ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 07, pp.35255-35258, July, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

TRAUMATIC BILATERAL TERRIBLE TRIAD OF ELBOW WITH LEFT TRANS SCAPHOID PERI-LUNATE DISLOCATION AND RIGHT LUNATE DISLOCATION

***Jagan Mohan Reddy, K., Vishnu, S., Monappa A Naik and Sharath K Rao**

Department of Orthopaedics, Kasturba Medical College, Manipal, Karnataka, India

ARTICLE INFO

Article History:
Received 22nd April, 2016
Received in revised form
05th May, 2016
Accepted 16th June, 2016
Published online 31st July, 2016

Key words:

Terrible triad,
Peri-lunate dislocation,
Bilateral,
Elbow.

ABSTRACT

Introduction: Posterior dislocation of the elbow joint with fracture of both the radial head and coronoid process, the so called 'terrible triad', is a complex and difficult-to-treat injury. We present a rare case of Bilateral terrible triad of elbow associated with left peri-lunate dislocation and right lunate dislocation never reported in the literature.

Case report: A 38 year old male presented to our hospital after a road traffic accident with fall on outstretched hand, complaining of pain in both elbows and wrist. There were no external injuries at the time of presentation. On clinical examination, there was instability of both elbows. There was swelling over both elbows and wrists. No neurovascular deficit noted. Radiological examination revealed terrible triad of both elbows, left trans-scaphoid peri-lunate dislocation with right lunate dislocation. Confirmed with CT scan. Under sedation, closed reduction tried. Right lunate reduced and was stable. Left lunate and both elbows were irreducible. So patient was posted for surgical management under GA with a single posterior incision. Patient was started on Tablet Indomethacin 25mg TID for 3 weeks. After 3 weeks, K-wires of left wrist removed, wrist and elbow mobilization started. After 6 months of follow up, patient has 20-1000 elbow range of motion with 0-70 0 pronation and supination. Patient is able to do all his daily routine activities without any difficulty.

Conclusion: Terrible triad of elbow is one of the difficult to deal with injuries around elbow. CT scan is must to understand the pattern of injury. Meticulous repair of bony-capsular complex gives good results and prevent instability.

Copyright©2016, Jagan Mohan Reddy. *This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

Citation: Jagan Mohan Reddy, 2016. "Traumatic bilateral terrible triad of elbow with left trans Scaphoid peri-lunate dislocation and right Lunate dislocation", *International Journal of Current Research*, 8, (07), 35255-35258.

INTRODUCTION

Terrible triad of elbow was first coined by Hotchkiss which consist of posterior elbow dislocation with radial head and coronoid fracture. We describe a case of bilateral terrible triad of elbow with volar trans-scaphoid peri-lunate fracture dislocation on one side and volar lunate dislocation on the other side. To our best knowledge such a case has not been reported in literature.

Case report

40 year old male was brought to the tertiary trauma centre following road traffic accident. Patient presented lately to us (28hrs) with bilateral deformity of elbow and wrist with diffuse ecchymosis and restricted movements. On examination there was gross instability and deformity of both the elbows with bony landmarks obscured. Both the wrists were swollen with intact distal neurovascular status. Radiological examination showed bilateral posterior elbowd is location with mason type 3 radial head fracture and type 1 coronoid avulsion fracture (Figure 1, 2) Left wrist showed trans-scaphoid fracture with peri-lunate dislocation (Figure 3). Right wrist showed volar lunate dislocation (Figure 4). No other bony injurieswere noted which was confirmed by CT scan. Doppler was done to rule out vascular injury. On the same day, under General anaesthesia, with traction and dorsiflexion of wrist, Lunate was reduced on one right side and was irreducible on left side along with scaphoid fracture. After swelling subsided, on day3 of admission, patient was posted for definitive fixation. Right elbow was approached posteriorly in left lateral position with chevron osteotomy. As radial head was comminuted, after a failed attempt to salvage the radial head, it was replaced with stainless steel prosthesis. As coronoid was a chip fracture, capsule-osseous complex was sutured back to coronoid base with ethibond through drill holes and tied posteriorly. Repair of avulsed (origin) lateral ulnar collateral ligament was done.

