

Case Report

Providential non-union of the medial condyle of distal humerus: a case report

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ABSTRACT

Non-union of the medial condyle of the humerus is a rare development of neglected fractures of the distal humerus. We report a case found in a 19 years old boy who consulted for relative functional impotence of the right elbow, with a functional score rated at 76 points out of 100 according to Broberg and Morrey. The elbow radiograph showed a pseudarthrosis of the medial condyle of the humerus and the computed tomography found in addition a partial filling of the olecranon and coronoid dimples. Also, a therapeutic abstention was retained this pseudarthrosis in view of its providential character.

Keywords: Non-union, Providential, Medial condyle, Distal humerus

INTRODUCTION

Fractures of the distal humerus of the adult represent about 2% of all traumatic skeletal lesions.¹ Neglected, they are often complicated by non-union.² According to the Mitsunaga classifications of 1982, there are 5 types according to the seat.³ Despite the fact that they can cause mild pain, instability and loss of grip strength, in some cases they do not require surgical treatment.⁴⁻⁶ Several therapeutic options have been described in the literature, ranging from internal fixation to arthrodesis and arthroplasty.^{2,7} They have the advantage of improving the function and stability of the elbow, but it remains a source of significant complications.⁸ Non-union of the distal humerus is rare and that of its medial condyle even more. We report here a case of medial condyle non-union of the humerus complicating a fracture of the distal humerus in which the option of therapeutic abstention was adopted because of its providential nature.

CASE REPORT

He is a 19 years old trader, right-handed, with no particular past medical history, seen in consultation at 6 months of a neglected trauma of the right elbow during a fight. He was beaten on the elbow. The initial care was done by the bonesetter. Faced with the persistence of a relative functional impotence, a decrease in limb strength and transient pains, he makes an appointment for orthopedic consultation.

The physical examination found a good general condition, a muscular atrophy of the forearm estimate at 2 cm difference from the opposite side. He found a protrusion of the medial condyle with a discreet blow of the posterior ax. The palpation showed a disorganization of the anatomical bone configuration of the elbow. The Hueter line and the Nelaton triangle were not found respectively in full extension and in 90° bending. There was abnormal mobility with little pain in the medial condyle. The

articular amplitudes were respectively at -25° and 130° for extension and flexion. Pronation was at 30° and supination at 60° . There was no instability in varus and forced valgus. Elbow use was normal (Figure 1). There was no sensory, motor or vascular disorder. The general examination was otherwise normal. Borberg and Morrey's functional score (Table 1) of the elbow attributed 30/40 points to mobility, 13/20 to strength, 5/5 to stability and 28/35 points to pain. For an overall score of 76/100, evaluating the function of the elbow at the average level.

Table 1: Broberg and Morrey score items and notation.

Variables	Points
Motion (total for each plane) (degrees)	
Flexion (0.2xarc)	27
Pronation (0.1xarc)	6
Supination (0.1xarc)	7
Strength	
Normal	20
Mild loss (appreciable but not limited, strength 80% that opposite side)	13
Moderate loss (limits some activity, strength 50% that opposite side)	5
Severe loss (limits everyday tasks, disabling)	0
Stability	
Normal	5
Mild loss (perceived by patient, no limitation)	4
Moderate loss (limits some activity)	2
Severe loss (limits everyday tasks)	0
Pain	
None	35
Mild	28
Moderate	15
Severe	0



Figure 1: (a) Hand to mouth movement evaluation, (b) internal rotation, (c) elbow flexion, and (d) elbow extension.

The radiograph of the elbow in frontal and lateral incidence showed of a non-union of the type E medial condyle according to Mitsunaga classification. It was associated with a partial dislocation of the humeroulnar

joint (Figure 2). The CT scan of the elbow confirms the nonunion of the medial condyle and show a filling of the olecranon and coronoid dimples (Figure 3). Which thus defines a providential nonunion because it concedes a useful functional arc at 105° with a preserved stability. In view of these observations the therapeutic abstention associated with a follow-up was chosen as an indication.



Figure 2: Elbow X-ray (a) front view and (b) lateral view.

