TCAR via Carotid-Subclavian Bypass

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Objective:

To describe TCAR in a patient with unfavorable common carotid artery anatomy.

Methods:

Patient was an 89 years old female with a history of right carotid endarterectomy and left carotid-subclavian artery bypass for left subclavian artery occlusion and an asymptomatic left sided carotid stenosis >70. On preoperative imaging, there was inadequate length from common carotid to access the lesion. A transverse incision was made above the left clavicle between two heads of sternocleidomastoid muscle until common carotid artery was identified, encircled with vessel loop and clamped down proximally. An incision was made over skin overlying distal carotid subclavian bypass, where the vein graft was dissected down, encircled with vessel loop and clamped down. A 5-0 prolene suture was placed in the vein graft in a pursestring manner and bypass was accessed with a micropuncture needle and wire. A micropuncture catheter was placed over a wire and angiogram was performed that showed significant stenosis within the distal common carotid artery at the bulb. A 0.014 wire was placed into the common carotid artery and advanced into the micropuncture sheath. It was exchanged for a heavy wire and advanced the transcarotid arterial sheath. The wire was removed and arterial sheath was sutured down. Femoral vein was accessed, and upsized to 8Fr venous sheath. After establishing access, flow reversal was performed and established with the ENROUTE NPS system. The carotid artery lesion was crossed with 0.014 guidewire and predilation angioplasty performed with 5 x30mm Boston Scientific Monorail Balloon. A 9x40mm ENROUTE stent was placed across lesion. Post-stent angiogram and high-resolution fluoroscopic images were performed and showed good apposition of the stent. After removal of arterial sheath and wires, the accessed vein graft was closed with closed with 5-0 prolene suture.

Results:

Conclusion:

TCAR via carotid-subclavian artery bypass can be performed by safely accessing the conduit if common carotid artery is unfavorable.

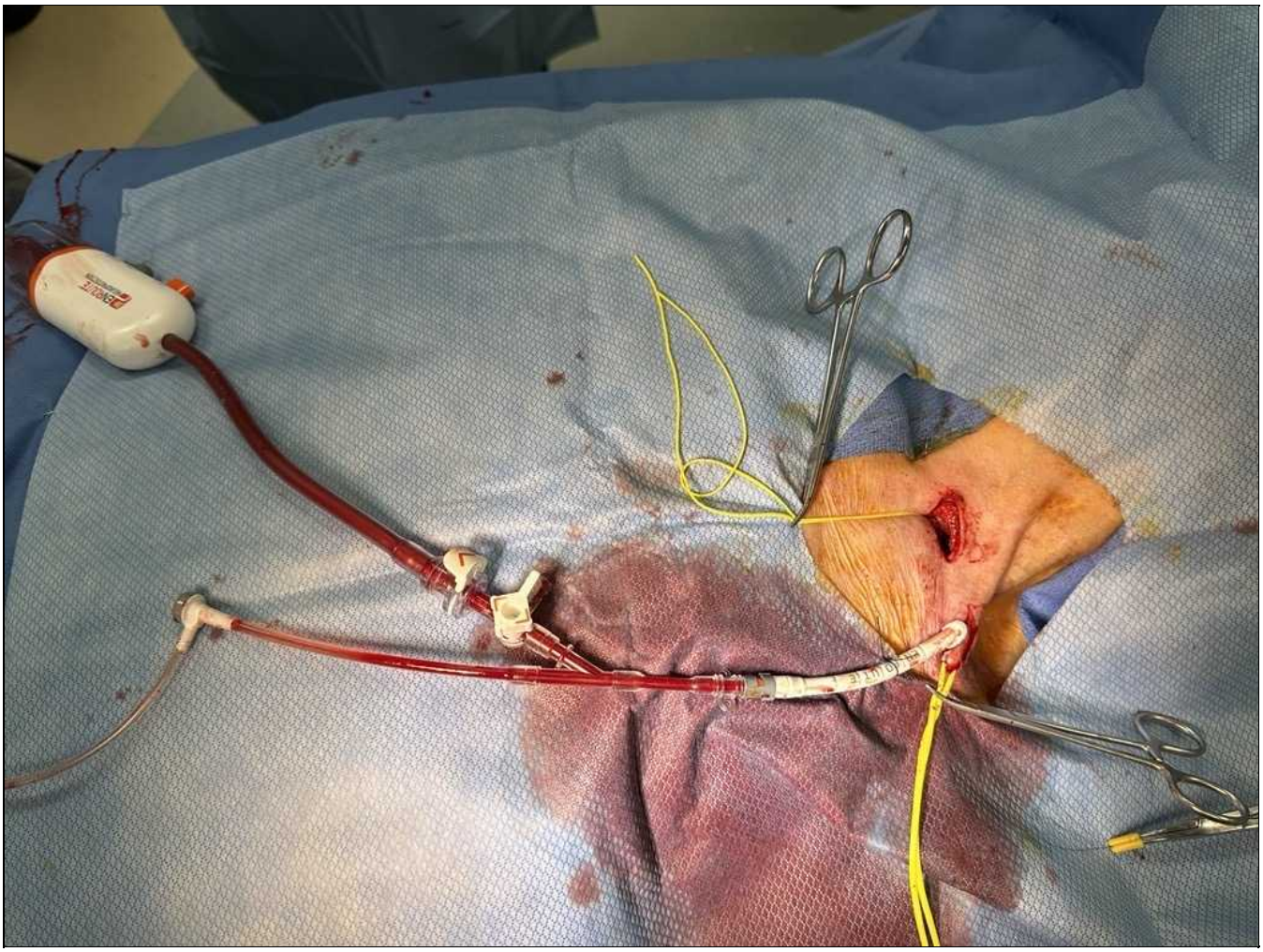

Fig 1 Left neck exposure of carotid-subclavian bypass for TCAR

Fig 2 Left carotid plaque in protection device