A Case Report – Pisiform Dislocation

Dr. Nikhil Das Bhat, Asst prof, Dr Ranjith N.M Post Graduate *Corresponding Author: Dr Ranjith N.M

ABSTRACT: The pisiform bone is a sesamoid bone located within the flexor carpi ulnaris tendon. Dislocation of the pisiform bone is an unusual injury. The present report documents a case treated successfully with closed reduction

Introduction: There are few reports of an isolated dislocation of the pisiform. An isolated dislocation of the pisiform without other injuries involving the carpal bones is particularly uncommon. This type of injury can be neglected in the acute period. We report a case of an isolated dislocation of the pisiform without a carpal bone injury in a young female treated primarily with a closed reduction, pinning and immobilization.

Case Presentation: A 26-year-old female suffered an injury to his left hand after falling down stairs.

The radiographs revealed an isolated dislocation of the pisiform with no associated injuries. Although the precise mechanism of injury was unclear, she recalled suffering a direct blow to the volar aspect of the wrist .A physical examination revealed tenderness over the hypothenar eminence. The wrist motion was restricted by pain and swelling. She did not have any history of ligament laxity. The neurovascular examination of ulnar artery and nerve was normal. The radiographs of the left wrist showed an isolated dislocation of the pisiform towards the ulnar with a separation of the paisotriquetral joint in the palmar-dorsal supine position as well as a shift toward the dorsal in the lateral view3D CT(computed tomography) showed no other injuries to the bone and wrist but a displaced pisiform. A closed reduction of the pisiform was attempted under a C-arm image intensifier. Direct pressure was applied to relocate the bone with a slightly dorsi-flexed position. However, stable reduction was not maintained. Therefore, the pisiform was reduced into its position and fixed to the triquetrum using one

Kirschner wire percutaneously. The wrist was immobilized with a long arm plaster splint in 25 o of dorsiflexion for 3 weeks. The splint and kirsch-ner wire were removed 3 weeks later, at which time physiotherapy and active exercise were initiated. Eight weeks after surgery, the radiographs revealed the pisiform to have relocated to the correct position.

Conclusion: An isolated dislocation of the pisiform can be neglected in cases associated with multiple injuries in the upper extremities. A high index of suspicion is required identify this type of injury in traumatic patients. It is believed that our technique is an effective and reliable method for treating a dislocated pisiform.

Keywords: Pisiform, Dislocation

I. INTRODUCTION

The pisiform bone lies in the proximal row of the carpal bones and articulates dorsally with the triquetrum. Because the pisiform has a flat articular surface, it relies mainly on its many soft tissue attachments for stability, such as FCU (Flexor carpi ulnaris) tendon, ulnar pisotriquetral ligament, pisometacarapal and pisohamate ligament being primary stabilizers of pisotriquetral Joint

The pisotriquetral joint is tightly constrained by both the transverse carpal ligament and ulnar collateral ligament Because of the insertion of all these structures, the pisiform is an important stabilizing structure of the wrist and also acts as a lever to provide extra stability when the wrist is Flexed

II. CASE PRESENTATION

A 26-year-old female suffered an injury to his left hand after falling down stairs.

The radiographs revealed an isolated dislocation of the pisiform with no associated injuries. Although the precise mechanism of injury was unclear, she recalled suffering a direct blow to the volar aspect of the wrist .A physical examination revealed tenderness over the hypothenar eminence. The wrist motion was restricted by pain and swelling. She did not have any history of ligament laxity. The neurovascular examination of ulnar artery and nerve was normal. The radiographs (1) of the left wrist showed an isolated dislocation of the pisiform towards the ulnar with a separation of the paisotriquetral joint in the palmar-dorsal supine position as well as a shift toward the dorsal in the lateral view 3D CT(computed tomography)(2) showed no other injuries to the bone and wrist but a displaced pisiform.

A closed reduction of the pisiform was attempted under a C-arm image intensifier. Direct pressure was applied to relocate the bone with a slightly dorsi-flexed position. However, stable reduction was not maintained. Therefore, the pisiform was reduced into its position and fixed to the triquetrum using one Kirschner wire percutaneously. The wrist was immobilized with a long arm plaster splint in 25 $^{\circ}$ of dorsiflexion for 3 weeks. The splint and kirsch-ner wire were removed 3 weeks later, at which time physiotherapy and active exercise were initiated. Eight weeks after surgery, the radiographs revealed the pisiform to have relocated to the correct position.

III. DISCUSSION

Immerman²suggested two possible mechanisms that may cause a dislocation of the pisiform direct external force or traction by the FCU tendon. It appears that the latter mechanism occurs more often e.g. a fall on the hand with the wrist in the dorsiflexed position at the moment of impact or increase tension on the ligaments attached to the pisiform while lifting heavy objects the normal force of this tendon tends to pull the pisiform proximally and medially, and diagnostic radiography confirms that the bone to be dislocated in this direction. In our case, the dislocation appeared to be secondary to acute dorsiflexion of the wrist joint with strong traction by the FCU tendon. The pisotriquetral joint appeared to be wide on the radiographs and CT. Treatment includes immobilization after a closed reduction, an open reduction with internal fixation and a resection of the pisiform. Nonsurgical treatment has been initially attempted in acute cases. Sharara et al¹⁰recommended a closed reduction and immobilization.

Kubiak³ suggested that simple immobilization is justified in cases with isolated dislocation. There were some differences regarding the position of the wrist in immobiliz-ation. Ishizuki et al¹noted that a dislocation and reduction of the pisiform is dependent on the wrist position. Minami et al⁵reported a redisloc-ation 3 months after immobilization in 20 degrees palmar flexion of the wrist and the neutral position of forearm Sharara et al¹⁰suggested the forearm to be in a full pronation position to maintain the FCU in the relaxed state. This allows the pisiform to stabilize in a normal orientation and prevent redislocation. It is believed that in this case, stable relocation was obtained in the slight extension position of the wrist in addition to percutaneous fixation to the triquetrumAn open reduction and internal fixation of the dislocated pisiform bone either initially or secondarily in cases of persistent pain or recurrent dislocation because of rapid rehabilitation and recovery to normal function^{1,2,5}. Ishizuki et al¹performed a resection of the pisiform 5 months after the initial conservative treatment

Minami et al⁵ inevitably resected the pisiform in the case of a redislocation followed by an open reduction and internal fixation. Some authors suggested a primary excision of the pisiform in acute dislocation^{4,7}

IV. CONCLUSION

Surgical resection is recommended if recurrent dislocations occur or the disability remains after conservative treatment. An isolated dislocation of the pisiform can be neglected in cases associated with multiple injuries in the upper extremities. A high index of suspicion is required identify this type of injury in traumatic patients. It is believed that our technique is an effective and reliable method for treating a dislocated pisiform.

V. CLINICAL MESSAGE

Pisiform dislocation is a very rare injury, appropriate diagnosis and early management is beneficial for the patient

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FIGURES: Figure 1: Radiographs at presentation.

Figure 2: CT IMAGES



Figure 3: INTRA-OPERATIVE IMAGES





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*Corresponding Author: Dr Ranjith N.M Asst prof,