



## Chronic lunotriquetral dissociation : dorsal capsular reinforcement with a retinaculum flap

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The authors have used dorsal capsular reinforcement with a retinacular flap to treat 13 patients with chronic lunotriquetral instability. The patients, 8 female and 5 male with a mean age of 30 years, were reviewed by an independent observer after a mean follow-up of 3.2 years. Overall patient satisfaction was poor in five, moderate in five and excellent in three. Three patients underwent a secondary procedure : lunotriquetral arthrodesis in two and tenolysis of the extensors in one. Overall, the authors did not find a significantly better outcome compared to lunotriquetral arthrodesis, but the complication rate and the rate of reoperations were lower.

### INTRODUCTION

Chronic lunotriquetral (LT) dissociation is a well-known clinical and radiological entity causing ulnar wrist pain. The exact mechanism of the tear of the LT ligament is not known yet, although several possibilities have been postulated. It can be part (third stage) of a Mayfield progressive perilunate instability, it can be isolated or be the start of a reversed perilunate instability due to a more direct impact on the hypothenar region or it can be seen as an ageing phenomenon in ulna plus wrists (1).

Stability of the LT joint is not only provided by the intrinsic LT ligament but also by the dorsal extrinsic ligament ; they all converge on the tubercle of the triquetrum.

Formerly, LT arthrodesis was proposed as the treatment of choice when conservative treatment

had failed and when direct repair of the LT ligament was not possible (2, 3, 4). Disappointing results as well in our own hands (8) as reported in the literature (5) resulted in a change in our policy. We used a dorsal capsulodesis with a retinacular flap as proposed by Sennwald and Fisher (6). The purpose of this paper is to review our preliminary results.

### PATIENTS AND METHODS

#### Patients

Thirteen patients, 8 females and 5 males with a mean age of 30 years (ranging from 10 to 48 years) were retrospectively reviewed by an independent observer (I.J.).

There were 4 left, all non dominant, and 9 right, all dominant wrists. Eight had a clear traumatic event in their history, five did not, of which 4 claimed a chronic overuse. Three patients had an operative procedure previously elsewhere (ligament repair, TFCC suture and osteosynthesis of the wrist).

Twelve patients had ulnar wrist pain. Reagan's ballottement test was positive in 12 patients. On radiographs a VISI (volar intercalated segment instability) was

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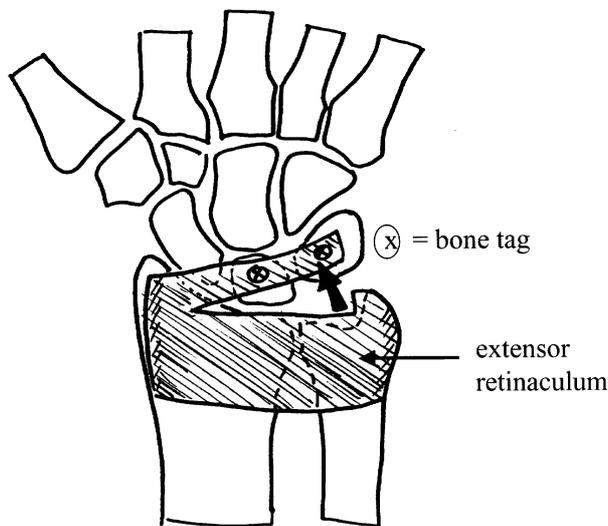


Fig. 1 — Illustration of the retinacular flap technique.

obvious in two patients. An arthrogram was performed in 9 cases and showed a leak in 7 of them. Arthroscopy was performed in 7 and the LT tear was demonstrated in all of them. An associated scapholunate tear was seen in three patients, two had a TFCC tear.

### Surgical technique

All operations were done by the senior author (LDS) between 1995 and 2000.

The operation is now done under regional anaesthesia (Beer's block) as an ambulatory procedure. The wrist is approached through a transverse incision, just distal to Lister's tubercle. A 1-cm strip of the retinaculum extensorum is prepared; it is left attached radially to the septum of the 3-4 compartment (fig 1). A ligament sparing capsular incision over the LT joint is done, the status of the ligament, the TFCC and the cartilage is inspected. The LT joint is anatomically reduced and when necessary fixed with a K-wire (this was done in 5 cases). The retinacular strip is passed deep to the extensors and fixed on the triquetrum with a bone anchor. The capsule and skin are closed. A cast is applied for six weeks, after which rehabilitation is started.

### Evaluation

All patients were reviewed with a mean follow-up of 3.2 years (range : 2 to 7 years). All patients were clini-

cally tested (range of motion, grip force). A visual analogue score (VAS) for pain, function, dexterity and satisfaction was applied. All patients filled in a DASH questionnaire. Complications and secondary operations were noted.

### RESULTS

Overall patient satisfaction was poor in five, moderate in five and excellent in 3.

The mean DASH score was 32.9 (range 2.2 to 66.7). Eight patients would have the same procedure again. The VAS for pain was 4.8 (range 0 to 10) (0 no pain, 10 extreme pain). The VAS for function, dexterity and satisfaction was respectively 6.6 (4 to 10), 6.0 (2 to 10) and 6.1 (0 to 10).

The range of motion of the wrist was 61° in extension (range 30 to 85°) and 55° in flexion (range 15 to 85°). The gripping force was 32 kg (range 5 to 60 kg) or 74.7% of the contralateral side (range 17 to 103%). One patient had transient paraesthesias in the little finger, one had a painful scar and one had adhesions of the extensor tendons.

Three patients underwent a secondary procedure : two underwent lunotriquetral arthrodesis and one tenolysis of the extensors.

Three patients were permanently out of work, two had no job (students), four patients changed to a lighter job. The mean period out of work was 41 weeks (10 to 208 weeks).

### DISCUSSION

When wrist pain remains a diagnostic challenge several structures can be involved and in fact there is a distinct interaction between the distal radio-ulnar joint, the TFCC and LT joint .

The discovery of a lesion is not always the clue of the diagnosis and the "cure" of such a lesion not always guarantees disappearance of symptoms.

LT ligament injuries are not so frequent and the diagnosis is often delayed (1). In our department all other causes of ulnar wrist pain are excluded before this diagnosis is held responsible for the signs and symptoms.

LT arthrodesis, previously recommended as primary treatment (2, 3, 4), has been questioned

recently owing to its high complication rates (non-union and ulnocarpal impingement), low patient satisfaction and high rate of reoperation (5, 8).

Ligament reconstruction was introduced by the Mayo group in 1984 and in 2001 a review reported more satisfying outcome (7). The DASH score was 29.9 for arthrodesis and 19.7 for the reconstruction group. After 5 years, 68.6% were symptom free in the reconstruction and only 1% in the arthrodesis group.

The procedure we reviewed was described by Sennwald and Fisher without any mention of the outcome (6). Kuhlman (1) described a case of failed triquetrohamate fusion successfully treated with a similar technique.

We did not find a significantly better outcome with this technique compared with LT-arthrodesis, but the complication rate and the rate of reoperations were significantly lower.

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