Do Patients Older Than 40 Years with Work Claims for Unilateral Wrist Symptoms Have Symmetric, Bilateral MRI Signal Changes That Do Not Correspond with Symptoms?

Emily H. Jaarsma, MD,* David Ring, MD, PhD,* Melissa D. Tonn, MD, MBA,* Niels Brinkman, BS*

Purpose New symptoms from established idiopathic or senescent pathophysiology are often misinterpreted as an injury (damage to tissues by an external force). Misinterpretation of age-related imaging abnormalities as damage from an external force introduces potential for overdiagnosis, overtreatment, overprotection, and misplacement of a condition under work insurance. Evidence from the shoulder and knee suggests that awareness of the bilateral nature of many idiopathic and senescent pathophysiologies can limit erroneous diagnosis of traumatic pathophysiology.

Methods Sixty-four scrutinized work injury claims with unilateral wrist symptoms underwent bilateral wrist magnetic resonance imaging (MRI) as part of routine care. The radiologist's interpretation of the MRIs was reviewed. Abnormalities were documented for each side and rated as either corresponding with or incidental to the location of the symptoms. We analyzed factors associated with MRI abnormalities present in the symptomatic wrist alone.

Results MRI signal abnormalities were detected in 97% (n = 62) of symptomatic wrists and 91% (n = 58) of asymptomatic wrists, with an average of three abnormal findings per wrist. Signal abnormalities of the articular disc and extensor carpi ulnaris tendon were present in 64% and 45% percent of wrists and they were bilateral in 85% and 72% of patients, respectively. MRI findings were considered incidental to the symptoms in 95% (n = 61) of patients. In 55% (n = 35) of the cohort, symptoms were attributed to idiopathic or senescent pathophysiology and in 41% (n = 26) symptoms were considered nonspecific (no pathophysiological explanation). A trip and fall injury mechanism was the only variable associated with the presence of an abnormal MRI signal in the symptomatic wrist alone.

Conclusions Occupational injury claimants with unilateral wrist symptoms tend to have symmetric MRI signal changes that do not correspond with symptoms, suggesting that new symptoms from idiopathic or degenerative conditions are far more common than traumatic pathophysiology. *(J Hand Surg Am. 2026;51(3):313–320. Copyright © 2025 by the American Society for Surgery of the Hand. All rights are reserved, including those for text and data mining, AI training, and similar technologies.)*

*From the *Department of Surgery and Perioperative Care, Dell Medical School at The University of Texas at Austin, Austin, TX.*

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Corresponding author: David Ring, MD, PhD, Department of Surgery and Perioperative Care, University of Texas at Austin, Dell Medical School Health Discovery Building Z-stop 0800, 1701 Trinity St. Austin, TX 78712; e-mail: David.ring@austin.utexas.edu.

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New symptoms at work may be associated with a pre-existing idiopathic or degenerative pathophysiology rather than a traumatic pathophysiology such as contusion, strain, sprain, laceration, abrasion, dislocation, or fracture.[1,2] New symptoms from gradual onset pathophysiologies are often misinterpreted as a new pathophysiology.[3,4] In particular, new pain is often misinterpreted as a traumatic pathophysiology.[3,5,6]

Diagnostic tests such as MRI have more potential for benefit than for harm when they are likely to result in a clinically relevant change in the post-test likelihood of a treatable diagnosis. When the pretest odds of a specific pathophysiology is low (high diagnostic uncertainty), diagnostic testing may do more harm than good through misinterpretation of false positive results or unhealthy attention to incidental findings unrelated to the patient's symptoms.[7] Degenerative and idiopathic pathophysiology, including trapeziometacarpal arthritis and signal changes in the articular disc and the extensor carpi ulnaris (ECU) tendon tend to accumulate with age.[1,2,4,8–11]

Despite the evidence regarding diagnostic science and best practices, the notable prevalence of incidental MRI findings, and the frequent misinterpretation of disease onset as corresponding with symptom emergence, clinicians caring for work injury claimants continue to consider MRI when traumatic pathophysiology is relatively unlikely based on mechanism, symptoms, and signs. Ordering an MRI in this context is associated with a notable probability of misleading findings.[12,13] Previous research has identified that injury claimants with unilateral knee and shoulder symptoms after a workplace event tend to exhibit symmetrical, age-related degenerative changes rather than traumatic pathophysiology on MRI.[5] Accordingly, obtaining bilateral MRI for unilateral wrist symptoms attributed to a work event has potential to mitigate the risk of misdiagnosis of traumatic pathophysiology with corresponding overprotection in this population. Although the ideal approach may be to forgo imaging entirely when injury is improbable, if MRI is pursued, bilateral imaging can serve as a valuable reminder of the relative prevalence of incidental, idiopathic, and degenerative pathophysiology relative to traumatic pathophysiology.