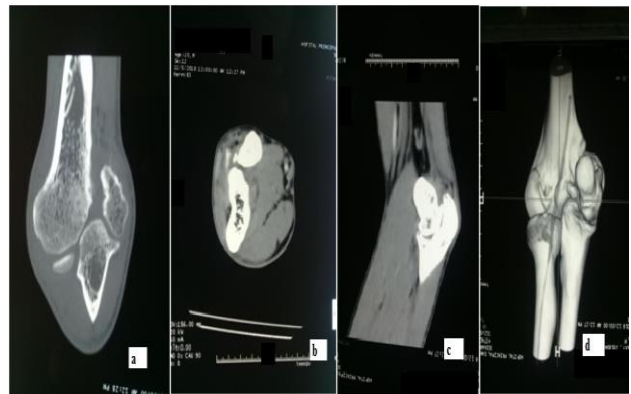


Figure 3: CT scan of the elbow (a) frontal view, (b) axial view, (c) sagittal view, and (d) anterior view of CT scan reconstruction showing the filling the olecranon and coronoid dimples.

DISCUSSION

Non-union is one of the rare complications of neglected fractures of the distal humerus of the adult.² They were classified in 1982 by Mitsunaga in 5 types according to the seat namely type A in supra-condylienne, type B in T-condylienne, type C in lateral condyle, type D trans-condylienne and type E in condyle medial (Figure 4), which is the subject of this case report is the rarest.³

In the literature dealing with the management of non-union of the adult's humeral palette, surgery is indicated in almost all cases.^{4,5,9,10} The Ackermann and al series of 20 cases in 16 years is a functional indication in only one case.⁹ The most common therapeutic indication is a cure of pseudarthrosis by placing a spongy allograft and osteosynthesis by screwed or screwed plate.^{4,5,10}

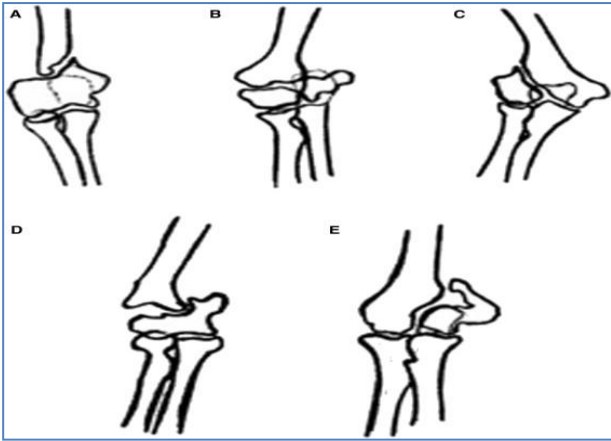


Figure 4: Distal humeral nonunion classification of Mitsunaga (A) supracondylar, (B) T-condylar, (C) lateral condylar, (D) transcondylar, and (E) medial condylar.³

The surgery has nonetheless significant complications that should be noted. Sim, Helfet, Jupiter, Saragaglia and their collaborators showed in their respective series that despite a well-conducted treatment, the nonunion of the distal humerus recurred with an incidence of 2 to 10%.^{1,4,8,11} In their study, Ackermann and al emphasized that most patients who had been operated on in their series continued to have a major long-term disability. And this despite the consolidation gained.⁹ Kinik and al found 2.2% fixation failure, 11.1% nerve complications, 28.2% global heterotopic ossification and 11.1% movement amplitude limitations.¹²

In the literature, the therapeutic abstention in front of a non-union of the humeral pallet is an indication which is hardly ever envisaged. In our clinical case, she was selected for this medial condyle non-union in front of a partial filling of the olecranon and coronoid fossae on computed tomography, described by Kelberine and al in 2006 as one of the intra-articular etiologies of elbow stiffness.¹³

In doing so, this non-union becomes providential because being responsible for the conservation a functional arc of the elbow at 105°. At the teaching conference of the SOFCOT of 2013, Begue emphasized the particular interest of the tomodensitometry of the elbow in the radiological assessment, because it makes it possible to search the elements of providence of the non-union.¹⁴

According to Sears and al, the therapeutic objective in these cases is to obtain a slightly painful and functional elbow, without cutting the bridges to possible future surgical procedures and by delaying as much as possible a prosthesis.¹⁵ A surgical procedure of cure of this non-union therefore would have engaged the functional prognosis of the elbow. This especially since our patient had a score of 76/100; which corresponds to a pretty good function according to the Broberg and Morrey classification.

CONCLUSION

Non-union of the distal humerus is a rare complication of traumatic elbow injuries. That of the medial condyle is almost not described in the literature. His diagnosis is easy on radiography with the help of Mitsunaga's classification. Although the therapeutic indication is almost always surgical, the postoperative complications come to erode the functional prognosis of the elbow. In the presence of medial condyle nonunion, the function of which is preserved, it is important to weigh the risk/benefit balance before deciding on a surgical indication. The analysis of the axial sections of the CT of the elbow makes it possible to know if this pseudarthrosis has a providential character. This avoids making the patient run the known risks of elbow surgery.

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