Winging of the scapula is defined as prominence of the medial or vertebral border of the scapula. Clinically, decreased range of active shoulder movement, upper girdle muscle weakness, pain, or cosmetic changes may be observed. However, in many cases it is no more than an incidental physical sign.

The classic etiopathology of winging of the scapula is serratus anterior muscle impairment, secondary to long thoracic nerve palsy. However, various nerve, muscle, bone, and joint pathologies of the shoulder may be associated with winging of the scapula. Tumors of the scapula, such as an osteochondroma, are rarely associated with winging of the scapula.

This article reports a case of a 25-year-old man who presented with winging of the right scapula as a result of subscapular osteochondroma.

**Case Report**

A 25-year-old right-handed male patient presented with a 10-year history of right posterior shoulder pain that intensified with overhead arm activities.

Physical examination revealed a healthy man with a full, active range of movement of his right shoulder. A grating sensation arose from the right scapulothoracic region with movement. The vertebral and superior border of the right scapula was more prominent than the left (Figure 1). Winging of the right scapula was clear at rest. Winging was not increased while pushing the arms against a wall. Muscle strength, deep tendon reflexes, and the results of sensory examinations were all normal.

Plain radiographs (Figure 2) and computed tomography scans (Figure 3) revealed a large bony protuberance (osteochondroma) on the costal surface of the right scapula. Its base lay on the midportion of the costal surface of the scapula, extending anteriorly and medially against the ribs, and had a characteristic mushroom-shaped appearance.

At surgery, a parascapular incision parallel to the vertebral and superior border of the scapula was performed. The trapezius and the rhomboideus muscles were sectioned in their mid substance. The scapula was retracted from the chest wall by subperiosteally. A mushroom-shaped mass measuring 7.0 $\times$ 5.0 $\times$ 5.0 cm was excised from the costal surface of the scapula (Figure 4). Histologic examination
showed no evidence of malignancy. At one-year follow-up, the patient was symptom free had a normal contour of the scapula and normal right shoulder movements. Radiographs revealed no evidence of recurrence.

**DISCUSSION**

Although most subscapular scapular osteochondromas are frequently associated with a snapping or grating sensation in the shoulder region, some of the patients reported were associated with winging or pseudowinging of the scapula. Though winging of the scapula is generally considered to be synonymous with serratus anterior palsy, there are many causes other than serratus anterior palsy of winging of the scapula. A number of these cases have been described as pseudowinging.

Winging of the scapula can be either dynamic or static. Dynamic winging is due to neuromuscular disorders and, because of the resulting muscular imbalance, the deformity is produced by active and resisted shoulder movements and is often absent at rest. Static winging is due to a fixed deformity in the shoulder girdle, spine, or ribs and is characteristically present at rest with the arm at the side. Active or resisted shoulder movements do not increase the deformity. Solitary exostoses or osteochondromata of the underside of the scapula may produce static winging.

Osteochondroma is the most common primary benign tumor of the scapula with an incidence of 3%-4.6%. Usually, it is a single lesion located on the anterior side of the scapular body. Surgical resection of the tumor is the treatment of choice for osteochondroma.

The osteochondroma in this case report expanded the deep surface of the right scapula, shoving the scapula away from the chest wall and producing static winging. Total surgical resection was performed.

**REFERENCES**


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**Figure 3:** Computed tomography scan of the right scapula shows the osteochondroma arising from the costal surface of the scapula.

**Figure 4:** Surgical specimen which looks mushroom-shaped; appearance from the costal surface.