

**Abstract**

Isolated rupture of radial collateral ligament of the metacarpophalangeal joint of the index finger is a rare reported disorder, which causes radial instability of the joint. The joint stability can not be restored without surgical techniques. This report presents a case of a 28-year-old woman training fencing (foilist), representing the national team, with this kind of lesion. The patient presented with pain and instability of the MCP joint of the index finger after collision with opponent on the fencing board. The clinical and the imaging findings suggested a lesion of the radial collateral ligament. Therefore there was performed a surgery of reconstruction of damaged ligament. There was applied rehabilitation. We describe a mechanism of this kind of injuries in foilists and method of preventing renewed injury.

Keywords

Fencing – index finger – collateral ligament – MCP joint

K. Stępień, R. Śmigielski

28-jährige Fechterin mit isolierter Ruptur des radialen Seitenbandes des Zeigefinger-Grundgelenks**Zusammenfassung**

Isolierte Ruptur des radialen Seitenbandes vom Metakarpophalangealgelenk des Zeigefingers ist eine selten vorgestellte Verletzung die radiale Instabilität dieses Gelenks verursacht. Die Stabilität des Gelenks kann ohne chirurgische Verfahren nicht wiederhergestellt werden. Dieser Bericht präsentiert den Fall einer 28-jährigen Fechterin, die Teil der Nationalmannschaft ist, mit dieser Art von Verletzung. Bei der Patientin traten Schmerzen und eine Instabilität des MCP Gelenks des Zeigefingers nach einer Kollision mit der Gegnerin, während eines Duells, auf. Die klinischen und bildlichen Ergebnisse deuteten auf eine Verletzung des radialen Seitenbandes an. Deshalb wurde eine Operation zur Rekonstruktion des beschädigten Bandes durchgeführt. Nach der Operation wurde die Patientin rehabilitiert. Wir beschreiben den Mechanismus dieser Verletzungen von Fechtern und das Präventionsverfahren.

Schlüsselwörter

Fechten – Zeigefinger – Seitenband – MCP-Gelenk

CASE REPORT**28-year-old woman training fencing with isolated rupture of radial collateral ligament of the metacarpophalangeal joint of the index finger**

Karolina Stępień, Robert Śmigielski

Carolina Medical Center, Pory 78, Warsaw, Poland

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Introduction

The primary stabilizers of the metacarpophalangeal (MCP) joints are radial (RCL) and ulnar (UCL) collateral ligaments. Their attachment are located on the posterior tubercle on the side of the head of the metacarpal bone by one extremity and on the base of contiguous phalanx by the other extremity. The course of both ligaments are oblique in relation to the joint gap [6]. Injuries of collateral ligaments of metacarpophalangeal (MCP) joint are one of serious traumas of the hand. They can cause instability of the MCP joint. We have three Grades of this injury. In Grade I injuries stability of the joint is preserved due to ligament attenuation. In this grade there are also small partial tears. In Grade II injuries there is showed laxity with firm endpoint. It caused by incomplete tear. In Grade III injuries the joint is unstable as a result of tearing ligament and joint capsule [4,12,16]. The injury should be diagnosed by clinical investigation. Symptoms include local tenderness and unstable joint. Instability is verified by clinical stress testing of the MCP

joint in 90° of flexion. To confirm the diagnosis it is recommended to do USG and/or MRI imaging [4,10,12,13,16].

Collateral ligaments injuries of MCP joint in most of cases concern thumb (both ulnar and radial ligaments) [11,15,18]. There are only few evidence about rupture of radial collateral ligament (RCL) of MCP joint of the index finger [5,7,10].

It seems to complete rupture of RCL of MCP joint of the index finger is underdiagnosed and in result underreported [12,15,20]. However, there are some effective operation techniques, which are one of the ways of treatment in every grade injuries [1,5,7,10,12,16,20,21].

From all patients with rupture of RCL of the MCP joint of the index finger reported in the orthopaedic literature, there is no cases about injuries acquired during sports activity. Especially in fencing, where the risk of this lesion seems to be significant.

This paper presents a case of a 28-year-old woman training fencing (foilist) with lesion of radial collateral ligament of the second metacarpophalangeal joint. The patient acquired this injury during direct



Figure 1
The way of keeping foil.



Figure 2
The way of keeping foil without glove.

collision with the opponent on the fencing board, which is very often situation in this sport. Because of arrangement of the hand keeping

foil, the second finger is the most exposed on a lesion. The main burden of foil is carried by second finger. In the loadable plane the

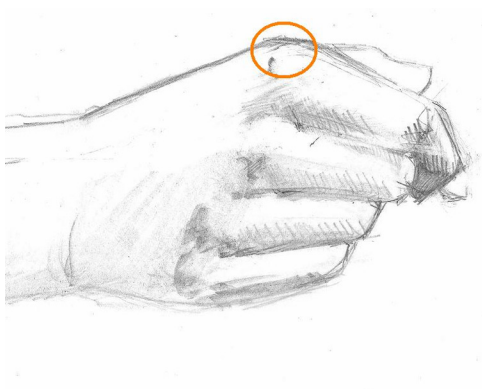


Figure 3
The most loaded region of the hand during keeping foil.

stability of joint is provided by the radial collateral ligament (Figures 1–3).

Case Report

Medical history

A 28-year-old woman training fencing (foilist), representing the national team, presented with pain of index finger of the right hand caused by a collision with the opponent on the fencing board, eight months prior. The patient reported also swelling in region surrounding the second metacarpophalangeal joint after training or contests and feeling of uncertainty in the hand.

Directly after the injury the patient was treated by physiotherapy without reducing her symptoms.

Physical examination

Physical examination revealed that there were swelling in region surrounding the second metacarpophalangeal joint and marked tenderness on radial side. There was an instability in this joint to a laterally applied stress. The joint was unstable in the range of 0 to 70 degrees of flexion. Symptoms indicated the damage of radial collateral ligament. Full flexion was impossible because of pain. There was no deviation in the rest of examination of the hand.

Imaging

Ultrasound imaging (USG) showed moderate hypertrophy of synovium in the second MCP joint. The radial collateral ligament of the second MCP joint was characterized by a bold unstable scar. In dynamic test ligament stumps spread apart. The ligament was dislocated on the dorsal side. Palm plate, joint capsule on the ulnar side without damage. Tendons of flexors and extensors

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