Infraclavicular Approach First Rib Resection for Paget-Schroetter Syndrome

Tristan Stickle BS, Craig Seidman MD, FACS, Paul Schumacher MD, FACS, MPH
Northwest Surgical Specialists

Background

- Thoracic outlet syndrome (TOS) represents a group of rare diseases divided into neurogenic, venous, and arterial subcategories. Venous thoracic outlet syndrome is also commonly known as Paget-Schroetter syndrome (PSS).
- There is currently no standard surgical treatment approach for thoracic outlet syndrome patients and more specifically Paget-Schroetter syndrome.
- Our clinic has performed supraclavicular, paraclavicular, and infraclavicular approach first rib resections to achieve decompression for Paget-Schroetter syndrome patients.

Methods

- Observational, retrospective, single-site study. Data was collected from our medical records to identify patients treated for venous thoracic outlet syndrome by the clinic from 2007 to 2022.
- Patients were identified on the basis of surgical intervention, primarily first rib resection. This study excludes patients evaluated and treated medically for PSS.
- All patients were evaluated using venogram and underwent thrombolytic therapy and/or concurrent mechanical thrombectomy to treat acute thrombosis prior to first rib resection.
- Data analysis was performed in R.

Results

- There were 25 patients who underwent 7 supraclavicular, 14 paraclavicular and 6 infraclavicular approach first rib resections.
- Decompression was successful in all cases.
- Average operative time for supraclavicular and paraclavicular approaches combined was 3.6 hours (range, 2-5.5 hours).
- Average operative time for the infraclavicular approach was 1.6 hours (range, 0.75-2 hours).
- There were six surgical complications including chylous leak, pneumothorax and post-operative bleeding. One of these complications occurred in the infraclavicular approach for a hemodialysis patient. None of the other infraclavicular patients suffered any complications.
- Of the 25 patients, 9 ultimately had a stent placed. One of the stented patients underwent infraclavicular decompression.

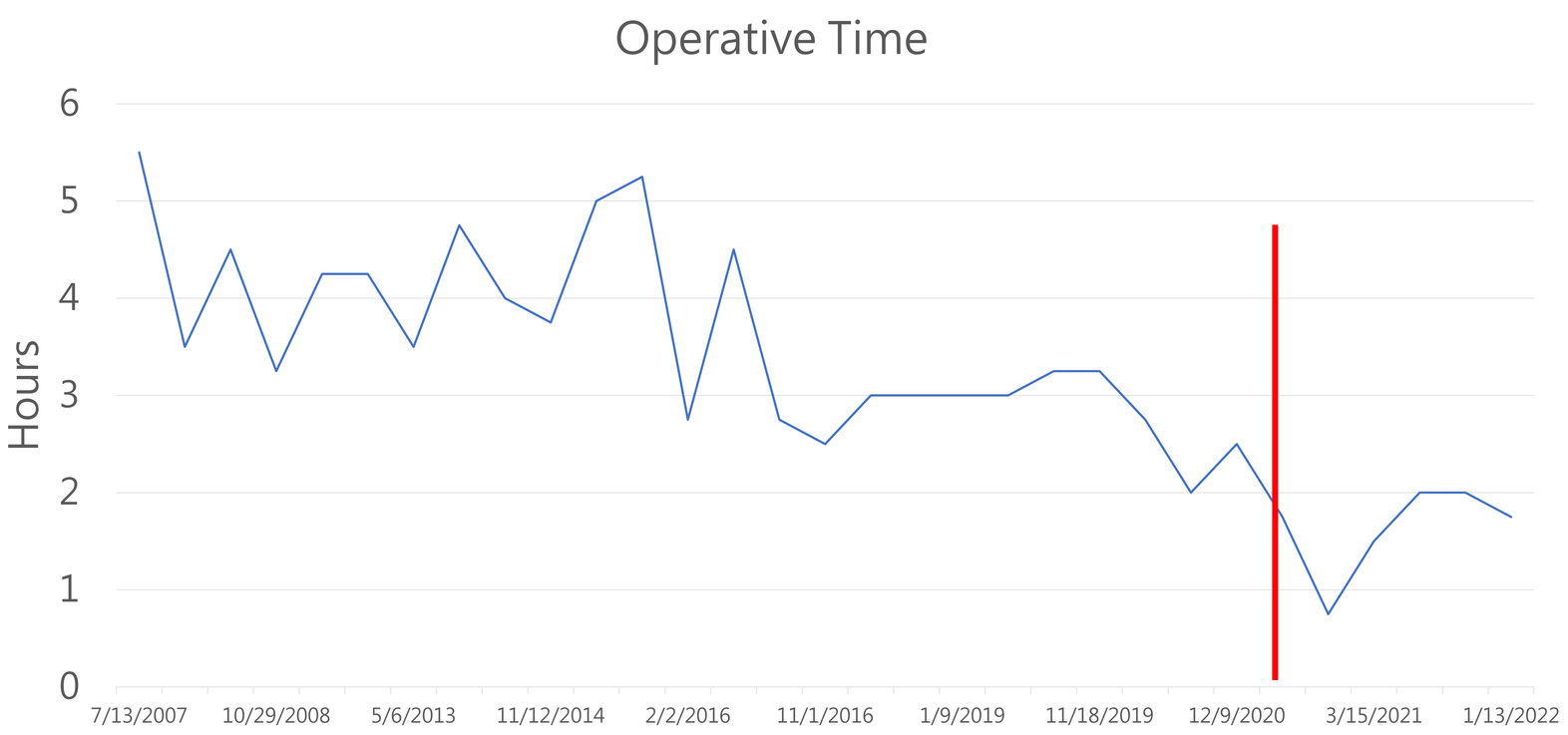

Figure 1: Operative time in hours for first rib resection. Values left of the red line includes both supraclavicular and paraclavicular approaches. Values right of the red line are infraclavicular approach only.

Conclusions

- The infraclavicular approach for treatment of Paget-Schroetter syndrome has multiple advantages compared to other approaches.

  This technique offers:

  - Superior anatomical exposure for rib removal and complete venolysis.
  - Reduced operative time.
  - Less risk of lymphatic or nerve injuries.
  - Equivalent outcomes in terms of relief of venous hypertension symptoms.

Contact

Tristan Stickle
Northwest Surgical Specialists
Email: tstickle@nwsurgical.org