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Manual labor metacarpophalangeal arthropathy in a truck driver: a case report

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Abstract

Objective: The purpose of this study is to present an unusual and rarely described case of occupational hand arthropathy involving the metacarpophalangeal (MCP) joints.

Clinical Features: A 62-year-old male truck driver (of 35 years) presented to a chiropractic clinic with pain and stiffness along the third metacarpal and MCP joint of the left hand. Examination revealed severe pain and limited flexion at the third MCP joint. Bilateral radiographs demonstrated severe osteoarthritis (OA) of this joint in the left (nondominant) hand and mild-to-moderate (asymptomatic) OA in the same joint on the right. Results of laboratory blood tests were unremarkable for metabolic, inflammatory, or infectious joint disease.

Intervention and Outcome: The patient was diagnosed with bilateral, third MCP joint OA associated with manual labor. He was treated unsuccessfully with a short course of low-level laser therapy, MCP joint mobilization, and hand-stretching exercises. After 3½ years, the patient continues to work despite ongoing and worsening symptoms. Three serial left hand radiographs are presented, highlighting the progressive nature of this arthropathy.

Conclusion: The differential diagnosis in patients presenting with manual labor MCP joint OA should include hemochromatosis and calcium pyrophosphate dihydrate crystal deposition disease. Because of the increased risk of serious systemic disease, it is imperative that these latter 2 disorders are ruled out before the former is diagnosed.

Introduction

Osteoarthritis (OA) is the most common form of arthritis and often affects the knees, hips, hands, feet, and spine.[1,2] In the United States, the incidence of radiographic OA for those aged at least 26 years (including data of the hands, knees, and hips) ranges from 13.8% to 37.4%.[3] The incidence of symptomatic OA is lower, however, ranging from 4.9% to 16.7%. In general, OA becomes more prevalent with age, affecting the hands and knees of women more frequently than men, especially in those aged at least 50 years. Clinically, OA often presents with pain, morning stiffness, crepitus, deformity, and joint swelling or enlargement.[4] Multiple factors interact to

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cause this disorder (Fig 1). Osteoarthritis is normally diagnosed through patient consultation and examination, whereas radiographs (if taken) can provide further objective evidence of the disease (Fig 2).

Traditional medical management of OA may include patient education about its natural and progressive course, lifestyle modifications, exercise prescription, pharmacologic treatment, and/or surgery (if necessary).[4] Common pharmacologic agents used are acetaminophen, nonsteroidal anti-inflammatory drugs, aspirin, and cyclooxygenase-2 inhibitors. Intraarticular steroid injections are another treatment option, but should be used sparingly.[5] Commonly used alternative therapies may include herbs, supplements (eg, glucosamine), ointments or topical rubs, and other nonpharmacologic modalities such as exercise, physical therapy (or chiropractic), acupuncture, electromagnets, transcutaneous electrical nerve stimulation, ultrasound, and low-level laser therapy (LLLT).[6-9] Because of the prevalence of OA in the general population and because chiropractic practice often involves the treatment of musculoskeletal disorders, chiropractic physicians are bound to encounter many patients with OA. In a recent cross-sectional study of arthritis patients (in North Carolina), [7] more than 20% of those with OA reported seeing a chiropractic doctor for treatment.

In the hand, the distal interphalangeal and proximal interphalangeal finger joints, and the first carpometacarpal joint of the thumb, are most often affected by OA; the metacarpophalangeal (MCP) joints are less commonly involved.[10] Secondary OA involving the MCP joints is common, however, in hemochromatosis and calcium pyrophosphate dihydrate (CPPD) crystal deposition disease.[10-13] Hand OA in both disorders usually involves the second and third MCP joints, bilaterally. The "iron salute" (of hemochromatosis) can be used by clinicians as an efficient screening tool for MCP arthropathy (Fig 3).[14]

- Age older than 50
- Crystals in joint fluid or cartilage
- High bone mineral density
- History of immobilization
- Injury to the joint
- Joint hypermobility or instability
- Obesity (weight-bearing joints)
- Peripheral neuropathy
- Prolonged occupational or sports stress

Fig 1. Risk factors for OA.[4]

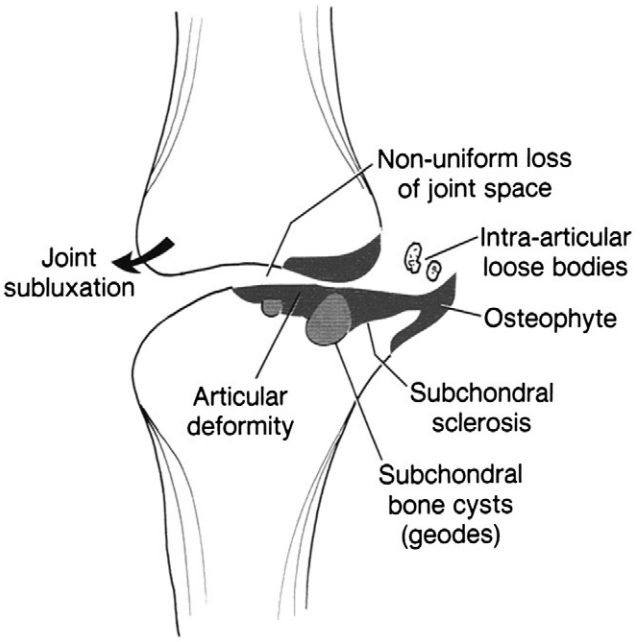

Fig 2. This diagram depicts the classic features of OA including joint subluxation, nonuniform joint space loss, intraarticular loose bodies, osteophyte formation, subchondral sclerosis, subchondral bone cysts (geodes), and articular deformity. (Source: Reprinted with permission from TR Yochum and LJ Rowe, *Essentials of Skeletal Radiology,* 2nd ed, p 804, JP Butler, ©1996 Williams & Wilkins.)

An occupational OA involving the MCP joints has also been described in manual laborers.[15-17] This disorder—thought to be from heavy work involving sustained gripping with both hands—has been termed the *Missouri metacarpal syndrome*.[15] Presented here is the first such case to be described in the chiropractic literature. A discussion on the importance of making this diagnosis and ruling out its differentials is also included in this report.

Case report

A 62-year-old white man presented with a 5-year history of insidious and progressive pain and stiffness in his left hand. The pain was located along the dorsal aspect of the third metacarpal and MCP joint. It was