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Archives of Medical Case Reports Case Report

Avulsion of the Common Extensor Tendon and Radial Collateral Ligament Tear

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A 59-year-old left hand dominant female was evaluated by a physical therapist. The patient had an 8-year history of chronic intermittent left elbow pain with a recent exacerbation occurring after moving furniture. Aggravating factors included holding a coffee cup, picking up trash bags, and lifting heavy dishes. Symptoms were eased by ice and Meloxicam as prescribed by her primary care provider.

The left lateral elbow inferior to the lateral epicondyle had moderate edema and mild ecchymosis. Resisted wrist extension was weak and painful. Large grip and stretching of the wrist extensors reproduced mild pain. The common extensor tendon (CET) and the lateral epicondyle were tender to palpation. Passive accessory motion was positive for hypermobility of the proximal radioulnar joint. Due to concern for an atraumatic CET tear, the physical therapist performed a same-day magnetic resonance imaging (MRI) examination on a 0.25 Tesla Esaote G-Scan Brio.

The MRI scan demonstrated a CET rupture and radial collateral ligament tear, which was subsequently confirmed *via* radiology consult (Figures 1 and 2). The patient was referred to an orthopedic surgeon where she was offered surgical intervention. In this case, a physical therapist was able to expedite the diagnostic process by operating a low-field MRI unit in the clinic. Total time elapsed between physical therapy evaluation, completion of the MRI, and orthopedic consultation was seven days. Clinical reasoning by a physical therapist and access to a musculoskeletal MRI expedited a robust referral to an orthopedic surgeon. Traditional pathways can comparably delay care by one year [1].

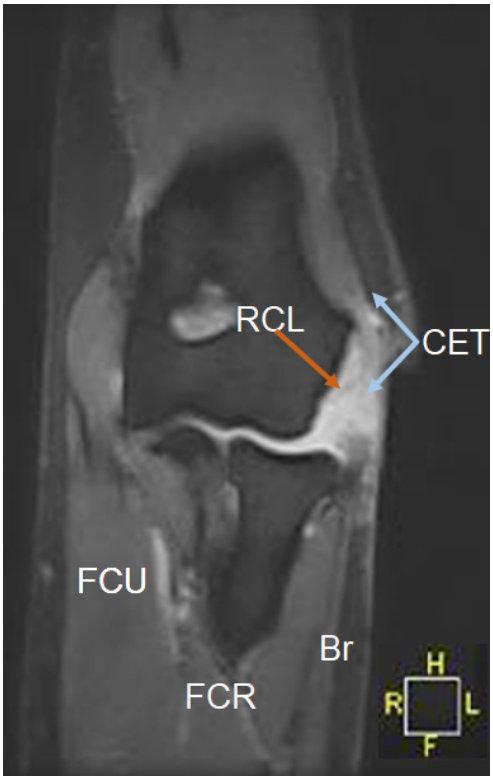

Figure 1: Coronal short tau inversion recovery magnetic resonance image of the left elbow demonstrating a rupture of the common extensor tendon (CET) with 1.35cm retraction and a full thickness tear of the radial collateral ligament (RCL). Flexor Carpi Ulnaris (FCU); Flexor Carpi Radialis (FCR); Brachioradialis (Br).

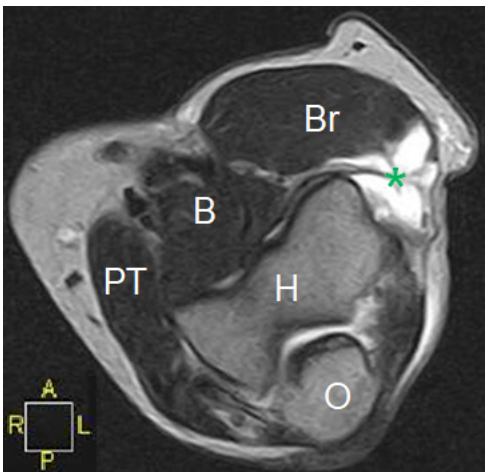

Figure 2: Axial T2 weighted magnetic resonance image of the left elbow demonstrating high signal intensity (*) and absence of muscular and tendinous signal consistent with a ruptured and retracted common extensor tendon. Brachialis (B); Brachioradialis (Br); Pronator Teres (PT); Humerus (H); Olecranon (O).

Many physical therapists within the United States of America are restricted from referring patients directly to a radiologist by their respective state practice acts or state physical therapy board rules [2]. However, when physical therapists are authorized to refer for imaging, they do so appropriately [3,4], accurately [5], and without harm to patients [6]. While physical therapists are often prohibited from performing imaging techniques that expose the patient to radiation, few restrictions in performing imaging techniques without ionizing radiation exist [7]. Therefore, clinical utilization of low-field MRI by physical therapists may be a viable future for this imaging modality and could facilitate diagnosis and timely therapeutic interventions.

Low-field MRI has gained recent popularity due to its relative low cost, its ability to perform both weight-bearing and non-weight-bearing images, its comparable safety profile, and its ability to perform open imaging while maintaining excellent correlation with higher field magnets [8]. While still a relatively new and somewhat unexplored modality, low-field MRI has shown the potential for promising innovations including intraoperative capabilities and the promise of portable MRI units [9]. Low-field MRI does have limitations, however, as greater imaging times and higher signal to noise ratios can lead to greater artifact.

Low-field MRI has shown promise in diagnosing conditions such as degenerative disc disease [8]. Its efficacy in identifying bone marrow edema has been demonstrated in rheumatologic and connective tissue disorders [10]. However, its diagnostic capability has not been well established for all orthopedic conditions. Studies comparing the diagnostic accuracy of low-field MRI to MRI with more powerful magnets in the diagnosis of orthopaedic conditions are needed.

Conflict of Interest

We affirm that we have no financial affiliation (including research funding) or involvement with any commercial organization that has a direct financial interest in any matter included in this manuscript. No other conflict of interest (i.e., personal associations or involvement as a director, officer, or expert witness) exists.

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