



Pain in the older adult is of diagnostic significance. The pattern of distribution reflects the dermatome of the same spinal root that supplies the irritated deep structure. The timing helps differentiate inflammatory and infiltrative from mechanical pathology. Certain diseases of the musculoskeletal system are seen in the older adult. These include osteoarthritis, pseudogout, gout, spontaneous osteonecrosis of the knee and polymyalgia rheumatica. Diagnosis is key to effective treatment. Although the patients in this age group are often "boxed in" by a series of relative contraindications to treatment, with care and perseverance, it is often possible to break open the box and find an effective therapeutic regimen.

Key words: musculoskeletal pain, arthritis, diagnosis, spinal disease, older adults.

Musculoskeletal Pain in Older Adults: Diagnosis is Key

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Characteristics of Pain

Timing

If pain in the muscles, bones or joints begins or recurs in the middle of the night waking the patient from sleep, this is not a good sign. It indicates that there is tissue inflammation or infiltration, although the latter is rare. Inflammation can be due to infection or inflammatory rheumatic disease, and infiltration in older adults is usually neoplastic. When pain is only nocturnal in onset, easing by day and with activity, there is cause for investigation.

Although benign innocuous problems also can cause nocturnal pain, more innocent nocturnal pain differs. For example, pain from degenerative joint or spinal disease will hurt for an hour or two after getting into bed. After drifting off to sleep, such pain does not usually waken the patient unless they move or turn over, and after less than 30 minutes of morning stiffness it will usually ease for a while after a night of rest. Fibromyalgia pain can be nocturnal as well, but usually the story is one of recurrent wakening, along with restlessness and exhaustion.

Distribution

Pain arising from disease located deep in the body is referred to the surface. The distribution will generally be in skin enervated by cutaneous branches originating from the same spinal root supplying the deep pathology. Shoulder pathology, for example, triggers irritation of branches of the suprascapular nerve. This is an offshoot of C5. The pain is thus felt along the skin supplied by C5, namely the deltoid, upper lateral arm and occasionally slightly into the dorsal fore-

arm. When the pathology involves gross derangement and bone-on-bone crepitus, the pain may be more localized to the deltoid. Similarly, hip irritation leads to activation of deep branches of the obturator nerve. As this is a branch of the L1/2 root, pain is felt in the surface supplied by these roots; namely, the groin, anteromedial thigh and medial knee. Similarly, facet osteoarthritis can lead to sciatic-type pain, even without nerve root entrapment. Thus, location of pain can assist in localizing the deep pathology.

It does not help, diagnostically, to place local anesthetic into the site of referred pain. For example, right upper quadrant pain felt during an episode of cholelithiasis and colic can be alleviated with a spray of ethyl chloride onto the skin of the right upper quadrant, while the pathology rages on.

Aggravation

Musculoskeletal pain aggravated by activity and relieved by rest is usually mechanical. Such pain may indicate a degenerative problem. The worst time of day for such pathology is usually late in the afternoon, while the best time is usually a half-hour or so after mobilizing in the morning. Pain that occurs after 20 minutes of rest and is associated with stiffness or gelling on first moving is more often due to inflammatory disease. Pain reproduced in a joint at the extreme end of range of movement indicates joint inflammation, and that which is reproduced mid-arc in range is usually mechanical.

Muscular Pain Syndromes in Older Adults

There are three key points about muscular pain to consider:

Musculoskeletal Pain

1. Most localized “muscular pain” is not muscular in origin, but rather is referred. Only athletes or people sustaining definable muscular trauma will have true muscular strain or contusion. Most often, localized muscular pain is indicative of pathology in the neck, shoulder, back or hip.
2. Generalized muscular pain will be inflammatory or non-inflammatory, and the difference is in the timing. Inflammatory muscular pain, occurring at night or for an hour or more on rising, is usually associated with inflammatory markers on laboratory review: elevated ESR, elevated CRP and normocytic normochromic anemia of chronic disease. Polymyalgia rheumatica, acetyl-CoA reductase inhibitor toxicity and viral influenza are examples of inflammatory myalgia syndromes. Non-inflammatory pain, such as that associated with fibromyalgia, is evident day and night, and laboratory tests are normal.
3. Polymyositis is usually painless. This disease usually presents as weakness, but somehow is often included in the differential diagnosis of myalgia.

