

Transaxillary First Rib Resection for Thoracic Outlet Syndrome

Harold C. Urschel, Jr., MD

Introduction

Thoracic outlet syndrome, a term coined by Rob and Standeven,¹ refers to compression of the subclavian vessels and brachial plexus at the superior aperture of the chest. It was previously designated according to presumed compression etiologies such as scalenus anticus, costoclavicular, hyperabduction, cervical rib, and first thoracic rib syndromes. The various syndromes are similar, and the compression mechanism is often difficult to identify. Most compressive factors operate against the first rib (Fig. 1).

Therapy

Most patients with thoracic outlet syndrome can be treated conservatively without surgery in a successful fashion. In general, patients with neurogenic thoracic outlet syndrome should be given physiotherapy when the diagnosis is made.

Proper physiotherapy includes heat massages, active neck exercises, stretching of the scalenus muscles, strengthening of the upper trapezius muscle, and posture instruction. Because sagging of the shoulder girdle, which is common among middle-aged people, is a major cause in this syndrome, many patients with less severe cases are improved by strengthening the shoulder girdle and by improving posture.

Most patients with thoracic outlet syndrome who have ulnar nerve conduction velocities (UNCVs) of more than 60 meters per second (mps) improve with conservative management.² If the conduction velocity is below that level, most patients, despite physiotherapy, may remain symptomatic, and surgical resection of the first rib and correction of other bony abnormalities may be needed to provide relief of symptoms.

If symptoms of neurovascular compression continue after physiotherapy, and the conduction velocity shows slight or no improvement or regression, surgical resection of the first rib and cervical rib, when present, should be considered.

The transaxillary route is an expedient approach for com-

plete removal of the first rib with decompression of the seventh and eighth cervical and first thoracic nerve roots and the lower trunks of the brachial plexus. First rib resection can be performed without the need for major muscle division, the need for retraction of the brachial plexus, and the difficulty of removing the posterior segment of the rib. In addition, first rib resection shortens the postoperative disability and provides better cosmetic results than the anterior and posterior approaches, particularly because 80% of patients are female.

The Appropriate Surgical Approach

The supraclavicular approach in our practice is used primarily for arterial lesions requiring control of the proximal subclavian artery for either resection of aneurysm or stenosis and bypass graft placement.³ The transaxillary approach is reserved for intermittent or total axillary-subclavian venous occlusion (Paget-Schroetter Syndrome)^{4,5} neurological compression,⁶ or combinations of these. The posterior approach, in our hands, is used for reoperation requiring neurolysis of the brachial plexus and decompression of vascular structures.⁷ Dorsal sympathectomy may be conducted concomitantly or separately through any of the three incisions when indicated for sympathetic maintained pain management or hyperhidrosis.⁸

Transaxillary First Rib Resection

The advantage of this approach is that the rib can be removed and the thoracic outlet decompressed without working through or retracting the brachial plexus and axillary-subclavian blood vessels. A double-lumen tube is employed to collapse the lung on the operative side, minimizing the chance for an unplanned pneumothorax. A lighted right-angle breast retractor as well as a narrow Deaver retractor are employed for optimal exposure. The video thoracoscope is used for its magnification, as an excellent light source, and for facilitating teaching. The patient is placed in the lateral position with an axillary roll under the "down" side. The "up" side arm is wrapped and elevated over a traction apparatus with a 2-pound weight. Two special arm holders (technicians) are employed to keep the arm at 90 degrees from the chest wall, avoiding hyperabduction or hyperextension of the shoulder. Care is taken to relax the arm as often as necessary. The arm, axilla, and chest wall are prepared and draped.

Chair of Cardiovascular & Thoracic Surgical Research, Education & Clinical Excellence, Baylor University Medical Center, and Professor of Cardiovascular and Thoracic Surgery (Clinical), University of Texas Southwestern Medical School, Dallas, Texas.

