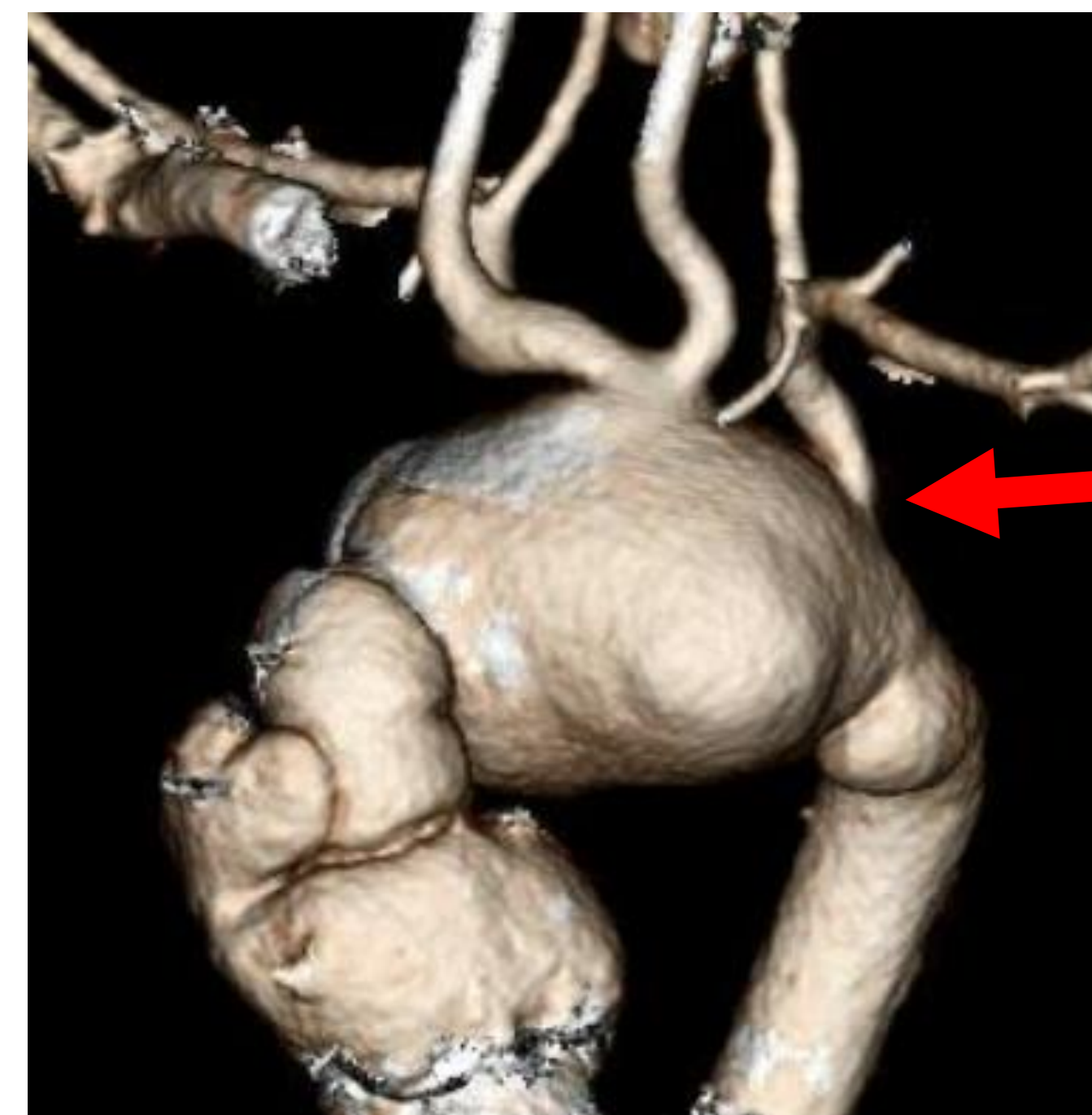


The left subclavian artery – the key to proximalisation in innovative aortic arch surgery

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Introduction: Along with the distal anastomosis in aortic arch surgery, the anastomosis to the left subclavian artery (LSA) is the most surgically challenging head vessel to address. The key to successful proximalisation and debranching in aortic surgery always revolves around the issue of the LSA. We share our experience of a supraclavicular access to the LSA with initial arterial cannulation which, firstly, allows for cerebral perfusion of all three head vessels, and secondly, for debranching, to perform the distal anastomosis in arch zone 2.

