

REVIEW ARTICLE

Approach To Joint Pain In The Elderly For Osteopathic Providers

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ABSTRACT: Joint pain in the elderly is becoming ever more ubiquitous in the primary care setting. Primary care providers, especially in rural communities, may be required to manage patients with rheumatologic conditions because consultation is unavailable. Literature supporting the approach to the diagnosis of joint pain in the elderly population is limited. The purpose of this manuscript is to present a case-based learning opportunity for osteopathic primary care providers, residents, and medical students regarding an elderly male with joint pain. In this manuscript, the authors have presented an advanced organizer to be used in the medical education setting which differentiates patients suffering from joint pain based on timing, the number of joints involved, and the size of the joint affected. We conclude with osteopathic considerations in evaluating an elderly patient with joint pain and the tools available to appropriately evaluate and treat the patient.

INTRODUCTION

In the United States, joint pain has been estimated to affect 52.5 million adults, with projections upwards of 78.4 million adults by 2040. The significant inflation is attributed to a baby boomer generation, which will enter the high-risk group of patients above the age of 65.¹ Most of these cases are noninflammatory in nature, but joint pain in the elderly otherwise becomes a difficult and frustrating diagnosis for primary care providers because of its broad differential diagnosis and nonspecific presentation.^{2,3} Unfortunately, providers cannot always depend on rheumatologic markers because most lack the specificity necessary to solely contribute to a reliable diagnosis.⁴ Experience in rheumatologic diseases and guidance from rheumatologic specialists play a valuable role in the identification and treatment of inflammatory joint pain, however their resources in rural communities are overwhelmed by the demand for consultation.⁵ For these reasons, the onus may fall on primary care providers to have a systematic approach in identifying conditions requiring expedient management to minimize patient morbidity.^{6,7} The purpose of this manuscript is to present an approach to joint pain to be used by Osteopathic providers, residents and medical students with a

focus on the elderly population. The authors will briefly discuss the role of osteopathy in evaluation and appropriate diagnosis in these patients.

CASE PRESENTATION

An otherwise healthy 70-year-old Caucasian male with a history of osteoarthritis and peripheral neuropathy presented to the family medicine office complaining of “arthritis” flares for the past two months. He had just returned from a trip to Hawaii when he started noticing increasing groin, shoulder and low back pain which was sudden in onset and worsened after long periods of rest. He could not sit or lay down for longer than 30 minutes, otherwise his pain and stiffness significantly worsened. He denied any trauma. Prior to the onset of his symptoms, he was able to run four miles a day. In the last month, the pain and stiffness had caused him to only be able to walk a mile with a cane. He recently started taking over-the-counter naproxen with some improvement in his symptoms. He admitted to muscle aches, arthralgias, and back pain but denied fevers, chills, night sweats, or significant weight changes. He had no chest pain, shortness of breath, palpitations, or leg swelling. He denied dizziness, numbness, or headaches. He had no muscle spasms.

On examination, the patient was mildly uncomfortable yet well-appearing 70-year-old male with vital signs which were within normal limits. He had normal mood and affect and is alert and oriented. He had no petechiae, ecchymosis or hematomas. He had 2+ radial and dorsalis pedis pulses bilaterally without cyanosis

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or edema. The patient ambulated with a slight preference for his left leg. He had normal range of motion of his wrists, ankles, and phalanges bilaterally with no bony hypertrophy or deformities and no objective signs of synovitis. There were contractures and limited range of movement in his shoulders and hips bilaterally, and lower back pain but no joint tenderness or erythema. Patrick's test was positive with pain in the hips bilaterally and straight leg test is negative bilaterally. His quadriceps and hamstrings were hypertonic bilaterally. There was paravertebral lumbosacral spasms and tenderness. No lumbar spinous process tenderness was noted.