We analyzed radiologist reports of bilateral wrist MRI among people with persistent unilateral wrist pain claiming work injury (traumatic pathophysiology) whose medical records were sent to an experienced orthopedic hand and upper-extremity surgeon for additional review and asked the following: (1) How often are comparable MRI signal changes present in the contralateral wrist in patients being evaluated for possible workplace wrist injury?; (2) Is there a difference in the frequency of specific abnormal MRI findings (for example, TFCC, ECU, or ganglion) in the symptomatic wrist compared to the asymptomatic contralateral wrist?; (3) What percentage of MRI findings in the symptomatic wrist correspond with the location of the clinical symptoms?; and (4) Are there any factors (for example, patient demographics) associated with presence of abnormal MRI findings in the symptomatic wrist only? If such an evaluation reveals a high prevalence of symmetrical and incidental findings, it would reinforce the importance of distinguishing traumatic pathophysiology caused by a work event from idiopathic and senescent pathophysiology that is newly symptomatic but unrelated to work.

MATERIALS AND METHODS

Study design and setting

Individuals who underwent bilateral wrist MRI to evaluate unilateral wrist pain attributed to a workplace event were identified among a set of work claims referred to a musculoskeletal specialist by an occupational medical management agency between March 2021 and December 2024. Referrals were initially sent for review of the medical records by a specialist not involved in the care of the patient to address causation, determine the extent of traumatic pathophysiology, recommend an evidence-based plan of treatment, and guide the application of work restrictions. Records that included MRI always included an MRI of both the symptomatic and asymptomatic side because it is the practice of the occupational medicine physician medical director overseeing care to routinely obtain bilateral studies. The goal was to help remind clinicians of the prevalence of incidental, idiopathic, and age-related (senescent) pathophysiologies, thereby reducing the risk of misinterpreting

MRI signal abnormalities as representing traumatic pathophysiology. The context of this strategy is that only new traumatic pathophysiology is covered under this specific insurance. New symptoms from pre-existing degenerative or idiopathic pathophysiology are not covered under the plan.

Participants

We included 64 occupational injury claimants employed in the state of Texas (92%, n = 52) or Utah (8%, n = 5) whose claim of new traumatic pathophysiology was under scrutiny by the plan's medical director and for whom a specialist review was therefore requested. Additional inclusion criteria were (1) persistent, unilateral wrist symptoms of unknown etiology, (2) symptoms attributed to a workplace event; (3) no prior hand or wrist surgery; and (4) bilateral wrist MRI scans (with right and left scans performed either on the same date or within 3 weeks). No one with radiographic evidence of acute fracture (not typically under scrutiny) was included because the diagnosis and coverage under the plan was not in question.

Variables

Response (dependent) variables: Wrist MRI interpretation reports by a specialist musculoskeletal radiologist were retrospectively reviewed to record the identified idiopathic, senescent (degenerative), and traumatic pathophysiologies for each side. The radiologist was asked by the treating clinicians to interpret the image in the context that one of the wrists was injured at work. The following specific pathoanatomic categories of idiopathic and degenerative pathophysiology were recorded: (1) trapeziometacarpal (TMC) arthritis; (2) scaphotrapezial trapezoid (STT) arthritis; (3) radiocarpal (RC) arthritis; (4) distal radial-ulnar (DRU) joint effusion; (5) triangular fibrocartilage complex (TFCC) signal abnormality; (6) scapholunate (SL) ligament signal abnormality; (7) ganglion; (8) extensor carpi ulnaris (ECU) signal change; (9) radial wrist extensor signal change; (10) ulnocarpal impaction syndrome; (11) de Quervain tendinopathy; (12) median nerve signal abnormality; and (13) other findings (including, but not limited to old fracture, evidence of previous surgery, other arthritic change, effusion, flexor tendon signal abnormality and soft tissue edema). For each of the 12 diagnoses based on MRI signal changes, findings were subdivided into four distinct categories: (1) finding not present; (2) finding present on symptomatic side only; (3) finding present on asymptomatic side only; or (4) finding present bilaterally.

