Acute Protrusion of the Scapula

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Several hours after he had installed ceramic tile, a 33-year-old man experienced muscle spasms and felt pressure in his right shoulder. He denied previous injury to the area.

Laurie Meng, PA-C, and Jack-Ky Wang, MD, of Palos Heights, Ill, examined the patient and found that he had abduction of his right shoulder to about 110 degrees and forward flexion to about 80 degrees. When he performed a push-up against the wall, winging of the scapula was evident (A). A winged scapula is associated with damage to the long thoracic nerve of the shoulder and/or weakness in the serratus anterior muscle. Nerve damage may result in paralysis of the serratus anterior muscle and winging of the scapula; the damage can be caused by blunt trauma to the shoulder, traction of the neck, injury during surgery (eg, resection of the first rib, radical mastectomy, excision of axillary lymph nodes, or transaxillary sympathectomy), and overuse injury. Occasionally, nerve damage follows viral illness. Scapular winging associated with serratus anterior muscle dysfunction is characterized by prominence of the lower tip of the scapula and loss of scapula protraction during shoulder elevation. Discomfort is usually felt around the scapula and the back of the shoulders. Flexion is limited to 80 to 120 degrees.

In addition to having the patient perform a push-up against the wall, winging of the scapula can be detected with the “backward force to the arm,” or “punch-out,” test. The patient forward flexes the shoulder to 90 degrees, and the examiner pushes the straight arm toward the patient's body while the patient resists. The scapula wings when there is weakness of the upper or lower trapezius muscle, the serratus anterior muscle, or the nerves that supply these muscles. The integrity of the supraspinatus and rotator cuff can be assessed with the “empty can” test. The patient stands facing the examiner, who abducts the patient's arms to 90 degrees in forward flexion and 30 degrees of horizontal abduction with the thumbs pointing downward. In this position, the arms are internally rotated as far as possible. The patient then attempts to elevate the arms against the examiner's resistance. Difficulty in elevating the arms reveals weakness of the supraspinatus. In this patient, the test results were negative.

Other conditions to consider in the differential diagnosis include biceps tendonitis, suprascapular nerve entrapment, scoliosis, acro-mioclavicular joint disease, glenohumeral instability, rotator cuff tear, trapezius palsy, impingement syndrome, fracture malunion, and scapular osteochondroma. Acute serratus anterior palsy often resolves spontaneously. Advise patients to try to maintain full range of movement and to perform shoulder exercises. About 75% of patients recover in 12 to 18 months. For patients who do not respond to conservative therapy, consider surgery only after 2 years have elapsed without evidence of nerve recovery. This patient was referred for 3 weeks of physical therapy. Cyclobenzaprine, one 10-mg tablet at night, was prescribed. He was advised to refrain from heavy lifting during therapy and to take acetaminophen or ibuprofen as needed.

At follow-up 2 months later, he had no pain and range of motion had improved. A repeated push-up against the wall demonstrated the improved appearance of the winged scapula (B).

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