

isolated, local conditions, some may be the result of systemic conditions such as gout.

Tendinitis, bursitis, and myofascial disorders should be distinguished from articular disorders. In most cases, this can be accomplished by a careful examination of the involved structure (Table 84-1). General principles of the musculoskeletal examination are as follows:

1. Observation: If deformity or soft tissue swelling is detected, is it fusiform (i.e., surrounding the entire joint in a symmetrical fashion) or is it localized? Local rather than fusiform deformity distinguishes nonarticular disorders from articular disorders.
2. Palpation: Is tenderness localized or in a fusiform distribution? Is there an effusion? Local (not fusiform or joint line) tenderness distinguishes nonarticular disorders from articular disorders. An effusion typically indicates an articular disorder.
3. Assessing range of motion: The musculoskeletal examination includes the assessment of active range of motion (i.e., patient attempts to move the symptomatic structure) and passive range of motion (i.e., examiner moves the symptomatic structure). Articular disorders usually are characterized by equal impairment in active and passive movements as a result of the mechanical limitation of joint motion resulting from proliferation of the synovial membrane, an effusion, or derangement of intra-articular structures. Impairment of active movement characterizes nonarticular disorders to a much greater degree than passive movement.

Clinical symptoms include pain, warmth, and swelling over the site of the bursa that are worse with activity and better with rest. Bursitis can be distinguished from tendinitis by the pain during active and passive range of movement; in tendinitis, pain is elicited only during active range of movement. However, for many patients these patterns often occur simultaneously.

Muscle sprains or strains are typically diagnosed based on a history of preceding activity causing the symptom along with pain and limitation of movement when the muscle is contracted against resistance. The clinical signs and symptoms of chronic myofascial pain are more nonspecific and characterized by a dis-

tribution that is frequently nonanatomic and associated with hyperalgesia in the involved area.

Fibromyalgia syndrome is characterized by widespread pain and a host of other symptoms, including insomnia, cognitive dysfunction, depression, anxiety, recurrent headaches, dizziness, fatigue, morning stiffness, extremity dysesthesia, irritable bowel syndrome, and irritable bladder syndrome.

DIAGNOSIS AND TREATMENT

Septic Bursitis

Superficial forms of bursitis, particularly olecranon bursitis and prepatellar and occasionally infrapatellar bursitis, are more frequently infected or involved with crystal deposition than are deep forms of bursitis, presumably due to direct extension of organisms through subcutaneous tissues. Most commonly, *Staphylococcus aureus* is isolated from infected superficial bursae. Septic bursitis should be suspected when there is cellulitis, erythema, fever, and peripheral leukocytosis.

Definitive diagnosis and exclusion of infection of subcutaneous bursae usually require aspiration of the distended bursa. The bursal fluid should be assessed for cell count, Gram stain, and culture and examined for crystals.

Nonseptic Bursitis

Nonseptic bursitis frequently appears as an overuse condition associated with sudden or unaccustomed repetitive activity of the associated extremity. The two most common types of bursitis are subacromial and trochanteric bursitis (Table 84-2).

Subacromial bursitis is the most common overall cause of shoulder pain over the lateral upper arm or deltoid muscle that is exacerbated with abduction of the arm. Subacromial bursitis is the result of compression of the inflamed rotator cuff tendon between the acromion and humeral head. Because the rotator cuff forms the floor of the subacromial bursa, bursitis in this location often results from tendinitis of the rotator cuff. Occasionally,

TABLE 84-1 DIFFERENTIATING NONARTICULAR SOFT TISSUE DISORDERS FROM ARTICULAR DISEASE

MANIFESTATION	NONARTICULAR SOFT TISSUE DISORDERS	ARTICULAR DISEASE
Limitation of motion	Active > passive	Active = passive
Crepitus of articular surfaces (structural damage)	0	+ / 0
Tenderness		
Synovial (fusiform pattern)	0	+
Local	+	0
Swelling		
Synovial (fusiform pattern)	0	+
Local	+ / 0	0

+, Present; 0, absent.

TABLE 84-2 BURSITIS SYNDROMES

LOCATION	SYMPTOM	FINDING
Subacromial	Shoulder pain	Tender subacromial space
Olecranon	Elbow pain	Tender olecranon swelling
Iliopectineal	Groin pain	Tender inguinal region
Trochanteric	Lateral hip pain	Tender at greater trochanter
Prepatellar	Anterior knee pain	Tender swelling over patella
Infrapatellar	Anterior knee pain	Tender swelling lateral or medial to patellar tendon
Anserine	Medial knee pain	Tender medioproximal tibia (below joint line of knee)
Ischiogluteal	Buttock pain	Tender ischial spine (at gluteal fold)
Retrocalcaneal	Heel pain	Tender swelling between Achilles tendon insertion and calcaneus
Calcaneal	Heel pain	Tender central heel pad