

CLINICAL AND ARTHROSCOPIC ASSESSMENT OF WRIST LIGAMENT INJURIES AND INSTABILITY

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av

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Avhandlingen baseras på följande arbeten:

- | | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I | Andersson JK, Andernord D, Karlsson J, Fridén J.

Efficacy of MRI and clinical tests in diagnostics of wrist ligament injuries: a systematic review.

Arthroscopy. 2015, 31: 2014-20 | IV | Andersson JK, Strömberg J, Karlsson J, Fridén J.

Patients with triangular fibrocartilage complex injuries and distal radioulnar joint instability have reduced rotational torque in the forearm.

J Hand Surg Eur. E-published, DOI: 10.1177/1753193415622342 |
| II | Andersson JK, Lindau T, Karlsson J, Fridén J.

Distal radio-ulnar joint instability in children and adolescents after wrist trauma.

J Hand Surg Eur. 2014, 39: 653-61 | V | Andersson JK, Hansson-Olofsson E, Karlsson J, Fridén J.

Cost analysis of magnetic resonance imaging and clinical examination in wrist ligament injuries

In manuscript |
| III | Andersson JK, Garcia-Elias M.

Dorsal scapholunate ligament injury: a classification of clinical forms.

J Hand Surg Eur. 2013, 38: 165-9 | | |



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Abstract

Wrist ligament injuries are common after trauma, especially when concomitant dislocated radius fractures are present. The diagnostics of scapholunate (SL), lunotriquetral (LT) and triangular fibrocartilage complex (TFCC) injuries are challenging and most often dependent on magnetic resonance imaging (MRI) examination or invasive arthroscopy. In some circumstances, missed ligament injuries can lead to devastating sequelae, in terms of pain, reduced grip strength, range of motion and subsequent degenerative arthritis. In certain cases and under certain conditions, the choice of treatment for wrist ligament injuries can sometimes be the subject of debate.

An updated review of diagnostic accuracy, a higher awareness of the injuries among orthopaedic surgeons, a surgically adaptable classification of the injuries and objective and clinically easily adapted diagnostic tools are essential.

This thesis demonstrates that a negative result from MRI cannot rule out the possibility of a clinically relevant injury to the SL ligament, the LT ligament or the TFCC. Clinical provocation wrist tests are of limited diagnostic value. The current gold standard, wrist arthroscopy, remains the preferred diagnostic technique with sufficient conclusive properties when it comes to wrist ligament injuries. Due to low accuracy and high costs, MRI can most often be abandoned, when it comes to wrist ligament injuries. The cost of wrist MRI is three times higher than that of a clinical examination at the Hand Surgery Department, Sahlgrenska University Hospital.

The thesis emphasises the increased diligence required when dealing with wrist trauma in children and adolescents, as a substantial amount of delayed presentation of distal radio-ulnar joint (DRUJ)

instability after wrist fractures or sprains in children and adolescents is found.

The most striking finding is that several children and adolescents present with DRUJ instability with isolated TFCC tears. The long delay from injury to diagnosis and the severity of the injury in terms of solving the DRUJ instability problem among young people is also interesting and somewhat surprising.

Four distinct SL injury types can be identified and classified. This classification can be used in both open and arthroscopic surgery and in acute, subacute and chronic injuries. An arthroscopically assisted SL capsuloplasty and suture may not be possible in all patients, particularly not when the ligament has been completely avulsed from the bone (in approximately 60% of patients; Andersson-Garcia-Elias Type 1 and 2), leaving no ligament remnant on one side. Most patients with an SL injury will require ligament re-attachment techniques using transosseous sutures, bone anchors, or ligament reconstruction.

Distal radio-ulnar joint instability with an arthroscopically confirmed TFCC injury is associated with a 30% loss of pre-operative peak torque strength in pronation and supination – a measurement technique easily adapted in the clinical pre-operative setting.

Keywords: wrist; wrist arthroscopy; carpal ligaments; scapholunate ligament; lunotriquetral ligament; triangular fibrocartilage complex; distal radio-ulnar joint; instability; magnetic resonance imaging; forearm rotation torque; children; adolescents

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