Examples of different
pathologies highlighting
the LSA difficulty:



Aortic arch aneurysm

LSA „pushed“
into the left
hemi thorax by
the aneurysm



Chronic Type B dissection

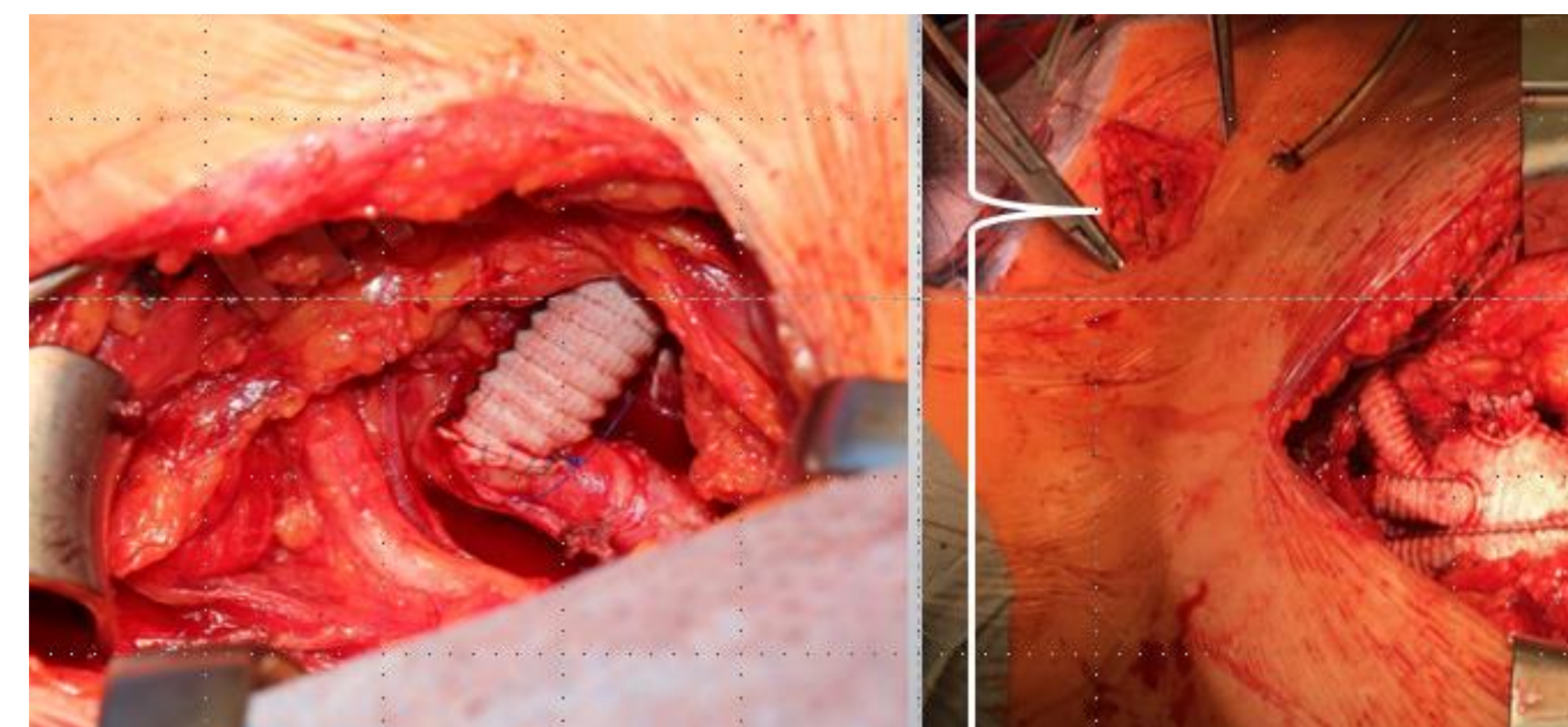
LSA entry of
Type B
dissection



Endoleak following TEVAR

Distal LSA after
branched TEVAR

Methods: Between July 2016 and November 2022, 118 consecutive patients (mean age 60.7±12.8; 58.5% male) underwent surgery for frozen elephant trunk procedure with supraclavicular cannulation of the LSA. Indication for surgery was acute aortic syndrome (28.8%), chronic type A and B dissection (32.2%), and aortic aneurysm (39.0%). All patients received an arch replacement in zone 2 with an extra anatomical bypass to the LSA. Proximally, supra-coronary aortic replacement (87.3%), Bentall procedure (7.6%), or valve sparing root replacement (5.1%) were performed. Additional procedures were coronary artery bypass (12.7%), mitral valve repair (2.5%), and tricuspid valve repair (5.1%). All patients received an extra anatomical bypass to the LSA and consecutively a ligation of its native ostium. Reoperation rate was 21.2%.



Supraclavicular access to LSA

Results: The 30-day mortality rate was 7.6%, permanent and temporary neurologic dysfunction occurred in 9 patients (7.6%) and in 16 patients (13.6%), respectively. Paraplegia was observed in 3 (2.5%), recurrent nerve palsy in 11 (9.3%) and permanent dialysis in 3 patients (2.5%). Complications related to the LSA cannulation were one iatrogenic dissection (0.85%), one plexus lesion (0.85%) and one chylothorax (0.85%).

Conclusion: In our experience, supraclavicular access to the LSA simplifies the FET procedure by enabling proximalisation to arch zone 2. The concept of perfusion of all three head vessels, as well as early whole body reperfusion, leads to low rates of paraplegia and permanent kidney failure.



⇒ Simplified extra-
anatomical bypass to
LSA
⇒ Technically simple
distal aortic
anastomosis