

Open reconstruction of severe superior vena cava syndrome with right internal jugular—Superior vena cava bypass using femoral vein

Bernardo C. Mendes, MD,^a Diego V. S. Rodrigues, MD,^a Haraldur Bjarnason, MD,^b Manju Kalra, MBBS,^a and Peter Gloviczki, MD,^a Rochester, MN

The current treatment of chronic benign superior vena cava (SVC) syndrome (SVCS) is endovascular with angioplasty and/or stenting.^{1,2} Open surgical bypass is typically considered for patients for whom endovascular therapy fails.^{3,4} This report illustrates the surgical treatment of symptomatic SVCS. The patient provided written informed consent for the report of his case details and imaging studies.

A 31-year-old male patient presented with recurrent edema and dilated veins of the upper extremities, head, neck, and chest, with concomitant severe headache ([Supplementary Video](#), online only). His history was significant for previous left lower extremity osteomyelitis 6 years before and treatment with antibiotics through a left upper extremity peripherally inserted central catheter. Symptoms of SVCS developed 3 years later. He was treated with bilateral subclavian and innominate vein stenting extending into the SVC. Despite oral anticoagulation since the first intervention, the patient developed multiple in-stent reocclusions and underwent seven reinterventions with only temporary symptom improvement. Physical examination evidenced facial edema, plethoric facies, and dilated veins in the chest and abdomen. Computed tomography venography demonstrated occlusion of all stents. The right internal jugular vein (RIJV) was patent at the upper neck level, close to the carotid bifurcation, and the SVC was also patent caudally to the azygos vein. Left upper extremity and central venograms were performed, and attempts were made to cross the occluded stents, without success. The patient then agreed to proceed with open

reconstruction. A RIJV to SVC bypass was performed using the patient's right femoral vein, which was 8 mm in diameter, via median sternotomy and a right neck incision. The suitable diameter of the vein graft relies on the main vessels' diameter and patient's anatomy, although a minimum diameter of 6 mm is generally accepted. After the SVC anastomosis, a Valsalva maneuver was performed, and the clamp was opened with the patient in the Trendelenburg position to minimize the risk of air embolism. At the 2-year follow-up, a patent bypass was demonstrated with symptom resolution. Annual follow-up with duplex ultrasound is planned. Open surgical treatment of SVCS is associated with long-term symptom relief and is an excellent option for patients for whom endovascular treatment fails. The femoral vein graft was an excellent conduit with a good size match to the RIJV, durable results, and symptom resolution.

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From the Division of Vascular and Endovascular Surgery^a and Department of Radiology,^b Gonda Vascular Center, Mayo Clinic.

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Correspondence: Bernardo C. Mendes, MD, Division of Vascular and Endovascular Surgery, Gonda Vascular Center, Mayo Clinic, 200 First St SW, Rochester MN 55905 (e-mail: mendes.bernardo@mayo.edu).

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