Clinical Image

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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.](image)

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?
Discussion

Scapular winging was first described by Velpeau. Scapular winging is a frequent scapulothoracic disorder and may develop because of neuromuscular, musculoskeletal, and structural causes. Unilateral scapular winging most commonly results from the neuropathy of the long thoracic nerve innervating the serratus anterior muscle. Paralysis of the muscle results in undue protrusion of the scapula posteriorly producing the deformity - winged scapula.

Other than a long thoracic nerve lesion, lesions of the spinal accessory nerve and dorsal scapular nerve can also produce scapular winging.

The location of the scapula at rest and with provocative maneuvers is helpful in differentiating the specific nerve involvement. 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 palsy causes 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.

References


Clinical Image

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.
3. The location of the scapula at rest and with provocative maneuvers is helpful in differentiating the specific nerve involvement. 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 palsy 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.