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Research Article

**THE STUDY OF CERVICAL RIB ASSOCIATION WITH TOS  
(THORACIC OUTLET SYNDROME) IN PAKISTANI  
POPULATION**

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**Abstract:**

**Objective:** This study's main objective is to determine the link between a cervical rib and thoracic outlet syndrome in the population of Pakistan.

**Design and duration:** the study is of observational type, and the duration of the study is 12 months from May 2019 to April 2019.

**Settings:** the study was conducted in the surgical ward of Nishtar Hospital Multan.

**Patients and methods:** Patients reporting symptoms of thoracic outlet syndrome in the hospital were tested for cervical rib using x-rays and MRI CT scans. Convenience sampling techniques have been used. Patients from both genders of different ages were included in the study. All the data were calculated in a pre-designed performa, and data were analyzed using SPSS version 24 and presented via tables and graphs. The confidence interval was 95%, with a 5% error margin. Less than 0.05 P-value was considered to be relevant.

**Results:** a total of 180 thoracic outlet syndrome cases, including 68(37.8%) male and 112(62.2 per cent) female patients were reported. In 14(7.8 per cent cases), the cervical rib was present. One hundred fifty-nine patients were reported with numbness on the medial side of the forearm and hand. 8(57.1%) of the patients with cervical rib were treated with surgical excision, while six were treated with conservative treatment with analgesics. Analgesics and anxiolytics were given to 141 patients who have thoracic outlet syndrome and not having cervical ribs (166 patients), and nerve conduction studies were done in 25 patients.

**Conclusion:** Past, clinical evaluation, and verified radiological examination and neurophysiological tests are used to diagnose thoracic outlet syndrome. The treatment of TOS depends on the case of TOS. In most cases, patients are cured only with conservative therapy, and surgical therapy is indicated only if conservative therapy fails.

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**INTRODUCTION:**

Thoracic outlet syndrome includes neurological and vascular systems, so paresthesia, numbness of the forearm and hands, and vascular insufficiency can occur in patients with this syndrome. Most patients suffer from numbness in their hands. There is a need for diagnostic history and clinical evaluation accompanied by neurophysiological examination. On scheduled x-rays, MRI, and Ct scans, diagnosis may be confirmed. It is possible to rule out either neurological or vascular causes of symptoms through these inquiries. In our population, this condition is growing. There are primarily females involved. Patients can also experience neck pain, mandibular pain, or shoulder-area pain. They were exaggerating symptoms when doing work. In our community, the cervical rib is a common cause of TOS. It is a congenital disorder in which the seventh cervical vertebrae are the origins of the first rib. The rib may be attached by a fibrous band, cartilage, or bone to the vertebrae, particularly on the right side. It is on the left side occasionally, or even bilateral. It remains asymptomatic until the pressure in the thoracic outlet occurs on the brachial plexus or vessels.

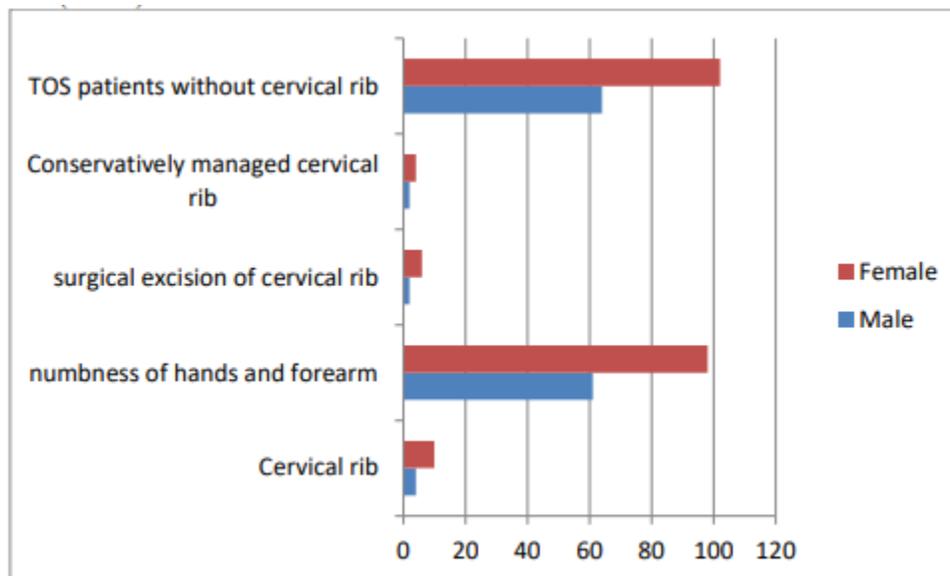
**PATIENTS AND METHODS:**

this study is completed in one year and is of observational type. The study was held in a tertiary care hospital, Nishtar Hospital Multan. Appropriate sampling techniques have been used. Patients reporting thoracic outlet syndrome symptoms in the research hospital were tested for cervical rib using x-rays and MRI CT scans. Convenience sampling techniques have been used. Patients, regardless of

