

# A Case Report of C8 Radiculopathy presenting as Ulnar sided Wrist Pain

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## ABSTRACT

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**Background:** Ulnar-sided wrist pain is typically attributed to local wrist pathology; however, proximal causes such as cervical radiculopathy may rarely mimic these conditions. C8 nerve root compression can produce pain along the medial forearm and ulnar wrist due to dermatomal overlap. Recognition of this atypical presentation is important to avoid misdiagnosis and inappropriate treatment.

**Case summary:** A 30-year-old man came to orthopaedic OPD with ulnar sided wrist pain on right side of 4 months duration. He had consulted 4 orthopaedicians previously and taken multiple treatments but got no relief. X-rays and MRI of the wrist were normal. Detailed examination revealed that it was radicular pain from the C8 root. Appropriate treatment was given and complete cure obtained.

**Conclusion:** C8 radiculopathy may present as isolated ulnar wrist pain and mimic primary wrist disorders. Careful neurological examination and cervical spine evaluation are essential in patients with unexplained ulnar-sided wrist pain. Awareness of this presentation can help prevent misdiagnosis and guide appropriate management.

**Keywords:** Ulnar, Wrist, Radiculopathy

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## INTRODUCTION

Ulnar-sided wrist pain is a complex clinical problem because many structures converge on the ulnar side of the wrist (TFCC, DRUJ, ulnar carpus, tendons, and nerves). Common causes can be grouped into traumatic, degenerative, tendinous, instability-related, and neurologic conditions. Causes of Ulnar Wrist Pain:

### 1. Triangular Fibrocartilage Complex (TFCC) Injury

The triangular fibrocartilage complex stabilizes the distal radioulnar joint and ulnar carpus. Tears may occur after axial load with forearm rotation or from degenerative changes, especially in positive ulnar variance. Patients often report pain during pronation–supination and gripping.<sup>1-3</sup>

### 2. Ulnar Impaction Syndrome

Also called ulnocarpal abutment, this occurs when the

distal ulna impacts the lunate and triquetrum, leading to degenerative TFCC tears and chondromalacia. It is associated with positive ulnar variance and repetitive loading.<sup>2,4</sup>

### 3. Distal Radioulnar Joint (DRUJ) Instability or Arthritis

Injury to stabilizers (TFCC, radioulnar ligaments) or malunited distal radius fractures can produce DRUJ instability and pain on forearm rotation. Degenerative arthritis of the DRUJ can also present with ulnar wrist pain.<sup>3,5</sup>

### 4. Extensor Carpi Ulnaris (ECU) Tendinitis or Subluxation

Overuse, especially in athletes performing repetitive supination–ulnar deviation (e.g., tennis, golf), can cause ECU tendinopathy or instability within the sixth dorsal compartment.<sup>2,6</sup>

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## 5. Lunotriquetral Ligament Injury

Disruption of the lunotriquetral ligament leads to carpal instability and pain localized to the ulnar wrist, often worsened by gripping or ulnar deviation.<sup>2,7</sup>

## 6. Pisotriquetral Arthritis

Degenerative arthritis of the pisotriquetral joint may cause localized tenderness over the pisiform and pain with resisted flexor carpi ulnaris contraction.<sup>2,8</sup>

## 7. Hook of Hamate Fracture

Common in sports involving racquets or bats. Patients may present with chronic ulnar wrist pain and reduced grip strength if the fracture is missed initially.<sup>6,9</sup>

## 8. Ulnar Styloid Impaction or Nonunion

Fractures of the ulnar styloid can lead to chronic pain if nonunion occurs, sometimes associated with TFCC injury.<sup>3,5</sup>

## 9. Ulnar Nerve Compression (Guyon Canal Syndrome)

Compression of the ulnar nerve at the wrist can produce pain along with paresthesia or weakness in the ulnar distribution of the hand.<sup>6,10</sup>

