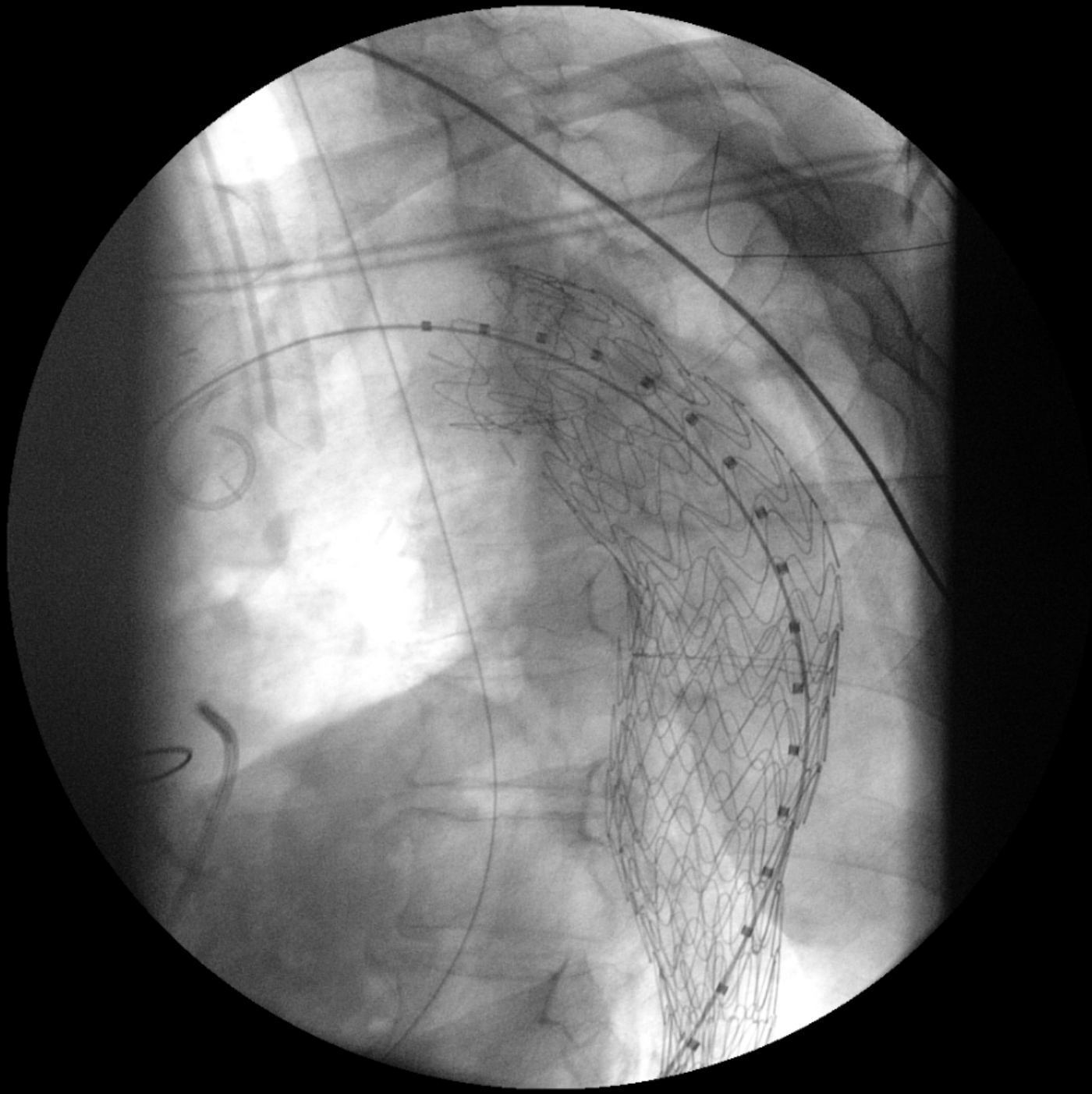
- Intra-operative IVUS
- Close apposition of graft to LSA
- 200 cm and 150 cm grafts placed
- Intraoperative spinal cord monitoring
- 10000 IU heparin

