

PRIMARY LIGAMENT RECONSTRUCTION FOR THE TREATMENT OF ACUTE TRAUMATIC DISLOCATION OF THE 1ST CARPOMETACARPAL JOINT : IS IT APPROPRIATE ?

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Abstract : A case is reported of acute traumatic dislocation to the 1st carpometacarpal joint of the left thumb, treated by ligament reconstruction as first choice.

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Key words : primary ligament reconstruction, first carpometacarpal joint

INTRODUCTION

Dislocation of the 1st carpometacarpal (CM) joint without fracture is a rare injury. Previously, most authors have emphasized the instability of the joint on reduction¹⁻⁴⁾. Nevertheless, there is, in fact, only one case described by Eaton and Littler⁵⁾ where ligament reconstruction has been performed for treatment of acute dislocation of the 1st CM joint, to our knowledge.

In our experience, a 14 year-old volleyball player with acute traumatic dislocation of the 1st CM joint treated by Eaton and Littler's ligament reconstruction showed excellent results in the early postoperative stage.

CASE REPORT

A fourteen-year-old volleyball player was hit on his left thumb by a ball while playing volleyball on March 28th 1991. He complained of pain and deformity of the 1st CM joint of the left thumb. However, he immediately performed closed reduction by himself after injury. He visited the emergency department of a private hospital on the same day, where he was considered to have sprained the 1st CM joint, as X-rays were normal. The thumb was protected in a plaster cast. Three days after injury, he attended our hand clinic. Normal A-P view or P-A view revealed no abnormality, while stress views with the use of manual testing, without local injection of lidocaine, clearly demonstrated instability in the dorsolateral direction in this joint (Fig. 1-A) and it was easy to be dislocated again. (Fig. 1-B) In the opposite right thumb, lateral stress view did not show dorsal instability (Fig. 2-A, B). A-P view revealed slight laxity, but this range was much smaller than that of the right thumb. The

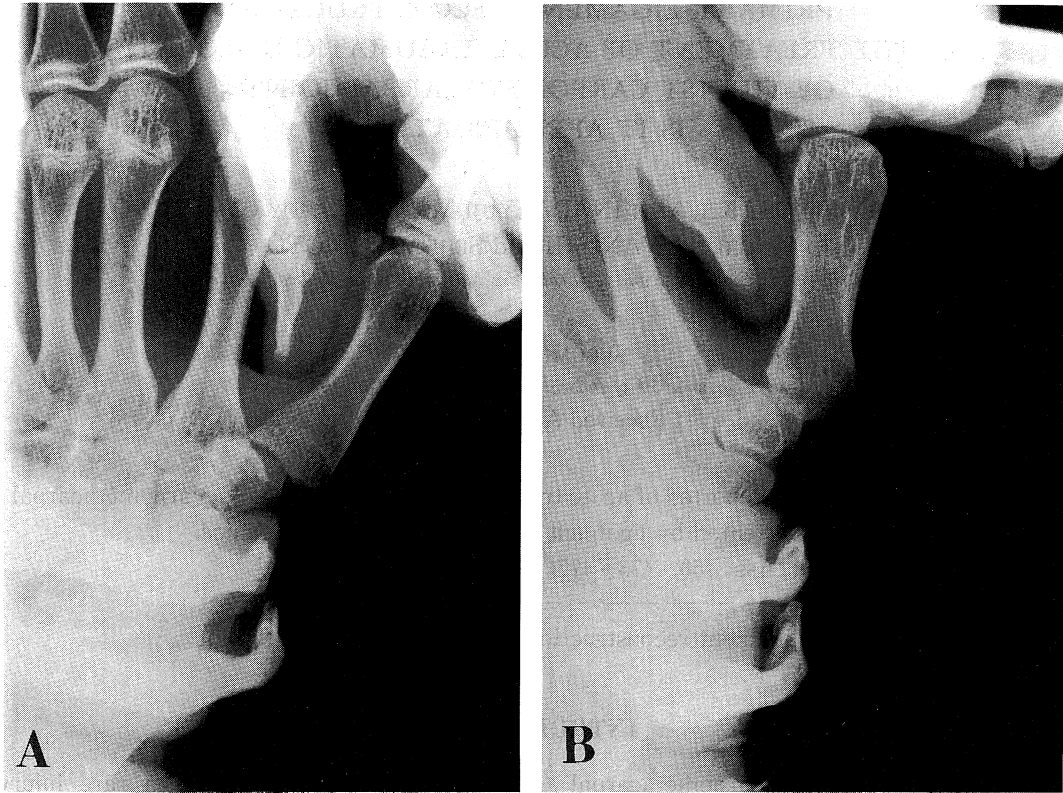


Fig. 1-A. Lateral stress view showed a dorso-lateral instability of the 1st carpometacarpal joint in the left thumb.

1-B. A-P stress view also showed an instability.

epiphyseal line of bilateral metacarpal bone had already closed.

On April 8th 1991, Eaton and Littler's ligament reconstruction was performed. At operation, the dorsal capsule and anterior oblique ligament were ruptured from the base of the metacarpal, however, we were not able to suture primarily.

