Symptomatic Nonunion of the Medial Humeral Epicondyle Fracture: A Case report and Review of the Literature

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Introduction

Symptomatic nonunion of medial epicondyle fractures of the humerus is a rare entity. The surgical technique can be difficult due to anatomic and biomechanical factors, such as the high tension and the torsional forces applied from the flexor-pronator tendon origin. The most common complications of nonunion of the medial humeral epicondyle fracture are chronic pain, instability in valgus of the elbow, and neuropathy of the ulnar nerve.

Objectives

We described the case of 1 patient with symptomatic medial humeral epicondyle nonunion, who underwent open reduction and internal fixation with excellent clinical evolution after 1 year of follow-up from time of surgery.

The purpose of this study was to evaluate the outcome of open reduction and internal fixation of a medial epicondyle nonunion fragment in 1 case and present a review of the literature.

Materials & Methods

We report the case of a patient admitted to the orthopedic department of the Hassan II University Hospital Center of Fez. She was a 27-year-old patient, a student, with no pathologic history, presented with an old trauma of the right elbow, due to a fall from a height with direct reception; the patient did not initially consult. Three years later, the patient consulted for right elbow pain, and paresthesia on the territory of the ulnar nerve. The clinical examination objectified a limitation of the mobility of the right elbow to 10 to 110 degrees, with pain on palpation of the medial epicondyle of the humerus, instability in valgus, and without sensory-motor deficit, in particular, of the ulnar nerve.

Mayo Elbow Performance Score (MEPS) at 40 and Quick Disability of Arm, Shoulder, and Hand (Q-DASH) score at 72.7.

Frontal and lateral elbow x-ray showed nonunion of the medial epicondyle with a small fragment displaced anteroinferiorly (Fig. 1).

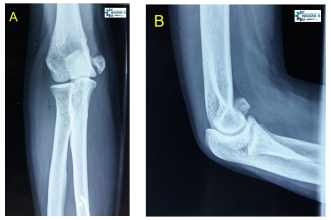

Fig 1. Standard frontal (A) and lateral (B) radiographs showed nonunion of the medial humeral epicondyle fracture.

Via the posterointernal approach of the right elbow, she initially benefited from an anterior transmuscular release and transposition of the ulnar nerve, which was incarcerated in an interfragmentary fibrosis (Fig. 2).

Thereafter, in a second phase, a reduction of a fragment of the medial epicondyle after re-awakening and fixing was carried out, because of the small size of the fragment, by one cancellous screw 3.5 without washer (due to lack), associated with a graft of cancellous bone taken from the olecranon.

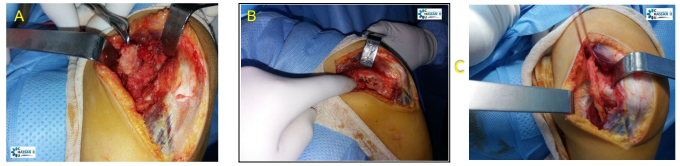

Fig 2. Re-awakening of the fragment of the medial humeral epicondyle (A) and the medial side of the humerus (B) after Release of the ulnar nerve (C).

Results & Discussion

The immediate postoperative follow-ups were simple, and functional rehabilitation was started after 3 weeks. The evolution was marked by the disappearance of the pain with a marked reduction in paresthesia of the ulnar nerve.

Radiographs objectified a consolidation of the fragment of the medial epicondyle after 3 months of follow-up, with a slight ascent of the fragment compared with its anatomic situation (Fig. 3). After 15 months of follow-up, the patient was satisfied with the surgical treatment with disappearance of pain (EVA score at zero), an MEPS of 85, and Q-DASH score of 9.1.

Fig 3. Standard frontal (A) and lateral (B) radiographs showed a consolidation of the fragment of the medial humeral epicondyle.

Conservative management often serves well in case of acute injuries, nondisplaced or minimally displaced fractures (according to Wilkins classification). Although the frequency of nonunion or fibrous union in these conservatively treated patients is fairly high.

Gilchrist and McKee, Kulkarni, Erdil reported a retrospective study with symptomatic nonunion of the medial humeral epicondyle treated by ORIF, They had significant improvements with MEPS and Q-DASH scores and elbow at final follow-up.

Conclusions

In conclusion, according to our results and after review of the literature, ORIF give an excellent clinical and functional outcome. The excellency of the outcome is dependent on careful dissection medially, to find out incarcerated medial epicondyle without crushing it, to secure anatomic reduction of the fragment, for the proper release of the contracture in long-standing cases, and for early mobilization. The preferred method of internal fixation demands further comparative studies with larger sample size.

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