Polymyalgia Rheumatica

Of those who present with polymyalgia rheumatica (PMR), 95% are 60 years or older, 4% are age 50–60, and 1% are under age 50. The presentation is often abrupt or can follow what seems to be

a benign viral infection. The pain is worst in the upper arms and, second to this, in the glutei, low back and thighs.

The clinical story is striking for the clarity of timing: morning stiffness easing after an hour or so of activity, and gelling after 20 minutes of inactivity. On examination, the shoulders and hips are tender on movement and the surrounding muscles on palpation. Power is impossible to assess due to the pain. Low-grade synovitis can be detected.

More than 90% of these patients will have an ESR > 60mm/hr Westergren. The ALP is elevated in 35–50% of these patients, and there is a normocytic, normochromic anemia. All other laboratory tests are negative.

Physicians need to be aware of the many pitfalls of misdiagnosis. If there is a murmur, subacute bacterial endocarditis should be considered. It is important to ensure that the elevated ESR is not associated with a paraprotein, as multiple myeloma can be disguised as PMR. Hypothyroidism can be painful and metastatic cancer can cause nocturnal pain. Rheumatoid arthritis and systemic lupus erythematosus in the older patient can present with myalgia-like PMR, so heed the positive antinuclear antibody or rheumatoid factor. Rarely, polyarteritis nodosum can present similarly to PMR in the older patient.

A trial of steroid, such as prednisone 20mg daily, should produce dramatic relief within 24–48 hours. Incomplete benefit or slow-onset benefit taking longer than five days to occur is cause to reconsider the diagnosis. Temporal arteritis, although seen in 20–50% of serial biopsies, presents as a clinical concurrent problem quite infrequently. Suspicion should be raised when headache or jaw claudication parallels the PMR picture, or when symptoms recur on greater than 15mg of steroid. Only about 50% of patients with PMR eventually are able to discontinue their prednisone. The primary steroid-induced morbidity is osteoporosis, and these patients must be covered with a bisphosphonate.

Degenerative Spinal Disease

Older adults will begin to evolve fixed derangements of the spine. Facet osteoarthritis in the lower cervical spine may account for local neck pain or referred pain to the dorsum of the hand, the forearm, the scapula or the upper thoracic area (intrascapular pain). Low back pain quite commonly arises from facet osteoarthritis.

