Clinical Image

Submitted by: Nusra Rahman, MBBS, MD (Anatomy), Yasir S. Siddiqui, MBBS, MS (Orth).
From the Department of Anatomy (Rahman), and the Department of Orthopedic Surgery (Siddiqui), JN Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh, India.
Address correspondence to: Dr. Yasir S. Siddiqui, Department of Orthopedic Surgery, Jawaharlal Nehru Medical College, Aligarh Muslim University, PO Box 7, Aligarh (Uttar Pradesh) 202002, India. Tel. +91 9837343400. Fax. +91 (571) 2702758.
E-mail: yassu98@gmail.com

Winging of the scapula

Clinical Presentation

An 18-year-old female presented to us with the chief complaint of undue prominence of her right scapula for the last 4 months. She further complained that overhead elevation of the arm exaggerated the deformity, which made the appearance of her back cosmetically worse. She had minimal pain but complained of early fatigue. She had no clue of its development. There was no history of trauma to the right shoulder, nor was there any history of viral infection, immunization, or family history of such deformity. Physical examination revealed an undue prominence of the medial border and inferior angle of the right scapula compared with the left. The deformity became more evident when the patient was asked to push against the wall (**Figure 1**). There was no obvious lateralization of the right scapula as compared to the left. There was no shoulder drooping or muscle wasting. Passive movements of her right shoulder were within normal limits. Examination of the cervical spine and her neurologic status were normal. Electro-diagnostic study findings were consistent with long thoracic nerve dysfunction. Blood investigations including muscle enzymes, complete blood count, and erythrocyte sedimentation rate were normal. Plain radiographs of the chest and right shoulder were unremarkable.

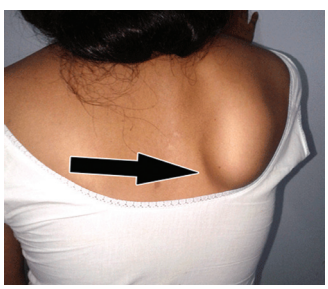

Figure 1 - Clinical photograph of the patient showing winging of the scapula right shoulder (arrow) with positive wall push test, no scapular laterality.

Questions

1. What is the diagnosis?

2. What other type of nerve lesions produce scapular winging?

3. How to distinguish the cause of scapular winging in different types of nerve lesions?

Answers

1. This 18-year-old female patient can be clinically diagnosed as having winging of the right scapula secondary to palsy of the long thoracic nerve. The long thoracic nerve supplies the serratus anterior muscle, which keeps the medial border and inferior angle of the scapula closely applied to the chest wall. Paralysis of the muscle results in undue protrusion of the scapula posteriorly producing the deformity - winged scapula.
2. Other than a long thoracic nerve lesion, lesions of the spinal accessory nerve and dorsal scapular nerve can also produce scapular winging.[1,2]
3. The location of the scapula at rest and with provocative maneuvers is helpful in differentiating the specific nerve involvement.[1] Long thoracic nerve palsy causes medial scapular winging because of serratus anterior muscle paralysis. It is exaggerated by forward elevation and pushing with outstretched arms. Both spinal accessory and dorsal scapular nerve palsies cause lateral scapular winging. Spinal accessory nerve palsy causes paralysis of the trapezius muscle leading to the drooping of the shoulder and scapular winging can be accentuated by arm abduction. Dorsal scapular nerve palsy is best shown by slowly lowering the arms from the forward-elevated position. In our case, the medial border and inferior angle of right scapula were more prominent compared with the left. The deformity became more evident when the patient was asked to push against the wall (**Figure 1**). Also, there was no shoulder drooping and lateral scapular winging, establishing the diagnosis of scapular winging secondary to palsy of the long thoracic nerve.

Discussion

Scapular winging was first described by Velpeau.[3] Scapular winging is a frequent scapulothoracic disorder and may develop because of neuromuscular, musculoskeletal, and structural causes.[1] Unilateral scapular winging most commonly results from the neuropathy of the long thoracic nerve innervating the serratus anterior muscle.[1,2] Paralysis of the serratus anterior can be functionally disabling and presents with pain, weakness, decreased shoulder elevation, medial translation of the scapula, rotation of the inferior angle towards the midline, and prominence of the vertebral border of the scapula, as was seen in our patient. Recognition of scapular winging is potentially difficult with incorrect diagnoses and treatment errors possibly causing morbidity for the patient. Treatment of scapular winging varies from physical therapy to surgery depending upon the cause of its occurrence.[4,5] Scapular winging should initially be managed with physical therapy, allowing time for natural recovery. Physical therapy should be continued for 6 to 24 months, following which further recovery is doubtful.[2] Mild insufficiency in muscle strength and asymptomatic scapular winging may continue even after natural functional recovery. Patients may also find out how to balance for unrelenting serratus anterior paralysis by means of the trapezius muscle. Chronic scapular winging unresponsive to physical therapy responds well to dynamic muscle transfer guiding resolution of winging and resurgence of scapulothoracic rhythm.[2]

References

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