Explanatory (independent) variables: The documentation of the initial workplace injury claim, subsequent medical visits, and diagnostic testing was made available for review by an upper-extremity specialist. This documentation was then reviewed retrospectively by researchers to obtain basic demographic data, including sex, age, date of injury, state of residence and occupation. Data relating to the workplace injury was also recorded (eg, mechanism of injury; symptomatic wrist; symptom location; and examination findings). Researchers determined if the location of the symptoms corresponded with the location of the MRI signal abnormality.

The primary outcome measure was the total number of MRI signal changes detected in symptomatic compared to the asymptomatic wrists among the cohort. Secondary outcome measures included the frequency of specific MRI pathoanatomical categories, the laterality of these findings, and the degree of concordance between the location of the MRI abnormalities and the symptoms.

Statistical Analysis

Descriptive statistics addressed patient demographics and the prevalence of MRI findings within the cohort. Shapiro−Wilk tests and visual interpretation of histograms were used to assess normality of continuous data. Factors associated with the presence of abnormal MRI changes in the symptomatic wrist only were assessed using chi-squared and Fisher exact tests for categorical variables, and Student *t* tests or Mann−Whitney U tests for continuous variables where appropriate. Simple logistic regression models were also constructed to determine odds ratios (OR) with 95% CI. *P* values below .05 were considered statistically significant.

An *a priori* power analysis was not performed because the study used a retrospective data set consisting of all available cases referred for review during the study period; thus, the sample size was determined by the availability of data rather than by hypothesis-driven sampling.

RESULTS

Demographics of study sample

Most of the participants claiming injury at work were women (77%, 49 of 64) with mean age of 51 ± 11 years old (range, 29−76 years old) (Table 1). Symptoms were attributed to routine job duties in more than half of participants (53%, n = 34), sometimes after a single event (eg, lifting a heavy object) and other times over time with repetitive

TABLE 1. Demographics of 64 Patients With Bilateral Wrist MRI for Unilateral Symptoms Managed in a Work Injury Claim

Variable	Mean (± SD)
Age	51 ± 11
Time from injury to MRI (days)	63 ± 30
Variable	Percent (number)
Sex	
Women	77 (49)
Men	23 (15)
State of residence	
Texas	92 (59)
Utah	8 (5)
Occupation	
Customer service	41 (26)
Manual labor	20 (13)
Managerial	14 (9)
Food preparation	9 (6)
Health care worker	9 (6)
Transportation	3 (2)
Hospitality	3 (2)
Employer	
Retail	75 (48)
Health care	11 (7)
Freight	6 (4)
Food service	3 (2)
Other	5 (3)

tasks (eg, cutting food, breaking down boxes). A smaller number of participants reported initiation of symptoms following a specific event with potential to cause traumatic pathophysiology such as a trip and fall (23%, n = 15) or direct impact/crush (17%, n = 11) at work (Table 2). The perceived injury mechanism was unspecified in four cases. On average, 63 days elapsed between the initial workplace event and the time of MRI (SD 30 days, range 20−184 days).

The location of wrist symptoms varied. The most common sites were dorsal radial (25%, n = 16) and dorsal ulnar (14%, n = 9). The documented examination was sparse and often limited to limitation of active motion (69%, n = 44) and tenderness to palpation (80%, n = 51). Presence of symptoms at another location was common (55%; n = 35), with several patients describing pain in ipsilateral and contralateral hands, forearms, lower limb, and lower back (Table 2).

MRI signal abnormalities were detected in 97% (n = 62) of symptomatic wrists and 91% (n = 58) of asymptomatic wrists, with an average of 3 abnormal findings found in each (range 0−9, SD 2) (Table 3). There was a strong correlation between the number of findings in symptomatic and asymptomatic wrists (Spearman rho = 0.75, $P < .05$).

Nine of the 12 categories of signal abnormality were typically present in both wrists, including median neuropathy, ganglion, ulnocarpal impaction syndrome, abnormalities of the articular disc, tendinopathy (first dorsal compartment, extensor carpi ulnaris [ECU], radialis brevis or radialis longus tendons), arthritis and DRU joint effusion (Table 4). Signal changes of the scapholunate ligament were more frequently observed on the asymptomatic side alone, whereas signal changes consistent with ulnocarpal impaction and ganglion were more common on the symptomatic side alone (Table 5). Signal abnormalities of the articular disc and radioulnar ligaments, the most prevalent finding in the cohort, were present in 64% (41 of 64) of patients, with only 9% (6 of 41) occurring in the symptomatic wrist alone.

