SMGroup

SM Journal of Orthopedics

Case Report

Galeazzi- Equivalent Lesion: Report of a Case and Review of Literature

Elibrahimi A[1]*, Boussakri H[1]*, Elidrissi M[1], Shimi M[1] and Elmrini A[1]

[1]*Department of orthopaedic surgery B4, Kingdom of Morocco*

Article Information

Received date: Mar 02, 2016
Accepted date: Mar 15, 2016
Published date: Mar 16, 2016

***Corresponding author(s)**

Ellbrahimi Abdelhalim, Department of orthopedic surgery B4, Kingdom of Morocco

Boussakri Hassan, Department of orthopedic surgery B4, Kingdom of Morocco, Email: boussakri.hassan@gmail.com

Keywords Galeazzi-equivalent; Children; Fracture

Abstract

The pseudo Galeazzi equivalent lesion in children under study is about a case which associates a diaphyseal radial fracture and an epiphyseal detachment of the distal extremity of the ulna rather than a distal radio-ulnar dislocation. It concerns a boy of 16-years-old patient who was injured in sport (fall). Radiographs showed a fracture of the radial shaft, which is having an anterior angulation, and a Salter-Harris type II epiphyseal detachment of the distal ulna. We were unable to perform a closed reduction under general anesthesia due to the interposition of the periosteum at the fracture site.

Thus surgical management was the only option. It consisted of removing the offending periosteum and performing: firstly, the osteosynthesis of the radial shaft fracture with a plate, and secondly, the epiphyseal detachment with pins. After 10 months, we didn't notice any bone growth disturbance, or any reduced mobility of the wrist. Nevertheless, we will continue the follow-up so as to monitor the bone growth disturbance of the distal extremity of the ulna.

Introduction

The Galeazzi fracture is a fracture of the shaft of the radius associated with a dislocation rupture of the distal radio-ulnar joint. We find mostly this kind of fracture in adults' cases and less common in children cases. However, there is an anatomic pathological variant of Galeazzi lesion. It is a fracture of the shaft of the radius, which associates diaphyseal radial fracture and epiphyseal dislocation of the distal extremity of the ulna. Reckling et al. firstly reported this Galeazzi- equivalent fracture in 1982 [1], but insufficient interest was given to it in the literature. As we have a case of the Galeazzi-equivalent lesion, we will review the pathophysiology and the literature of this atypical lesion.

Observation

After having been injured in a sport accident (fall), a boy of 16-year-old patient was admitted at emergency department, the patient has fallen on his right hand. The clinical examination found a slight pain in the right forearm and wrist, which is associated with functional disability; however, no neurological and vascular deficits were noticed. The X-ray of the forearm showed a fracture in the third medium and the third inferior of the diaphyseal radius, associated with an epiphyseal separation of type II in the scale of Salter and Harris (used to evaluate the distal extremity of the ulna) (Figure 1). The treatment consisted of internal fixation of the radius through anterior access by using screwed plate (DCP). Besides, a pining of the distal extremity of the ulna was also considered (Figure 2). The reduction of the epiphyseal dislocation was achieved once the periosteal interposition

Figure 1: Equivalent of Galeazzi: fracture of the third medium junction and the third inferior of the radius, associated with Salter and Harris type II epiphyseal detachment of the distal extremity of the ulna.

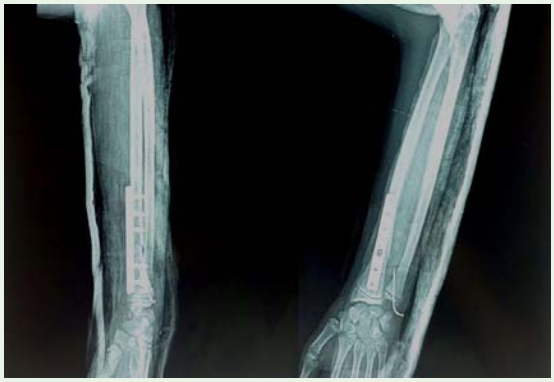

Figure 2: Reduction by screwed plate of the radius and the pining of the epiphyseal detachment after releasing the periosteal interposition.

was released. We had resorted to this since the reduction in the closed site has failed. The functional result was satisfactory with a total recovery of the pronosupination and without any pain. However, growth disorders could be estimated in the long-term scale.

Discussion

The Galeazzi-equivalent injury is a lesion that is associating an epiphyseal separation of the distal extremity of the ulna without any rupture of both inferior radio-ulnar ligaments and the interosseous membrane and the triangular ligament. The mechanism is probably similar to the fracture dislocation of Galeazzi occurring by a hyperpronation of the arm [2-4]. However, the physiopathological aspects are not the same. Considering the biomechanical view, the growth plate is more vulnerable than the ligament system. This latter is stabilizing the inferior radio-ulnar. That explains the absence of luxation, which is replaced in that case by an epiphyseal separation [2,5]. The fracture dislocation of Galeazzi is handled surgically in most cases by internal fixation after reduction [1,2,6].

