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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

CLINICAL AND IMAGING CORRELATION IN RECENT THUMB ULNAR COLLATERAL LIGAMENT TEAR

THESIS

submitted to
the Faculty of Medicine,
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in partial fulfilment of the requirment of the degree

MASTER OF ORTHOPAEDIC SURGERY

by

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Dedicated to :

my mother

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INTRODUCTION

INTRODUCTION

Injury to the ulnar collateral ligament (UCL) of the thumb metacarpophalangeal (MP) joint remains a controversial topic despite numerous reports in the literature. The controversies to be explored stem from conflicting data on the patho-anatomy, a lack of information regarding the sensitivity and specificity of available diagnostic procedures, and a lack of agreement on prognosis with closed treatment. Disagreement even exists over the appropriate eponym to apply to this injury.[1]

Chronic laxity of the thumb UCL was first noticed in the Scottish gamekeepers. Their method of breaking the necks of the wounded hares apparently caused great stress placed upon the stabilizing ligaments on the ulnar side of the thumb MP joint. The term *"Gamekeeper's thumb"*, although originally a description of chronic laxity, has since been widely applied to a range of acute and chronic injuries to the UCL of the thumb MP joint.[1] When skiing became a popular winter activity, injuries of the UCL increased dramatically and the term *"Skier's thumb"* is now in common use.[2]

A final point of interest regarding injury of UCL the thumb is that, it occurs eight to ten times as often as injuries to the radial collateral ligament. The common occurrence of UCL injury and the unique features of the anatomy that complicates diagnosis and treatment justify the attention this injury has been given in the literature.[1]

ANATOMY

The thumb MP joint is a diarthrodial ginglymoid joint,[1] formed by the connection of the metacarpal head and the base of the proximal phalanx with addition of the two sesamoid bones.[3]

Articular surfaces:

The first metacarpal has a convex articular head that is not so boldly rounded as the other metacarpal heads. The flexor margin of the convex articular head is grooved for the sesamoids of the thenar muscle.[4] The head of the first metacarpal is not regularly convex, its articular surface is partially divided on its palmar aspect so as to resemble condyle.[5]

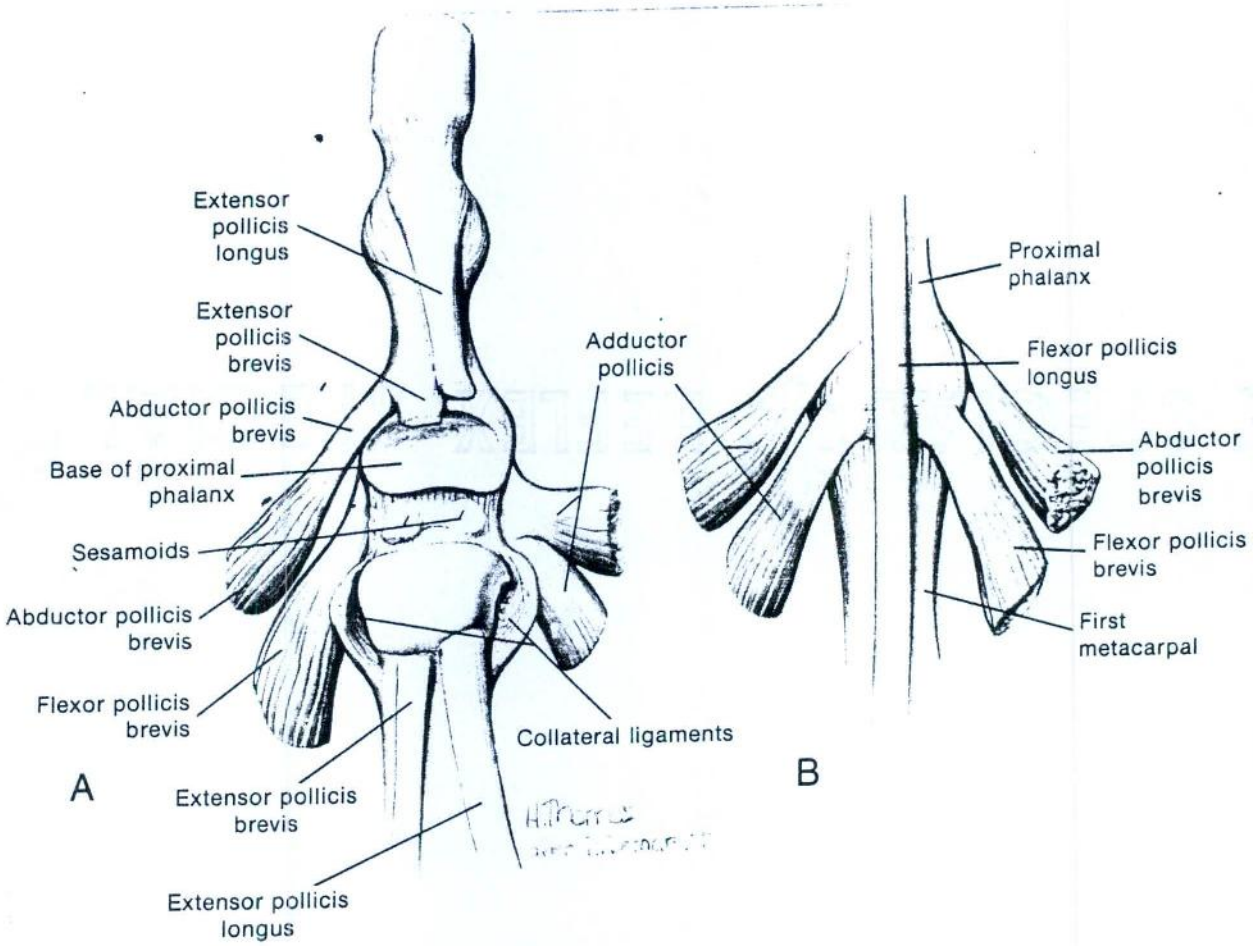
The slightly concave articular surface of the proximal phalanx articulates with the convex surface of the metacarpal head this condyloid (ball-and-socket configuration) architecture allows relatively free motion in all planes[6] (Fig. 1).

