CLINICAL DIAGNOSIS OF TRIQUETROLUNATE LIGAMENT INJURIES

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The clinical diagnosis of peritriquetral injuries is difficult. We describe our diagnostic technique based on specific questions and three clinical tests. The accuracy of our diagnostic technique was compared prospectively with the definitive diagnosis made at arthroscopy. Preoperatively, 19 patients were diagnosed as having triquetrolunate dissociation. This was confirmed at arthroscopy in 17. Another five patients not diagnosed preoperatively were also diagnosed at arthroscopy as having mainly triquetrolunate dissociation. The sensitivity of our diagnostic protocol was 0.77 and the positive predictive value was 0.89.

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The diagnosis of carpal instability is normally made by history, clinical examination and radiography with arthroscopy as the final diagnostic test (Rettig and Amadio, 1994). The majority of carpal pathology originates on the radial side of the wrist (Kelly and Stanley, 1990) and the scaphoid shift test, described by Watson et al. (1988) is the main diagnostic test for scapholunate dissociation. The tests described by Reagan et al. (1984) and Kleinman (1985) for triquetrolunate instability are not well known.

In an attempt to improve the diagnosis of these injuries we have developed a specific question and a series of tests.

PATIENTS AND METHOD

A full history is obtained and examination is carried out to include the following question and tests. The examiner must remember that these injuries are rare and other causes of wrist pain should be excluded.

Question

This question may be phrased in one of several ways:

- Does your wrist feel as if it is about to fall off?
- Does your hand feel as if a screw has come loose?
- Does your hand feel as if a guy rope has come loose?

Clinical examination

Physical examination of the patient's wrist may show an increased dip on the dorsum of the affected side just distal to the ulnar styloid as previously described by Reagan et al. (1984). However, this is variable and may not always be apparent.

First test (Fig 1)

This replaces the triquetrum into position in the proximal carpal row. The manoeuvre is initiated by placing the wrist into full dorsiflexion and radial deviation with the forearm in full pronation. Then the examiner pushes with the thumb pulp directly against the palmar surface of the patient's pisiform, while the fingers provide counterpressure on the dorsum of the ulna. As the pressure on the pisiform continues, the patient's wrist is brought into a neutral position, reducing the triquetrum. This is frequently accompanied by a click.

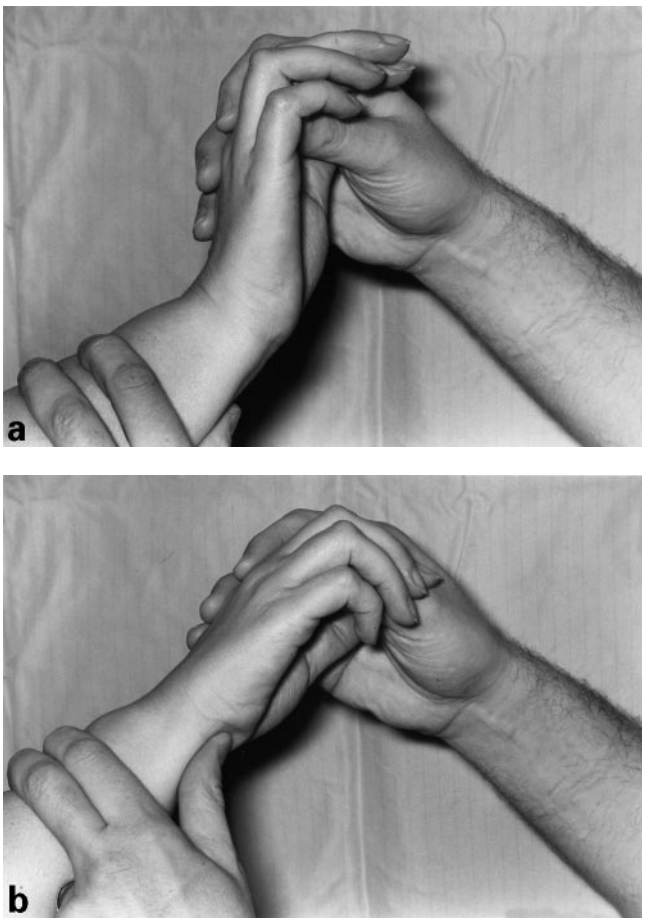

Fig 1 (a, b) The first clinical test.