The MRI findings represented nontraumatic pathophysiology in 95% (61 of 64) of patients (Table 2). Three patients (5%) had signal changes consistent with a traumatic pathophysiology (sprain or contusion) that corresponded to the location of their symptoms. In 38 patients (59%), symptoms were likely attributable to a nontraumatic pathophysiology, most commonly arthritis (25 patients, 39%) (Table 6). For the remaining 26 patients (41%), no pathophysiology corresponding with the location of symptoms was detected.

In bivariate analysis, a trip and fall mechanism was the only variable associated with the presence of an abnormal MRI signal in the symptomatic wrist alone (odds ratio 8.7; 95% CI 1.02−74.00) (Table 7).

DISCUSSION

New symptoms at work are frequently attributable to nontraumatic pathophysiology, and MRI signal abnormalities (increased fluid in a structural soft tissues) are often described as a "tear".[14,15] In a setting of a work injury claim plan that does not cover new symptoms from nontrauma pathophysiology, under the oversight of a medical director who routinely requests bilateral imaging when an MRI is ordered, we analyzed the prevalence of nontraumatic pathophysiology and its correspondence with symptoms.

TABLE 2. Symptom Characteristics

Variable	Percent (number)
Initiation of symptoms	
Regular work duties	53 (34)
Trip and fall	23 (15)
Direct impact/crush	17 (11)
Unspecified	6 (4)
Symptom time course	
Single event	91 (58)
Development over time	9 (6)
Symptomatic wrist	
Left	39 (25)
Right	56 (36)
Bilateral	5 (3)
Wrist symptom location	
Dorsal radial	25 (16)
Dorsal ulnar	14 (9)
Volar radial	5 (3)
Volar ulnar	8 (5)
Diffuse dorsal	9 (6)
Diffuse volar	5 (3)
Diffuse radial	12 (8)
Diffuse ulnar	8 (5)
Diffuse	9 (6)
Unspecified	5 (3)
Presence of symptoms at another location	
Ipsilateral hand	20 (13)
Contralateral hand	2 (1)
Ipsilateral forearm/elbow/shoulder	6 (4)
Contralateral forearm/elbow/shoulder	0 (0)
Ipsilateral lower limb	2 (1)
Contralateral lower limb	0 (0)
Multiple other locations	20 (13)
None	50 (32)
Examination findings	
Ecchymosis	8 (5)
Swelling	41 (26)
Tenderness to palpation	80 (51)
Limitation of active motion	69 (44)
Finkelstein test positive	19 (12)
Tinel/Phalen test positive	17 (11)
Location of tenderness	
Diffuse dorsal	12 (8)
Diffuse radial	5 (3)
Dorsal/radial	3 (2)
Diffuse ulnar	5 (3)
Dorsal/ulnar	6 (4)
Diffuse volar	8 (5)
Volar/radial	0 (0)
Volar/ulnar	2 (1)
Diffuse throughout wrist	30 (19)
Over specific structure	9 (6)
None	20 (13)
Mental health considerations	
Signs of disproportionate incapability	36 (23)
Signs of unhelpful thinking	55 (35)
DASH score documented	17 (11)
Average DASH score (± standard deviation)*	62 ± 17

DASH score, Disabilities of the Arm Shoulder and Hand Score, a measure of upper extremity-specific discomfort and incapability.
*A DASH score >55 has good diagnostic performance characteristics for an estimated diagnosis of major depression.

We found that signal abnormalities were identified in the vast majority of both symptomatic (97%) and asymptomatic (91%) wrists, with an average of 3 MRI signal abnormalities per wrist. Only three findings represented traumatic pathophysiology (sprain and contusion). No patient factors were associated with the presence of signal abnormalities limited to the symptomatic wrist after adjusting for potential confounders.

There are limitations to consider. First, this analysis is most applicable to scrutinized claims of musculoskeletal work injury to the wrist. It does not include work injury claims for obvious fractures or dislocations, nor does it represent strains, sprains, or contusions, because these conditions resolve naturally without treatment over several weeks. Additionally, idiopathic and degenerative conditions that were correctly diagnosed and transitioned out of a work claim are not reflected in our data set. Instead, our findings are most relevant to patients with wrist pain that is disproportionately intense or persistent—the typical setting in which MRI is requested.

Second, the work injury claims we studied were not managed within a traditional state-regulated workers' compensation system. In Texas, employers are permitted to opt out of the state-regulated system and manage their employees' work injuries independently.