Address reprint requests to Dr. Harold C. Urschel, Jr., MD, Chair of Cardiovascular & Thoracic Surgical Research, Education & Clinical Excellence, Baylor University Medical Center, 3600 Gaston Avenue, Suite 1201 Barnett Tower, Dallas, Texas 75246. E-mail: drurschel@earthlink.net

THORACIC OUTLET SYNDROME

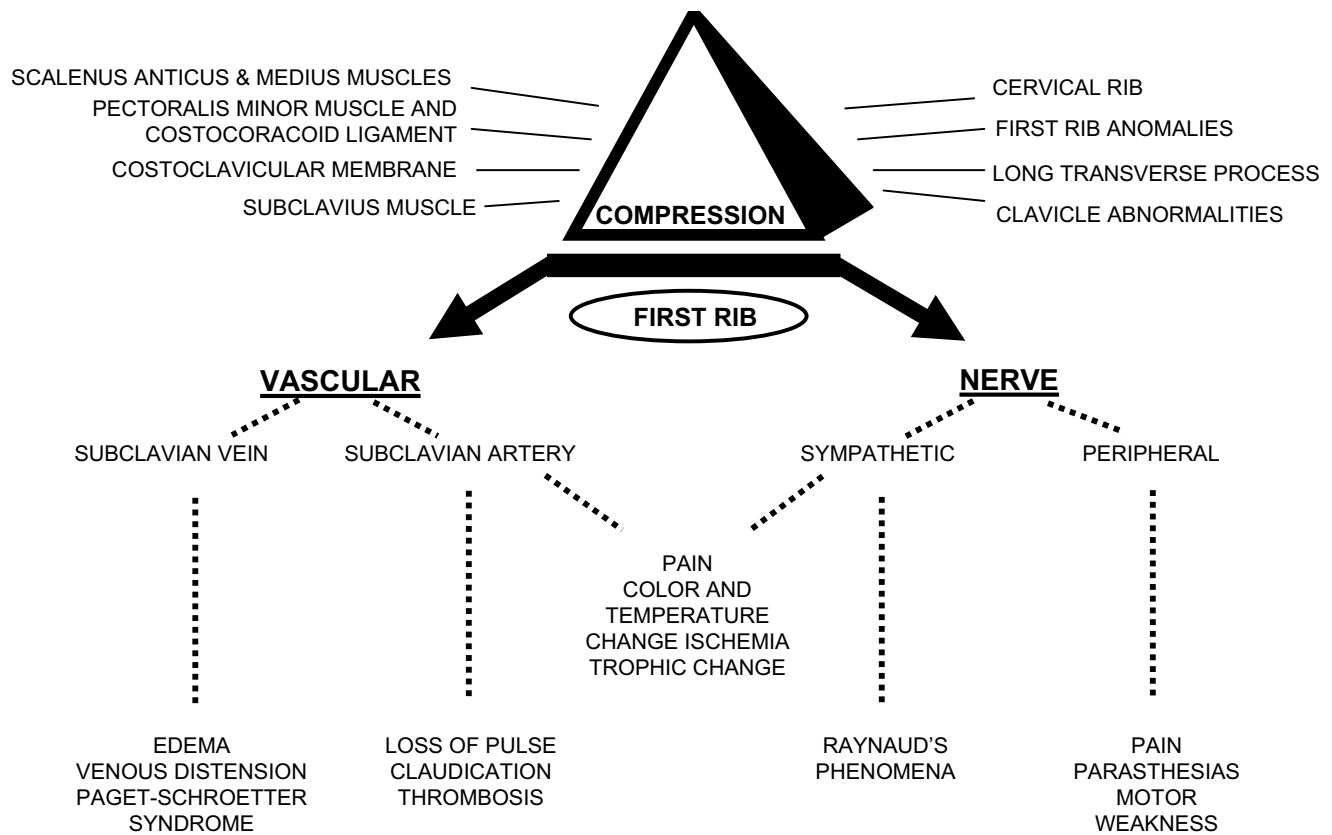


Figure 1 The relation of muscle, ligament, and bone abnormalities in the thoracic outlet that may compress neurovascular structures against the first rib.

Download English Version:

<https://daneshyari.com/en/article/9178786>

Download Persian Version:

<https://daneshyari.com/article/9178786>

[Daneshyari.com](https://daneshyari.com)