A Rare Case of Isolated Lunate Fracture Without Ligamentous injury

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INTRODUCTION

The incidence of lunate fracture has been reported as 0.5% to 1.0% of all carpal bone fractures[1]. It usually caused by high energy trauma and as a result, is commonly associated with other carpal and ligamentous injuries such as perilunate dislocation[2].We report the rare case of an acute, isolated lunate fracture.

CASE REPORT:

A 29 years old motorcyclist, presented with left wrist pain and swelling after a road traffic accident. Initial plain radiograph of left hand showed an isolated lunate fracture. CT scan was done to study fracture configuration, which also confirmed absence of associated fractures or dislocations.

Open reduction and screw fixation was done via extended carpal tunnel approach. Intra-operative findings noted volar rim lunate fracture with central lunocapitate joint depression and chondral injury. Post operation, left wrist was immobilised with volar slab for 2 weeks.

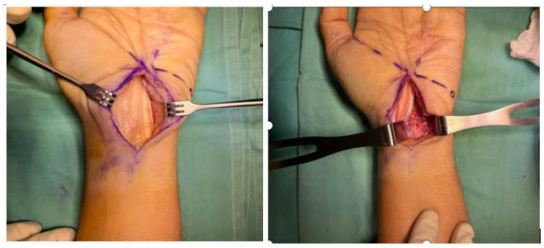

Figure 1: Extended carpal tunnel approach

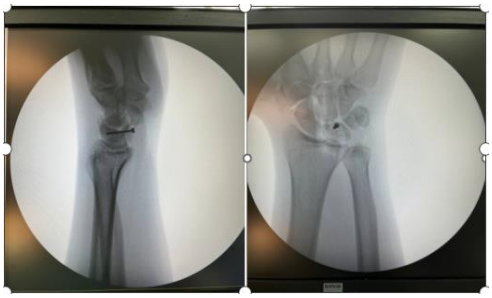

Figure 2: Intra-operation radiograph

DISCUSSION:

Lunate fractures are often missed in the acute setting, because the lunate has the highest cartilage-covered area, with the lowest nerve support, so clinical symptoms can be non-specific. The proposed mechanism of injury is axial loading through a wrist in dorsiflexion and ulnar deviation, transferring energy from capitate to the lunate. This lunate fracture could have occurred in isolation either due to a direct blow to the lunate, or a slow application of load to the bone, which produces a fracture, before causing disruption to surrounding soft tissues.

Lunate fractures can be classified based on radiograph appearance and internal vascularity. This patient's fracture pattern is consistent with Teisen Group 1, whereby the fracture is located at volar pole of lunate, carrying a risk of volar nutrient artery injury. Therefore, early open reduction and internal fixation via volar approach was chosen to allow direct reduction of the fracture, reducing likelihood of lunate osteonecrosis.

CONCLUSION:

Isolated lunate fracture is rare and could be missed, especially in absence of obvious fractures, dislocations, or ligamentous disruptions. High index of suspicion is needed when there is an axially-loaded dorsiflexed, ulnarly-deviated wrist. Prompt diagnosis and surgical intervention is needed to reduce likelihood of avascular necrosis.

REFERENCES:

1. Teisen H, Hjarbaek J. Classification of fresh fractures of the lunate. J Hand Surg Br. 1988; 13(4):458-462
2. Andrew RH, Patricia AH. Unusual case of isolated lunate fracture without ligamentous Injury. Orthopaedic. 2011; 34(11): e785-789