The Premier Annual Meeting for Vascular Health Professionals
A short history of the Thoracic Outlet Syndrome

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NOTHING TO DISCLOSE
Major anatomic periods in the historical evolution of a “Thoracic Outlet Compression Syndrome”

1- The CervicalRib * (Holmes Coote, Lancet) 1861
2- The Anterior Scalene Muscle * (Adson, Ann Surg) 1927
3- The Subclavian Artery (Rob, BMJ) 1958
   (Recognition of Arterial TOS)
4- The First Thoracic Rib * (Clagett, J Thor Cv S) 1962
5- The Subclavious Tendon
   (Recognition of Venous TOS (Arch Surg –JVS) 1989
Milestones of major conceptual change
(Influence of the first dorsal rib, and the anterior scalene muscle)

Todd TW

Stopford and Telford

Ochsner, Gage, and DeBakey

Naffziger and Grant.
Milestones cont. II
(The first use of the term Thoracic Outlet Syndrome)

Eaton LM

Peet RM (Eaton – discussion)
Milestones cont. III
(The Subclavius tendon)

Telford and Mottershead
Pressure at the cervico-brachial junction (an operative and anatomical study)
*J Bone Joint Surg (Br)* 1948; 30B: 249-63

Aziz S, Straehley CJ, Whelan TJ *

Kunkel JM

Milestones cont. IV
The Journal of Vascular Surgery Indexes the first papers as “Thoracic Outlet Syndrome”

Scher, Vieth, Sampson, Gupta, Ascer

Machleder, Moll, Nuwer, Jordan
All shoulder girdle compression syndromes have one common feature; namely, compression of the brachial plexus, the subclavian artery, and subclavian vein, usually between the first rib and clavicle. With elevation of the upper limb, there is a scissor-like approximation of the clavicle superiorly and the first rib inferiorly. Grouping the various conditions under the single heading of thoracic outlet syndrome should be considered in all neurologic and vascular complaints of the arm previously reported as scalenus anticus, hyperabduction, costoclavicular, cervical rib, fractured clavicle, cervicobrachial compression, pneumatic hammer, effort vein thrombosis, subcoracoid, pectoris minor, and the first thoracic rib syndromes.”

W.S. Fields 1986

Milestones of major conceptual change cont. V
The recognition that TOS was linked to developmental variations
I – The embryologic and morphologic evidence

Lang J

Milliez PY
Milestones of major conceptual change cont. VI
The recognition that TOS was linked to developmental variations
II - The Clinical Correlation

Roos DB

Makhoul RG
Milestones of major conceptual change VII
(TOS is a major disabling condition in the modern workplace)

Pascarelli EF, Hsu YP

And for the Public:

Emil Pascarelli
(From the “Miller Health Care Institute for Performing Artists”, at Columbia University N.Y.)
What have we learned from the history?  
(May of 2013)

There are three classic cases of Thoracic Outlet Compression Syndrome
I – The Paget-Schroetter Axillo-subclavian vein occlusion
II – Hand ischemia from thrombosis or embolization from the compressed or aneurysmal subclavian artery
III – The ‘wasted hand’ of cervical band compression of the brachial plexus

In addition to these ‘end stage’ conditions, there is a full spectrum of symptoms that arise from neurovascular compression at the thoracic outlet. These lesser degrees of compression will often be disabling, in settings of specific physical or occupational requirements.

“First Rib resection” provides access to the thoracic outlet anomalies
A final comment!

Charles Rob; in Longmire’s edition of *Advances in Surgery*

“Awareness is the key to detection of these conditions, and a grateful patient is the reward for accurate diagnosis.”

Thank you!