

Gamekeeper's Thumb: Utilizing Dynamic Digital Radiography for Diagnosis and Treatment



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Summary/Overview

A 59-year-old right-hand dominant female golf enthusiast presented with right-hand pain and dysfunction at the 1st metacarpophalangeal (MCP) joint due to a fall from her bike. The patient had undergone a regimen of rest, elevation, and ice to alleviate pain and improve range of motion, with limited clinical success. After 5 days from the initial occurrence, she consulted with her physician. A series of standard hand/wrist x-rays were performed, which were interpreted as inconclusive.

Use of in-office Dynamic Digital Radiography (DDR) to acquire sequential x-ray images to capture movement and retrospectively view and assess the right hand/thumb movement confirmed absence of fracture. DDR demonstrated a reduced range of motion (ROM) and a dysfunctional thumb, suggesting a metacarpophalangeal sprain and a complete tear of the ulnar collateral.

Approach and Use Case

Gamekeeper's thumb (also known as Skier's thumb) is a condition characterized by injury to the ulnar collateral ligament of the thumb's MCP joint. The injury typically happens when the thumb is forced into an extended position, such as falling with an outstretched hand while holding onto something (as in skiing) or during other activities where the thumb is overextended. It can lead to pain, swelling, and instability in the thumb joint, making it difficult to grip or hold objects. This condition is a common injury that accounts for up to 85% of treated thumb-base injuries. More than 90% of cases have excellent results if treated surgically within three weeks of injury. Patients can expect mild or no pain, stiffness, and nearly normal pinch and grip strength. Up to 96% of patients can return to their previous activities, including recreational sports. However, chronic instability of the MCP joint can still occur, especially if patients resume motion or activity too soon. This underscores the importance of promptly recognizing and treating the injury to prevent chronic instability and functional impairment.

Traditional imaging of this thumb injury, such as static radiographs and MRI, is often interpreted as normal. Dynamic Digital Radiography (DDR) is a radiographic imaging technique that captures pulsed low-radiation radiographs, allowing for retrospective assessment of dynamic motion. In this case, DDR allowed for the dynamic evaluation of the MCP pathology, providing the surgeon with an informed understanding of the patient's condition to appropriately guide the treatment algorithm.

Discussion: Clinical and Patient Value

Early diagnosis and appropriate management of Gamekeeper's thumb are crucial for optimal recovery. Dynamic Digital Radiography (DDR) demonstrates great diagnostic potential by allowing physicians to rule out fractures and assess joint function which is pivotal in assessing ligament integrity on a single in-office exam. DDR technology enabled Dr. Adrignolo to promptly and accurately diagnose the patient, recommending surgical fixation for optimal long-term recovery without the need for more advanced imaging technologies like CT or MRI.



To watch the video, click here: <https://kmha.info/Gamekeepers>

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