TABLE 3. Number of Abnormal Findings

No. of Findings	Symptomatic Side	Asymptomatic Side
	Percent (number)	Percent (number)
0	8% (5)	13% (8)
1	16% (10)	17% (11)
2	16% (10)	16% (10)
3	16% (10)	17% (11)
4	16% (10)	13% (8)
5	20% (13)	13% (8)
6	13% (8)	5% (3)
7	3% (2)	5% (3)
8	5% (3)	1% (1)
9	5% (3)	1% (1)
Mean ± SD	3 ± 2	3 ± 2

This alternative system allows employers to define injury benefit plans that explicitly exclude coverage for new symptoms from pre-existing or degenerative conditions. This system contrasts with that of many state-regulated workers' compensation programs that may cover nonwork-related conditions when new symptoms arise at work. Although interpretations therefore, vary by jurisdiction, it is worth considering that the original intent of workers' compensation was to address traumatic pathophysiology rather than new symptoms arising from underlying medical conditions.

We were limited to reviewing only what was documented in medical records, typically created by nonspecialists, prior to referral. This documentation formed the basis for assessing the correspondence between the location of imaging findings and the location of the patient's reported symptoms and signs. Although this assessment was relatively straightforward, it would have benefited from greater detail in the records.

Our sample was fixed, resulting in limited statistical power. The key findings are primarily descriptive. We relied upon radiologist identification and interpretation of signal abnormalities and did not rereview the original MRI images for this study. This decision was both practical and intentional as we were specifically interested in interpretations by a variety of radiologists to best reflect everyday care of people in a work injury claim. The distinction between traumatic and nontraumatic pathophysiology was generally straightforward.

The finding of an average of three MRI signal abnormalities per wrist, regardless of symptom presence, aligns closely with previous estimates of approximately 3 abnormalities per wrist (range 1−6) observed in 2 studies of 20 and 56 asymptomatic individuals, respectively.[13,16] The observation that pathophysiologic changes in the wrist tend to be bilateral in nature has also been previously established.[3,17,18]

The most prevalent signal changes observed were ganglion (present in approximately half of all asymptomatic wrists), trapeziometacarpal arthritis (affecting 90% of individuals by age 80), articular disc abnormalities (prevalence over 60% by age 60) and ECU changes (13% prevalence among wrist MRIs ordered for any indication), consistent with existing evidence.[6,7,11,16,19,20]

The finding that only a trip and fall mechanism was associated with the presence of MRI signal changes on the symptomatic side alone is difficult to interpret given that traumatic pathophysiology was uncommon. It may reflect that two of the three patients diagnosed with sprain or contusion had a trip and fall mechanism.

The rationale for bilateral wrist MRI in the context of a work injury claim is to help clinicians recognize the notable prevalence of incidental findings and accommodated idiopathic or degenerative pathophysiology that may become more bothersome at work, knowledge that may commonly be underappreciated or overlooked. In particular, nonspecialists may tend to interpret radiology reports of "tear" as confirming traumatic pathophysiology. One clue that clinicians can use is that injuries heal with time, whereas persistent symptoms (a nonrecovery trajectory) often reflect idiopathic or senescent pathophysiology, a less healthy mindset, or both.[21]

Whether new symptoms arising from idiopathic or age-related (senescent) pathophysiologies associated with work activities should be compensable is a policy matter beyond the scope of this study. All experts and stakeholders have an ethical responsibility to distinguish traumatic and nontraumatic pathophysiology. Given the high prevalence of incidental, idiopathic, and degenerative findings on MRI, and their potential to be mistaken for traumatic pathophysiology when symptoms arise suddenly at work, we recommend either forgoing MRI altogether, or ordering bilateral imaging to provide context and reduce risk of inappropriate diagnosis of traumatic pathophysiology at work.

CONFLICTS OF INTEREST

Dr Ring receives consulting fees from Patient+, prelitigation expert review, Medplace, and Logica Ratio. As part of his university employment, Dr. Ring performs peer reviews and independent medical