Spinal Stenosis

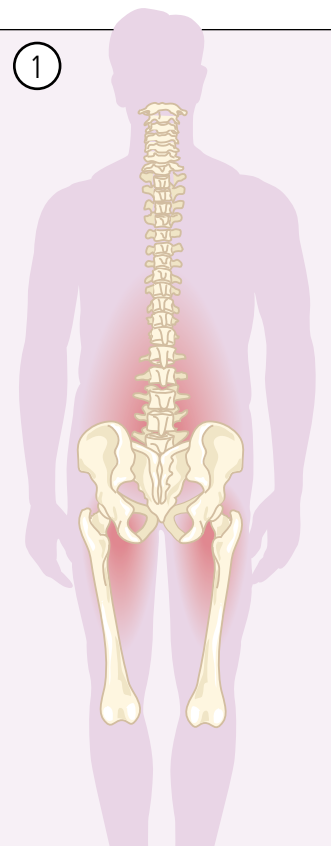
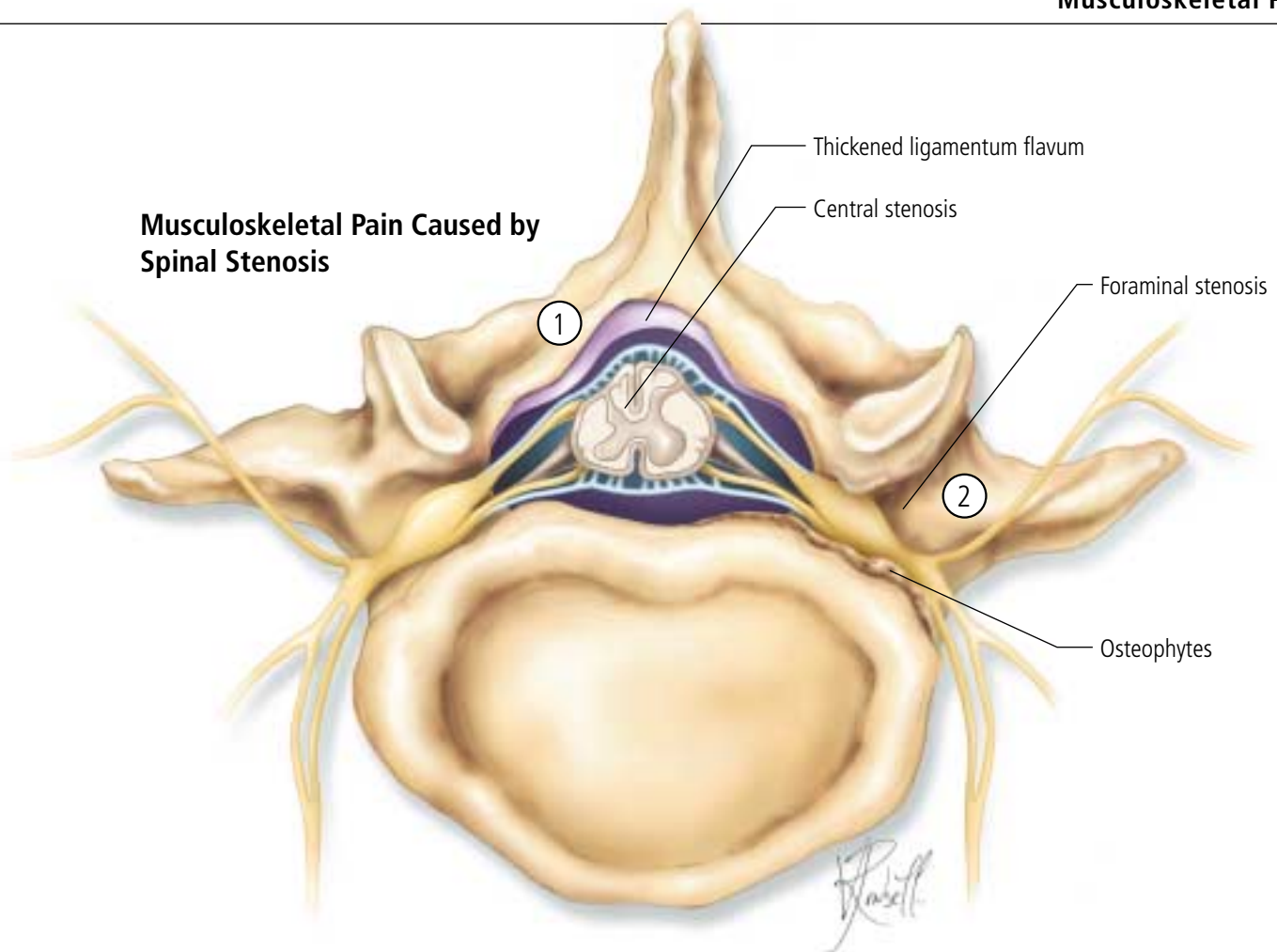
Any permutation of degenerative disc disease, facet osteoarthritis, degenerative spondylolisthesis or scoliosis can lead to narrowing of the passages where the nerve roots of the cauda equina, below the level of L1, pass through the spinal canal and out the neuroforamina to the legs (Figure). If the narrowing is foraminal, the pain is well defined, extending down the leg to the calf, although reflexes are preserved and straight leg raising is normal. If the narrowing involves the spinal canal, the pain is more diffuse across the back and into the glutei and thighs. Spinal canal narrowing can lead to spinal claudication, a pattern of pain exacerbated by walking and eased by sitting for less than five minutes, enabling the patient to walk a similar distance once again. If the pain pattern correlates with findings of stenosis on CT, surgery may be warranted. Age is not a contraindication to decompressive surgery if general health remains stable.