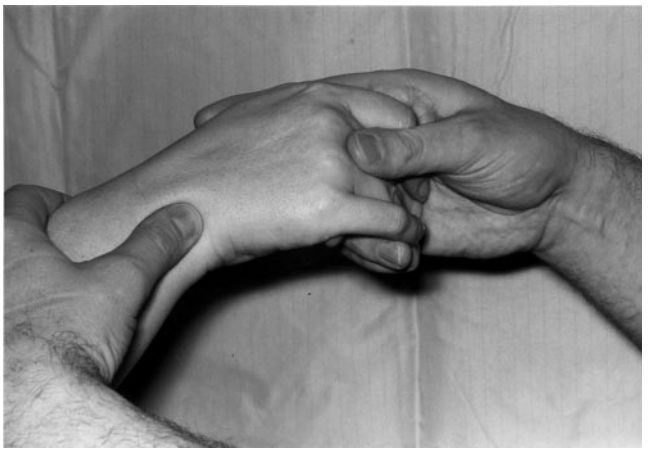

Fig 2 The second clinical test.

Fig 3 The third clinical test.

The patient should be asked whether the previous feeling of instability has disappeared, and to make a clenched fist. A distinct improvement in grip strength should be noted at this point for a positive test.

Second test (Fig 2)

This is performed after moving the wrist until the instability has reoccurred. The patient's wrist is placed in pronation, radial deviation and neutral flexion. The examiner then places the opposite thumb pulp on the dorsal aspect of the triquetrum and whilst pressing the thumb in a palmar direction, the wrist is brought into ulnar deviation. A positive test will produce a complaint of significant pain.

Third test (Fig 3)

This is the reverse of the second test, but is carried out with the examiner's thumb positioned over the pisiform and pushing the triquetrum dorsally. The pain on ulnar deviation will be reduced.

Study group

The records of 62 consecutive patients who had wrist arthroscopy between July 1994 and May 1998 performed by one surgeon (LCB) were reviewed to ascertain the accuracy of our clinical diagnosis for triquetrolunate injuries. All patients had wrist pain and all of them had been assessed by the senior author (LCB). There were 35 women and 27 men in the study. The average age of the patients was 31.8 years-old. Preoperatively, 19 patients were diagnosed as having triquetrolunate dissociation. The diagnosis was made when there was a positive answer to the specific question and all three clinical tests were positive. This was confirmed at arthroscopy in 17. Another five patients who had not been diagnosed as having triquetrolunate instability on clinical grounds were also diagnosed at arthroscopy as having mainly triquetrolunate dissociation. The sensitivity was 0.77 and the positive predictive value 0.89. (Sensitivity is defined as the proportion of people with the disease who have a positive test for the disease. Positive predictive value is the probability of the disease in a patient with a positive test result).

DISCUSSION

Ulnar wrist pain is a complex problem requiring understanding of both the ulnocarpal anatomy and patterns of injury found on the ulnar side of the wrist.

The diagnosis of the cause of ulnar-sided wrist pain is made by careful history, clinical examination and radiology. It is then confirmed by arthroscopy if necessary. The differential diagnosis includes tears of the triangular fibrocartilage complex (TFCC), disruption of the distal radioulnar joint, midcarpal instability, fracture of the hook of the hamate, ulnar impingement syndrome, pisotriquetral pathology and extensor carpi ulnaris subluxation. The orientation of the lunate was used by Linscheid et al. (1972) to identify palmar or dorsal intercalated segment instability. Later, Reagan et al. (1984) recognized the role of the lunotriquetral ligament in the development of a PISI deformity. Despite an increased interest in peritriquetral injuries in the past decade there are no pathognomonic tests for triquetrolunate ligament injuries. Two tests have been described for identifying triquetrolunate pathology, the LT ballotment test as described by Reagan et al. (1984) and the "shear" test of Kleinman (1985).

We describe our diagnostic technique based on specific questions and clinical examination using three diagnostic tests. The specific questions arose out of clinical experience with an earlier group of patients with carpal instability. We have found this approach to be

useful in the diagnosis of triquetrolunate ligament injuries before arthroscopy.

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