**CLINICAL COMMENTARY**

# Delayed Diagnosis of Shoulder Pain

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A 50-year-old African American female with past medical history significant for hypertension and obesity, presents to urgent care with a few weeks of bilateral shoulder pain. She reports the pain as intermittent, severe, and associated with numbness and tingling radiating down both arms. Symptoms worsen at night and are unrelated to activity. She was diagnosed with cervical radiculopathy and prescribed gabapentin which was only mildly effective. One month later, she returned for rheumatology consultation, reporting persistent shoulder symptoms, fatigue, and unusual cold sensitivity in her fingers. She denies malaise, fever, chills, night sweats, weight changes, headaches, rash, chest pain, or dyspnea. Physical exam is notable for the full range of motion of both shoulders, and no tenderness or active synovitis in elbows, wrists, or small joints of hands. Extensive laboratory tests are ordered but not drawn on the day of visit. She continues to report shoulder pain and new bilateral wrist pain. She is evaluated by neurology who concurs with the cervical radiculopathy diagnosis and orders nerve conduction studies and refers the patient to physical therapy. The EMG/NCS show moderate left median neuropathy of the wrist and mild left ulnar neuropathy at the elbow.

Four months after initial presentation to urgent care, the patient was still experiencing severe bilateral, right greater than left shoulder pain and was evaluated by orthopedic surgery. In-office ultrasound demonstrates partial right rotator cuff tear with possible full thickness component. MRI demonstrated tendinopathy with partial tearing of the supraspinatus and subscapularis with synovitis in subacromial space. She received a steroid injection to her right shoulder that brought minimal pain relief and subsequently presented to the emergency room due to severe bilateral shoulder pain and was given hydrocodone-acetaminophen which brought her moderate pain relief.

The patient presented to primary care for telehealth visit one month after the orthopedic visit. She had worsening bilateral wrist pain and persistent shoulder pain. She was referred to hand orthopedics and prescribed gabapentin, naproxen and acetaminophen. She underwent left wrist surgery, the patient followed up with another telehealth visit two months later with persistent shoulder pain despite acetaminophen, ibuprofen, gabapentin, oxycodone, and steroid injections. Over the following 2 months, duloxetine, amitriptyline, and hydrocodone-acetaminophen were prescribed for her poorly controlled shoulder pain. She finally presented for in person evaluation, 10 months after she initially presented to urgent care for shoulder pain. She was unable to perform many activities of daily living due to pain and her physical exam was extremely limited due to pain and limited range of motion. The previously ordered rheumatology labs were drawn and were notable for ANA 1:1280, positive SSA/SSB antibody, CRP of 1.1 with normal complement, anti-phospholipids with leukopenia. Patient returned to rheumatology and was diagnosed with undifferentiated connective tissue disorder. She was started on hydroxychloroquine with significant improvement of arthralgias. She continues on hydroxychloroquine and has regained function.

This case is noteworthy for the diagnostic delays and poor pain control. Several factors contributed including racism, cognitive bias, lack of primary care coordination, and limited in-person evaluation due to COVID-19 pandemic.

Racial bias in pain assessment and treatment is well-documented. A recent paper in PNAS reported a substantial proportion of Caucasians including, medical students and residents hold false beliefs about biological differences between black and white people and demonstrated that these beliefs predict racial bias in pain perception and accuracy of treatment recommendations.[1] A 2012 meta-analysis of analgesic treatment disparities in the United States found black patients were 22% less likely than white patients to receive pain medications.[2] These inequities may not be intentional, but are part of implicit bias that health care providers may not even know they have. Inadequate pain treatment based on race is unacceptable. It is our responsibility as health care providers and medical educators to learn about our implicit biases and inequities in pain treatment. We should work to dispel misinformation held by trainees and colleagues. The David Geffen School of Medicine has established curriculum on structural racism and health equity aimed at eradicating healthcare inequities. I am interested in collecting my patients' health data based on race and have started assessing my patients' objective measures of health based on race and gender.

Cognitive biases also contribute to diagnostic and treatment errors. The main domains of physician decision making include: gathering and interpreting evidence, taking actions, and evaluating decisions.[3] Cognitive biases impacting decision making include confirmation, anchoring, and affect heuristic and outcome biases. Confirmation bias is the selective gathering and interpretation of evidence consistent with current beliefs and the neglect of evidence that contradicts them. Anchoring bias is closely related to confirmation bias and

impacts interpreting evidence. The initial diagnosis given to this patient was cervical radiculopathy. Four different doctors, kept this diagnosis at the top of our differential despite lack of response to usual treatment and the presence of systemic symptoms not typically seen in cervical radiculopathy. Emotional reactions can influence physicians when deciding on treatment, which is called affect heuristic. This is seen when physicians label patients as "complainers" or "difficult". Over the telehealth visits, I recall being frustrated by my inability to treat her pain. I am curious if this influenced the delay of her in-person evaluation and laboratory testing.

The last two factors are lack of primary care coordination and limited in-person evaluations due to pandemic. This patient saw 5 different providers in urgent care, rheumatology, orthopedics, neurology, hand surgery, and emergency medicine before seeking primary care assessment. This patient had seen me once to establish care prior to the onset of her symptoms. We had not established a trusted relationship that encouraged her to seek my input for the first six months of symptoms. Primary care should be associated with enhanced access to healthcare services, better health outcomes, and a decrease in hospitalization and use of the emergency department.[1]

An evaluation of COVID's impact on healthcare is ongoing. This patient delayed in-person primary care evaluation was likely due to concerns over contracting the virus. I also resisted follow- up evaluation to avoid unnecessary exposure and uncertainty of treatment.

I have learned much from this patient with regards to personal biases, racial and cognitive, and the importance of a primary care evaluation. I am examining racial health care disparities within my patient panel so that I can create strategies to reduce the disparities. Awareness of cognitive biases will help me decrease their impact on patient care. It is unfortunate that this patient suffered for so long before receiving adequate evaluation and an accurate diagnosis for treatment. I will work to identify and reduce my biases in order to improve health outcomes and patient experience.

**REFERENCES**


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