

Results of surgical treatment with proximal locking plate in fractures of the upper extremity of the humerus

B. EBVELMEALY *, A. TBATOU, J. RADI, K. LAHRACH, A. MARZOUKI and F. BOUTAYEB

Department of Traumatology-Orthopedics A, CHU HASSAN II Fez, Morocco.

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Abstract

Fractures of the upper extremity of the humerus are subject to different therapeutic modalities. To determine the epidemio-clinical aspect of fractures of the upper end of the humerus in adults, and to assess the functional and radiological results of patients in our series treated with proximal plate This is a series of 12 cases from the Traumatology and Orthopedics Department A of the CHU HASSAN II University Hospital, Fez. We recorded the epidemiological data of the patients and the circumstances of the trauma. Reduction was assessed on postoperative radiographs. In hindsight, functional results were assessed using the Constant score. Our series included 5 men and 7 women. The average age of our patients was 41 years. domestic accidents by falls were noted in 75%, 2-fragment fractures were found in 83.33% of cases. Fractures without callus were consolidated in 16.66% of cases. In fractures of the Fractures of the upper end of the humerus, an appropriate osteosynthesis, depending on the patient and the fracture, and early postoperative rehabilitation early post-operative rehabilitation.

Keywords: Humerus; Upper extremity; Fracture; Surgical treatment; Proximal locked plate

1. Introduction

Fractures of the upper end of the humerus are common, accounting for around 5% of all fractures, and their frequency rises to over 10% over the age of 65, when they become the third most common cause of osteoporotic osteoporotic fractures of the limbs, after fractures of the upper extremity of the femur and the wrist [1].

By definition, these fractures occur above the lower edge of the insertion tendon of the pectoralis major muscle. Numerous Many classifications have been proposed, depending on the location of the fracture lines in relation to the articular surface and tuberosity, The number of fragments, displacement, and whether or not they are associated with glenohumeral dislocation [2]. To date, there is no consensus algorithm for the therapeutic management of these fractures [3], which range from simple immobilization to from simple immobilization to humeral arthroplasty, via numerous osteosynthesis techniques. This treatment Must respond to two main imperatives: to ensure proper healing and early mobility of the shoulder mobility, shoulder stiffness being the main therapeutic complication. The aim of this study is to evaluate the results of locked proximal plate osteosynthesis in surgical neck fractures of the humerus in our patients in our series.

2. Materials and methods

This is a retrospective study conducted in the orthopedic trauma department A of the CHU HASSAN II of Fez, involving 12 cases of fractures of the upper end of the humerus, over a 2-year period between January 2020 and January 2022. We recorded the patients' clinical data, i.e. sex, age at the time of the trauma, medical and surgical laterality, side affected,

* Corresponding author: B.EBYELMEALY

occupation, circumstances of injury, mechanism of injury and associated mechanism of injury and lesions associated with FESH. The radiological work-up included 2 orthogonal incidences : one frontal And an axillary profile. A CT scan of the shoulder was requested whenever the standard work-up was deemed insufficient. whenever the standard work-up was deemed insufficient. The types of fracture were classified according to the number of fragments NEER classification (figure 1).