Articular Pain Syndromes in Older Adults Osteoarthritis

Degenerative joint disease is perhaps the greatest cause for limited locomotor activity in older adults. Osteoarthritis of the hips and knees lead to the vast majority of orthopedic procedures. Hip disease will often respond to the judicious use of anti-inflammatories for many years. There is some controversy over the advisability of palliation with local cortisone injections into the hip under image intensifier (X-ray).

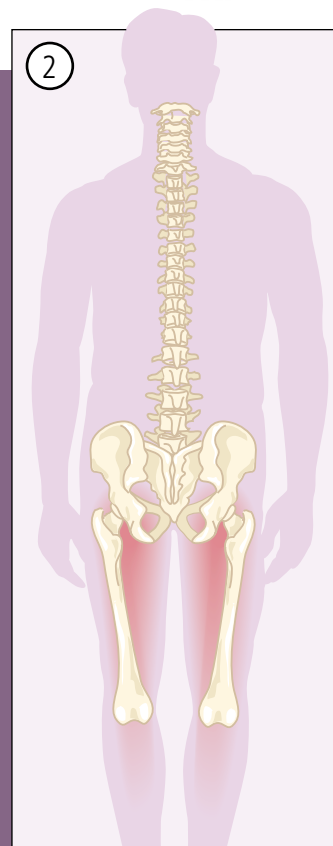
Osteoarthritis of the knee is an equally important cause of limited locomotion.

Musculoskeletal Pain Caused by Spinal Stenosis



Central Stenosis

If the narrowing involves the spinal canal, where the spinal cord and cauda equina are located, the pain is more diffuse across the back and into the glutei and thighs. Spinal canal narrowing can lead to spinal claudication.



Foraminal Stenosis

If the narrowing involves the lateral foramen, where the nerve roots exit out to the body, the pain is well defined, extending down the leg to the calf. However, reflexes are preserved and straight leg raising is normal.

There is good evidence that weight reduction can retard the progression of degeneration at this site.¹ There is equally good evidence that quadriceps muscle strengthening can relieve knee pain.² Occasionally, when a patient has severe genu varus, a valgus stress knee brace might enable more comfortable mobilization. The role of hyaluronate injections also is a source of some controversy. Studies have shown a statistical improvement for up to six months after hyaluronate injections into the knee;³ however, the improvement might not be predictable.

Osteonecrosis of the Medial Femoral Condyle

A patient older than 60 years, usually female, somewhat overweight and with some genu varus alignment would typically present with abrupt onset medial knee pain. If seen soon after the onset, the physical examination and X-rays are usually normal. Bone scan demonstrates late uptake over the medial femoral condyle, with relative normal uptake on the opposing tibial plateau. Pathologically, the condyle simply collapses because of poor osteoid support from osteoporotic cancellous bone. Treatment is time, rest and analgesic therapy. Unicompartmental osteoarthritis, with a deformed medial condyle and loose body formation, are the expected late sequelae. Surgery ultimately may be warranted.

Acute Monoarthritis

Most commonly, acute monoarthritis in older adults is due to pseudogout or gout. Septic arthritis, of course, will be

the primary concern with this type of presentation.

Pseudogout will usually affect medium or large joints. The presentation is abrupt and unexpected. The patient is usually older and there might be an antecedent stressful event, such as surgery or trauma. The confusion with septic arthritis arises because there can be a low-grade fever and an elevated white blood cell count and sedimentation rate. Furthermore, if the physician is fortunate enough to obtain a fluid aspirate, the intense inflammation causes very cloudy fluid and a white cell count of greater than 20,000 × 10⁶ per litre, 90% polymorphs. Unless one considers this diagnosis, the crystals will not be identified; they are often difficult to see and must be viewed under a polarizing lens. Culture, of course, is sterile. Treatment with local cortisone injection or an oral non-steroidal anti-inflammatory will effect a complete remission.

