Optimal Way to Diagnose and Treat Venous Thoracic Outlet Syndrome with Axillary-Subclavian Vein Thrombosis:
Both the Supraclavicular and Infraclavicular Approaches Are Needed for Vein Exposure and Reconstruction

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No Relationships to Disclose

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Subclavian Vein Effort Thrombosis
Sudden Onset of Arm Swelling
Cyanotic Discoloration
Heaviness & Pain with Use
Relatively Uncommon but Not Rare
Occurs Primarily in Young, Active, Healthy Individuals
Related to Repeated, Vigorous, and/or Overhead Use of the Arm

Effort Thrombosis is an Acute Manifestation of a Chronic Disorder

Diagnosis & Thrombolytic Therapy
Initial Venogram
After Thrombolysis
Thrombolysis Restores a Patent Vein & Helps Resolve Acute Symptoms-But is Not Definitive Rx Alone, with High Risk of Rethrombosis
**Thrombolysis and Balloon Angioplasty**

1. Initial Venogram
2. Thrombolysis
3. Thrombolysis
4. Balloon Angioplasty
5. Balloon Angioplasty
6. Completion Venogram

**Four Goals of Treatment**

- Relieve Acute Symptoms and Prevent PE
- Reduce Likelihood of Recurrent Thrombosis
- Avoid Development of Post-Thrombotic Syndrome
- Eventually Allow Full Activity without Medications

**Paraclavicular Thoracic Outlet Decompression**

- Supraclavicular Incision
- Infraclavicular Incision

**TIP:** Split but Don't Divide the Pec Major Muscle

**First Rib Specimen from Right-Sided Decompression**

- Clavicle
- Sternum

**Occult Fracture Sites in Anteromedial First Rib**

Circumferential External Venolysis

Re-Expansion of Subclavian Vein to Normal Diameter
Axillary and Subclavian Veins Soft, Compressible, and Widely Patent

No Further Reconstruction ~50% of Patients

Reconstruction Options
- Thrombectomy
- Intimectomy
- Patch Angioplasty
- Interposition Bypass
- Jugular Vein Turn-Down

Conduit Options
- Bovine Pericardium
- Cryop. Femoral Vein
- Cryop. Artery (Aorta)
- Aut. Saphenous Vein
- Aut. Femoral Vein

Reconstructions Extend from Normal Axillary or Subclavian Vein into the Normal Innominate Vein

Subclavian Vein Bypass Graft (20%)
Residual Subclavian Vein Stenosis, Occlusion, or Previous Stent

TIP: Place InnV Clamp from Infraclavicular Incision
TIP: Create a Long Venotomy

Graftpreserved Femoral Vein Allograft
Recovery and Rehabilitation
Physical Therapy Beginning the Day After Surgery
Dextran Intraop and for 48 Hours, Then ASA or Clopidogrel Heparin Intraop x 1, Restart on Day 2, Then Coumadin or Xeralto Hospital Stay 4-5 Days

Remove Drain – Day 7 (Outpatient)
Outpatient Physical Therapy in St. Louis for 7-10 Days
Continue Anticoagulation
Continue Physical Therapy
Followup Visits at 6 and 12 Wks