The treatment of the Galeazzi-equivalent lesion is not systematically surgical. An orthopedic treatment after reduction is suggested in the absence of irreducibility by the interposition of soft tissues such as periosteum, tendinous, or capsular ones. Letts and Rowhani [4] reported a series of six patients including a single case that necessitated a surgical treatment because of the irreducibility of the inferior ulnar epiphysis caused by a periosteal interposition. Seven similar cases were also reported in the literature [7-12]. Land fried, et al. [3] described three cases which required an open reduction of the radius fixed by screwed plate.

Therefore, the rigid internal fixation is not systematic in the equivalent of Galeazzi, compared to the Galeazzi luxation fracture. A perfect reduction and the stability of the fracture fragments are necessary for having a successful orthopedic reduction. On the other hand, a bloody reduction is imperative. An immobilization of the arm using plaster in supine position has to be achieved for preventing a secondary displacement of the ulnar distal extremity [2,6,13]. The ulnar physical distal has to be carefully manipulated to prevent any possible growth disorder [3,4].

The fracture dislocation of Galeazzi and the equivalent of Galeazzi are two anatomic pathological variants which have different treatments and prognoses. At first, Galeazzi- equivalent lesion could be confounded with the inferior radio-ulnar dislocation. However, its basic physiopathological aspect is the epiphyseal dislocation of the distal extremity of the ulna while the stabilizing system is intact. This lesion is similar to the one found on the level of the acromioclavicular joint in children: it is named “acromioclavicular pseudo-dislocation”. This lesion is characterized by the displacement of the clavicula towards the top while the coracoclavicular ligament remains in position [14].

Finally, we agree and approve Imatani [10] in that “Equivalent Galeazzi” denotation does not express the anatomical reality of the lesion; therefore, we suggest that this lesion would be named «Pseudo Galeazzi». The recognition of this form of injury is necessary to ensure the appropriate treatment in order to prevent the complications of an inadequate reduction and growth retardation.

References

1. Reckling FW. Unstable fracture-dislocations of the forearm (Monteggia and Galeazzi lesions). J Bone Joint Surg Am. 1982; 64: 857-863.
2. Mikic ZD. Galeazzi fracture-dislocations. J Bone Joint Surg Am. 1975; 57: 1071-1080.
3. Landfried MJ, Stenclik M, Susi JG. Variant of Galeazzi fracture-dislocation in children. J Pediatr Orthop. 1991; 11: 332-335.
4. Letts M, Rowhani N. Galeazzi-equivalent injuries of the wrist in children. J Pediatr Orthop. 1993; 13: 561-566.
5. Moore TM, Lester DK, Sarmiento A. The stabilizing effect of soft-tissue constraints in artificial Galeazzi fractures. Clin Orthop Relat Res. 1985; 189-194.
6. Moore TM, Klein JP, Patzakis MJ, Harvey JP. Results of compression-plating of closed Galeazzi fractures. J Bone Joint Surg Am. 1985; 67: 1015-1021.
7. Nitamizu T, Akiyoshi K. A case of epiphyseal separation of the bilateral distal ulna due to interposition of the extensor carpi ulnaris. Orthop Traumatol. 1984; 32: 705-706.
8. Wakita S, Awaya G, Shimizu K, Matsuda F, Maekawa M. Galeazzi Equivalent Lesion: A Case Report. Orthop Traumatol. 1985; 33: 612-613.
9. Wakasa M, Okada Y, Tatsugawa M, Murakami T. A case of epiphyseal separation of the distal ulna due to interposition of the extensor carpi ulnaris. Orthop Traumatol. 1986; 35: 188-190.
10. Imatani J, Hashizume H, Nishida K, Morito Y, Inoue H. The Galeazzi-equivalent lesion in children revisited. J Hand Surg Br. 1996; 21: 455-457.
11. Castellanos J, Ramírez-Ezquerro C, de Sena L, Cavanilles-Walker JM. Irreducible fracture-separation of the distal ulnar epiphysis in the Galeazzi equivalent fracture--a case report. Acta Orthop Scand. 1999; 70: 634-636.
12. Ooi LH, Toh CL. Galeazzi-equivalent fracture in children associated with tendon entrapment--report of two cases. Ann Acad Med Singapore. 2001; 30: 51-54.
13. Rockwood C, Wilkins K, King R. Fractures in children. Philadelphia. JB Lippincott. 1984; 356-359.
14. Volz RG. The Galeazzi fracture. In: proceedings of the western orthopaedic association. J Bone Joint Surg Am. 1969; 51: 816-817.

Citation: Elibrahimi A, Boussakri H, Elidrissi M, Shimi M and Elmrini A. Galeazzi- Equivalent Lesion: Report of a Case and Review of Literature. SM J Orthop. 2016; 2(2): 1033.