

Treatment Of The Radial Head Fractures (Retrospective Study Of 52 Cases)

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ABSTRACT: The radial head fractures are common lesions estimated one third of fractures reaching the elbow, their mechanism is most often indirect, and their diagnosis are clinical and radiological. The treatment can be surgical or orthopedic; the surgical treatment is characterized by the variety of techniques and approaches, whence the difficulty to choose the appropriate treatment and to pose the right indications. Several authors have been interested in this type of fracture and especially their treatment, as well detailing the different surgical techniques and their evolution over time, by demonstrating that the choice of treatment is not the only prognostic factor of these fractures. We report in this study a series of 52 patients treated for the radial head fracture, with a precise analysis of the various techniques used and the results obtained.

Keywords: radial head fracture; Mason; resection; surgical fixation.

INTRODUCTION

The radial head Fractures are not uncommon, but must be sought in any elbow traumatism. They mainly concern the young person. We must distinguish isolated radial head fractures and fractures associated with other lesions. These fractures should be treated well, and quickly reeducated, because they may stiffen the elbow and influence the movement of pronation and supination. Understanding the role of the radial head in the stability and mobility of the elbow has clarified the therapeutic principles of these fractures.

MATERIALS AND METHODS

This is a retrospective study concerning 52 cases of the radial head fracture treated at orthopedic surgery department in Ibn Sina hospital of Rabat for the period from January 2009 to January 2013. We adopted the classification of Mason amended to clarify the therapeutic indications, evaluate the results and determine the prognosis of these fractures. The analysis of clinical files found a male predominance in 69% of cases, a preferential involvement in young with an average age of 30. The indirect mechanism by falling on the palm of the hand is the main etiology of these fractures. Mason type III fractures of radial head are the most dominant in our series. Injuries associated with these fractures were found in 28 patients and were dominated by the elbow dislocation. Our patients were treated after a mean period of 22 hours; only 8 patients underwent orthopedic treatment by immobilization of which 7 had a fracture type I and one patient had a fracture type II (figure1).

The rest of our patients underwent surgical treatment which was based on surgical fixation in 28% of cases (figure2), excision in 68% of cases or percutaneous pinning (4%), using different surgical approaches: Postero-lateral (Cadenat) in 36% of cases, external pure in (64%) (figure3). The associated injuries were treated in the same operation, depending on the type of injury.



Figure1: Radial head fracture type II



Figure2: Surgical fixation with a screw

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Figure3: External approach in the treatment of a radial head fracture

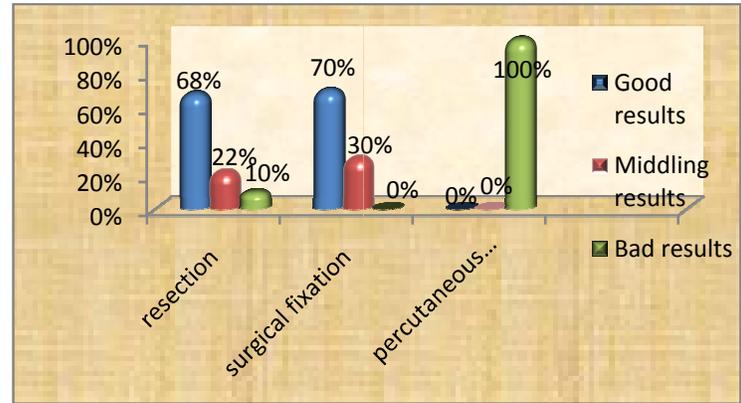


Figure 5: Distribution of the results according to the type of treatment

RESULTS AND ANALYSIS

The functional outcomes were studied on the basis of clinical criteria proposed by Radin [1]. Our choice of these criteria is based on the simplicity and the global appreciation they give to different parameters that may sound on the final result of the radial head fractures, regardless of the type and of treatment used. The average follow-up was 10 months. The outcomes of all treatments are generally satisfying, except in 6 cases. These results were influenced by several factors:

1. The time management: the results were better when patients were quickly treated.
2. Anatomopathological type: type I and type IV had better prognosis (figure4).
3. The presence of associated injuries was a factor of poor prognosis.
4. The type of treatment undertaken: the screwing gave excellent functional outcomes (figure5).

