

# Thumb Ulnar Collateral and Radial Collateral Ligament Injuries



Nicole S. Schroeder, MD<sup>a</sup>, Charles A. Goldfarb, MD<sup>b,\*</sup>

## KEYWORDS

- Ulnar collateral ligament • Radial collateral ligament • Thumb
- Metacarpophalangeal joint • Surgical technique • Athlete • Skier's thumb
- Gamekeeper's thumb

## KEY POINTS

- Complete ulnar collateral ligament tears with ligament retraction are best treated with acute repair.
- Ulnar collateral ligaments are most commonly avulsed from the base of the proximal phalanx, whereas radial collateral ligament injuries may be injured proximally, distally, or intrasubstance.
- Low-grade injuries without instability should heal with immobilization.
- Chronic joint instability can be effectively treated with ligament reconstruction.



Videos of examinations of a stable thumb and UCL-deficient thumb in full extension accompany this article

## INTRODUCTION

Thumb metacarpophalangeal (MCP) ulnar and radial collateral ligament injuries occur frequently in the competitive athlete. Acute rupture of the ulnar collateral ligament (UCL) is due to a sudden radial deviation force on the abducted thumb and is referred to as skier's thumb. Chronic attrition of the ligament caused by repetitive valgus stress is historically referred to as gamekeeper's thumb.<sup>1</sup> Radial collateral ligament (RCL) injuries are caused by an ulnar-directed force. These injuries occur far less frequently than UCL injuries, with a ratio of approximately 1:9.<sup>2,3</sup>

The collateral ligaments are essential to MCP joint stability, and if untreated an injury may result in instability, pain, and diminished pinch and grip strength. Classification of these injuries is based on the severity of joint instability on clinical examination, and determines the appropriate management.

<sup>a</sup> Department of Orthopaedic Surgery, University of California San Francisco, 2550 23rd Street, Building 9, 2nd Floor, San Francisco, CA 94110, USA; <sup>b</sup> Hand Surgery, Washington University School of Medicine, 660 South Euclid Avenue, Campus Box 8233, St Louis, MO 63110, USA

\* Corresponding author.

E-mail address: [goldfarbc@wudosis.wustl.edu](mailto:goldfarbc@wudosis.wustl.edu)

## ANATOMY

The MCP is a diarthrodial joint with stability primarily imparted by its surrounding soft tissues. The collateral ligaments, volar plate, and dorsal capsule provide static stability, whereas the extrinsic and intrinsic muscles of the thumb provide dynamic stability.

The collateral ligaments are composed of an accessory and a proper ligament. Both originate from the metacarpal head; the accessory inserts onto the volar plate while the proper inserts on the volar aspect of the proximal phalanx. The UCL originates on the ulnar aspect of the metacarpal head, 2 to 4 mm palmar to the dorsal cortex and 5 to 7 mm proximal to the articular surface. The proper UCL inserts on the base of the proximal phalanx, 3 mm distal to the articular surface and 3 mm dorsal to the palmar cortex.<sup>4</sup> The adductor pollicis (AddP) aponeurosis is superficial to the UCL. A Stener lesion occurs when the UCL ruptures from its phalanx insertion and retracts proximally to lie superficial to the aponeurosis.<sup>5</sup> The AddP aponeurosis prevents the reduction of the ligament.

The RCL originates from radial aspect of the metacarpal head, approximately 3.3 mm from the articular surface and 3.5 mm from the dorsal cortex. The proper RCL inserts on the base of the proximal phalanx at 2.6 mm from the articular surface and 2.8 mm from the volar cortex.<sup>4</sup> The abductor pollicis (AbdP) aponeurosis lies superficial to the RCL. Because its origin extends more proximally than the AddP aponeurosis, the equivalent of a Stener lesion does not occur.

## ASSESSMENT

### *History*

---

Management of thumb MCP collateral injuries depends on both severity and chronicity of the injury. In the case of a UCL injury, the patient's history typically reveals an abduction (radial deviation) force to the thumb. In sports, the classic description is of a skier who falls on the abducted thumb while gripping a ski pole; however, the injury may be seen with any fall onto an abducted thumb in almost any sport. In baseball, for example, the injury most commonly occurs when sliding head-first into a base. RCL injuries are less common as the force is in the ulnar direction, toward the fingers and palm. In the acute setting, both injuries present with pain, swelling, and ecchymosis, all of which improve with time. However, patients may complain also of joint instability, which will not improve over time. Chronic injuries may cause pain and weakness in pinch or grip owing to this lack of stability.

Radiographs of the thumb are obtained to evaluate for associated fractures and MCP joint subluxation, typically volar or lateral translation in an UCL injury (**Fig. 1**). In RCL injuries, volar subluxation occurs nearly uniformly owing to an associated dorsal capsular tear. In the chronic setting, radiographs may demonstrate osteoarthritis of the MCP joint.

In the absence of radiographic findings or in the setting of an equivocal clinical examination, magnetic resonance imaging (MRI) may be used evaluate ligament integrity. It is recommended that the MRI scan be performed with a 3-T machine with a dedicated extremity coil. Positive findings include identification of a partial/complete ligament tear, bone edema, or fracture. A Stener lesion can also be identified.<sup>6</sup> In certain centers, an ultrasonography assessment can be an effective test to assess collateral ligament integrity using both static and dynamic ultrasound.<sup>7</sup> Ultrasonography can be helpful in confirming the presence of a Stener lesion.

Download English Version:

<https://daneshyari.com/en/article/4052095>

Download Persian Version:

<https://daneshyari.com/article/4052095>

[Daneshyari.com](https://daneshyari.com)