Clinically, the presentation of gout can be identical to pseudogout. The differential is made on crystal identification from a synovial fluid aspirate. Although the episodes are classically in the first toe metatarsophalangeal (MTP) joint, attacks can occur in the wrist, knee or even the finger. Most pain in the MTP of the great toe is due to osteoarthritis. A Heberden's node from osteoarthritis of the distal interphalangeal joint of the finger can suddenly become red, hot and swollen due to gout as well. Unless there are tophi and damage, gout does not cause arthralgia—it causes acute arthritis. It is important to remember that the serum

urate, although helpful, is not guaranteed to correlate with the diagnosis.

A Final Comment

Too often, the classical defeatist attitude toward diseases of older adults results in missed diagnosis and opportunity for intervention. This is particularly true with respect to musculoskeletal pain syndromes. At least 75% of such pain patients can be improved, and the key is the establishment of a correct diagnosis. Although we have all dealt with the typical "boxed in" older patient with medical contraindication to every intervention, careful consideration can often break open that box. Many contraindications are "relative", and with care, can be accommodated. New attitudes toward analgesic drugs have made life comfortable for these patients. Conservative measures with splinting, braces, strengthening and topical modalities can be extremely effective. ♦

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Cancer pain is a significant problem in older adults. Management in this population is made more challenging by issues such as comorbid conditions and age-related alterations in drug disposition. The first step is to perform a multidimensional assessment in order to identify the various factors that may influence the perception and expression of pain. The second step is to apply a process of targeted interventions, which optimizes the use of pharmacological and non-pharmacological therapies and takes into consideration the unique characteristics of the older patient.

Key words: cancer pain, pain assessment, opioids, adjuvant analgesics.

Management of Cancer Pain in the Older Adult

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Introduction

Cancer is the leading cause of death in Canada, and pain is one of its most frequent and feared manifestations. The topic of cancer pain in the older adult warrants attention for a number of reasons:

- According to 2003 statistics, 44% of new cancer cases and 59% of cancer deaths in Canada occurred in people aged 70 years or older;¹
- Older cancer patients are at higher risk for inadequate treatment of pain;^{2,3}
- The assessment and treatment of cancer pain in older adults may be complicated by factors such as cognitive impairment, multiple comorbid conditions and increased vulnerability to adverse effects of medications.

The purpose of this article is to provide a practical overview of the management of cancer pain, highlighting issues of particular concern in older adults.

Assessment

Pain as a Multidimensional Construct

The pain experience is a process consisting of nociception, perception and expression. Pain is only measurable at the point of expression. However, it is crucial to recognize that the pain experience may be modulated by many factors at each step. The assumption that 100% of a patient's pain expression is due to nociception may lead to an inappropriate reliance on antinociceptive measures. Rather, by identifying the multiple contributors to a pain complaint, an individualized and targeted plan of management may be developed.⁴ The

components of a multidimensional pain assessment are reviewed here.

Etiology

Most pain in cancer patients is secondary to direct tumour involvement. However, a disproportionate number of older patients also experience cancer treatment-related pain, such as chemotherapy-induced painful neuropathy.⁵ In addition, the prevalence of painful comorbidities, such as osteoarthritis, is significantly higher among older adults.⁶ The management of chronic non-cancer pain differs in some respects from that of cancer pain.⁷

Mechanism

Pain may be generated by either stimulation of pain-sensitive receptors (i.e., nociceptive pain, including both visceral and somatic pain) or injury to central or peripheral neural structures (i.e., neuropathic pain). The latter type is often more challenging to control.⁸ Identification of the pain mechanism through clinical assessment and correlation with investigations allows for appropriate selection of adjuvant analgesic drugs.

Intensity

Various validated tools are available for the assessment of pain intensity, including visual analogue scales, numerical scales and categorical scales. Regular use of a tool improves caregiver recognition of pain⁹ and assists in the evaluation of the outcome of analgesic interventions. In choosing a tool, individual functional deficits should be taken into consideration (e.g., avoiding visual analogue scales in a visually impaired patient). A further