Thoracic Outlet Syndrome with Venous Complications: Timing, Treatments Options and Long-term Management

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Disclosure

Peter A. Schneider:

I have the following potential conflicts of interest to report:

☐ Scientific Advisory Board (not compensated): Medtronic, Abbott, Cardinal Health

☐ Intellectual property: modest Royalty, Cook

☐ Chief Medical Officer: Intact Vascular
Thoracic Outlet Syndrome

Venous Complications

• 4% of venous cases
• Approximately 50,000 per year US
• Exertion related
• Other: Iatrogenic (catheters, pacer wires), hypercoagulability, trauma

• PE (12%), Post-thrombotic syndrome
Clavicle

Contrast administration on left side
Thrombosed Axillary v.

Jugular v.
Thrombosed vein passing over first rib

Jugular-subclavian confluence
Axillary artery

Wide, flat shape of first rib
Subclavian vein is trapped
Post-PTA usually looks terrible
Venous Thoracic Outlet Syndrome

• Who needs treatment?
  – Up to half do not require treatment beyond anticoagulation and about 25% come back with recurrent symptoms
  – Young patients, athletes more likely to benefit from aggressive treatment

• Role of lysis?
  – The more acute, the more likely that lysis is helpful.
  – Lysis in patients presenting within a month of onset.
  – Lysis success beyond 6 weeks only 50%
  – Some advocate no pre-op lysis

Lee et al. J Vasc Surg 2006;43:1236
Chandra et al. J Vasc Surg 2014;60:1012
Venous Thoracic Outlet Syndrome

• When to remove the rib?
  – Standard approach has been 3 months anticoagulation, then first rib resection
  – Current approach is to proceed directly

• Technical issues
  – Transaxillary first rib resection
  – Infraclavicular incision with venolysis occasionally useful
  – Aggressive angioplasty after rib resection
  – Avoid stents

Machleder HI J Vasc Surg 1993;17:305
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• Long–term?

- Routine post-op venogram at 2 weeks
- About 60% of patients require venoplasty
- Anticoagulation for 6 months
- Contralateral side?
  - 15% of normals will have stenosis with abduction (Chang et al. Vasc Endovasc Surg 2012;46:15)
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Conclusion

• Major cause of upper extremity DVT
• Often in younger, healthy patients
• Can be readily managed using a combination of open and endovascular treatments
• Timing issues need to individualized to the clinical situation
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