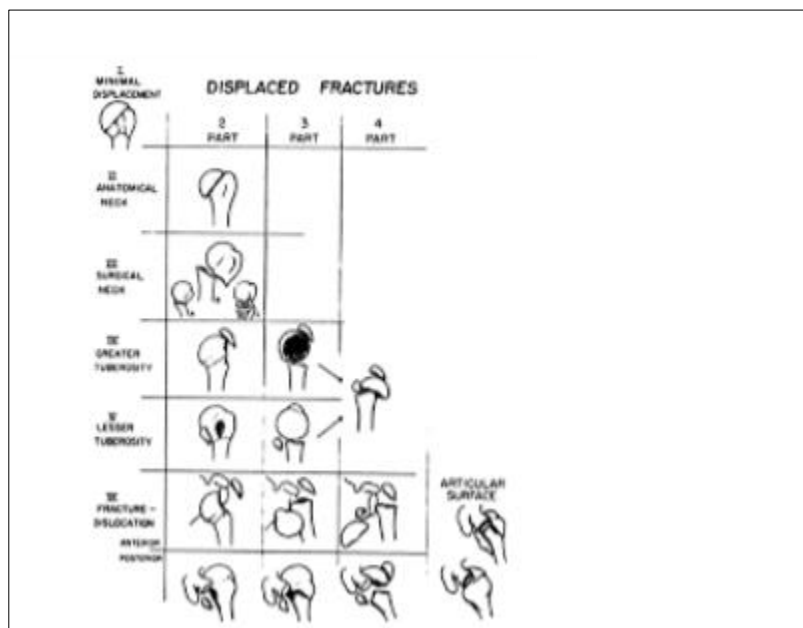


Figure 1 NEER classification of fractures of the upper end of the humerus

We studied the time taken to treat the fractures, the different approaches and the methods used to place the proximal plate of the locked upper end of the humerus. At follow-up, functional outcome was assessed using the Constant score, radiological evaluation was studied on each incidence, looking for consolidation in good position Or pseudarthrosis or callus, based on assessment of head tilt by measuring the alpha angle,formed by the intersection of a line parallel to the axis of the humeral shaft and a line passing through the anatomical neck of the humeral head. Of the humeral head When angle α is between 30° and 60° ($45^\circ \pm 15^\circ$), the head is considered not tilted from tilted. Above 60° , the displacement is valgus, and below 30° , varus. Necrosis of the humeral head or arthrosis was also sought.

3. Results

Our series includes 7 women and 5 men, the average age of our patients was 41 years with extremes ranging from 19 years to 63 years, the etiologies of fractures were either domestic accidents by falls in 75% and public the non-dominant side was found in 4 cases. Lesions associated with FESH involved the lower limb in 2 cases: 1 tibial pilon fracture and 1 trochanteric fracture. The 2-fragment fractures were found in 7 cases, and 3 to 4-fragment fractures in 5 patients., i.e. in 41.66% of cases. The average time to surgery was 02 days. deltopectoral (anterior) approach was used in 8 patients, i.e. 66.66% of cases, the superolateral (lateral) approach (lateral) approach was used in 4 patients, or 33.33% of cases. Osteosynthesis using a proximal locked plate was used in all patients in our series. Analysis of postoperative radiographs showed satisfactory reduction in 83.33% of cases, i.e. in 10 patients. We noted 1 case of varus head tilt and 1 case of valgus head tilt. valgus. No cases of infection or sepsis of the osteosynthesis material were recorded. between J14 and J45 post-op. The mean constant score was 68.3, with extremes ranging from 36 to 89.

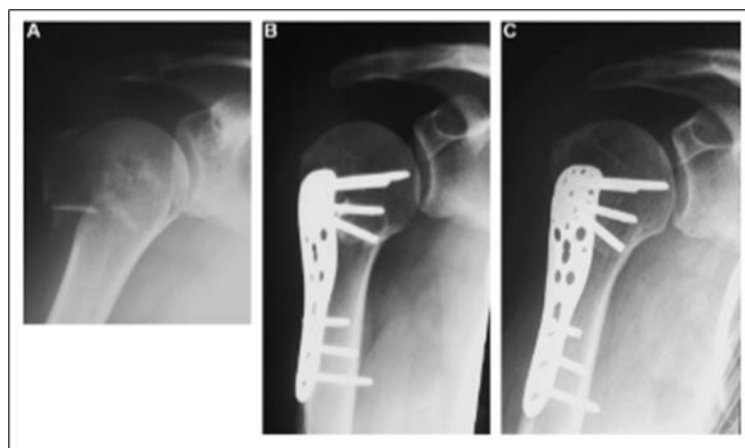


Figure 2 Upper humeral fracture treated with proximal locking plate

4. Discussion

In our study, FESH occurred at an average age of 41 years. They remain lower than those reported in European and American series [4-5-6], where the average age is between 60 and 72. Age-related increase in bone fragility is one of the risk factors predisposing to this type of fracture Fracture [7, 8]. In the literature, female predominance has been noted in some series [9, 10], which is consistent with our results. Concordant with our results. The mean constant score following treatment with a locked plate was 68.3 in our series. This score is comparable to those reported in the literature, as illustrated in Table 1 [6, 18-21]. In our series, we noted 02 cases of malunion.

In varus and valgus or in translation. We agree with Südkamp [19] that vicious callus is secondary vicious callus is secondary to imperfect postoperative reduction.

Table 1 Constant score comparison between different studies

Auteurs	Score de Constant
Konigshausen et al [6] 2012	66
Sudkamp et al [7] 2009	70.6
Schliemann et al [8] 2015	71.3
Brunner et al [9] 2009	72
Solberg et al [10] 2009	68.6
Notre série	68.3

5. Conclusions

Locked proximal plate osteosynthesis for fractures of the upper end of the humerus is a reliable means of

Stable fixation of reducible fractures, as well as good functional results thanks to the possibility of early mobilization of the shoulder and avoidance of the onset of fractures.

early mobilization of the shoulder, avoiding stiffness and retractile capsulitis, and resumption of autonomy and daily activity. autonomy and daily activity.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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