Static winged scapula as a result of solitary scapular osteochondroma

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Abstract

Static winging of the scapula is a rare diagnosis. It may be caused by pathology of the scapula or the chest wall. Solitary osteochondroma of the scapula is one of the rare causes and may present an initial diagnostic difficulty. We present a case of an 18-year-old man who presented with non-specific pain in his right shoulder following a fall. Initial examinations and plain radiographs failed to reveal any abnormality. Subsequently a computed tomography (CT) scan of the shoulder revealed a small solitary scapular osteochondroma. Advanced imaging with CT scan or magnetic resonance imaging (MRI) is essential to establish an early diagnosis. As these osteochondromata are associated with a higher risk of malignancy compared with osteochondroma in long bones, a close follow-up with interval scans is warranted if surgical excision is not undertaken initially.

Keywords

Winged scapula; osteochondroma.

Case report

An 18-year-old male had a fall while playing football. He developed pain around his right shoulder and thinking it to be a bruise did not seek initial medical advice. As his symptoms persisted for a few weeks, he presented to the emergency department. After a full clinical examination by the emergency doctor he was discharged with a diagnosis of soft tissue injury to his shoulder and was advised to take analgesics.

Several weeks later his symptoms regressed but he continued to have pain especially at the extremes of shoulder movement. He re-attended the emergency department. He was examined this time by a different doctor, who found that his shoulder movements were full and there was no evidence of any muscle weakness around his shoulder. Plain radiographs of the shoulder including a lateral view of the scapula were taken and were reported as normal. He was reassured and discharged.

A few weeks later he was referred by his GP to the orthopaedic on-call service for persistent shoulder symptoms. He was examined for a third time. Winging of the right scapula was noted. There was no accentuation of the winging on forward flexion of the shoulder against resistance. He had a full range of shoulder movements and there was no crepitus. The rotator cuff was intact.
and no muscle weakness was identified. A diagnosis of a static winged scapula was made. A computed tomography (CT) scan of his right shoulder was performed which revealed a 20×18 mm osteochondroma arising from the ventral surface of the scapula (Fig. 1).

The diagnosis, prognosis and the likely course were explained to the patient. He opted for non-operative treatment. He was reviewed at 3 months at which point he was completely asymptomatic. No repeat imaging was undertaken in this case at follow-up and he was discharged with an open appointment.

Discussion

Winged scapula or scapula alata is defined as a prominence of the medial border of the scapula. Winging of the scapula may be either dynamic or static. Dynamic winging of the scapula is present when there is accentuation of the winging with forward flexion of the arm against
resistance. This is typically caused by neuromuscular disorders with a wide variety of causes. Long thoracic nerve dysfunction leading to weakness or complete paralysis of the serratus anterior muscle is the commonest cause. Long thoracic nerve palsy has been reported after a variety of injuries including compressive, penetrating or traction injuries, athletic activity, iatrogenic injury, neuritis or neuropathy associated with viral illness, radiation or metabolic causes[1]. Systemic lupus erythematosus (SLE) with peripheral neuropathy involving the long thoracic nerve has also been reported[2]. Trapezius dysfunction as a result of spinal accessory nerve injury is another common cause. These patients present with winging of the scapula accentuated by shoulder abduction, drooping of the affected shoulder and asymmetry of the neck line[3]. Static winging on the other hand is a very rare diagnosis[4]. It can be associated with tumours of the scapula or ribs and kyphoscoliotic deformity of the upper or mid-thoracic spine. The most common tumour associated with this is osteochondroma[5]. An osteochondroma located on the ventral surface of scapula will give rise to winging. Fiddian and King[6] reviewed 209 patients with winged scapula and found 23 different causes; one case was due to scapular osteochondroma. Scott et al[7] reported intermittent scapular winging in a teenage patient after an initial injury that was diagnosed as an osteochondroma about a year later.

Patients may present with a wide spectrum of symptoms including discomfort around the shoulder, weakness of the involved extremity, fullness or prominence on the back of the shoulder, snapping shoulder and very rarely with an acute painful shoulder. The unsightly winging is usually the main reason for patients seeking medical advice. In our patient the presenting symptom of pain was probably an unrelated symptom but it could also have been due to a microfracture of the osteochondroma after the fall leading to impaction of the lesion between the scapula and the chest wall. This is further supported by the fact that the symptoms of pain, caused by a fall, completely resolved in a few months.

Static winging of the scapula may be missed initially unless specifically sought. Doctors in the emergency department should be aware of this condition. As the osteochondroma arises from the ventral surface of the scapula, it may be difficult to identify or may be missed by plain radiographs. Early advanced imaging with either CT or MRI scanning is imperative to establish a diagnosis. The onset of pain in such a lesion could be due to bursitis overlying the osteochondroma, fracture of the stalk after a trauma or rarely due to malignant transformation. In cases that present as pain, initial imaging with either ultrasonography or MRI to assess the cartilage cap thickness is warranted to rule out malignant transformation. Although we did not use this in our case, an interval scan is appropriate in cases where initial surgical excision is not carried out.

**Teaching point**

Although rare, an osteochondroma of the scapula should always be sought as a possible cause of static winging of the scapula and surgical treatment should be offered because of possible later malignant transformation. If surgery is declined interval imaging should be performed.

**References**