

Impacted Fracture of Greater Tuberosity of Humerus by Abduction in Internal Rotation.

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Introduction:

Fractures of the Greater Tuberosity of the Humerus are not very common in young especially without dislocation of shoulder. We present an unusual fracture of the greater tuberosity of Humerus due to unusual mechanism of injury which can easily be missed by casual examiner due to trivial nature of the injury.

Case Report:

Our patient was a forty-year-old male, paramedic by profession. He was standing on a forty-degree slope to mend broken garage door when slipped and fell. His feet went first as he landed on his one side but trying to stop himself, he put his hand on the slope, palm flat trying to clutch something to hold onto. With upper arm in internal rotation, the weight of his body pushed his arm in abduction resulting in acute pain in the shoulder. He presented to casualty department with this and was x-rayed to make sure there is no dislocation. It was noticed that the greater tuberosity of the Humerus had impacted without any dislocation (Fig 1). He was referred to the fracture clinic where conservative management was prescribed but no restriction was imposed on movements. On the first follow up at three weeks his fracture was displaced slightly (Fig 2) but still in acceptable possible and hence proper physiotherapy with active and passive movements advised. His fracture healed in six weeks with full range of movements in the shoulder.

Discussion:

The shoulder allows only 110°-120° of abduction at the GH joint especially when the arm is in internal rotation. The greater tuberosity hits the acromion which mechanically stops it to go any further. Abduction beyond this point is combination of scapular movement and external rotation of the arm which deflects the tuberosity away from the acromion. In our patient, as he was trying to clutch onto something to stop him falling, his palm was flat facing the ground inevitably causing forced

abduction in internal rotation. The acromion impacted into the greater tuberosity thereby causing fracture.

One-part greater tuberosity fractures are traditionally treated conservatively. Because clinical findings simulate those of rotator cuff abnormalities, some patients with missed or nonvisible fractures may be referred for MR imaging for further examination. MR imaging revealed no associated cuff abnormalities that required early surgery. Diagnosis of such a fracture on radiography may obviate the need for unnecessary MR imaging and arthroscopic surgery (1).

The use of sonography has emerged recently as good diagnostic tool. In evaluation of soft tissues in shoulder trauma, sonography may define rotator cuff abnormalities and occasionally help in detection of occult humeral fractures. (2)

References:

1. Mason BJ, Kier R, Bindleglass DF. Occult fractures of the greater tuberosity of the humerus. radiographic and MR imaging findings. *AJR Am J Roentgenol.* 1999 ;172(2):469-73.
2. Patten RM, Mack LA, Wang KY, Lingel J. Nondisplaced fractures of the greater tuberosity of the humerus: sonographic detection. *Radiology.* 1992 ;182(1):201-4.



Fig (1)



Fig (2)