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Homolateral Combined Fracture of Monteggia and Galeazzi. Case Report and Review of the Literature

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Abstract

Introduction: Homolateral combined fractures of Monteggia and Galeazzi are very rare. Their treatment is exclusively surgical and should be proposed early in order to restore the anatomy of the antebrachial skeleton, pronosupination, and the flexion-extension of the elbow and wrist. **Observation:** We reported the case of a 45-year-old woman who presented a homolateral fracture of Monteggia and Galeazzi following a road accident. This combination of fractures posed a problem of diagnosis and management. Surgical follow-up presented functional issues. **Conclusion:** The association of Monteggia and Galeazzi fracture is very rare and poorly reported in the literature. This observation reminds us of the importance of performing a complete clinical and paraclinical assessment before any therapeutic decision.

Keywords

Ipsilateral Fracture, Monteggia, Galeazzi

1. Introduction

The association of Monteggia and Galeazzi fractures or bipolar fracture-dislocation of the forearm or "floating radial diaphysis" according to Jupiter [1] was first described by Odena [2]. It is very rare and a few cases are reported in the literature [3] [4] [5]. Fractures of Monteggia or Galeazzi are often misdiagnosed when the radiographs of the forearm do not show the upper and lower joints. In adults, their management is surgical and is proposed early in order to restore the anatomy of the antebrachial skeleton, restore joints functions, restore pronosupination, and restore the flexion-extension of the elbow and wrist. We re-

ported a case of an ipsilateral fracture of Monteggia and Galeazzi in a 45-year-old patient whose therapeutic delay caused a major post-surgical functional issue.

2. Observation

A 45-year-old patient, with no pathological priors, was admitted at Brazzaville Teaching Hospital for severe trauma of the right forearm after a road accident.

Upon admission, the patient complained of pain in the right forearm. Physical examination revealed swelling of the forearm, distortion of the right wrist and total impotence of the right limb. The sensitivity and motility of the limb were preserved.

X-ray of the right forearm did not show the elbow joint, but showed a Galeazzi fracture (**Figure 1**). Due to financial issues the fracture was treated on the 5th day of the injury by a screwed plate on the radius and the distal radioulnar joint was pinned by a Kirschner pin.

Twenty-four hours after the surgery, the patient experienced recurrent and severe pain. There was painful swelling in the right elbow. Postoperative X-ray revealed a Monteggia fracture that was previously missed (**Figure 2**). This fracture was treated by screw plate of the ulna and trans-condyloradial pinning at the 11th day of the trauma (**Figure 3**).

Both pins were removed 30 days after the second surgery. The patient then underwent physiotherapy. 9 months after surgery, all fractures consolidated.

The anatomy of the forearm bones was restored, but the flexion-extension of the elbow was quantified at 95˚ and −20˚ flexion-wrist extension quantified at 10˚ and 10˚, pronation at 15˚ and supination 20˚. The grip strength was rated at 3/5.

3. Discussion

Ipsilateral Monteggia and Galeazzi fractures constitute a very rare condition [3] [4] [5]. Their frequency has not been reported in the literature. The frequency of

Figure 1. Incomplete X-ray of the right forearm showing a Galeazzi fracture.

Figure 2. X-ray of the right forearm showing a previously missed Monteggia fracture.

Figure 3. X-ray of the right forearm on the 12th day following surgery.

isolated Monteggia and Galeazzi fractures is estimated at approximately 1% - 2% Monteggia and 3% - 6% of Galeazzi fractures [4] [6].

Considering the traumatic mechanism, Monteggia fracture results from a direct impact on the ulnar diaphysis, producing dislocation of the radial head, and indirect shock by falling on the hand, with the wrist in extension. Galeazzi fracture results from a direct dorso-radial impact on a forearm in forced pronation and an extended wrist [3] [6] [7] [8]. In trauma resulting by road accident as in our patient, the mechanism is more complex.

Delay was the cause of the issues observed in the functional result, in particular on the pronosupination function and the grip strength which are the main functions among the most important of the thoracic limb.

Fractures—bipolar dislocations of the forearm or "floating radial diaphysis" may result from a combination of direct and indirect mechanisms.

