# Isolated fracture of Pisiform bone, a case report

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## Citation

S Mahajan, R Gupta, N Mahajan, P Singh, A Singh. *Isolated fracture of Pisiform bone, a case report.* The Internet Journal of Orthopedic Surgery. 2008 Volume 14 Number 2.

### Abstract

Isolated fracture of the pisiform bone is extremely rare. It is usually associated with fractures other carpal bones, distal radius and radiocarpal dislocations. Because of the rarity, many of these fractures may have gone undetected. So for the diagnosis of such fractures good clinical as well as radiological evaluation is required. We therefore present a case report of acute isolated fracture of pisiform bone in 25 year old male, active patient who was managed by below elbow cast with excellent results.

# INTRODUCTION

Only few cases of isolated fracture of pisiform bone have been reported in the literature so far. The average incidence of pisiform fracture among the carpal bones is 0.2%. These fractures are usually associated with other fractures around the wrist like other carpal bones, distal radius fractures. The exact mechanism by which these fractures occur is not known however the most probable mechanism is fall on hyperextended wrist with forearm in pronation and adduction [1,2,4]. Because of the rarity of this fracture, many of these fractures may have gone undetected. We therefore presents a case report on acute isolated pisiform bone fracture in a 25 year old male, active patient discussing the mechanism of injury, diagnostic modalities, and treatment of these rare fractures.

# **CASE REPORT**

A 25 year old male patient reported to the orthopaedic emergency with the history of fall on outstretched hand with sustained injury to left wrist and there is tenderness and swelling over the hypothenar region with no restriction of movements at the wrist joint. No crepitus was noted. The roentgenograms of the left wrist PA and pronated oblique views were taken which revealed fracture line in pisiform bone. We also took the roentgenograms of the right wrist also to rule out pisiform secondarium. The wrist were immobilized in below elbow plaster of paris cast in slight palmar flexion for 4 weeks. Metacarpophalangeal joints are not immobilized. The controlled exercises were started at end of 4 weeks and active exercises were started at 8 wks. At the end of 8 wks there was no evidence of restriction of wrist movements and tenderness at hypothenar area.

## Figure 1

Fig-1 PA view of wrist showing fracture of pisiform bone.



## Figure 2

Fig-2 pronated oblique showing fracture of pisiform bone.



# DISCUSSION

The word pisiform derives from the Latin plsum which means "pea." Pisiform is a small sesmoid bone in the proximal row of the carpus .It articulates only with triquetral. The palmar surface is rounded and rough, and gives attachment to the transverse carpal ligament, and to the flexor carpi ulnaris and abductor digiti quinti. The flexor carpi ulnaris forms the pisohamate and pisometacarpal ligaments distally and all of them stabilize the pisiform[3].

The mechanism of fracture of pisiform bone is poorly understood. But the most probable mechanism is either the direct trauma to hyothenar region due to fall on outstretched hand or due avulsion fracture of the distal portion of the pisiform when the flexor carpi ulnaris resists forcible hyperextension of the wrist [1,2,4].

The signs and symptoms are pain, tenderness and swelling in the hypothenar area. It is also necessary to rule out tenderness at other areas of wrist because fracture pisiform bone is usually associated with other carpal fractures and distal radius fractures[1,2,4]. Our patient also has similar symptoms and signs. Diagnosis is made by simple radiological evaluation of the wrist with X-rays of wrist PA and lateral view. Some special views like pronated oblique and supinated oblique view are also needed [3]. We have obtained similar views of the wrist of the patient. If one really is suspecting isolated fracture of pisiform clinically with radiological illusion, then MRI is a useful diagnostic modality. MRI not only shows fracture line but also shows marrow edema within the pisiform bone indicating fracture [3,7].

The early diagnosis and treatment of acute pisiform bone fracture is of utmost importance because it can also lead to complications like malunion, non-union, decreased grip strength, chronic pain in the pisiform area [6]. So, early immobilization in a cast for a period of four-six weeks is adviced during acute period [1,2,4]. In our case, immobilization in a short arm cast for a four weeks produced good clinical response. The chronic pain if occurs in the neglected fractures of pisiform is treated by the excision of the pisiform bone[6].

To summarize fracture of the pisiform bone is extremely rare and is often misdiagnosed, good clinical and radiological evaluation can pick up this fracture early. The early treatment with below elbow plaster of paris cast in acute fracture gives satisfactory result and prevent sequel like chronic pain in neglected fractures.

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