TABLE 4. Distribution of Specific MRI Findings

MRI Finding	Not Present	Symptomatic Side Only	Asymptomatic Side Only	Bilateral
	Percent (number)	Percent (number)	Percent (number)	Percent (number)
TMC arthritis	52% (33)	11% (7)	8% (5)	30% (19)
STT arthritis	70% (45)	9% (6)	0% (0)	20% (13)
Radiocarpal arthritis	78% (50)	5% (3)	8% (5)	9% (6)
DRU joint effusion	55% (35)	13% (8)	9% (6)	23% (15)
TFCC signal abnormality	36% (23)	9% (6)	13% (8)	42% (27)
SL signal abnormality	73% (47)	8% (5)	11% (7)	8% (5)
Ganglion	56% (36)	19% (12)	9% (6)	16% (10)
ECU signal change	55% (35)	6% (4)	6% (4)	33% (21)
ECRB/ECRL signal change	73% (47)	3% (2)	9% (6)	14% (9)
Ulnocarpal impaction	80% (51)	16% (10)	0% (0)	5% (3)
de Quervain tendinopathy	78% (50)	8% (5)	1% (1)	13% (8)
Median nerve signal change	84% (54)	3% (2)	3% (2)	9% (6)
Mean	66%	9%	7%	20%
Other abnormal MRI findings				
Previous fracture/surgery	89% (57)	6% (4)	5% (3)	0% (0)
Other degenerative changes	80% (51)	8% (5)	8% (5)	5% (3)
Effusion in additional joint	84% (54)	3% (2)	5% (3)	8% (5)
Other ligamentous signal change	86% (55)	2% (1)	3% (2)	9% (6)
Flexor tendon signal change	83% (53)	6% (4)	5% (3)	6% (4)
Soft tissue edema	86% (55)	8% (5)	3% (2)	3% (2)
Bone marrow edema	84% (54)	9% (6)	3% (2)	3% (2)
Anatomical variation	84% (54)	6% (4)	1% (1)	8% (5)

TABLE 5. Distribution of Specific Abnormal MRI Signal Present on the Symptomatic Side Alone

Abnormal MRI Signal on the Symptomatic Side Alone	Percent (number)
Ganglion	19 (12)
Ulnocarpal impaction	16 (10)
Distal radioulnar joint effusion	13 (8)
Trapeziometacarpal arthritis	11 (7)
Scaphotrapezial trapezoid arthritis	9 (6)
Articular disc signal abnormality	9 (6)
Scapholounate ligament signal abnormality	8 (5)
de Quervain tendinopathy	8 (5)
Extensor carpi ulnaris tendinopathy	6 (4)
Radiocarpal arthritis	5 (3)
Extensor carpi radialis longus and brevis tendinopathy	3 (2)
Median neuropathy at the carpal tunnel	3 (2)

TABLE 6. Cause of Symptoms

Variable	Percent (number)
Injury detected	5 (3)
Noninjury symptom source	55 (35)
Degenerative changes	39 (25)
Ulnocarpal impaction	8 (5)
De Quervain tendinopathy	6 (4)
Kienböck disease	2 (1)
No specific cause of symptoms found	41 (26)

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TABLE 7. Bivariate Analysis of Factors Associated with Presence of Any Abnormal MRI Signal in the Symptomatic Wrist Alone

Variable	OR (95% CI)	
Age (y)	1.02 (0.98−1.08)	
Time to MRI (d)	1.00 (0.98−1.02)	
Sex (female vs male)	2.42 (0.73−8.02)	
Occupation (labor vs nonlabor)	0.66 (0.22−1.96)	
Mechanism (as compared to regular work duties)		
Direct impact	1.08 (0.26−4.43)	
Trip and fall	8.7 (1.02−74)	
Unspecified	0.62 (0.08−4.95)	
Affected side (left vs right)	1.29 (0.42−3.92)	
Time course (single event vs development over time)	1.11 (0.19−6.63)	
Symptom location (as compared to ulnar)		
Radial	2.04 (0.56−7.50)	
Diffuse	0.88 (0.22−3.52)	
Unspecified	1.12 (0.09−15.32)	
Physical examination finding (category)		
Ecchymosis	N/A*	
Edema	1.04 (0.35−3.05)	
Tenderness to palpation	0.14 (0.017−1.12)	
Limitation of motion	0.44 (0.12−1.54)	
Finkelstein test positive	1.46 (0.35−6.09)	
Tinel/Phalen test positive	0.76 (0.19−3.00)	0.69
Site of tenderness (as compared to specified diffuse)		
Unspecified diffuse	0.63 (0.17−2.40)	0.5
Specific	0.74 (0.17−3.24)	0.69
Presence of other symptoms	1.34 (0.46−3.87)	0.59
Disproportionate incapability	0.78 (0.26−2.31)	0.65
Unhelpful thinking	0.39 (0.13−1.20)	0.10

*All patients with ecchymosis on clinical examination had at least one abnormal MRI finding; therefore, it was not possible to generate odds ratios. Bivariate analysis with Fisher exact to assess the correlation between presence of ecchymosis and presence of at least one abnormal MRI finding produced a *P* value of .31.

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