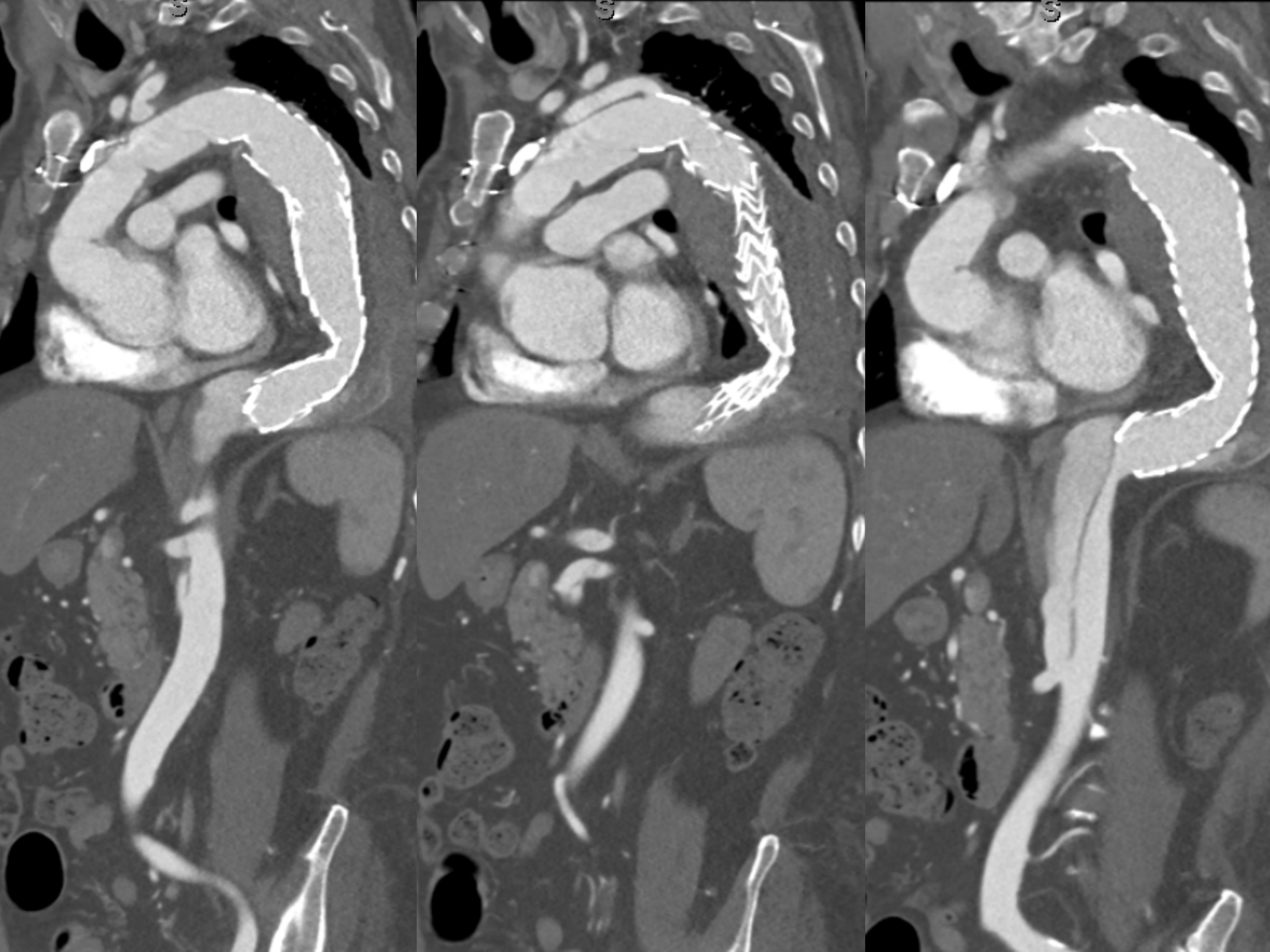
Prophylactic subarachnoid spinal drain

- Difficult insertion
- Attempted by two staff anesthesiologists
- Bloody tap









Post-operatively

- Concern about spinal drain output
- Little hemoserous fluid / several hours
- Normal neurological exam
- Drain removed

