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Case Report

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Isolated teres major rupture in an amaturer volleyball player

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ABSTRACT

Isolated lesions to the teres major muscle are extremely rare. These injuries have been report in cases reports only due to the rarity of these injuries. I report the case of an amateur volleyball player who suffered an isolated injury to the teres major while volleyball for recreational purposes. The clinical presentation was confirmed by clinical examination and MRI scanning. Conservative treatment was chosen and consisted of brief immobilization and analgesics, followed by rehabilitative treatment. The patient recovered quickly from a conservative regime of physiotherapy and analgesics. The results and the data from the literature suggest that non-operative rather than surgical treatment is preferable in isolated lesions to the teres major muscle.

Keywords: Teres major, Muscle rupture, Non operative

INTRODUCTION

Isolated rupture of the teres major muscle is a rare condition; there is no real consensus in the literature on the epidemiology and treatment options.[1-9] There are more reports of good functional outcome and resumption of sport than surgical treatments. There are currently not enough objective measurements on strength recovery in medial rotation force following functional treatment.

CASE REPORT

The patient was a 43 year-old right-handed male member of a County Assembly in Kenya. He consulted the orthopaedic clinic at The Nairobi Hospital, Nairobi, Kenya as a referral 5 days following a sudden severe and sharp pain that had occurred the same day while playing volleyball. He hadn't been involved in competitive sports in over ten years. He further gave a history feeling a sudden tear as he stuck the ball. On clinical examination he was masculine with tender dark spot over the outline of the teres major muscle. He had severe limitation of shoulder movements with abduction and internal rotation most affected. Neurologic and vascular status assessment was normal.

MRI Scans (Figure 1-3) done revealed complete teres major muscle tear with retraction. There was no involvement of the latissimus dorsi muscle, nor of the teres minor muscle. The rest of the MRI findings were normal.

The management consisted of initial immobilization for one-week then early rehabilitation. The rehabilitation protocol included physiotherapy for recovery of passive and active range of motion. The third phase was isotonic muscle contraction. The final phase was muscle strengthening and endurance exercises. Sick leave was also proposed for a period of 3 weeks. The recovery was uneventful.

The patient was seen 6 weeks after the initial trauma at which point he reported marked improvement in range of motion. He complained of some residual pain in the posterior aspect of scapula.

Figure 1: Shoulder MRI scan showing the torn teres major muscle.

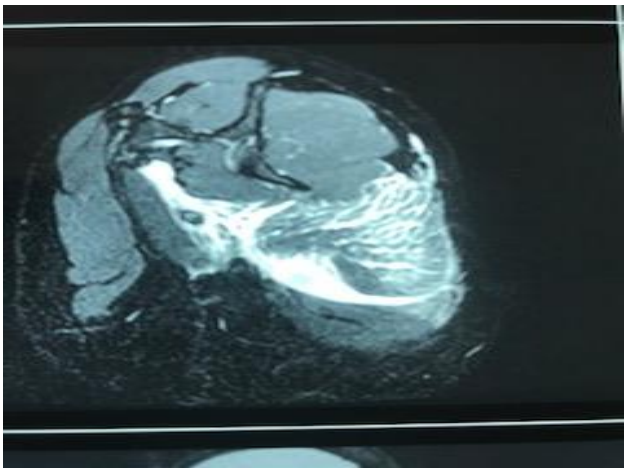

Figure 2: Shoulder MRI scans showing the retracted tear.

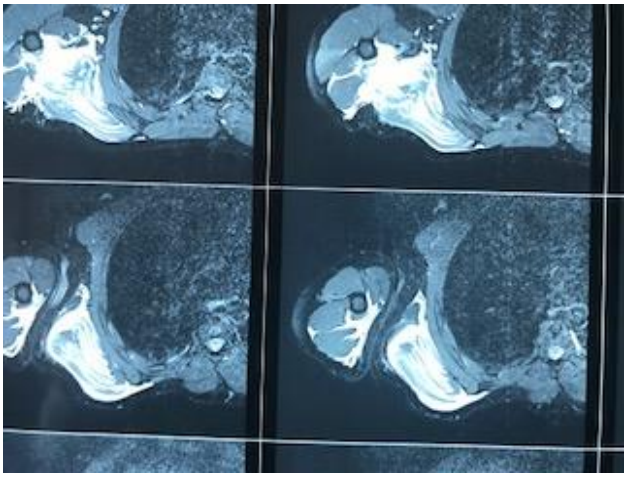

Figure 3: Shoulder MRI scans showing the tear and haematoma.

