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Surgical Outcomes for Occluded VTOS Following Trans-Axillary First Rib Resection

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Abstract Body:

**Background:** Trans-axillary first rib resection (TFRR) is a well-established operation in treatment of venous thoracic outlet syndrome (VTOS). The objective of this paper is to evaluate long-term outcomes of TFRR in patients with completely occluded axillo-subclavian veins at clinical presentation.

**Methods:** We performed a retrospective review of 253 patients who underwent TFRR for VTOS between 2012 to 2017. Based on ultrasound imaging, we identified 53 patients with completely occluded axillo-subclavian veins at presentation to our clinic. These patients were categorized into <4(n=9), 4-12(n=23), and >12(n=21) weeks of occlusion since the inciting VTOS event. We then identified baseline demographics as well as post-operative outcomes.

**Results:** Overall, the median age of the occluded cohort was 28 years of age. 41% were female, 9.4% were non-Caucasian and 71.7% were operated on their dominant upper extremity. 49.1% received pre-operative tPA with variable results(p=0.08), but remained occluded at subsequent clinic presentation. Post-op venogram at 2-3 weeks demonstrated 33.3%(<4wks), 21.7%(4-
12wks), and 38.1%(>12wks) of patient remained occluded. Post-op venoplasty was performed in 55.6%(<4wks), 15%(4-12wks), and 11%(>12wks) of patients during the venogram (p=0.71). Ultrasound imaging between 4-7 month follow-up demonstrated venous patency of 77.8%(<4wks), 73.9%(4-12wks), and 76%(>12weeks) (p=1.0). Ultrasound imaging between 11-14 month follow-up demonstrated venous patency of 66%(<4wks), 65%(4-12wks) and 69.8%(>12wks) (p=0.67). Symptomatic improvement at 1 year occurred in 100%(<4wks), 95.7%(4-12wks), and 90.1%(>12wks) of patients (p=0.57).

**Conclusion:** Satisfactory vein patency rates and excellent symptomatic improvement can be achieved in VTOS patients with completely occluded axillo-subclavian veins who undergo TFRR. Venous recanalization after decompression likely plays a role. However, the chronicity of axillo-subclavian vein occlusion does not impact post-operative outcomes of TFRR.

**Author Disclosure Block:**