Corresponding author: Jagan Mohan Reddy,
Department of Orthopaedics, Kasturba Medical College, Manipal, Karnataka, India.

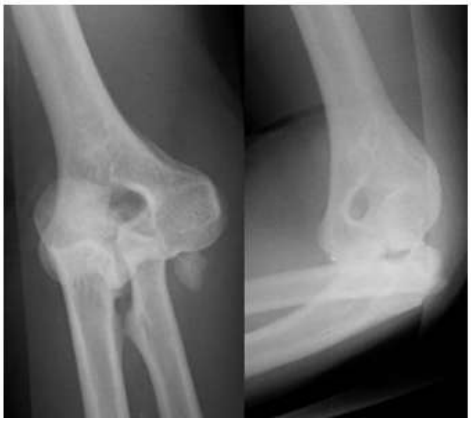

Figure 1. Left elbowterrible triad

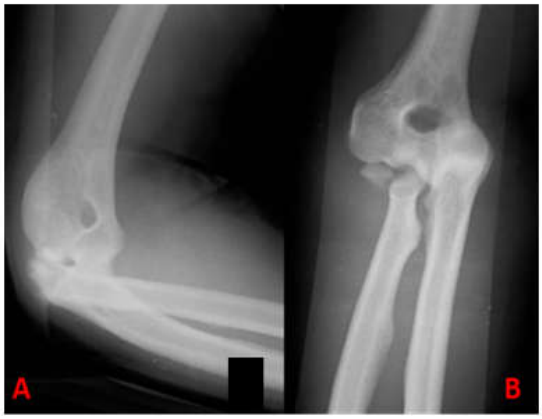

Figure 2. Right elbow terrible triad

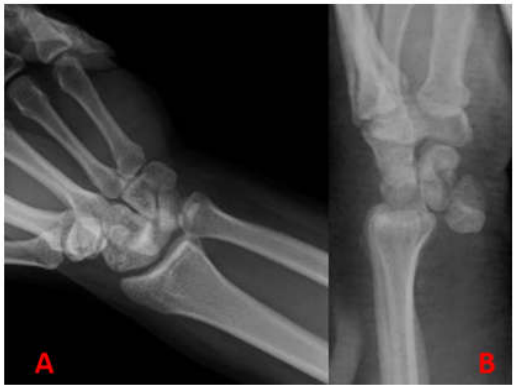

Figure 3. Left Trans- scaphoid peri-lunate dislocation

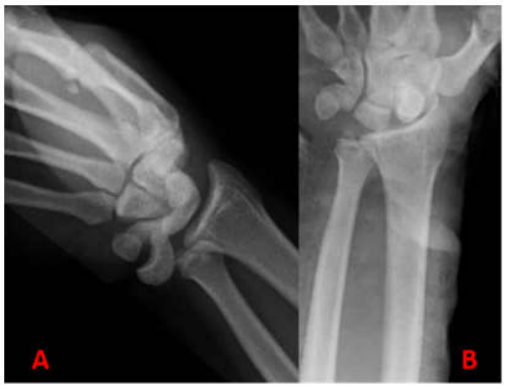

Figure 4. Right lunate dislocation

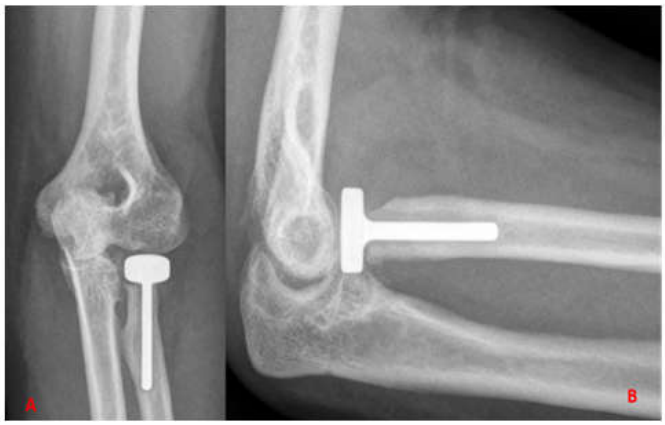

Figure 5. Left elbow radial head replacement

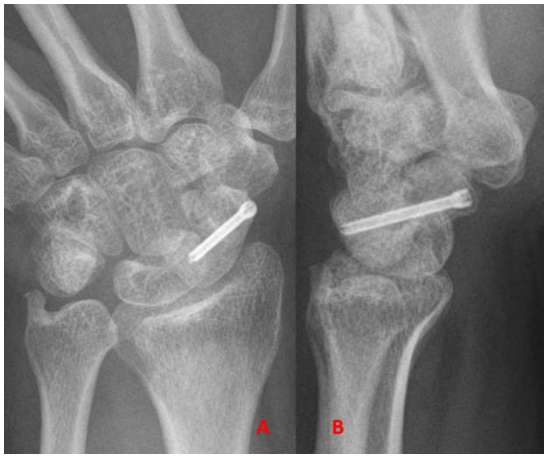

Figure 6. Left scaphoid union

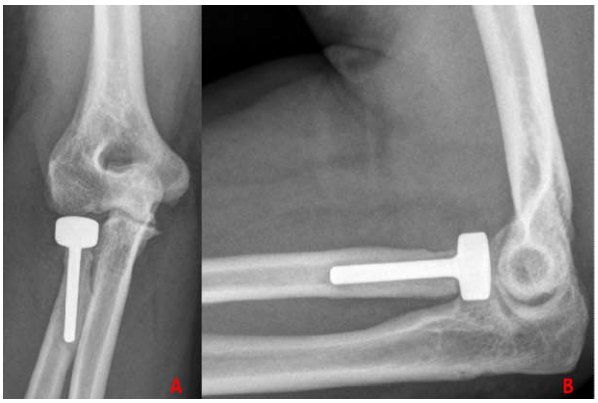

Figure 7. Right elbow radial head replacement

