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Approach to a Performance-Related Musculoskeletal Disorder in a Drummer

ETSU Kingsport Family Medicine Residency Hunter Fleming, MD PGYII

History

History of Present Illness: A 55-year-old male full-time drummer presented to clinic with chronic bilateral hand numbness and tingling that has been present for "years." The location of the symptoms are mainly in the palmar aspect of the 1st digit, 2nd digit, 3rd digit, and radial aspect of the 4th digit. The symptoms have progressively been worsening. His discomfort is initially rated at a 10/10 bilaterally. The symptoms are worse with drumming and better with rest. He has tried over the counter Tylenol without relief. The Meloxicam that he takes for arthritis has also not helped. He has used wrist braces in the past without significant benefit. He has not tried physical therapy to treat this.

Past Medical History: Osteoarthritis, Controlled Diabetes Mellitus Type 2, Coronary Artery Disease, Hypertension, Hyperlipidemia, Sleep Apnea

Surgeries: None

Medications: Baby Aspirin, Metformin, Rosuvastatin, Lisinopril, Meloxicam as needed, Duloxetine

Social History: Smoker, No alcohol usage, He has drummed nearly everyday for 45 years

Physical Exam

General: No acute distress. Healthy appearing male

Musculoskeletal: Bilateral upper extremity strength is 5/5 throughout. There is no thenar atrophy bilaterally. Bilateral upper extremity active range of motion is intact.

Neurologic: Sensation to light touch is intact in bilateral upper extremities

Vascular: Radial pulses 2+ bilaterally

Special Maneuvers: Tinel's Sign positive bilaterally. Spurling's Sign negative bilaterally

Differential Diagnoses

Carpal Tunnel Syndrome

Diabetic Neuropathy

Cervical Radiculopathy

Myofascial Pain Syndrome

DeQuervain's Tenosynovitis

Osteoarthritis

Discussion

The signs and symptoms described in this case are most consistent with bilateral carpal tunnel syndrome. He also was separately diagnosed with bilateral piriformis syndrome, somatic dysfunction of the pelvis, as well as chronic muscular lumbar back pain without radiculopathy.

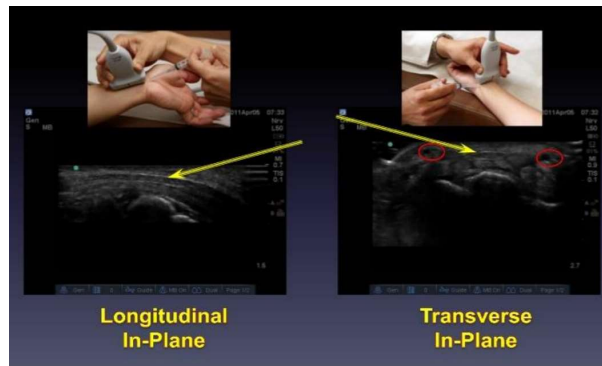
The patient is a full-time drummer and sought treatment and prevention so that he could continue his passion. He presented with many performance-related musculoskeletal disorders (PRMDs) listed above that resulted from his posture and biomechanics while drumming. For example, his carpal tunnel syndrome resulted from the repetitive microtrauma caused by drumming.

PRMDs are common in musicians due to the nature of their work, which includes repetitive movements as well as asymmetric postures.⁵ The lifetime prevalence of PRMDs is 62-93% in musicians.² This can cause some musicians to give up their craft, so treatment and prevention is key. We wanted to optimally tailor our treatment to the patient to allow him to continue his craft.

Treatment

The patient elected to pursue bilateral ultrasound-guided carpal tunnel injections with lidocaine and methylprednisolone. We used a transverse in-plane approach shown in the figure below. The ultrasound allows for diagnosis based on features of the median nerve as well as direct visualization of needle placement. The *Journal of Clinical Neurophysiology* has shown that there is improved symptomatic control of carpal tunnel syndrome when the injection is done via ultrasound-guidance vs landmark-guidance, however the results are not statistically significant.¹

An additional component of his treatment is relative rest, which has been shown to be important with PRMDs in musicians as it can be tailored to their craft. Relative rest in musicians is a program which begins with stretching prior to playing, and when playing begins, one should progress to more difficult selections with frequent breaks included.⁴



Ultrasound-guided injection techniques of the carpal tunnel. Yellow arrows indicate the median nerve.³

Follow up and Future Directions

PRMDs in musicians are very complex. They are often related to the nature of a musician's work and therefore require an individualized approach. Musicians are very devoted to their craft and want to return to playing as soon as possible, so they often respond well to treatment.⁴

Upon follow up and until 6 months out, his discomfort was rated at 0/10 bilaterally (down from 10/10), and he was drumming without issue. It was found that relative rest and carpal tunnel injections are effective in treating carpal tunnel syndrome in drummers. His treatment was tailored to his specific instrument type, which was a key component to the success.

His other PRMDs described earlier will continue to be actively treated in a holistic approach with physical therapy, relative rest, home exercises, osteopathic manipulative treatment, icing, and NSAIDs.

As highlighted in this case, drummers have specific biomechanics that appear to predispose them to certain PRMDs. As with all athletes/performers, it is best to tailor the treatment to their specific sport/performance type. This will yield the best results with treatment and prevention.

There is limited to no specific information on treating drummers as a specific group in the literature, but rather more information on treating musicians as a whole. Different instrumentalists have different postures and repetitive movements, so future studies would do well to examine the individual biomechanics of the different instrumentalists to better tailor treatment and prevention of PRMDs.

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