New Developments in the Treatment of Arterial Thoracic Outlet Syndrome
A New Algorithm for Treatment

Dr Jacques Busquet
Vascular & Endovascular Surgery
Paris, France

VEITH Symposium, November 13-17 2018, NYC

Thank you Frank for your invitation
With my best wishes and congratulations

NO DISCLOSURES

Definition
Vascular and nerve positional compression inside the thoracic outlet compartment

Type of Compression
Arterial 1-2%
Venous 5-8%
Neurologic 90%

Thoracic Outlet Syndrome
Anatomical Compressive Components
Thoracic Outlet Syndrome

Plexus, Subclavian Artery & Vein

Inter-Scalenus Triangle  Costo-Clavicular Canal

Symptoms

- Paresthesia
- Venous dilatation
- Oedema
- Coldness
- Weakness

Cervical Rib

W.L. GRUBER 1869

Diagnosis

- Clinical examination
- Duplex scan
- Electromyogram
- CT scan
- Angiography
- MRI

Right Cervical Rib
Positional white hand

Dynamic testing
Adson - Allen - Wright - Roos

Traditional auscultation

Post arterial-compression aneurysm

Arterial Complications
Raynaud Syndrome
Ischemia of hand and fingers
Distal digital necrosis
Acute or sub-acute installation
Importance of diagnosis-making

Complications

Distal Embolic Migration
**Distal Embolic Migration**


**Morphology**

**Static and Positional Duplex Scan**

First choice examination

Orientation of diagnostic strategy

**CT Scan 3D Reconstruction**

Static or Dynamic

**Dynamic Selective Angiography**

Compression of the Left Axillary Artery

**Thoracic Outlet Syndrome**

- Cervical Rib Resection
- Scalenotomy
- Ligaments Resection
- Surgical Correction the Anatomic Abnormality
- Stenting (usually No)
Iatrogenic Trauma

Cubital Artery Emboli

Stent-Graft Implantation

Aneurysm Exclusion
Non Surgical Treatment

- Physiotherapy
- Postural rehabilitation
- Relaxation of the cervical region
- Reinforcement of the opening back muscles
- Respiratory Control
- Diaphragmatic exercises

Results of Physiotherapy

- 15% asymptomatic
- 60% good results
- 20% no change
- 5% increased symptoms

Conclusion

- Clinical examination
- Duplex scan
- Physiotherapy
- Surgery with clavicular access

In memoriam

Professor Clifford Buckley
USA