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Results of surgical treatment of Galeazzi fractures in adults about 32 cases

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Introduction: **The treatment of Galeazzi fractures is definitely surgical. However, the choice of therapeutic strategy remains controversial. The aim of this study was to report our results of surgical treatment of Galeazzi fractures.**
Patients and methods: **A retrospective descriptive study was carried out over 3 years. Were included 32 patients operated for Galeazzi fracture. The average age was 32 years. Front and lateral forearm x-rays were used for lesion diagnosis and measurements. The radius fracture was located in the middle third for 71% of cases. The average distal radio-ulnar index was 3.6 mm. Osteosynthesis of the radius was carried out using a screwed plate before stability testing of the distal radio-ulnar joint. In case of instability, ulno-radial pin fixation wirst in supination was done for 45 days. At the mean follow-up of 38 months, all patients were evaluated using Mestdagth score.**
Results: **Bone consolidation was achieved within an average time of 75 days. At a mean follow-up of 38 months, internal fixation by radial plate and ulno-radial pinning achieved a good functional result in 73.7% of cases (p=0.03). Patients treated only by pinning without use of plate had a poor functional score.**
Conclusion: **The treatment of Galeazzi fractures using a radial screwed plate and radioulnar pinning provides satisfactory results and a low complication rate.**

Keywords: Radius fracture, Wrist injuries, Forearm.

INTRODUCTION

Galeazzi fractures combine a fracture of the radial shaft with a dislocation of the Distal Radio-Ulnar joint. Initially described by Cooper, this lesion was popularized by Ricardo Galeazzi in 1934[1]. These uncommon lesions, represent 2-6% of all forearm lesions[2]. The spectacular radial fracture can hide the radio-ulnar lesion which could therefore go unnoticed. If left untreated the latter can compromise prono-supination and therefore the functional prognosis of the forearm. The treatment of Galeazzi fractures is resolutely surgical, by reduction and internal fixation to obtain better functional result[3,4]. If for radial fixation screwed plate is the gold standard, the treatment of distal radioulnar lesion is more nuanced[1,5]. Approaches to the treatment of this lesion range from resection of the distal end of the ulna to its surgical fixation.

Our approach regarding the distal radioulnar lesion varies depending on the persistence or not of clinical operative instability. The aim of this study was to report the results of surgical treatment of Galeazzi fractures performed in our department.

MATERIALS AND METHODS

A retrospective descriptive study was carried out between January 2019 and December 2021 in the Orthopedic and Trauma Surgery department of the Treichville Teaching Hospital.

It involved all patients aged over 15 admitted and treated for Galeazzi fracture. Patient's medical records were used for data collect. Thus 32 patients were included in the study. The average age was 32 years (16-53), whom 84.4% were male. The lesion was caused by fall onto the palm of the hand in 50% of patients. Front and lateral forearm x-rays were used for lesion diagnosis and measurements. The radius fracture was located in the middle third in 71% of cases. The average distal radioulnar index was 3.6 mm (2-6). A fracture of the ulnar styloid was noted in 2 cases, and 3 patients had open fractures. The average time to surgery was 4.8 days (1-8). Anterior approach was used in all cases.

After internal fixation of radius with a Dynamic Compression Plate, intraoperative testing of the distal

radio-ulnar joint was performed. Distal radio-ulnar instability was noted in the presence of anteroposterior laxity of the lower end of the ulna upon mobilization, or a dorsal protrusion of the latter on fluoroscopy. In case of instability, ulno-radial pin fixation wrist in supination was realized for 45 days (Figure 1). In case of stability, cast immobilization in neutral position completed radius fixation for an equivalent period.

Instability was thus observed in 62.5% of patients in the series and treated by ulno-radial pinning (Table I). No fixation of the ulnar styloid or Triangular Fibro-Cartilaginous Complex repair was performed.

Open fractures were treated by pinning both radial shaft and distal radioulnar joint.

At a mean follow-up of 38 months (26-62), all patients were evaluated using the Mestdagth score[6]. We considered the score "Good" if it ranged from 7 to 12 and "Poor" if it was between 13 and 17. SPSS V23 software was used for data analysis; the Fisher exact test was used to compare proportions.

RESULTS

The post-operative course was marked by the occurrence of post-operative sepsis in one patient, which was treated by antibiotic and local care. We also remotely observed radial pseudarthrosis, which required revision surgery.

Bone consolidation was achieved within an average time of 75 days (50-100). No radioulnar synostosis was observed. At a mean follow-up of 38 months, the overall Mestdagth score was satisfactory (Very Good and Good) in 68.8% of patients (Table II). Concerning the treatment of radioulnar dislocation, the use of a radial plate combined with ulno-radial pinning achieved a good functional result in 73.7% of unstable lesions ($p=0.03$) . Stable lesions immobilized with a brachio-antébrachio-palmar cast had a satisfactory functional evolution in 80% of cases. All patients treated with combined pinning of the radius and the distal radioulnar joint had a poor remote functional score (Table III).