Overnight

- Developed weakness in lower limbs
- Reduced power (R 2/5 , L 1/5)
- Emergent MRI spine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Surgical evacuation performed emergently

- L1-4 laminectomies
- Removal of SAH
- Little functional recovery
- Transferred to rehab facility 1/52 post-op

Poor clinical outcome

- Persistent 1/5 power in lower limbs
- Reduced sensation
- Neurogenic bladder/bowel
- Neuropathic pain
- Depression

Repair of chronic type B dissection

- 80% 5 year survival medical management
- 20% mortality
- 30% annual risk of rupture > 6.0 cm
  - Should be repaired if > 5.5 cm
- Paraplegia
  - Risk lower in dissection vs aneurysms
  - May be as low as 0.5% in chronic

Nordon IM, Yates MT, Hinchliffe RJ, Holt PJ, Loftus IM, Thompson MM. Endovascular treatment of chronic aortic dissection. Acta Chir Belg 2009;109(4):450e7.

B. Patterson, P. Holt, C. Nienaber, R. Cambria, R. Fairman, M. Thompson. Aortic pathology determines midterm outcome after endovascular repair of the thoracic aorta: report from the medtronic thoracic endovascular registry (MOTHER) database. Circulation, 127 (2013), pp. 24–32

S.G. Thrumurthy, A. Karthikesalingam, B.O. Patterson, P.J. Holt, R.J. Hinchliffe, I.M. Loftus, et al. A systematic review of mid-term outcomes of thoracic endovascular repair (TEVAR) of chronic type B aortic dissection. Eur J Vasc Endovasc Surg, 42 (2011), pp. 632–647

Prophylactic spinal drains

- reduce neurologic compromise after thoracoabdominal aortic intervention
- Standard of care TAA surgery
- Evidence largely from aneurysm series

J.S. Coselli, S.A. LeMaire, C. Koksoy, et al.Cerebrospinal fluid drainage reduces paraplegia after thoracoabdominal aortic aneurysm repair: Results of a randomized trial J Vasc Surg, 35 (2002), pp. 631-639
Acher CW, Wynn MM, Hoch JR, Popic P, Archibald J, Turnipseed WD. Combined use of cerebral spinal fluid drainage and naloxone reduces the risk of paraplegia in thoracoabdominal aneurysm repair. J Vasc Surg. 1994;19:236–46.
Safi HJ, Hess KR, Randel M, Iliopoulos DC, Baldwin JC, Mootha RK, Shenaq SS, Sheinbaum R, Greene T. Cerebrospinal fluid drainage and distal aortic perfusion: reducing neurologic complications in the repair of thoracoabdominal aortic aneurysms types I and II. J Vasc Surg. 1996;23:223–8.

Prophylactic spinal drains

- 1-5% incidence of complications
  - Meningitis
  - Catheter fracture
  - Direct spinal cord injury
  - Subdural hematoma
    - Most frequently in context of periprocedural anticoagulation
  - Hemorrhage
  - Persistent CSF leak
- 0.6% mortality

Riley, S.P., Donnelly, M.J., Khatib, D. et al. J Anesth (2015) 29: 544. doi:10.1007/00540-015-1990-3
Sinha AC, Cheung AT. Spinal cord protection and thoracic aortic surgery. Curr Opin Anaesthesiol. 2010;23:95–102.

TEVAR team met

- Literature reviewed
- Spinal drain placed if > 20 cm TA covered
- Bloody tap – postpone case
- CSF pressures low x 24 h
- Check pressures q2h
- Blood in CSF – emergent MRI

Wynn MM, Mittnacht A, Norris E. Surgery should not proceed when a bloody tap occurs during spinal drain placement for elective thoracoabdominal aortic surgery. J Cardiothorac Vasc Surg. 2006;23:273-275.