## 10. Inflammatory or Degenerative Arthritis

Conditions such as rheumatoid arthritis or osteoarthritis may involve the ulnocarpal or DRUJ regions, leading to chronic ulnar-sided wrist pain.<sup>1,8</sup>

Ulnar-sided wrist pain may occasionally originate from cervical nerve root pathology, particularly involvement of the C8 nerve root and less commonly T1 radiculopathy. In such cases, pain perceived at the wrist is not due to local wrist pathology but represents radicular or referred pain arising from compression or irritation of lower cervical nerve roots, typically due to cervical disc herniation, foraminal stenosis, or cervical spondylosis. The sensory distribution of the C8 root overlaps with the ulnar aspect of the forearm, wrist, and hand, which explains why patients may present with pain localized to the ulnar side of the wrist even when the primary pathology lies in the cervical spine.<sup>11-13</sup>

In cervical radiculopathy, inflammatory mediators and mechanical compression of the nerve root produce pain that radiates distally along the nerve distribution. Patients may experience pain extending from the neck to the medial forearm and ulnar wrist, sometimes associated with paresthesia in the ring and little fingers

and weakness of intrinsic hand muscles.<sup>14,15</sup> Because the clinical presentation can mimic local wrist disorders such as TFCC injury or ulnar impaction syndrome, careful neurological examination and cervical spine assessment are important in differentiating the source of pain.<sup>11,14</sup>

Lower cervical degenerative disease may also produce referred pain patterns through convergence of cervical afferents within the spinal cord dorsal horn, leading to symptoms perceived distally in the wrist region despite absence of primary wrist pathology.<sup>13,16</sup> Electrodiagnostic studies and cervical imaging can help confirm the diagnosis when radiculopathy is suspected in patients presenting with unexplained ulnar wrist pain.<sup>15,17</sup>

This case is rare because after being treated by 4 orthopaedicians the patient did not get any relief, the reason being everyone were overlooking the diagnosis of C8 radiculopathy. This can occur commonly in clinical practise.

## CASE REPORT

A 30-year-old man presented to the orthopaedic outpatient department with a four-month history of right-sided ulnar wrist pain. He had previously consulted four orthopaedic surgeons and received multiple treatments without significant relief. Radiographs and MRI of the wrist did not reveal any abnormalities. On detailed clinical evaluation, the pain was identified as radicular in origin, arising from involvement of the C8 nerve root. Clinical root stretch test was done by passive abduction of upper limb. This test proved the involvement of C8 nerve root. The patient was subsequently managed with appropriate treatment directed at the cervical pathology which included physiotherapy and analgesics following which he experienced complete resolution of symptoms.

## DISCUSSION

On many instances people erect their semifallen bikes and come with ulnar sided wrist pain. The doctor and the patient think that it is a wrist injury. However many a time it is a radicular pain of c8. Dramatic relief can be obtained by shoulder physiotherapy. Ulnar sided wrist pain is a common entity in the orthopaedic outpatient. This patient gave a history of being about to fall with his scooter and then erecting his tilted scooter. After this incident he developed ulnar sided wrist pain. He first showed one orthopaedician who diagnosed DRUJ sprain after taking an x-ray. He had given a plaster slab for 3 weeks. However the patient did not get any relief from pain. The second orthopaedician advised an MRI.

The MRI did not show any abnormality. The third and fourth orthopaedicians advised physiotherapy. But with no relief.

Ulnar-sided wrist pain is a frequent clinical presentation in orthopedic practice and is most commonly attributed to local wrist pathology, particularly injuries to the triangular fibrocartilage complex (TFCC), carpal ligaments, or distal radioulnar joint structures. In contrast, extrinsic causes such as cervical radiculopathy are relatively uncommon and often overlooked, which may lead to diagnostic delay.

