



## Case Report

### Isolated dislocation of pisiform bone – a rare case

Dr. Ajai Singh\* MS, Dr. Vineet Kumar\*<sup>Ψ</sup> MS, Dr. Gaurav Jain<sup>†</sup> MS and  
Dr. O. P. Gupta<sup>†</sup> MS

\*Associate Professor, <sup>†</sup>Senior Resident, Department of Orthopaedics, C. S. M. Medical  
University, Lucknow (UP), India

(Received 18 September 2009 and accepted 13 December 2009)

**ABSTRACT:** An isolated dislocation of pisiform bone in a sixteen years male child has been reported here with its clinical presentation, treatment and a brief review of literature. The aim of presenting this case is its rarity due to trauma.

**KEY WORDS:** Pisiform bone; Dislocation; Trauma

#### INTRODUCTION

An isolated dislocation of pisiform bone is a very uncommon traumatic lesion. The diagnosis of isolated pisiform dislocation is made less frequently than its true incidence. Due to its associated morbidity and difficulty in diagnosis, it requires special mention. The pisiform bone situated in the proximal row of carpal bones and forms a diarthrodial synovial joint by articulating dorsally with the triquetrum. The pisiform unlike other carpal bones does not have six surfaces and is virtually a sesamoid bone. It has a roughened volar surface, offering attachment to the transverse carpal ligament, abductor digiti minimi, and flexor carpi ulnaris. The latter elongates to form the pisohamate and pisometacarpal ligaments, which contributes towards the carpus stability. The volar branch of the ulnar artery and the ulnar nerve pass lateral to the pisiform.

#### CASE DETAILS

A sixteen years old boy sustained injury as a result of fall on outstretched right hand following, which he developed pain, swelling and stiffness with flexion of the wrist. He was unable to use his right hand. Pain was more prominent on the volar aspect of his right hand on the ulnar side. For the above-mentioned complaints he visited our orthopaedics outdoor department.

Clinical examination revealed nothing but diffused tenderness over ulnar aspect of wrist on volar surface. Findings were very similar to those of a sprained wrist. He was treated without immobilization for a sprained wrist. He returned to our outdoor department after two weeks without much clinical improvement. Then, AP and Lateral view radiographs of the wrist joint revealed dislocation of pisiform bone (**Figure 1 and 2**).



**Figure 1: Radiograph showing dislocation of Pisiform bone (AP View)**

<sup>Ψ</sup>Correspondence at: MMS 1/103, Sector A, Janki Puram, Lucknow (UP), India; Email: [mailsforvineet@gmail.com](mailto:mailsforvineet@gmail.com)



**Figure 2: Radiograph showing dislocation of Pisiform bone (Lateral View)**

Patient was treated by reduction under general anaesthesia done by forcible flexion, radial deviation of the wrist along with simultaneous milking of the pisiform bone back into its anatomical position. His wrist was thereafter immobilised in a below elbow POP slab with dorsiflexion at wrist joint for three weeks. The follow-up radiographs after reduction are shown in the **figure 3** and **4**. After this period, gentle physiotherapy of the wrist was advised and then the patient was allowed to gradually resume his routine activities. He had no discomfort and a full range of motion was achieved. The patient was seen two months later also and even at that time he was asymptomatic.



**Figure 3: Radiograph showing Pisiform bone in position (AP View)**



**Figure 4: Radiograph showing Pisiform bone in position (Lateral View)**

#### DISCUSSION

Dislocation of pisiform bone occurs predominantly in young and active adults and more frequent in males. Usually pisiform is dislocated more proximally than distally. While lifting, when one flexes the wrist, pisiform draws away from triquetrum resulting into an increased tendency for pisiform to dislocate. Clinically, a dislocated pisiform leaves a depression at its normal site. This may be accompanied by volar pain in the wrist. Flexion and adduction movements of wrist may be painful. Dislocations of the pisiform may be acute or chronic and recurrent. In recurrent dislocations, the pisiform may alternate between abnormal and normal positions.

Often the dislocation is due to indirect force or forceful muscle contraction and less frequently as a result of direct trauma. Like other carpals, Pisiform bone was not meant for activities like lifting and thus has a greater tendency to dislocate while performing such activities as these activities tend to draw the pisiform away from the triquetral. Though diagnosis of dislocation is always very difficult, but can be made by adequate roentgenograms, with the ulnar side of the wrist placed against the plate with forearm in about 15 degrees of supination and AP view.