Laboratory evaluation revealed negative rheumatoid factor, HLA-DR4, TSH and ANA screen. ESR and CRP were elevated at 56 mm/h and 6.08 mg/dL, respectively. The patient was presumed to have a diagnosis of polymyalgia rheumatica and was started on prednisone 20 mg once daily for 30 days. On the second day of treatment, the patient reported complete resolution of his pain and stiffness. Repeat laboratory evaluation two weeks later revealed a WBC of

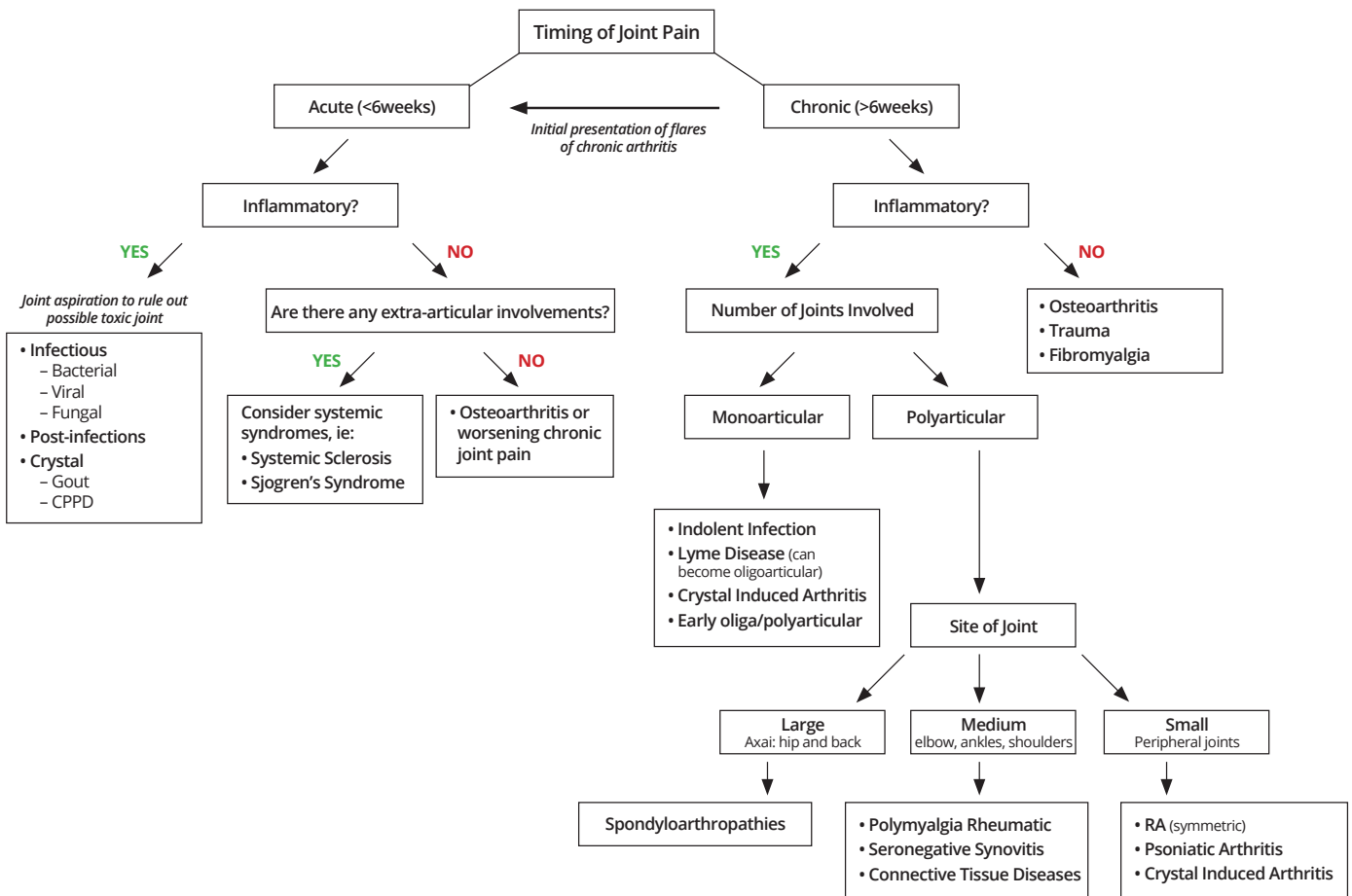
15.9 and his ESR had normalized to 2 mm/h. He was instructed to begin tapering his prednisone by 1 mg per week after his one-month prescription and to contact the office if he developed worsening pain or increased stiffness in his shoulders or hips.

INITIAL EVALUATION OF JOINT PAIN

The appropriate initial evaluation of joint pain begins with an accurate history and physical examination to reduce the list of reasonable etiologies. As with any diagnosis in medicine, the definitive diagnosis of the etiology for joint pain depends on the provider's index of suspicion. To direct the provider towards certain causes of joint pain, the authors will focus attention on three advanced organizers for arriving at a thorough yet reasonable differential: timing of illness, number of joints involved, and the size of the joint in question.

