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Case Report

Distal Ulna Fracture Like a Galeazzi: An Uncommon Case Report and Literature Review

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Abstract

Introduction: The Galeazzi fracture consists of a radial shaft fracture occurring most commonly at the junction of the middle and distal thirds of the radius and is accompanied by a dislocation of the distal radio-ulnar joint (DRUJ). Galeazzi fractures result from hyperpronation injuries to the forearm. They require stabilization by internal fixation. Reportedly, the incidence of distal ulna fracture with a galeazzi is rare.

Case Presentation: A 48-year-old woman with displaced closed fracture of the distal shaft left radius and left distal intraarticular ulna. The patient experienced deformity and swelling in his left forearm after a motorcycle accident. Based on these, we diagnosed the patient with a Galeazzi equivalent fracture. Therefore, open reduction and internal fixation (ORIF) was conducted using an LC-DCP plate and screw technique.

Discussion: From the report reviewed in this study, a quick diagnosis with prompt treatment makes like a Galeazzi-type fracture. Almost all four other studies apart from our study reported a good Galeazzi-type fracture. One case was initially treated operatively by internal fixation but later proceeded with distal ulna fracture with internal fixation, which ended with an excellent outcome.

Conclusion: Distal ulna fracture with a galeazzi-type fracture. Risk correlated significantly or not is still need a further study to be done.

Keywords: Case report, distal ulna fractures, galeazzi fractures, literature review.

Introduction

The Galeazzi fracture is characterized by a radial shaft fracture, typically occurring at the junction between the middle and distal thirds of the radius. This fracture is sometimes followed by a dislocation of the distal radio-ulnar joint (DRUJ). It most commonly happens in adults, accounting for 6 to 7% of all forearm fractures.[1] Another variant of Galeazzi fracture is known as Galeazzi equivalent fracture, which, conversely to the classic Galeazzi fracture, happens more commonly in the pediatric population due to the weaker structure of the epiphyseal plate compared to the ligaments of DRUJ. Such injury is rare in the adult population but needs prompt diagnosis and treatment due to the potentially debilitating complications that may develop.[2] In this case report, we aim to present a rare case of adult type of Galeazzi equivalent fracture.

Case Presentation

A 48-year-old woman arrived at the Emergency Room (ER) on May 25, 2021, with a chief complaint of pain and swelling in her left forearm. The patient experienced a motorcycle collision accident 7 hours previously and was taken to another hospital before being referred to the orthopedic division in our hospital. Additionally, she also complained of having head and facial pain. Upon arrival at the ER, the primary survey was conducted within normal limits. A local state of the left forearm revealed swelling and deformity. The wrist had tenderness and Range of Motion (ROM) limitation. In addition, the right hand showed bruising, swelling, tenderness, and end of ROM (Figure 1). The neurovascular status of both right upper extremities is within normal limits. A plain radiograph of the left forearm (Figure 2) revealed bone discontinuation of the radial shaft, which was complete, oblique, and shortened. Concurrently, the ulnar bone also showed bone discontinuation of the distal ulna, which was finished, transverse, and intra-articular.

Figure 1: Clinical picture showing deformity of the left forearm.

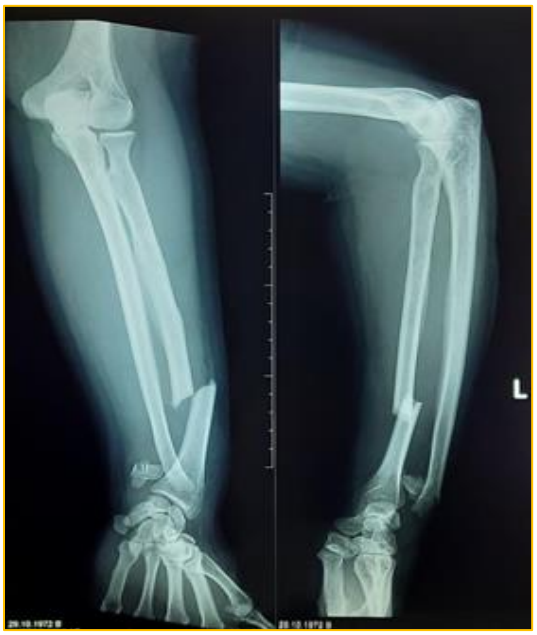

Figure 2: Plain radiograph of left forearm.

