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- 1.Griffith JF, Roebuck DJ, Cheng JCY, et al. Acute Elbow Trauma in Children: Spectrum of Injury Revealed by MR Imaging not Apparent on Radiographs. *AJR* 2001;176:53 -60.
2. Skaggs DL, Mirzayan R. The Posterior fat Pad Sign in Association with Occult Fracture of the Elbow in Children. *J Bone Joint Surg Am* 1999;81:1429 -1433 .
- 3.Henriksen BM, Gehrchen PM, Jorgensen MB, Gerner-Smidt H. Treatment of Traumatic Effusion in the Elbow Joint: A Prospective, Randomized Study of 62 Consecutive Patients. *Injury* 1995;26:475 -478.
- 4.Della-Giustina K, Della-Giustina DA. Emergency Department Evaluation and Treatment of Pediatric Orthopedic Injuries. *Emerg Med Clin North Am* 1999; 17(4): 895-922.
- 5.Miles KA, Lamont AC. Ultrasonic Demonstration of the Elbow Fat Pads. *Clin Radiol* 1989; 40:602-604.
- 6.Rogers LF. The Elbow and Forearm. In: Rogers LF, eds. *Radiology of Skeletal Trauma*. 2nd ed. New York; Churchill Livingstone, 1992: 751-754.
- 7.Hall-Craggs MA, Shorvon PJ, Chapman M. Assessment of the Radial Head-Capitellum View and the Dorsal fat-Pad Sign in Acute Elbow Trauma. *AJR Am J Roentgenol* 1985; 145:607-609.
8. DE Beaux AC, Beattie T, Gilbert F. Elbow fat Pad Sign: Implications for Clinical Management. *J R Coll Surg Edinb* 1992; 37:205-206.
9. Bledsoe RC, Isenstark JL. Displacement of fat Pads in Disease and Injury of the Elbow: A New Radiographic Sign. *Radiology* 1959; 73:717 -724 .
10. Kohn AM. Soft-Tissue Alterations in Elbow Trauma. *AJR* 1959; 82: 867 -874 .
11. Bohrer SP. The Fat Pad Sign Following Elbow Trauma: Its Usefulness and Reliability in Suspecting "Invisible" Fractures. *Clin Radiol* 1970;21:90 -94 .
- 12.Rogers LF. Fractures and Dislocations of the Elbow. *Semin Roentgenol* 1978;13:97 -107 .
- 13.Swischuk LE, Hayden CK, Kupfer MC. Significance of Intraarticular Fluid Without Visible Fracture in Children. *AJR* 1984;142:1261 -1262 .
- 14.Donnely LF, Klostermeier TT, Klosterman LA. Traumatic Elbow Effusions in Pediatric Patients: Are Occult Fractures the Rule? *AJR* 1998;171:243 -245.
- 15.Quinton DN, Finlay D, Butterworth R. The Elbow Fat Pad Sign: Brief Report. *J Bone Joint Surg Br* 1987;69:844 -845.

The Implication of Fat Pad Sign in Occult Elbow Fracture

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Abstract

Introduction: The elbow is frequently involved in trauma and is one of the most frequently radiographed joint in emergency ward.

Posterior fat pad displacement has been describing in a variety of disorder such as hemophilia, rheumatoid arthritis and any condition that concomitant with joint effusion such as trauma. So it may be the manifestation of an Occult fracture as a result of trauma.

Objective: The purpose of this study was to assessment the implication of posterior fat-pad sign in occult elbow fracture.

Materials and Methods: This research is a prospective and descriptive study that carried out on 328 patients with the age under 18 years old and a history of traumatic elbow injury.

All of patients with the radiographically positive posterior fat pad sign, without any intraarticular fracture were introduced in study. After 3 weeks the injury, anteroposterior, lateral, and oblique radiographs were made and evaluated for evidence of fracture healing (Periostial reaction). If there was evidence of new bone formation on any of this three radiographs, it was considered to indicate a fracture of elbow.

Result: From 328 patients, 73% (242) were boys and 26%(86) were girls. 29(96)% of patients were posterior fat pad positive sign that 85%(82) of above patient after 3 weeks become positive they had evidence of a fracture and in 18% (14) of patient hadn't any evidence of fracture. 82% (65) of patients had supracondylar fracture, 41% (5) a fracture of lateral condyl humerus, 1.64% (2) a fracture of medial condyl humerus.

Conclusion: This study demonstrated that the prevalence of posterior fat-pad sign with the evidence of fracture in elbow is very high and need to evaluate the patients with occult fracture correctly is very important.

Key words: Adipose Tissue/ Elbow Joint/ Fracture, Closed