FIGURE 1:

Flow Chart for Approach to Joint Pain in Elderly Male



Timing of illness

The first and most dichotomous method of evaluating a patient with joint pain, specifically with synovitis, is to define them as having either acute (<6 weeks) or chronic (>6 weeks) joint pain.^{8,9} While uncommon in an ambulatory setting, a patient with an acute onset of joint pain may present with cardinal signs of inflammation (red, hot, swollen, painful joint that is limited in function) and thus should be considered to have a toxic joint until proven otherwise.¹⁰ Joint aspiration should be performed in this setting to rule out crystal-induced or other inflammatory arthropathy, septic joint, or hemarthrosis.^{10,11} Employing this diagnostic approach may incidentally offer pain relief with temporary restoration of function.¹¹ Chronic inflammatory processes that present with acute flares or intermittent arthritis (ex. rheumatoid arthritis, spondyloarthropathy, gout or palindromic rheumatism) complicate this clinical picture and should be considered acute presentations of their chronic disease. The index of suspicion for degenerative joint disease in that joint should be low unless the complete acute evaluation of the joint pain is inconclusive.^{7,12}

As in the case presentation, if the joint pain is indolent or progressively worsening over several months to years, the provider should approach the clinical presentation with special attention to differentiating osteoarthritis from inflammatory arthropathy. One uncomplicated method for ruling out osteoarthritis is to ask for evidence of myalgias. Another way a primary care provider can discern the appropriate diagnosis is to ask for evidence of extra-articular involvement. If there is evidence of extra-articular involvement, the differential narrows further to rheumatologic diseases that cause systemic inflammation (ex. systemic sclerosis or Sjogren's syndrome). Also, a primary care provider can consider morning stiffness lasting longer than one hour as a clue for an underlying inflammatory and rheumatologic process.³

Number of joints involved

An alternative method of arriving to a similar conclusion is to focus attention to the number of joints involved. Generally, if a patient can localize their pain to one joint, the provider's index of suspicion for the aforementioned toxic causes of arthropathy should be heightened—particularly in weight bearing joints.¹⁰ One toxic cause of monoarthritis which may be overlooked is consideration of a foreign body in the synovium, particularly in gardeners. An MRI may be warranted to identify the foreign material (plain radiographs are often normal).¹³ If no history of such acute flares exist in an otherwise progressively worsening arthropathy, then appropriate plain films may confirm the diagnosis of degenerative joint disease.

The most challenging of the differentials is in the case of polyarticular joint pain. It may be necessary for a patient with polyarticular joint pain to have multiple visits before arriving at a diagnosis. These diseases are generally rheumatologic in nature, however viral etiology, crystal arthropathies, and serum sickness reactions should also be considered, especially in the case of an acute presentation.¹⁴ Viruses which may manifest as polyarticular joint pain include Hepatitis B, Hepatitis C, EBV, CMV, and parvovirus B19, to name a few.¹⁴⁻¹⁷ Because most of

these etiologies are self-limited, managing their sequelae is more important than the management of the arthropathy in question. In the case presentation, this patient had polyarticular joint pain in his shoulders, hip girdles, and lower back. This increased our index of suspicion for polymyalgia rheumatica and seronegative spondyloarthropathies. In this case, our team examined the patient for the aforementioned inflammatory markers to improve our index of suspicion. With the patient's myalgias, and elevated ESR/CRP, empiric treatment was started.

The presentation of oligoarticular joint pain may be less specific to uncovering the disease process, and more often reflect the stage of the disease process being evaluated. The classic example includes the arthralgias of Lyme disease, which, in its chronic phase, may involve oligoarthropathy of the knees.¹⁸ Another classic example is that of *Neisseria gonorrhoeae*, which is most often oligoarticular in nature, however in the acute flare of the disease, may present with monoarthritis. Other examples of disease processes which may present with an oligoarticular presentation include crystal arthropathy (which in its early stages is monoarticular) and seronegative disease processes (which in its chronic phase is polyarticular).^{3,8}