DISCUSSION

The treatment of Galeazzi fractures remains a controversial issue. While consolidation of the radial fracture is generally achieved without difficulty, the management of the Distal Radio-Ulnar joint (RUD) responds to several approaches. For some authors, such as Reckling[7], cast immobilization after osteosynthesis of the radius is sufficient, while MIKIC[2] recommends temporary pinning of the RUD. Several other approaches have also been described, recommending fixation of the RUD depending on the location and

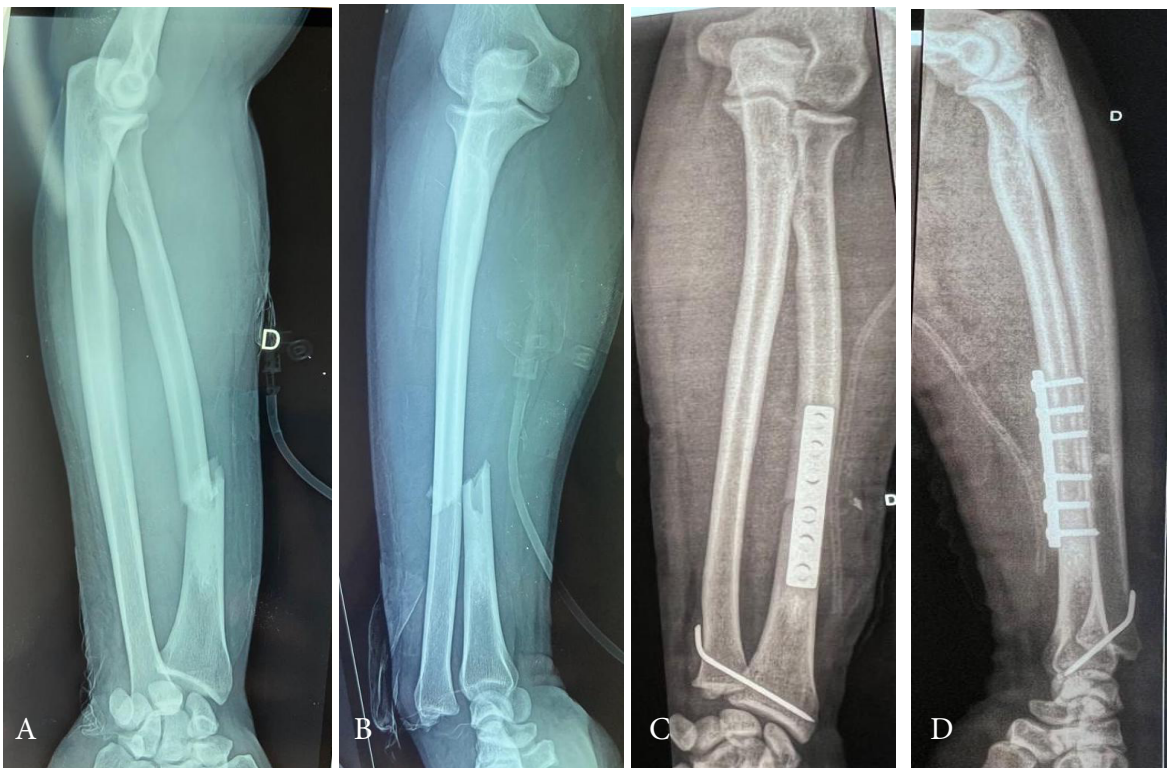

Fig. 1 — a,b. Right Galeazzi fracture in a 38-year-old patient.
c,d. Reduction and osteosynthesis with screwed plate and radio-ulnar pinning.

Table I. — Distribution of treatment according to intraoperative stability.

		Intraoperative stability	
		Yes	No
Treatment	Plate+Rud pin	1	18
	Plate+BAB	8	2
	Pin+BAB	3	0

Rud: Distal radio-ulnar joint; BAB: Brachio-antebrachio-palmar cast.

Table II. — Distribution according to Metsdagth score.

Score	Frequency	Percentage %
Good	22	68,8
Poor	10	31,2
Total	32	100,0

direction of the radial fracture line[8,9]. Our approach was based on the evaluation of intraoperative instability of the RUD[10,11]. The aim was to look for laxity of the RUD after internal fixation of the radius. Although the experience and technique of the surgeon are likely to influence the result, we consider this simple method reproducible. It made it possible to assess the presence or absence of RUD lesion without resorting to radiographic measurements, which are not always reliable[12]; or to wrist arthrography which is an imaging test that is not always available in our practice. In our series, if for stable lesions cast immobilization for 6 weeks was sufficient; unstable lesions was treated by temporary pinning of the RUD. Although our study is limited by the size of the series, this approach made it possible to obtain satisfactory results for both stable and unstable lesions with good functional scores of 80% and 73.7% respectively (p=0.03); and very few complications.

For the rest of the patients with poor functional outcome, these were mainly patients with open fractures treated not with screwed plates, but by pinning of the radial shaft and distal radio-ulnar joint. The reason surely being that this type of osteosynthesis provided an approximate reduction and less solid fixation of the diaphyseal fracture. Although Danshoko[13] observed satisfactory results with this technique in his series, we consider that intramedullary diaphyseal pinning of Galeazzi fractures gives less good results.

CONCLUSION

Galeazzi fractures are uncommon lesions that can compromise pronosupination. Treatment of these lesions with radial screwed plate and radio-ulnar pinning of unstable lesions provides satisfactory results and a low complication rate.

Table III. — Distribution of Metsdagth score according to treatment performed.

Treatment performed	Metsdagth Score n (%)	
	Good	Poor
Plate+Rud pin	14 (73,7)	5 (26,3)
Plate+BAB	8 (80,0)	2 (20)
Pin+BAB	0	3 (100)

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