Harris<sup>1</sup> described an epiphyseal centre in the pisiform bones of sub-human primates and its implications on whether the pisiform should be considered as a sesamoid bone. Meschan observed that isolated dislocation of pisiform is a rarely

reported entity because of its radiographic elusive nature and benign course when untreated<sup>2</sup>. Van der Donck, reported a case in the year 1899 in which the roentgenogram “showed the pisiform between radius, semilunar and cuneiform”<sup>3</sup>. Cotton reported a case in which following a trauma, pisiform was dislocated<sup>4</sup>. It was a mobile and free dislocated bone, which used to move with a click with every motion of wrist. It was associated with sensory disturbance in the area of ulnar nerve distribution. Cohen reported a case of dislocation of pisiform with backward displacement of the lower radial epiphysis<sup>3</sup>. Mather reported that a patient felt a give way feeling while lifted a weight<sup>5</sup>. X-rays of his wrist showed dislocated pisiform between triquetrum and the lower end of ulna. In this case, excision of pisiform was done with complete return of functions of wrist in five weeks<sup>5</sup>. Wagoner reported excellent results in a fresh dislocation of the pisiform, which was reduced under general anaesthesia following which the wrist was immobilised in a cock-up splint for five weeks<sup>6</sup>. Immerman (1948) mentioned a case in which the injury had occurred secondary to lifting of a heavy object. Clinically, they found pisiform just inferior to ulnar styloid with a depression at the normal site of pisiform. He suggested that muscular forces as an etiologic agent for dislocation of pisiform bone is two times more common than direct trauma. Vasilas et al described 13 pisiform fractures extracted from a retrospective review of 6,000 radiographs<sup>8</sup>. Sunderam et al<sup>9</sup> and Sharara et al<sup>10</sup> individually reported cases of isolated dislocation of pisiform which were managed conservatively. Kwon et al<sup>11</sup> reported an acute isolated dislocation of pisiform bone managed by closed reduction, pinning, and immobilization.

An acute dislocation should be reduced as soon as possible and a below elbow POP may be applied with the wrist in 30-40 degrees dorsiflexion and slight radial deviation for 3 to 4 weeks. In our case also, manipulation was performed under general anaesthesia and the wrist was immobilised in below elbow POP for three weeks. In an acute case where dislocation remains unreduced even after manipulation under G.A. or in an old neglected

case with morbidity, excision of pisiform may be performed.

We may summarize that dislocation of the pisiform is caused either secondary to violent muscular contraction or due to direct injury. The pisiform is a regressive structure in man and removal of this bone in no way interferes with the normal functions of the wrist.

## REFERENCES

1. Harris HA. Pisiform bone. *Nature* 1944;153:715
2. Meschan I. An atlas of anatomy basic to radiology. W. B. Saunders, Philadelphia 1975.
3. Cohen I. Dislocation of the Pisiform. *Ann Surg.* 1922 Feb;75(2):238-9.
4. Cotton FJ. Dislocations and Joint-Fractures. WB Saunders Co, Philadelphia 1910;373.
5. Mather JH. Dislocation of the Pisiform Bone. *Br J Radiol.* 1924;29:17-18.
6. Wagoner G. Dislocation of the Pisiform associated with fracture of the head of the radius and the styloid process of the Ulna. *J Bone Joint Surg Am.* 1930 Jan;12:170-1.
7. Immerman EW. Dislocation of the pisiform. *J Bone Joint Surg Am.* 1948;34-A: 489.
8. Vasilas A, Grieco V, Bartone NF. Roentgen aspects of injuries to the pisiform bone and the piso-triquetral joint. *J Bone Joint Surg Am.* 1960;42-A, 1317.
9. Sundaram M, Shively R, Patel B, et al. Isolated dislocation of the pisiform. *Br J Radiol.* 1980 Sep;53(633): 911-2.
10. Sharara KH, Farrar M. Isolated dislocation of the pisiform bone. *J Hand Surg Br.* 1993 Apr;18(2):195-6.
11. Kwon OS, Choi SP, Won HY. Acute Isolated pisiform dislocation: a case report. *J Korean Orthop Assoc.* 2007 Oct; 42(5):688-91