



Hammering Pain: A Case Study on Dorsal Wrist Pain

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History of Present Illness:

A 47 year old, right-hand dominant, male presents to Family Medicine clinic with 3-year history of chronic right wrist pain, worsening over the past year. Patient has worked in construction for the past 30 years and believed that the pain was arthritis or aches from wear and tear due to manual labor. Patient described aching and numbing pain with intermittent sharp, shooting pain. The pain is constant at baseline with frequent exacerbations during increased use of his right hand/wrist. No history of major injury or trauma to the right wrist and no improvement with use of OTC analgesics, OTC wrist splints. Pain was reduced with rest from physical labor. Due to his inability to meet work expectations, he was laid off from his job. Pain reduced with rest, however, he continues to have pain when grabbing things and frequently drops items. Patient denies associated fevers, night sweats, weight loss, rashes, joint swelling, and other joint pain.

Physical Exam:

Vitals: BP 114/80 (R-Arm, seated) | Pulse 55 | T 97.6 °F (36.4 °C) | Resp 15 | Ht 1.778 m (5' 10") | Wt 75.1 kg (165 lb 9.6 oz) | SpO2 97% | BMI 23.76 kg/m²

Constitutional: Well developed, well nourished, NAD, appears stated age.

Cardiac: Normal S1 and S2, RRR, no murmurs.

Respiratory: Clear to auscultation bilaterally without wheezes, rales, or diminished breath sounds. No use of accessory respiratory muscles.

Musculoskeletal:

-**General:** No gross joint or muscle abnormalities in all 4 extremities. No edema

-**Right Wrist:** ROM: Normal pronation, supination. Normal flexion and extension but with pain. **Tenderness to palpation of mid dorsal aspect of the hand carpal bones.** Skin intact with negative upper extremity swelling.

Neurology: Right wrist Sensations intact. Negative Tinel's test. Right wrist grip strength: initially 5/5 but not sustainable due to pain. Wrist extension/flexion strength: 5/5

Skin: Normal skin coloration and turgor without rashes or lesions.

Neuropsychology: Alert and oriented x 4 with dysphoric mood. Tearful.

Differential Diagnoses:

Wrist Sprain
Scapholunate instability
Lunate-Triquetral instability
Tenosynovitis
Arthritis (Rheumatoid, Inflammatory/Autoimmune), OA
Stress fracture
Synovial Cysts
Avascular Necrosis

Testing:

Labs studies:

Citrullinated Peptide Antibody: Negative
Rheumatoid Factor: Negative

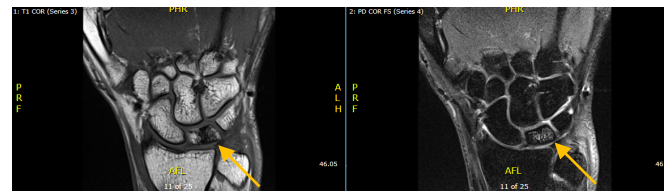
Imaging:

- **X-ray Right Wrist:** Stable sclerosis of the lunate compatible with avascular necrosis without collapse at this time.

- **MRI Right Wrist:** Mixed scattered cystic/edema-like changes with patchy sclerosis of the lunate, compatible with avascular necrosis (Kienbock's disease). No cortical irregularity related to the lunate bone. No fracture was seen.



Xray of Right Wrist



MRI of Right Wrist

Final Diagnosis:

Kienbock's Disease - Stage 2

Staging & Treatment per Lichtman Classification:

Stage	Description	Treatment
Stage 1	No visible changes on X-ray, changes seen on MRI.	Immobilization, NSAIDs
Stage 2	Sclerosis of lunate	Joint leveling procedure (ulnar negative patients), Radial wedge osteotomy or scaphotrapeziotrapezoid (STT) fusion (ulnar neutral patients), Distal radius core decompression, Revascularization procedures.
Stage 3A	Lunate collapse, no scaphoid rotation.	See Stage 2
Stage 3B	Lunate collapse, fixed scaphoid rotation	Proximal row carpectomy, STT fusion, or scaphocapitate (SC) fusion.
Stage 4	Degenerated adjacent intercarpal joints	Wrist fusion, proximal row carpectomy, or limited intercarpal fusion.

Discussion and Patient Management:

It is prudent to expand on differential diagnoses in Primary Care if a patient is not improving with standard level of care and treatment. Kienbock's Disease is avascular necrosis of the lunate carpal caused by lack of blood supply to the lunate bone, eventually leading to progressive collapse of the lunate. While mechanisms of developing Kienbock's Disease is unclear, it involves disruption of blood supply to the lunate carpal by means of repetitive trauma or undiagnosed fractures of the lunate carpal. Patients often present with wrist pain with repetitive use, limited mobility due to pain, decreased grip strength, tenderness directly over the lunate bone, swelling of the wrist, and eventually stiff wrist which can lead to arthritis.

Treatment plan:

- Conservative management with 8-week wrist splinting and immobilization.
- Referral to orthopedic surgery for further evaluation.
- Orthopedic Surgery treatment plan following failure to improve with conservative methods: radial shortening osteotomy surgical procedure.
- Patient successfully placed on disability during treatment and recovery with positive prognosis and anticipated return to construction work after 3 years of pain.
- Family Medicine team addressed all psychosocial issues with whole person care approach.

References:

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3. [Orthop Clin North Am. 2014 Jan;45\(1\):141-52. doi: 10.1016/j.ocl.2013.09.004. Epub 2013 Oct 8.](#)Kienbock disease.[Cross D1](#), [Matullo KS](#).