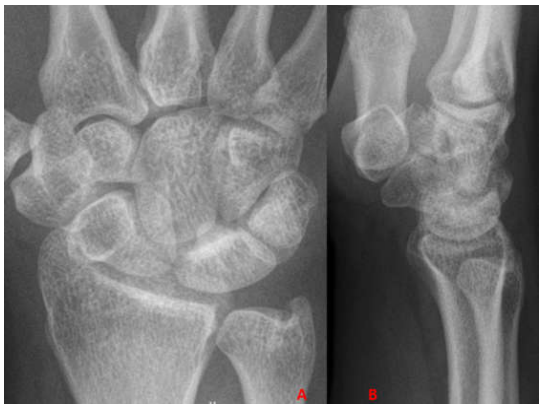

Figure 8. Right wrist lunate reduction

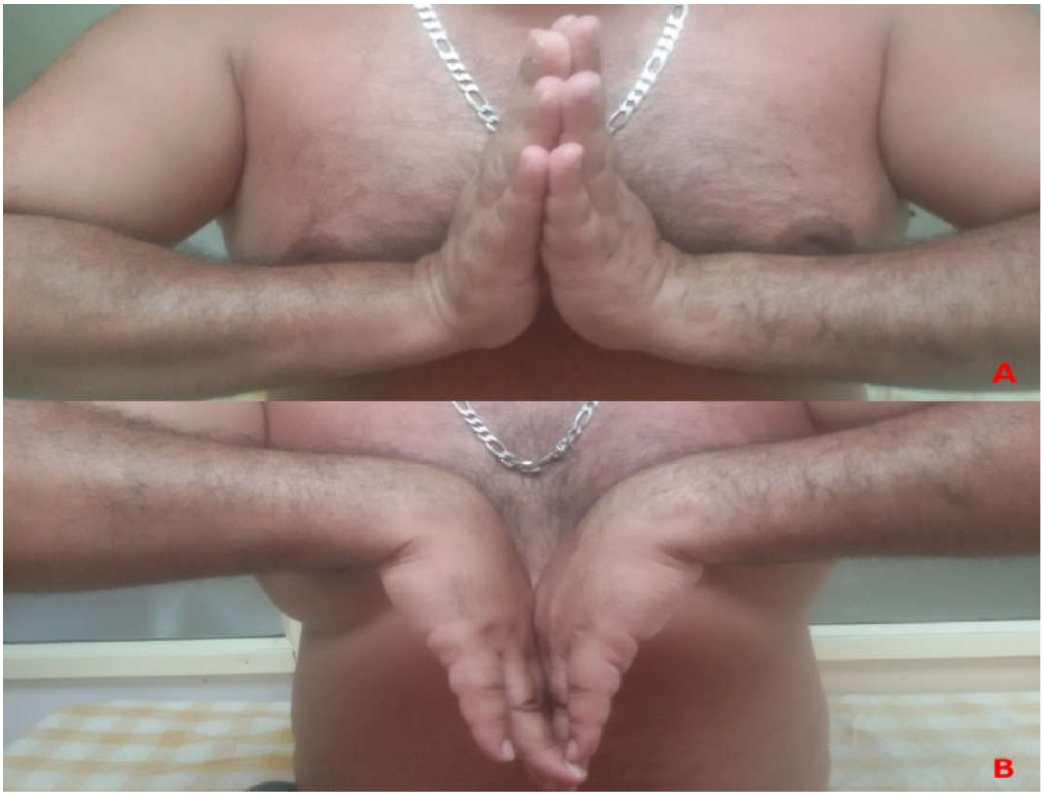

Figure 9 (A, B): Wrist range of movements

Figure 10 (A, B, C): Elbow range of movements

Elbow reduction was confirmed under image intensifier. Similar procedure was done on left side. Later patientwas placed in supine position. Left scaphoid was fixed with Herbert screw percutaneously. Lunate was reduced and fixed in position with k-wires. Post-operatively the patient was on bilateral above elbow slab in 90 degree elbow flexion and started on indomethacin 25 mg TID. K-wires were removed after 3 weeks. Active mobilisation of elbow and wrist wasstarted. Patient was followed up at regular intervals. At the end of two years follow up, scaphoid union was noted without any signs of lunate avascular necrosis (Figure 5,6,7,8). Range of movements of right elbow was 0-120 degree with no instability (Figure 9A,B). Right wrist dorsiflexion was 60 degree and palmar flexion of 70 degree (Figure 10). Left elbow range of movements was 0-120 degree without instability (Figure 9 A, B). Left wrist dorsiflexion was 60 degree and palmar flexion of 40 degree with further flexion painful associated with bony block (Figure 10 A, B, C). Bilateral mayo elbow score was 92(right) and 85(left). Patient is currently going to work without restriction of his daily activities.

