Robot-Assisted Thoracosopic First Rib Resection Is The Approach Of Choice For v-TOS: Why And What Equipment And Skills Are Required?

H.M.E. Coveliers, MD, MBA
VU University medical center Amsterdam

No Disclosures
Hans Coveliers, MD, MBA

Paget-Schroetter Disease (venous TOS)

- “Effort Thrombosis” of the Subclavian Vein
- Type of Thoracic Outlet Syndrome
- Excessive Arm Activity combined with a compressive element at the Thoracic Inlet
  - Paget of London –1875
  - von-Schroetter of Vienna –1884

Management

- Thrombolytic Therapy
- Anticoagulation
- First Rib Resection
- Subclavian Venoplasty
- No Role for Anticoagulation alone
- Best Long Term Results: Prompt Thrombolytic Therapy followed by First Rib Resection and Short term Anticoagulation
Paget-Schroetter Disease: EKOS thrombolysis

Controversies
- True Pathophysiologic Mechanism
- Bilaterality
- Ideal Surgical Approach
- The extent of First Rib Resection
- Need for Scalenectomy
- Appropriate Management of Patients with Prolonged Subclavian Vein Occlusion

Surgical Approach to First Rib Resection
- "Key Hole Surgery" with All Surgical Approaches
- Poor Visualization of the Medial Aspect of First Rib
- Long Thoracic Nerve Injury
- Injury of Superficial Cervical Nerves
- Brachial Plexus Injury
- Inadequate Rib Resection
Patients and Methods

25 interventions (25 Pts.) 40 months

Acute/Chronic 18/7
Mean age 33 yrs.
Male 13/25 (52%)
Female 12/15 (48%)

Robotic First Rib Resection

Results
Mean Operative Time = 130 +/- 42 minutes.
Median Hospitalization = 3 days

Complications:
1 conversion due to bleeding
1 conversion due to inability to cut rib.
2 postoperative pneumothorax

No Mortality
Anticoagulation continued for 3 months Post-op

Robotic First Rib Resection

Results
Instant Decompression of the Subclavian and IMV as well as collaterals 25/25 (100%)

Subjective Excellent symptomatic Relief 25/25 (100%)

Vein Open on Post-Op Venogram (acute) 17/25 (68%)
Vein Closed on Post-Op Venogram /Stent 8/25 (32%)
Vein open on Venogram / Stent Placement 25/25 (100%)
Robotic First Rib Resection

Conclusions

Robotic Transthoracic technique represents an ideal approach to the resection of the first rib.

The intermediate term results with this technique are excellent.

First Rib Resection should be performed as soon as possible after diagnosis and thrombolysis.

Thank you for your attention

Hans Coveliers, MD, MBA
VU Medical center Amsterdam
h.coveliers@vumc.nl