Pattern of joint involvement

The third reliable method of uncovering the diagnostic clues necessary to arrive at the appropriate diagnosis is consideration of the joints involved in the disease presentation. The involvement of axial joints, like the back and hips, present with a difficult and broad differential for primary care providers to consider. A classic example includes lower back and sacroiliac joint pain and the associated presentation of ankylosing spondylitis.¹⁹ Spondyloarthropathies most commonly have their effects on large joints like the spine and the lower extremity.²⁰⁻²³ Of course, psoriatic arthritis complicates this picture, because patients with this disease manifestation can see arthropathy of their small joints as well.^{14,20} Another example of disease process affecting the large joints include polyarticular crystal-induced arthropathy and bacterial infection, particularly in the knee.^{16,24} Providers should note, however, that crystal-induced arthropathy most commonly affects the first metatarsophalangeal joint. If no suspicion for inflammatory processes exist, primary care providers should consider osteoarthritis and the degenerative effects on weight bearing joints as the cause of the joint pain.²⁵

The involvement of the peripheral joints, like the interphalangeal joints, are classically described by the joints involved and spared. The most common example is involvement of the distal interphalangeal joints, seen in osteoarthritis, that is not commonly seen in rheumatoid arthritis.^{9,25} In the case of distal interphalangeal joint involvement, primary care providers should note that psoriatic arthritis and chronic crystal-induced arthritis (especially in the elderly) should still be included in the differential as these diseases may affect any of the joints in the hand.^{20,26,27} Ideally, a clinically skilled provider should be able to note the physical findings of bony hypertrophy associated with noninflammatory joint pain and the inflammatory synovitis which would be noted in the inflammatory conditions like gout and psoriatic arthritis in these joints.

Involvement of moderate sized joints, like the elbows, ankles, and shoulders, present an interesting new set of pathologies. These joints often present with myalgias and periarticular symptoms rather than synovitis. Symmetry should be considered in these patients to rule in diseases like polymyalgia rheumatica and maturity onset seronegative synovitis, and rule out more asymmetric causes of joint pain, like Lyme arthritis or deep vein thrombosis.^{3,18,28} If purely articular joint pain exists in these joints, consideration for bursitis, tenosynovitis, or other orthopedic causes of joint pain should be explored. Physical therapy and consultation with orthopedic surgery may be necessary to further elucidate the cause of the joint pain.²⁹

OSTEOPATHIC CONSIDERATIONS IN EVALUATION

Within the primary care setting, the osteopathic physician may approach the elderly male with joint pain using the distinct osteopathic philosophy. Along with a thorough history and physical focused on the relevant etiology, the physician may consider the broader contributing factors. The five-model system reminds the osteopathic physician of the unity of the body; how unique social, emotional, psychological, and physiological contributions extend and vary beyond the specific etiology and pathology to become a complex and individualized patient presentation. For example, while managing joint pain, the physician should consider possible social isolation of the patient, increased risk of depression, loss of family relationships, difficult access to health care, poor transportation abilities, compounding health complaints, and many other factors. Taking these biopsychosocial factors into account, the osteopathic physician then may address barriers to healing. Additionally, the osteopathic physician can consider structural limitations causing poor function, such as a large body habitus compounding joint irritation, venous stasis due to poor cardiac output limiting joint mobility, age-related spinal deterioration leading to poor mobility, along with a myriad of other possibilities. In short, the osteopathic physician seeks the health for the elderly patient presenting with joint pain, not merely focusing on the pain in the joint.

Osteopathic physicians also can use the osteopathic structural exam, using their observation and palpation skills to gain information for evaluation. Palpation may discern restriction of various tissues, tissue texture changes, the temperature, and asymmetry.³⁰ These characteristics provide information concerning the acuity of the insult, the severity, and possible structural contributions to the presentation. The physician may also discern the location and involved anatomy of the presenting arthropathy.^{31,32} As arthropathies are typically painful, these will limit the function of the patient, leading to structural compensations, and consequently evaluation of the joints beyond the effected joint is imperative.³³ The Osteopathic physician should also examine both somato-visceral and somato-somatic reflexes. Heightened sympathetic tone due to nociceptive feedback may lead to lymphatic congestion around the joint, which could direct one's focus to lymphatic treatment. The palpatory examination will inform the osteopathic physician if and how OMT may help with the healing of the painful joint.

CONCLUSION

In the primary care setting, joint pain is a common complaint in the elderly population. The authors have presented a case-based learning opportunity for osteopathic primary care physicians, residents, and medical students to have a systematic approach to the diagnosis of joint pain in the elderly population. Osteopathic providers should consider the use of the osteopathic structural examination as an extra tool for improving accuracy in their diagnosis and improving overall holistic management of their elderly patients with joint pain.

AUTHOR DISCLOSURES:

No relevant financial affiliations or conflicts of interest.

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