Capsule:

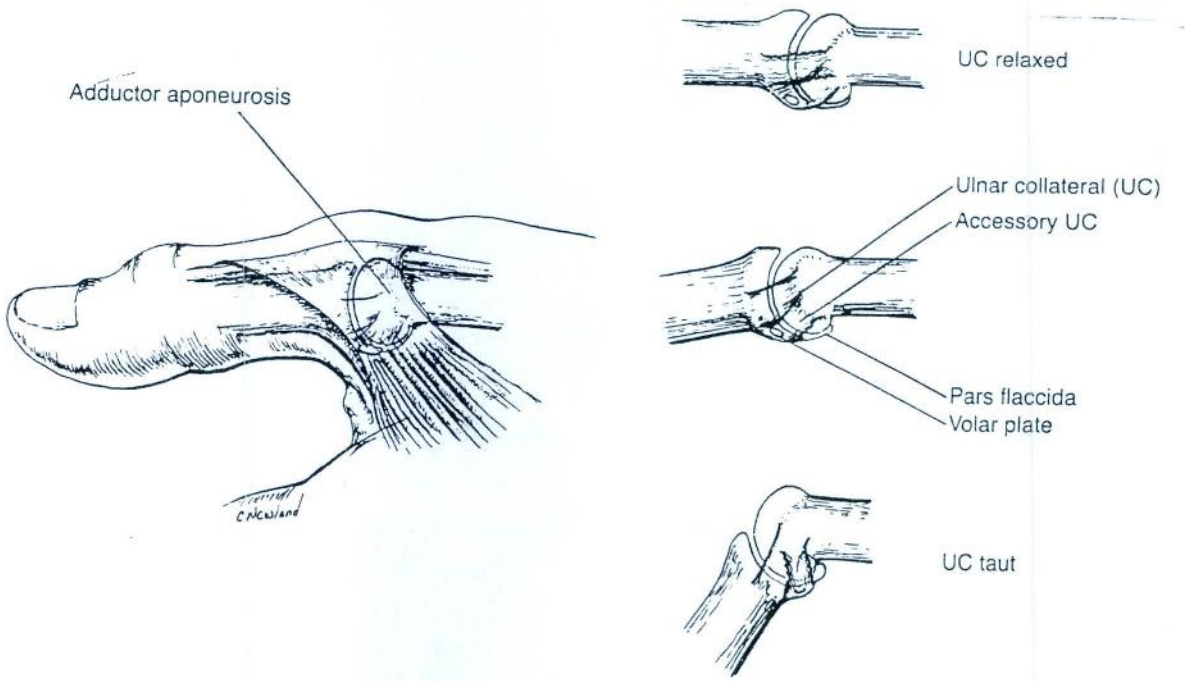
A capsule unites the osseous elements of the joint. It is inserted into the ridge separating the articular surface of the shaft of the proximal phalanx and the metacarpal. The capsule is thin dorsally and much thicker on the volar surface that is called volar plate.[3] The volar plate consists of firm fibrocartilage in its distal two thirds with a relatively thin proximal one third known as paris flaccida[1] (Fig. 2).

