Game Keeper's Thumb Case Study

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Abstract

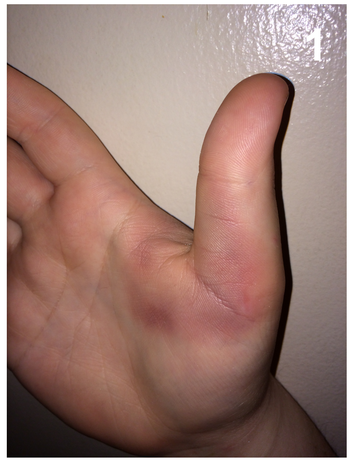
An 18-year-old high school student athlete sustained a Grade 3 sprain of the Ulnar Collateral Ligament (UCL) on the right thumb with an avulsion fracture of the proximal medial phalange of the athlete's dominant hand during a basketball game in Southwest Virginia. Upon examination by a primary care physician located at the site of the injury, severe bruising, swelling, (see picture 1) intense pain as well as a positive Gamekeeper's thumb test, or extreme laxity, demonstrated the need for referral to a local orthopedist. This orthopedic physician's exam repeated the signs and symptoms found initially, as well as a positive X-Ray. The physician advised immediate surgery. The athlete demonstrated hesitation and ultimately opted to finish the remaining 2 months of the season. The physician then advised the athletic trainer, family and athlete of risks as well as the best possibilities to minimize further injury. A spica splint was given for wear at all times except during games and practices where tape would be used. Surgery ultimately followed the season where it was found that additional scar tissue had formed over that time. The orthopedic surgeon used an S incision as well as a pin through the joint (see picture 2). Physical therapy followed and the athlete made a full recovery with 100% range of motion as well as strength.

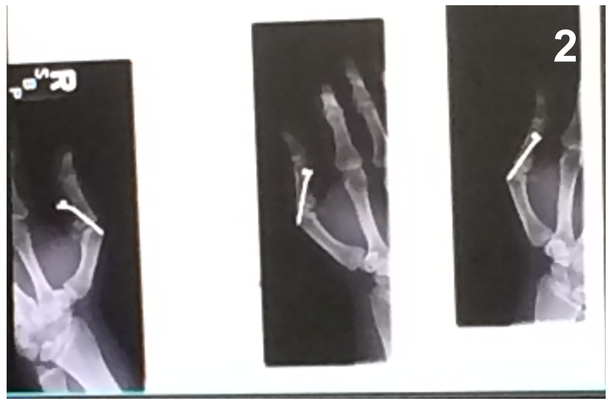
Background

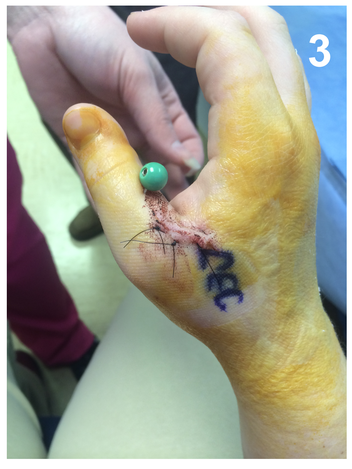
A game keeper's thumb or ulnar collateral ligament (UCL) injury of the metacarpophalangeal joint (MCP) of the thumb is also known as the skier's thumb. The mechanism of injury is a forceful abduction of the thumb away from the index finger, resulting in a sprain or tear of the ligament with or without subsequent fracture. Both conservative and surgical treatments exist and which of these is determined by the degree of injury.

Case Report

A senior basketball player, starter for three years, presented to the local orthopedist for an evaluation of a right thumb injury that incurred in the previous night's game. The injury resulted from the basketball being acutely shoved into the right thumb after the patient had relaxed the grip in a "held ball" event. Acute pain, proximal swelling, and decreased range of motion were noted immediately. The athletic trainer assessed the injury, iced the extremity after confirming the symptoms and noting UCL laxity, hence the immediate orthopedic referral. The orthopedist evaluation showed local pain and swelling of the MCP joint of the right thumb, as well as laxity without endpoint of the UCL. X-ray evaluation revealed a small avulsion fracture non-displaced on the dorsal aspect of the proximal end of the proximal phalanx of the right thumb. The diagnosis of a complete tear of the UCL with a fracture was rendered.







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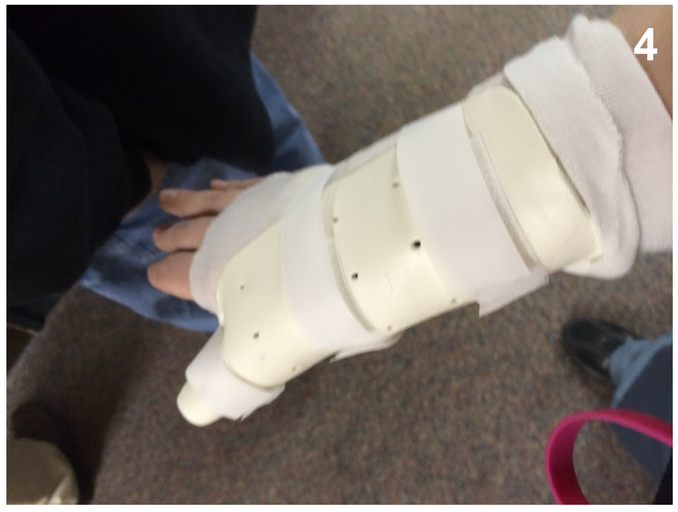
Treatment

Secondary to the complete tear, surgical repair was recommended. The player wanted to discuss alternative treatments and their associated risks, in order to complete that season, the individual's last. Agreement was reached with a thumb-spica splint (see picture 4) when not in play and any participation would require a thumb-spica taping. Range of motion exercises and physical therapy were suggested.

Two months later, with the basketball season completed, the exam continued to show local tenderness and complete laxity of the UCL. The player underwent an operative arthroscopy with repair to the UCL (reattachment) and fixation of the MCP with pin.

Post operative physical therapy and medical care resulted in full recovery with preserved function and range of motion.



Discussion

This case highlights several valuable points in the diagnosis and treatment of game keeper's thumb injuries. Prompt evaluation by the athletic trainer noting the laxity of the UCL and prompt referral to orthopedist saved potential delay in definitive care. It should be stressed that the definitive care for a complete tear, especially one associated with a fracture, is surgical intervention. This case reinforces this concept by the instability of the joint remained after careful and protected joint precautions over the two month period.

Acknowledgements

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Poster was printed courtesy of Radford University's Honors Academy.