

Nonarticular Soft Tissue Disorders



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INTRODUCTION

The nonarticular soft tissue disorders account for most musculoskeletal complaints in the general population. These disorders include a large number of anatomically localized conditions (e.g., bursitis, tendinitis) and fibromyalgia syndrome, a generalized pain disorder. For most nonarticular soft tissue conditions, the etiologic factors and pathogenesis are poorly understood.

The nonarticular soft tissue syndromes can be classified according to the anatomic region involved, such as shoulder pain. After the region is defined, an attempt is made to identify the structure at fault, such as the supraspinatus tendon, bicipital tendon, or subacromial bursa. In the case of back pain, precise anatomic delineation of the structure involved (e.g., intervertebral disk, facet joint, ligament, paraspinal muscle) is frequently impossible.

EPIDEMIOLOGY

Precise data for prevalence or incidence of most nonarticular soft tissue syndromes are not available, but these conditions account for up to 30% of all outpatient visits. Fibromyalgia is considered to be the most common cause of generalized musculoskeletal pain in women between the ages of 20 and 55 years. The global mean prevalence is 2.7%.

ETIOLOGIC FACTORS AND PATHOGENESIS

The precise pathophysiology of most nonarticular soft tissue disorders remains unknown, although predisposing factors, such as overuse or repetitive activities (e.g., tennis elbow, lateral epicondylitis) or biomechanical factors (e.g., leg-length discrepancy in trochanteric bursitis), can be identified in many cases.

The term *tendinitis* implies tendon sheath inflammation, but small tendon tears, periostitis, and nerve entrapment have been proposed as potential mechanisms. Similarly, although the term *bursitis* implies bursal inflammation, demonstrable inflammation is difficult to find. In some cases (e.g., acute bursitis of the olecranon or prepatellar bursa), the mechanism is an acute inflammatory response to sodium urate crystals deposited in the soft tissue, an extra-articular manifestation of gout. The favorable response of tendinitis and bursitis to anti-inflammatory agents, including corticosteroids, supports the view that at least one component of these syndromes is the result of an inflammatory process.

In myofascial pain syndrome, the causes are even more obscure. Frequently, overuse and trauma are cited as etiologic factors, but many cases lack antedating mechanical considerations.

Investigators have examined diverse mechanisms for fibromyalgia syndrome, including studies of muscle, sleep physiologic processes, neurohormonal function, and psychological status. Although the pathophysiologic mechanisms remain unknown, an increasing body of literature points to central (central nervous system) rather than peripheral (muscle) mechanisms. Muscle tissue has been a focus of investigation for many years. Initial studies, including histologic and histochemical studies, suggested a possible metabolic myopathy; however, carefully controlled studies indicated that these abnormalities were the result of deconditioning.

Sleep studies suggested that disruption of deep sleep (stage IV) by so-called alpha-wave intrusion (i.e., normal awake electroencephalographic pattern) may play a causal role, but this finding was later observed in other disorders and more likely indicates an effect than a cause.

In some cases, musculoskeletal injury has been implicated as a trigger for fibromyalgia, but social and legal issues cloud its causative role. Several studies have suggested that subtle hypothalamic-pituitary-adrenal axis hypofunction may occur in fibromyalgia syndrome, although it remains uncertain whether these changes are constitutive or are the result of fibromyalgia. A prevailing theory of pathogenesis is dysregulation of pain pathways leading to central sensitization and marked by neurotransmitter, neurohormone, and sleep physiology irregularities.

Fibromyalgia has long been linked to psychological disturbance. Most studies have confirmed high lifetime rates of major depression, which range from 34% to 71%, associated with fibromyalgia syndrome. High lifetime rates of migraine, irritable bowel syndrome, and panic disorder have also been associated with fibromyalgia syndrome, suggesting that fibromyalgia may be part of an affective spectrum group of disorders.

CLINICAL PRESENTATION

Many of the soft tissue rheumatic syndromes involve bursae, tendons, ligaments, and muscles. Bursae are closed sacs lined with mesenchymal cells that are similar to synovial cells; the sacs are strategically located to facilitate tissue gliding. Subcutaneous bursae (e.g., olecranon, prepatellar) form after birth in response to normal external friction. Deep bursae (e.g., subacromial bursa) usually form before birth in response to movement between muscles and bones and may or may not communicate with adjacent joint cavities. Adventitious bursae (e.g., over the first metatarsal head) form in response to abnormal shearing stresses and are not uniformly found. Although most forms of bursitis involve