

Case report

Scapular winging in athletes: a rare clinical entity



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Received: 24 Nov 2019 - Accepted: 01 Dec 2019 - Published: 13 Dec 2019

Domain: Orthopedic surgery

Keywords: Scapular winging, serratus anterior palsy, treatment

Abstract

Scapular winging (SW) is extremely rare clinical entity. It is defined as protrusion of the scapula from the thoracic wall. Here, we report a 21 year-old handball player presented with pain in the right shoulder with weakness and discomfort during playing handball for three months. Clinical examination revealed medial scapular winging. Electromyography found neurapraxic of the long thoracic nerve. Hence, the diagnosis of the SW due to serratus anterior palsy was retained. The patient was treated with rehabilitation and physiotherapy for range of motion of the right shoulder. At 14 month follow-up, the patient was asymptomatic and was returned to sport activities.

Case report | Volume 1, Article 54, 13 Dec 2019 | 10.11604/pamj-cm.2019.1.54.21074

Available online at: <https://www.clinical-medicine.panafrican-med-journal.com/content/article/1/54/full>

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Introduction

Scapular winging (SW) is one of rare abnormalities of the scapulothoracic joint. It is described as protrusion of the scapula from the thoracic wall [1]. This special condition could be a source of disability and considerable functional impairment that affect the performance of daily activities of upper limbs [1, 2]. SW could be due to a number of pathologies which affect the scapular muscles that stabilize the scapula against the thoracic wall [3]. The authors report an unusual case report of SW and review of literature, in order to describe etiology, diagnosis and treatment of this rare entity.

Patient and observation

A 21 year-old handball player presented with pain in the right shoulder for three months. Then, the pain is replaced by shoulder weakness and discomfort during playing handball. Moreover, he complained of reduced sports performance. However, there was no history of evident direct trauma. Clinical examination revealed medial scapular winging (Figure 1, Figure 2) that was exacerbated with forward flexion of his right arm (Figure 3). In addition, the medial border of the scapula lifts off the thoracic wall and the right scapula translates medially and superiorly. Scapula stabilization test against the thorax was positive and was relieved the discomfort that improve the shoulder flexion. Full passive and active range of motion in the right shoulder was normal. The neurological examination was uneventful. Radiographs of the right shoulder and scapula were normal. However, electromyography found neurapraxic of the long thoracic nerve. Hence, the diagnosis of the SW due to serratus anterior palsy was retained. After discussion of therapeutic modalities, the patient opted for conservative treatment. The rehabilitation protocol included physiotherapy for range of motion of the right shoulder, scapular stabilization exercises.

At 14-month follow-up, the patient was asymptomatic and was returned to sport activities.

Discussion

Since the first description of the SW by Velpeau in 1837, this term used to define abnormal protrusion of the scapula from the thoracic wall that can lead to pain, discomfort and functional limitation in the upper limbs. SW is extremely rare. Moreover, the incidence of serratus anterior palsy has been estimated at 0.21% [4]. Overpeck *et al.* [5] reported only one case of this injury in 38,500 patients observed. Whereas recent reports have suggested that the incidence is difficult to assess, because this pathology is frequently misdiagnosed. SW is often the result a failure in the dynamic stabilization of the scapula against thorax that leads to a prominence of the scapula. These supporting structures are essentially consisted of three muscles: serratus anterior, trapezius and rhomboids major and minor [6]. It has been reported that serratus anterior palsy due to lesion of the long thoracic nerve remains the most common cause of the SW as seen in our case [1, 7]. This nerve injury can be caused by iatrogenic, traumatic and idiopathic processes. The traumatic paralysis of serratus anterior can also be due to repetitive movements, especially in athletics [1]. Rarely, the cause of the SW is direct traumatic injury such as muscular avulsions [8]. Clinically, the characteristic symptom is pain in the shoulder. Typically, the patient complained shoulder weakness and discomfort. In addition, the athletes can complain of reduced sport performance [1, 7]. Generally, the diagnosis of SW is easily made with a careful physical examination. Upon clinical inspection, the medial protrusion of the scapula from the thoracic wall is often evident that exacerbated with forward flexion of the arm. Furthermore, the forward flexion of the shoulder may be limited. In their study, Warner *et al.* [9] reported limitation of shoulder flexion above 120. Besides, scapula stabilization test against the thorax

relieved the discomfort and improved the shoulder flexion. Most reports concerning treatment of the SW demonstrated that depends the etiology of winging [7]. Indeed, prompt surgical management is indicated in acute muscular avulsion [7, 8], while conservative treatment is indicated in nerve injuries. These latter are the most usual cause of SW. Serratus anterior palsy resolves spontaneously within 1-24 months. Hence, conservative treatment should be accomplished for 6-24 months in these cases [1, 7]. However, the patients who fail conservative treatment, surgical management is recommended. Various surgical treatment techniques have been described in literature: muscle transfers, neurolysis of the long thoracic nerve and scapulothoracic fusion. Pectoralis major transfer remains the best choice with excellent functional outcome [1, 7].

Conclusion

SW is extremely rare. This debilitating condition leads to pain and functional limitations of shoulder. A thorough physical inspection allows easily the diagnosis. The serratus anterior palsy remains the most common cause of medial winging. Most authors recommended conservative treatment for this rare entity.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: medial view of scapular winging

Figure 2: lateral view of scapular winging

Figure 3: scapular winging accentuated with forward flexion of shoulder

References

1. Martin RM, Fish DE. Scapular winging: anatomical review, diagnosis and treatments. *Curr Rev Musculoskelet Med.* 2008;1(1):1-11. **PubMed | Google Scholar**
2. Lee S, Savin DD, Shah NR, Bronsnick D, Goldberg B. Scapular Winging: Evaluation and Treatment: AAOS Exhibit Selection. *J Bone Jt Surg-Am Vol.* 2015;97(20):1708-1716. **PubMed | Google Scholar**
3. Kuhn JE, Plancher KD, Hawkins RJ. Scapular Winging. *J Am Acad Orthop Surg.* 1995;3(6):319-325. **PubMed | Google Scholar**
4. Fardin P, Negrin P, Dainese R. The isolated paralysis of the serratus anterior muscle: clinical and electromyographical follow-up of 10 cases. *Electromyogr Clin Neurophysiol.* 1978;18(5):379-386. **PubMed | Google Scholar**
5. Overpeck DO, Ghormley RK. Paralysis of the serratus magnus muscle: caused by lesions of the long thoracic nerve. *J Am Med Assoc.* 1940;114(20). **Google Scholar**
6. Gooding BWT, Geoghegan JM, Wallace WA, Manning PA. Scapular Winging. *Shoulder Elb.* 2014;6(1):4-11. **PubMed**

7. Didesch JT, Tang P. Anatomy, Etiology, and Management of Scapular Winging. *J Hand Surg.* 2019;44(4):321-330. **PubMed | Google Scholar**

8. Speigner B, Verborgt O, Declercq G, Jansen EJP. Medial scapular winging following trauma-a case report. *Acta Orthop.* 2016;87(2):203-204. **PubMed | Google Scholar**

9. Warner JJ, Navarro RA. Serratus anterior dysfunction. Recognition and treatment. *Clin Orthop.* 1998;349:139-148. **PubMed | Google Scholar**



Figure 1: medial view of scapular winging



Figure 2: lateral view of scapular winging



Figure 3: scapular winging accentuated with forward flexion of shoulder