gender and age, were included. The data were calculated in a pre-designed performa, and data were analyzed using SPSS version 24 and presented via tables and graphs. The confidence interval was 95%, with a 5% error margin. The P-value was found to be less than 0.05. Informed consent (IC) was obtained from all cases in the research community, and the hospital's ethical committee before performing the study. Privacy of data has been assured. Inclusion and exclusion criteria were formed according to which patients with signs and symptoms of thoracic outlet syndrome confirmed on nerve conduction tests and radiographs were included in the study. The research did not involve patients who did not have a good history, non-cooperative, who did not have other causes of distal numbness other than TOS, and those who disagreed.

**RESULTS:**

a total of 180 thoracic outlet syndrome cases, including 68(37.8%) male and 112(62.2 per cent) female patients were reported. In 14(7.8 per cent cases), the cervical rib was present. One hundred fifty-nine patients were reported with numbness on the medial side of the forearm and hand. 8(57.1%) of the patients with cervical rib were treated with surgical excision, while six were treated with conservative treatment with analgesics. Analgesics and anxiolytics were given to 141 patients who have thoracic outlet syndrome and not having cervical ribs (166 patients), and nerve conduction studies were done in 25 patients. The patients with TOS symptoms were between 15 to 55 years of age, with a mean age of  $28.4 \pm 7.6$  years. Most patients were between the ages of 20-30.



**DISCUSSION:**

In Pakistan, thoracic outlet syndrome is growing in prevalence, and the cervical rib is the most common cause in our population. Numbness of the hand, muscle wasting of the hand, radiating pain to the throat, jaw, and shoulder may be present. Neurological and vascular systems are involved in thoracic outlet syndrome, so patients with this syndrome may have paresthesia, forearm and hand numbness, and vascular insufficiency. Most patients suffer from numbness in their hands. There is a need for diagnostic history and clinical review accompanied by neurophysiological examination. It is possible to confirm a diagnosis on X-rays, MRI, and Ct scans of the plan. Through these tests, neurological or vascular causes of symptoms may be eliminated. In our population, this condition is growing. There are primarily females involved. Patients can also experience neck pain, mandibular pain, or shoulder-area pain. They were exaggerating symptoms when doing work. This is an observational study conducted over one year. It was performed at the Nishtar Hospital Multan, a tertiary care hospital.

Convenience sampling techniques have been used. Patients reporting thoracic outlet syndrome symptoms in the research hospital were tested for cervical rib using x-rays and MRI CT scans. Convenience sampling techniques have been used. Patients, regardless of gender and age, were included. All the data were calculated in a pre-designed performa, and data were analyzed using SPSS version 24 and presented via tables and graphs. A total of 180 thoracic outlet syndrome cases, including 68(37.8%) male and 112(62.2 per cent) female patients were reported. In 14(7.8 per cent cases), the cervical rib was present. One hundred fifty-nine patients were reported with numbness on the medial side of the forearm and hand. 8(57.1%) of the patients with cervical rib were treated with surgical excision, while six were treated with conservative treatment with analgesics. It is a congenital disorder in which the seventh cervical vertebrae is the origin of the first rib. The rib may be attached by a fibrous band, cartilage, or bone to the vertebrae, particularly on the right side. It is on the left side occasionally, or even bilateral. It remains asymptomatic until the pressure in the thoracic outlet on the brachial plexus or vessels occurs. Not all TOS symptoms need to be present in the same patient, but that only one or two may be present, and in individual patients, it may be asymptomatic.

**CONCLUSION:**

Past, clinical evaluation, and verified radiological examination and neurophysiological tests are used to diagnose thoracic outlet syndrome. The treatment of

TOS depends on the case of TOS. In most cases, patients are cured only with conservative therapy, and surgical therapy is indicated only if conservative therapy fails.

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