

Pseudarthrosis of Cervical Rib: An Unusual Cause of Thoracic Outlet Syndrome

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Thoracic outlet syndrome is uncommon in adolescence. Cervical rib fracture is an extremely rare cause of thoracic outlet syndrome in this age group. We report an unusual case of thoracic outlet syndrome in a 14-year-old girl caused by pseudarthrosis of the cervical rib. A magnetic resonance imaging scan showed significant compression of the brachial plexus by the pseudarthrosis mass. Excision of the cervical rib through a supraclavicular approach gave excellent results in this case. (*J Hand Surg* 2010;35A:2018–2021. © 2010 Published by Elsevier Inc. on behalf of the American Society for Surgery of the Hand.)

Key words Pseudarthrosis, cervical rib, thoracic outlet syndrome.

THORACIC OUTLET SYNDROME (TOS) is a condition in which important neurovascular structures such as the brachial plexus and the subclavian artery and vein are compressed in the thoracic outlet region by fibromuscular and fibro-osseous tissues.¹ Thoracic outlet syndrome is most often seen during the third and fourth decades and is more common in female patients. In 98% of patients the symptoms are neurologic.² Cervical rib is regarded as a predisposing factor for thoracic outlet syndrome in most patients in whom it is seen.³ Sanders and Hammond⁴ noted that in 80% of the patients with cervical rib, the symptoms did not develop until after a neck injury.

Thoracic outlet syndrome is uncommon in adolescence, and only a few reports exist in the literature.^{5–12} Isolated cervical rib fracture is a rare occurrence, and we could find only 6 citations of this condition in the literature.^{12–17} Of these, in 4 reports^{13–16} there was no indication of them causing TOS. Martins and Siqueira¹² in 2005 reported the first case of a cervical rib fracture causing thoracic outlet syndrome with neurogenic sym-

ptoms. In 2009, Kamath et al.¹⁷ presented 2 cases of isolated cervical rib fracture, of which one patient had features of neurogenic thoracic outlet syndrome. We could not find any case of thoracic outlet syndrome caused by pseudarthrosis of the cervical rib.

We report an unusual case of thoracic outlet syndrome in an adolescent girl resulting from pseudarthrosis of cervical rib fracture.

CASE REPORT

A 14-year-old right-hand-dominant girl presented to us with pain over the right side of the neck radiating to the right upper limb for 6 months. The patient was apparently normal until 6 months earlier, when she sustained a blunt trauma injury to the right side of the neck while swimming. She initially had pain over the neck region with occasional radiation to the hand, but she was able to do her daily activities. Two months earlier the pain had become very severe with radiation to the whole upper limb. She had disabling paresthesia and was unable to do daily activities such as writing a page, lifting weights, and combing her hair.

On examination she had a mass over the right supraclavicular region that was bony hard and tender. She had paresthesia at the C8 and T1 dermatomes. Sensory charting revealed normal 2-point discrimination and monofilament testing. There was no motor deficit, but her grip strength was only one third of the normal side, which she attributed to pain. Grip strength at the left hand was 21 kg and at the right hand was 7 kg. She was

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