
Isolated Displaced Fracture of the Lesser Tuberosity

Oburu E¹, John J²,

1. School of Medicine, University of Nairobi
2. Department of Trauma and Orthopaedic Surgery, Hairmyres Hospital, East Kilbride, UK

Correspondence to: Dr. Ezekiel Oburu. P.O. Box 2206 00100, Nairobi. Email: oburue@googlemail.com

Summary

Isolated displaced fracture of the lesser tuberosity of the humerus is unusual. These injuries may be difficult to diagnose and can be easily missed. We present a 53 year old patient who sustained this injury and at initial evaluation it was missed.

However, careful review of his X rays and CT Scans revealed the fracture. Fixation of the fracture was achieved with two cancellous screws. Diagnosis of this fracture will be aided by a high index of suspicion.

Key Words: Lesser tuberosity, Proximal humerus, Two-part fracture

Introduction

Isolated lesser tuberosity fractures of the humerus are rare (1). These injuries can easily be missed and as a result of this, a number of cases that have been reported usually present with chronic shoulder pain (2). A high index of suspicion will aid in diagnosis of this injury (3).

extensive bruising over the anterior aspect of the left shoulder and also within the axilla. There was also difficulty in internal rotation and abduction of the left arm. A computerised tomography scan (CT) of the shoulder was performed which clearly showed the isolated fragment of the lesser tuberosity (Figure 2).

Case Report

A 53 year old man slipped backwards down the stairs holding onto banisters with his left hand. This resulted in a painful left shoulder which was assessed in the Accident and Emergency (A&E) department clinically and radiographically. A bony injury was not recognised at that time and a radiographic abnormality on the antero-posterior (AP) film was dubbed to be an "artefact" (figure 1). The patient was advised that he had soft tissue injury of the shoulder and was to be managed conservatively.

The radiographs were reviewed by a radiologist in whose opinion the 'artefact' was a displaced lesser tuberosity fracture of the left humerus (Figure 1). Further review in the consultant clinic revealed

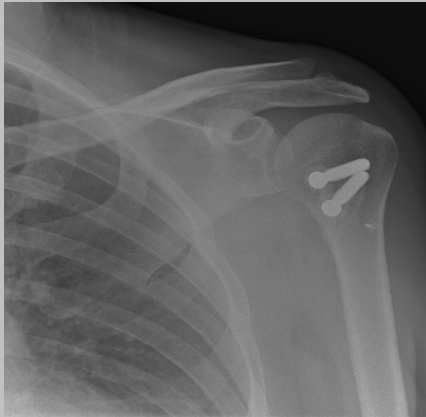
Fig 1: Left shoulder Xray showing lesser tuberosity fracture



Fig 2: CT scan of the left shoulder showing lesser tuberosity fracture



Fig 3: Post operative Xray of the left shoulder showing lesser tuberosity fracture



An open reduction and internal fixation of the fracture was performed through a standard anterior deltopectoral approach. The displaced isolated fragment was fixed with two cancellous screws and a good fixation was obtained. The patient underwent rehabilitation with satisfactory progress. Written consent was obtained from the patient for the publication of this report. The authors declare no competing interests.

Discussion

A delay in diagnosis of a lesser tuberosity fracture may lead to significant future clinical disability (2). In one such case the patient presented with axillary nerve neuropraxia while another case reported displacement of the biceps tendon (4). Imaging of this fracture is best achieved by a CT scan. The scan will depict the displacement, size,

communion, and the complexity of the fragment (5). In our case the original X-ray did not clearly show the fracture as did the CT scan which clearly demonstrated the fragment. The scan was also useful in planning the surgery. Senior review of the X-rays was very useful in this patient as the junior doctors had concluded that all the patient had was soft tissue injury and the bony fragment which was visible on X ray was an artefact. This is not unusual as Robinson et al have reported the low incidence of this fracture (6). Management of acute injuries should be by open reduction and internal fixation(5,6). In our case two screws were used and that did suffice because the fragment was relatively large (1). In their follow up of patients with isolated avulsion fracture of the lesser humeral tuberosity Ogawa and Takahashi(5) showed that better results were obtained when operative management was used as compared to conservative management. This provides restoration of function and range of shoulder movement, with a low risk of complications (6).

Conclusion

Our case demonstrates the importance of systematic and careful radiographic evaluation in order to diagnose this injury. While many patients with shoulder injuries present with common fractures, the uncommon fracture may easily be missed. Early diagnosis of the injury will lead to appropriate management and a better functional result.

References

1. Paschal SO, Hutton KS, Weatherall PT. Isolated avulsion fracture of the lesser tuberosity of the humerus in adolescents. A report of two cases. *J Bone Joint Surg Am.* 1995;77:1427-30
2. Levine B, Pereira D, Rosen J: Avulsion fractures of the lesser tuberosity of the humerus in adolescents: Review of the literature and case report. *J Orthop Trauma.* 2005;19:349-52
3. Kumar V, Candal-Couto J, Rangan R: Isolated avulsion fracture of the lesser tuberosity of the humerus associated with delayed axillary nerve neuropraxia. *Injury Extra.* 2006;37:31-3
4. Collier SG, Wynn-Jones CH. Displacement of the biceps with subscapularis avulsion. *J Bone Joint Surg Br.* 1990;72:145
5. Ogawa K, Takahashi M. Long-term outcome of isolated lesser tuberosity fractures of the humerus. *J Trauma.* 1997;42:955-9
6. Robinson CM, Teoh KH, Baker A, et al. Fractures of the lesser tuberosity of the humerus. *J Bone Joint Surg Am.* 2009;91(3):512-20