The capsule is reinforced on each side by the collateral ligaments, which are inserted into the sides of the head of the metacarpal and run distally and volarly to the base of the proximal phalanx. Each collateral ligament is inserted into the lateral tubercle of the base of the proximal phalanx and into the corresponding sesamoid. The two sesamoids are incorporated into the volar plate of the joint; thus the collateral ligaments and the volar plate with the sesamoids actually form a continuous structure and base attachment for the annular ligament of the flexor pollicis longus[3] (Fig. 2).

The volar plate with the sesamoids and the capsule are firmly attached to the volar base of the proximal phalanx and move as a unit with the proximal phalanx in flexion and extension. In flexion, the volar plate moves towards the volar aspect of the shaft of metacarpal, and in extension it moves away from the volar aspect of the metacarpal.[3]



(Figure 1)[3] : Anatomy of metacarpophalangeal joint of right thumb.
(A) Dorsal view (B) Volar view



(Figure 2)[1] : Capsule-ligaments and adductor aponeurosis of the 1st MP joint in flexion and extension.

Ulnar collateral ligament (UCL):

The UCL consists of the UCL proper that inserts into the lateral tubercle of the proximal phalanx, and of the accessory UCL that inserts into the volar joint plate and the ulnar sesamoid. The UCL proper lies in a longitudinal plan, it is a cord like structure of a four by eight mm band with a length of twelve to fourteen mm. The accessory collateral ligament originates slightly superficial and palmar to the UCL proper.[1,3]

The UCL proper is lax in full extension and is taut in full flexion. The accessory collateral, on the other hand, is taut in extension and loose in flexion because of its distal insertion in the volar plate and the proximal glide of the volar plate that occurs in flexion. The position of the joint when abduction stress is applied will therefore determine which ligament is being tested (Fig 2).[1]

The adductor pollicis muscle insertion: The adductor pollicis has three insertions: one into the ulnar sesamoid and palmar plate , a second into the lateral tubercle of the proximal phalanx, and a third that takes the form of a dorsal expansion and is referred to as the adductor aponeurosis. These fibers blend with the dorsal aponeurosis, which invests the extensor pollicis longus tendon.[1] The ligament is largely covered by the adductor aponeurosis which plays a key part in determining how injuries of the UCL should be treated[2] (Fig 2).

With flexion, the position of the adductor aponeurosis shifts distally with respect to the UCL because of the adductor aponeurosis connection with extensor apparatus. The opposite is the case when the joint is extended.[1]

Dorsal apparatus:

The dorsal apparatus of the thumb is formed by the tendon of the extensor pollicis longus, the extensor pollicis brevis, the expansion of the abductor brevis on the radial side, and the expansion of the adductor pollicis on the ulnar side. The tendon of the extensor pollicis longus runs obliquely from under Lister's tubercle on the dorsum of the radius to the thumb. It reaches the ulnar side of the base of the first metacarpal and proceeds distally, then the tendon run over the ulnar side of the dorsum of the first metacarpal, it crosses the ulnar side of the MP joint and continues until it reaches the distal phalanx.[3]

The dorsal capsule of the MP joint is thin and is in direct relation with the tendon of the extensor pollicis longus to which it blends.[3]