The diagnosis of Monteggia and Galeazzi ipsilateral fractures is mostly paraclinical by performing standard radiographs of the forearm showing upper and lower joints. In our medical observation, this principle was not respected which explains the misdiagnosis of the associated Monteggia and Galeazzi on the same limb.

Several cases of misdiagnosed Monteggia and Galeazzi fractures have been reported in the literature [9] [10]. This is often due to the lack of experience of medical personnel and radiology technicians [10].

When isolated the treatment of each fracture is surgical, this fact remains the same in cases where both fractures are combined. The management of these lesions depends on the surgeon's experience and available resources.

4. Conclusion

The association of Monteggia and Galeazzi fracture is rare. This medical observation is a reminder of the importance of performing a complete clinical assessment and standard radiographs of good quality, showing the upper and lower joints prior to any therapeutic decision. Fractures of the forearm bones, whether alone or associated with the lower and/or lower capsulo-ligamentous traumas in adults, should be treated early and adequately. The goal is to restore the perfect anatomy of the antebrachial skeleton, and the function of the joints, including pronosupination. In our patient, the stiffness of the pronosupination function could be improved by resection of the radial head.

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Conflicts of Interest

The authors declare that they have no competing interests.

Informed Consent

The publication of this clinical fact has been approved by the patient.

References

[1] Jupiter, J.B., Kour, A.K., Richards, R.R., Nathan, J. and Meinhard, B. (1994) The Floating Radius in Bipolar Fracture-Dislocation of the Forearm. *Journal of Orthopaedic Trauma*, **8**, 99-106. https://doi.org/10.1097/00005131-199404000-00004

[2] Odena, I.C. (1952) Bipolar Fracture-Dislocation of the Forearm. *The Journal of*

Bone and Joint Surgery, **34A**, 968-976.
https://doi.org/10.2106/00004623-195234040-00023

[3] Boopalan, P.R.J.V.C., Titus, V.T.K., Jepegnanam, T.S., Daniel, A. and Chittaranjan, S. (2007) Ipsilateral Galeazzi and Monteggia Fracture. *Injury Extra*, **38**, 308-311. https://doi.org/10.1016/j.injury.2006.11.024

[4] Akalin, Y., Akinci, O. and Kayali, C. (2010) Ipsilateral Combination of Galeazzi and Monteggia Fractures in a Ten-Year-Old Patient. *Case Report*, **5**, 443-447.

[5] Essoh, J.B.S., Aka, D.K. and Bada, L.S. (2010) Ipsilateral Acute Monteggia Lesion and Malunion of Galeazzi Fracture in an Adult. A Case Report. *Malaysian Orthopaedic Journal*, **4**, 16-18. https://doi.org/10.5704/MOJ.1011.004

[6] Padhi, N.R. and Padhi, P. (2005) Ipsilateral Combined Monteggia and Galeazzi Injuries Presenting Late: A Case Report. *Injury Extra*, **36**, 458-462. https://doi.org/10.1016/j.injury.2005.03.022

[7] Bégué, T. (2003) Fractures des deux os de l'avant-bras de l'adulte. *Sofcot*, **79**, 187-206.

[8] Azzorpardi, S., Mason, L.W., Guha, A. and Rogers, A. (2012) Ipsilateral Combined Monteggia Type II Equivalent and Galeazzi Injuries with Radial Head Fracture in an Adult Patient: Case Report and Literature Review. *Journal of Trauma and Treatment*, **1**, 1-4.

[9] Macintyre, N.R., Ilyas, A.M. and Jupiter, J.B. (2009) Traitement des fractures de l'avant-bras. *Acta chirurgiae orthopaedicae et traumatologiae Cechoslovaca*, **76**, 7-14.

[10] Tekpa, B.J.D., Dibert-Bekoy, E., Tall, M., Lamha, L., Issa Mapouka, P.A. and Gaudeuille, A. (2015) Les fractures isolées d'un des os de l'avant-bras et leurs associations lésionnelles: A propos de 72 cas. *Burkina Médical*, **19**, 59-63.