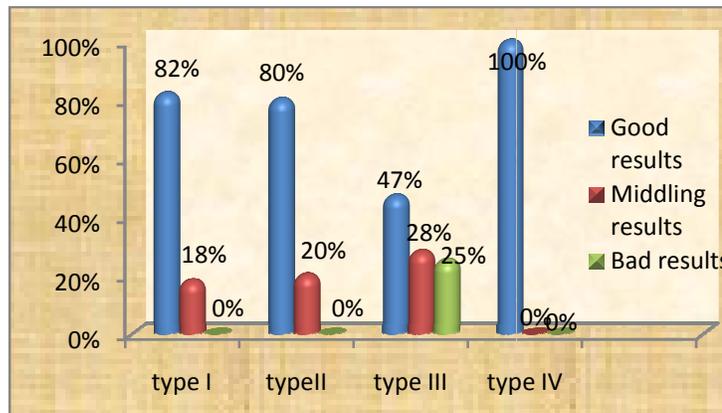


Figure4: Distribution of the results according to the anatomopathological type of fracture.

DISCUSSION

The radial head fracture represents 2 to 6% of all fractures and is seen in one third of trauma [2], it is an injury to young adults because of the fragility of this area at this age and because of exposure to violent trauma [3, 4, 5]. The mechanism of injury is often indirect, by falling on the palm of the hand [2, 6, 7]. The direct mechanism is less common ranging from 13 to 42% [8, 9]. Its diagnosis is clinical and radiological. The aim of treatment of the radial head fractures is the retrieval of a mobile, painless, and stable joint. It must in any case allow early mobilization. Orthopedic treatment with early mobilization remains the essential treatment for little or no displaced fractures. The duration of immobilization is ten days and should be extended to three weeks, if the medial collateral ligament damage was associated [10, 11]. We confirm the good outcomes of orthopedic treatment in fractures type I. The treatment of complex fractures has evolved over the past two decades, including the radial head resection, surgical fixation or radial head replacement. The treatment of concomitant injuries including ligaments, bones and joints remains necessary in the management of these fractures. Since the advent of adapted equipment, the surgical fixation is a good treatment modality providing satisfactory outcomes. Miniaturization and reliability of the equipment have increased the performance of the osteosynthesis, which has contributed to decrease the indications of the radial head resection [12]. The surgical fixation is now the technique of choice in the treatment of Mason type II radial head fracture, especially as the development of the radial head resection is not without complications, in case of concomitant damages of elbow, forearm or wrist. In the Mason Type II fractures, a fragment of the radial head is still attached to the radial collar and serves to support for reconstruction of the separated fragments [12]. The surgical fixation is more difficult in comminuted fractures type III of Mason and the quality of the results is reduced by the association of capsular and ligament injuries of the elbow. The osteosynthesis must allow the closest possible anatomical reconstruction of the radial head and must restore both the radio-humeral and radio-ulnar congruence. The conservative attitude leads to satisfactory outcomes as shown by the majority of studies [3, 8, 12]. The inconveniences observed in the long term after radial head resection has led to the use of interposition implants in

order to maintain the length of the radius. New implants are currently proposed. They fall into two categories: floating cup implants and fixed cup implants. Their biocompatibility and mechanical properties are satisfactory, but a risk of long-term deterioration is not excluded. Their high cost is a barrier to their use. The indications for arthroplasty are rare. The prosthesis will be used when there are associated with destabilizing injuries at the elbow, forearm or wrist and whenever conservative methods are not feasible. Thus the radial head or prosthetic replacement is necessary to accomplish the proper functioning of forearm [14]. However, prosthesis has problems of aging, looseness and wear. Because this technique has only been in use clinically for a relatively short time, there is no information about durability [15]. The analysis of different series, found very good results for Mason type I and II fractures [16] by against, for Mason type III fractures, the prognosis is less good and requires resection of the radial head more or less arthroplasty [6]. These results are also influenced by the time limit for management [17], the anatomopathological type, the presence of associated injuries [3, 8, 13, 18], and the type of treatment.

CONCLUSION

The important role of the radial head in the elbow joint and stability of the forearm have aroused greater attention. Significant changes have taken place in the treatment of radial head fractures. All treatment modalities discussed provide satisfactory outcomes for patients in the majority of cases at short term follow-up.

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