DISCUSSION

Our emphasis is on the mechanism of injury that could have caused this terrible triad along withperi-lunate dislocation. The possible mechanismcould be fall on out-stretched hand with a valgus moment and axial traction to the elbow. Initial failure of the lateral structure which is the beginning of the hori cycle and on continuation of the hyperextension force in a supinated forearm, a vertical and horizontal vector generated by the body weight which unlocks the ulna from the trochlea leading to the components of terrible triad (Armstrong Ad. 2005), Bilateral lunate dislocation could be due to hyperextension of bilateral wrist. The extension moment, axial impaction of the radial styloid with failure of radial side structures and supination of wrist on a pronated forearm producestrans-scaphoid fracture (Dobyns *et al*., 1975; Mayfield *et al*., 1980). Lunate dislocation occursat the final stage of Mayfield classification causing rupture of important ligaments like scapho-lunate, capito-lunate, lunato-triquetral and with the long and short radio-lunate ligaments levering out the lunate.Dorsally displaced capitate exert a palmar translation force causing volar lunate dislocation (EbrahimZonoozi *et al*., 2009), as reported in the above patient. Multiple attempts of closed reduction needs to be avoided to prevent further cartilage damage predisposing to post traumatic arthritis of elbow. Surgical management is a preferred choice of treatment to facilitate early rehabilitation. Addressing the collaterals and capsule is important to prevent instability. Very few cases of such an Injury with bilateral involvement of elbow with associated fracture dislocation of carpus in literature. No definite guidelines on management of such injuries (Leonard and Reidy, 2008; GuoqingZha *et al*., 2015; CengizYildirim *et al*., 2014; Ranga Chari, 2010; Mahesh Kalra *et al*., 2005; Seung Bum Chae and Jun Ho Nam, 2015; Mario malovic *et al*., 2014). In our case we have achieved good post operative functional outcome at the end of one year because of early definitive fixation of fracture components with the ligamentous structures. Dedicated post-operative rehabilitation protocol helped us in achieving good functional outcome.

Conclusion

Bilateral terrible triad of elbow with rightlunate dislocation and left trans-scaphoid peri-lunate dislocation is a rare injury which is never reported in literature. Detailed knowledge of the mechanism of injury helps in proper management. Rehabilitation is needed to prevent stiff elbow and wrist. Long term follow up is needed to watch for avascular necrosis of lunate, scaphoid non-union, wrist arthritis and post traumatic elbow arthritis.

Acknowledgements: None

Consent: Obtained

Conflict of Interest: None.

REFERENCES

Armstrong Ad. 2005. The terrible triad injury of the elbow. Current opinion in orthopaedics, 16:267-270.

CengizYildirim, FatihUnuvar, KenanKeklikci, Mehmet Demirtas *et al*. 2014. Bilateral dorsal trans-scaphoid perilunate fracture-dislocation: A case report. *International Journal of Surgery Case Reports*, 5:226-230.

Dobyns JH, Linscheid RL, Chao EYS, Weber ER *et al*. 1975. Traumatic Instability of wrist. AAOS instructional course lectures, vol 24. St.Louis, MO:CV Mosby, p.182-99.

Ebrahim Zonoozi, Farid NajidMazhar, Nima Nejadgashti. 2009. Bilateral Volar Lunate dislocation- A rare case report. *J R Med Sci*., May;14(3):187-190.

GuoqingZha, XiafengNiu, Weiguang Yu, Liangbao Xiao. 2015. Severe injury of bilateral elbow joints with unilateral terrible triad of the elbow and unilateral suspected terrible triad of the elbow complicated with olecranon fracture:one case report. *Int J ClinExp Med*., 8(18):14214-14220.

Leonard M. Reidy D. 2008. Simultaneous bilateral elbow dislocation with associated bilateral radial head fracture. *Eur J OrthopSurg Traumatol*., 18:43-45.

Mahesh Kalra, JagdishMenon, Bharat Sharma. 2005. A rare case of volar trans-scaphoid perilunated is location. *Injury Extra*., 36:405-406.

Mario Malovic, Damirstarcevic, TomislavVlahovic, Roman Pavic. 2014. Bilateral perilunate dislocation of the wrist. *Med Jad*., 44(1-2):29-62.

Mayfield JK, Jhonson RP, Kilcoyne RK. 1980. Carpal dislocations: pathomechanics and progressive perilunarinstability. *J Hand Surg Am*., 5(3):226-41.

O'Driscoll SW, Jupiter JB, king GJ W. 2000. The unstable elbow. *The Journal of Bone & Joint Surgery*, 82:724-724.

Ranga Chari P. 2010. Bilateral dorsal perilunate dislocation of wrist.IJO. June;44(2):230-232.

Seung Bum Chae, Jun Ho Nam. 2015. Bilateral Trans-Scaphoid Perilunate Fracture Disloacation. *J Korean SocSurg Hand*., 20(3):127-132.

****