DISCUSSION

Teres major is a rectangular that originates on the dorsal aspect of the inferior angle and the lateral edge of the scapula, under the teres minor muscle. It follows an oblique course upwards and outwards to terminate on the medial side of the intertubercular groove of the humerus. It is innervated by the lower subscapular nerve, originating from the C5 and C6 roots. It plays a role in adduction, internal rotation, and retropulsion of the arm on the thorax, forming a single functional unit with the latissimus dorsi muscle.

Isolated lesions to the teres major muscle are rare. They are readily associated with lesions to the latissimus dorsi muscle given their anatomical proximity and their similar action during sports that involve shoulder movement.[1]

Lesions of the teres major muscle are thus the result of different types of traumatism: trauma in traction with the upper limb stretched, during eccentric concentration of the muscle that opposes the sudden traction. This mechanism can occur in volleyball injuries, when the cable is suddenly tightened at start-up, at full speed in the throwing position, as in the case of baseball pitchers and tennis players when serving.[2-10]

The sports most frequently associated with this type of injury are baseball and water skiing.[2–9] Rupture of the teres major muscle has also been reported in patients playing hockey, tennis, golf and cricket, or those practicing boxing as well as in a soccer goalkeeper.[10-12] No report is available in the literature with regard to volleyball playing.

The eccentric contraction of the teres major, responsible for adduction and internal rotation and aimed at opposing the traction generated by the cable, was responsible for this isolated rupture of the teres major in our patient.

This clinical presentation seems similar to that reported by most authors. The patient felt severe pain with a tearing sensation in the axillary region. The initial clinical examination found a swelling at the lateral edge of the scapula that could correspond to hematoma and muscle retraction. Active joint mobility was limited in all axes, while passive mobilization was normal.

In general, the diagnosis can be confirmed using imaging tests: first-line MRI or ultrasound will also rule out rotator cuff injuries. Standard X-ray assessment makes it possible to search for bone lesions and eliminate differential diagnoses. The therapeutic management is either functional or surgical, although this latter is rare in the literature.

Naidu et al reported 3 cases of professional cricket players with avulsion of the latissimus dorsi and teres major muscles.[11] Two underwent surgical repair with excellent results. The unoperated patient experienced discomfort until 7 months postrupture.

Burks et al. reported a case in a 35-year-old patient who received surgical management after a combined rupture

of the teres major and latissimus dorsi muscle.[12] The patient was immobilized with an arm sling during the postoperative period and underwent intensive rehabilitation from 6 weeks postoperatively. The outcome was favorable, and the patient returned to his professional activity without loss of strength.

Other authors reported functional management associating short immobilization with an arm sling for analgesic purposes and progressive rehabilitation. The functional results reported by the authors are very satisfactory.

Fitzpatrick et al reported the case of a 53-year-old patient who suffered an isolated rupture of the teres major muscle while water skiing, which was treated non operatively.[3] He was able to return to his activities without limitations 14 weeks after the initial trauma.

Malcolm et al reported the case of a 22-year-old baseball pitcher who had an isolated rupture of the teres major muscle and was treated non-operatively.[4] The patient had resumed his activity without pain or loss of function six months later.

Leland et al described a teres major muscle tear in 2 professional baseball players.[5] The two patients were treated non-operatively with good functional outcome and return to sport at 12 months post initial injury.

Schickendantz et al. in a large series of ten cases of professional baseball players: 5 had isolated latissimus dorsi muscle rupture, 4 with isolated teres major lesions, and 1 with a combined lesion.[7] All the patients were treated non-operatively and 9 regained their pre injury activity level within 3 months of injury. There was 1 of poor outcome with recurrence of symptoms.

Martin et al described the first case of myotendinous disinsertion of the teres major and latissimus dorsi muscles in a professional boxer.[10] He received conservative treatment with physical therapy, and 4 weeks had full functional recovery.

As reported in this case, the patient recovered fully by 4 weeks. The complete recovery of range of motion and strength in our patient favors non-operative treatment for an isolated teres major lesion. The literature review presented show no obvious benefit of surgical management in these cases.[12]

CONCLUSION

Isolated ruptures of the teres major muscle are rare but this is the first reported in a volleyball player. In most cases, a good history and clinical examination make it possible to suspect the diagnosis. Imaging by MRI scan is nevertheless necessary to confirm the suspected diagnosis and rule out other soft tissue injuries. Treatment based on staged phases of physiotherapy and analgesics give excellent overall results.

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