

Case Report

First Single Centre Experience in Thoracic Outlet Syndrome

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Abstract

Thoracic Outlet Syndrome (TOS) resulting from compression or irritation of the neurovascular structure at various levels of the cervico-thoracic-brachial passages.

Here, we describe a case in a 56-year-old woman. She initially experienced a right-sided shoulder pain and fingers numbness increase with exercise and persisted after cessation of activities diagnosed as Neurogenic Thoracic Outlet Syndrome (NTOS). Physical examination revealed chronic neurogenic changes in the hand muscles. Further investigation showed a cervical rib on plain X-ray. The patient underwent surgical decompression via scalenectomy and long transverse process and fibrous band resection. The pathophysiology, radiology, classification, and treatment strategy are discussed in the report.

INTRODUCTION

The Thoracic Outlet Syndrome (TOS) is defined as clinical symptoms caused by the entrapment of neurovascular structures en route to the upper limb via the superior thoracic outlet. The incidence of TOS has been reported to be approximately 0.3–2% of the general population between the ages of 25 and 40 years with a female to male ratio up to 4:1. The neurogenic form of TOS accounts for 95%–99% of all TOS cases with 2–5% affecting vascular structures, such as the subclavian vein and artery [1–5]. Often a congenital predisposition for developing neurogenic (NTOS) is coupled generally due to a congenital bony anomaly such as a cervical rib, a prolongation of the C7 transverse process, or fibrous bands or anomalous muscles [6]. Also, trauma that causes chronic cervical muscle spasm and repetitive motion may precipitate NTOS such as hyperextension-flexion injuries of the arm, neck trauma due to motor vehicle accidents and neoplasm [3,6–8].

CASE PRESENTATION

This 56-year-old woman who was otherwise healthy, presented with right-sided shoulder pain and fingers numbness increase with exercise and persisted after cessation of activities. The pain was increased by continuous overhead activities and downward traction. Physical and neurological examination found a normal range of motion in her right shoulder, proved negative for signs and symptoms of glenohumeral pathology, but the overhead fatigue test (upper arms abducted to 90° and shoulders externally rotated to 90°, while the grip in both hands were squeezed and relaxed) revealed that the right arm

developed pain and fatigue. Neck rotation and head tilting (ear to shoulder) which elicit symptoms of pain and paresthesia down the contralateral side. Upper Limb Tension Test (ULTT) Arms abducted to 90° with elbows extended and dorsiflex wrists with head tilt to side, ear to shoulder. No history of trauma and chronic repetitive motion. Electromyography (EMG) revealed unrecordable medial antebrachial cutaneous sensory and low-amplitude median motor responses (recorded from thenar muscles) along with chronic neurogenic changes in the hand muscles. Radiological cervical plain X-ray revealed a cervical rib or long C7 transverse process (Figure 1). Each maneuver



Figure 1 Right Cervical Rib on plain anterior cervical X-ray (blue arrow).