Figure 3: Post-operative plain radiograph of the left forearm.

Based on the data mentioned earlier, we diagnosed this patient with a Galeazzi equivalent fracture of the left forearm. Regarding these, the open reduction and internal fixation (ORIF) of the left forearm fractures by using an LC-DCP plate and screw technique was applied (Figure 3).

Discussion

The Galeazzi fracture is a radial mid-shaft and distal shaft fracture accompanied by a DRUJ disruption. It most commonly occurs at the junction of the middle and distal thirds of the radius and warrants excellent care due to its unstable nature. Such injury pattern was first described by Cooper in 1842. Meanwhile, Galeazzi was given credit for this unique pattern of fracture because of his report involving 18 cases of such injury, including the management implemented by him.[1,3]

The incidence of Galeazzi fracture accounts for 6 to 7% of all adult forearm diaphyseal fractures.[1] The mechanism injury is reported variably, with most authors agreeing that falling onto the outstretched hand with forced forearm pronation is the most familiar injury mechanism. However, another author reported direct injury to the dorsomedial aspect of the forearm as the most familiar mechanism. One of the most typical causes of injury is road traffic accidents, as happened to our patients.[1,3]

Another variant of such fracture is known as Galeazzi equivalent fracture. This fracture entity means there is a fracture of the shaft of the radius, which associates diaphyseal radial fracture and epiphyseal dislocation of the distal extremity of the ulna. Conversely to the classic Galeazzi pattern, this pathological lesion happens more commonly among the pediatric and adolescent populations.[2,4]

Our study presents a rare distal radial shaft fracture with a concomitant distal intra-articular ulnar fracture. This case is similar to the case reported by Elibrahimi et al. which explained an issue of such fracture in a 16-year-old boy following a fall on his right hand. They treated the patient by internal fixation of the radius through anterior access using a screwed plate (DCP). A pining of the distal extremity of the ulna was also considered. They reported satisfactory functional results of the patient following the procedure. Although slightly different in age, we also managed this patient operatively because this lesion type will likely be unstable, as in classic Galeazzi fracture.[5]

Another study by Chae et al. reported a 13-year-old man suffering from a Galeazzi equivalent fracture following stumbling over a rock. A non-operative approach in another medical center first managed the case. Nevertheless, the injury was found to be unstable, so they managed by operative procedure. The 6-hole LC-DCP and six screws were used during the surgery to fixate the radial fragments, such as in our patient.[2]

Treatment of the distal ulnar fracture varies according to the patient's age. While the two previously stated studies, in which patients are adolescents, treated the injured ulna with wiring, the ulna fracture treatment in adults might differ. Logan and Lindau stated that irreducible or unstable ulnar fractures, such as in our patient, require open reduction and internal fixation. A blade plate, tension band wiring supplemented by intra-fragmentary screws, or an internal locking plate can be used to achieve this. Thus, we used plate and screw method to hold the ulnar fragments.[6]

The approach used by us is the Volar Henry approach. Although not explicitly noted for Galeazzi equivalent fracture, this approach to the volar surface of the radius in its distal half is one of the most commonly employed techniques in the classic Galeazzi fracture. The reason is because of the technically more accessible and better soft tissue coverage employed by Henry's approach.

Conclusion

From our case in this study and all other reports presenting similar cases, it can be said that the Galeazzi equivalent fracture is a rare fracture that seems more unstable than its classic type. Thus, a high awareness index is needed when dealing with this unique fracture pattern, especially while choosing the best treatment management. Nevertheless, our limitation in this study is the rarity of the available literature discussing this fracture type.

Declarations

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Informed Consent: Written informed consent was obtained from the patient to publish this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal at the request.

Ethical Approval: Health Research Ethics Commission of Dr. Saiful Anwar General Hospital provided ethical approval for this study with number 400/017/CR/102.7/2023.
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