### Comparison with Traumatic Ulnar Wrist Pain (e.g., Bike Fall Injuries)

In the majority of reported cases, ulnar wrist pain follows trauma such as a fall on an outstretched hand, which produces axial loading across the ulnar aspect of the wrist. This mechanism frequently results in TFCC injury or wrist sprain. Biomechanically, the TFCC acts as a stabilizer and load-transmitting structure between the distal ulna and carpal bones; therefore, sudden compressive forces during trauma can disrupt this complex and produce pain during forearm rotation and gripping activities.

In bike fall injuries specifically, the wrist is often forced into hyperextension, ulnar deviation, or rotational stress, leading to ligamentous injury, occult fractures, or TFCC tears. These injuries usually present with localized tenderness, swelling, mechanical symptoms, or imaging abnormalities on MRI or arthroscopy.

In contrast, the present case differed significantly because:

- There was no history of trauma.
- Imaging of the wrist including MRI was normal.
- Pain persisted despite multiple local treatments directed at the wrist.

These features suggested a possible proximal source of pain, which prompted further evaluation.

### Pathophysiology of Ulnar Wrist Pain in C8 Radiculopathy

Cervical radiculopathy can produce distal symptoms due to nerve root compression from disc herniation, foraminal stenosis, or degenerative cervical disease. Pain radiates along the affected dermatome, and the C8 root distribution overlaps with the medial forearm and ulnar side of the wrist and hand, which can mimic primary wrist disorders.

The mechanism involves:

- Mechanical compression of the nerve root
- Inflammatory mediators causing radicular pain
- Central sensitization and referred pain along the nerve distribution

Because of this dermatomal overlap, patients may present with isolated distal pain without obvious neck symptoms, creating a diagnostic challenge.

### DIAGNOSTIC CHALLENGES

Diagnosis of ulnar wrist pain can be difficult due to the large number of intrinsic and extrinsic causes. TFCC injuries alone have varied clinical presentations and may even coexist with asymptomatic imaging findings, further complicating interpretation.

In traumatic cases, clinical examination and imaging usually confirm the pathology. However, when imaging is normal, clinicians must consider referred pain from proximal structures, including the cervical spine or peripheral nerve entrapments.

In the present case, several factors contributed to delayed diagnosis:

1. Ulnar wrist pain is commonly assumed to be wrist pathology.
2. Multiple prior treatments focused only on the wrist.
3. Cervical evaluation was not initially performed.

Recognition of radicular features during detailed examination ultimately led to the correct diagnosis.

### TREATMENT RATIONALE

Management strategies differ substantially between traumatic wrist injuries and cervical radiculopathy.

In traumatic wrist injuries such as TFCC tears:

- Initial treatment is usually conservative, including immobilization, NSAIDs, and physiotherapy.
- Persistent or unstable lesions may require arthroscopic repair or reconstruction.

In contrast, treatment of C8 radiculopathy targets the primary cervical pathology, which may include:

- Cervical traction and physiotherapy
- Anti-inflammatory medications
- Activity modification
- In selected cases, surgical decompression

Resolution of distal wrist pain following treatment of the cervical root confirms the radicular origin.

This case is noteworthy for several reasons:

1. The patient presented with isolated ulnar-sided wrist pain without neck symptoms, which is uncommon in cervical radiculopathy.
2. Multiple orthopedic consultations initially focused on wrist pathology, highlighting the potential for misdiagnosis.
3. Imaging studies of the wrist were completely normal, emphasizing the importance of comprehensive clinical evaluation.
4. The case demonstrates how C8 radiculopathy can clinically mimic chronic wrist pathology, which is rarely emphasized in routine orthopedic practice.

This case therefore reinforces the importance of considering proximal neurological causes in patients with persistent ulnar wrist pain and normal wrist imaging.

## CONCLUSION

C8 radiculopathy may present as isolated ulnar wrist pain and mimic primary wrist disorders. Careful neurological examination and cervical spine evaluation are essential in patients with unexplained ulnar-sided wrist pain. Awareness of this presentation can help prevent misdiagnosis and guide appropriate management.

## END NOTE

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