Following 4 weeks thumb spica cast, he started physical training and his grip and pinch powers recovered up to 75% compared to the uninjured dominant right thumb at 6 weeks after initial injury.

Two months after surgery, he had returned to the volleyball team and was able to play. His grip and pinch power recovered to the same level as the uninjured dominant right thumb. One year after surgery radiographs showed no evidence of subluxation. (Fig. 3-A, B)

DISCUSSION

Certainly, the complete dislocation of the 1st CM joint without fracture is very rare. However, judging from the easy reduction of this dislocation, most patients may be treated by

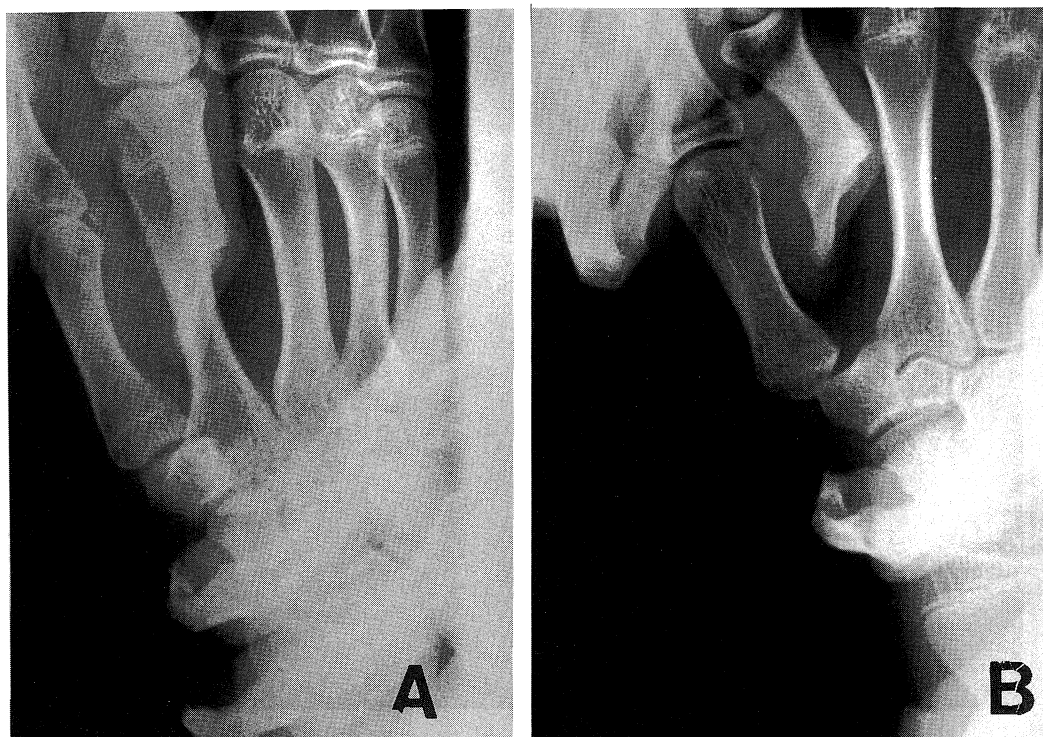


Fig. 2-A. In the uninjured right thumb, lateral stress view did not show a dorso-lateral instability.

2-B. A-P stress view showed slightly laxity, but this range was smaller than that of the left thumb.

themselves or other persons other than doctors. Therefore, all patients except one fresh dislocation reported by Eaton and Littler⁵⁾ who were selected for ligament reconstruction as a first treatment, were extremely reported as chronic instability or neglected patients⁵⁻¹⁰⁾.

Up to now, most authors have emphasized the instability of this dislocation after reduction alone or in combination with reduction and immobilization by cast etc. Eaton¹¹⁾ recommended the combination of reduction and use of K-wire fixation through the joint at the correct position, in case of remaining instability. In fact, Watt and Hooper⁶⁾ reported their experiences for the treatment of 12 acute traumatic dislocations of the 1st CM joint, and good stability in 6 out of 12 cases (50%) with the use of combination of reduction and cast immobilization alone. However, even in the case of using the combination of reduction and K-wire fixation through the joint, two out of 3 cases showed unstable and mild symptoms, and the remaining one patient complained of mild discomfort. Out of 12 cases, 2 cases (17%) finally required Eaton and Litter's ligament reconstruction. In their manuscript, they suggested treatment protocol for acute 1st CM joint dislocation. According to their protocol, ligament reconstruction was the final choice for this disorder. However, unfortunately if a patient would show instability after using a K-wire fixation and require the ligament reconstruction, more than three or four months would be required for total treatment period of this disorder.



Fig. 3-A. Lateral view on the 12 months after surgery revealed no subluxation.
3-B. A-P view was the same, too.

Our case was a young volleyball player and he required a speedy recovery. Therefore, we chose ligament reconstruction as the first choice for him. The result was excellent because his comeback to the volleyball team was only 6 weeks after injury. In addition, his grip and pinch power recovered to the same level as the uninjured contralateral side and showed no complication. In the case of a young sportsman who requires strong thumb stability such as a skier, volleyball player etc., ligament reconstruction may be considered as a first choice.

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