

result is present when radial wrist pain is induced after the thumb is flexed and placed inside a clenched fist and the patient actively deviates the hand downward with ulnar deviation at the wrist. Carpal tunnel syndrome is another common disorder of the upper extremity and results from compression of the median nerve within the carpal tunnel. Manifestations include pain in the wrist that may radiate with paresthesia to the thumb, second and third fingers, and radial half of the fourth finger and, at times, atrophy of thenar musculature. Carpal tunnel syndrome is commonly associated with pregnancy, edema, trauma, OA, inflammatory arthritis, and infiltrative disorders (e.g., amyloidosis). The diagnosis may be suggested by a positive Tinel's or Phalen's sign. With each test, paresthesia in a median nerve distribution is induced or increased by either "thumping" the volar aspect of the wrist (Tinel's sign) or pressing the extensor surfaces of both flexed wrists against each other (Phalen's sign). The low sensitivity and moderate specificity of these tests may require nerve conduction velocity testing to confirm a suspected diagnosis.

SHOULDER PAIN

During the evaluation of shoulder disorders, the examiner should carefully note any history of trauma, fibromyalgia, infection, inflammatory disease, occupational hazards, or previous cervical disease. In addition, the patient should be questioned as to the activities or movement(s) that elicit shoulder pain. While arthritis is suggested by pain on movement in all planes, pain with specific active motion suggests a periarticular (nonarticular) process. Shoulder pain may originate in the glenohumeral or acromioclavicular joints, subacromial (subdeltoid) bursa, periarticular soft tissues (e.g., fibromyalgia, rotator cuff tear/tendinitis), or cervical spine (Fig. 393-4). Shoulder pain is referred frequently from the cervical spine but may also be referred from intrathoracic lesions (e.g., a Pancoast tumor) or from gallbladder, hepatic, or diaphragmatic disease. These same visceral causes may also manifest as focal scapular pain. Fibromyalgia should be suspected

when glenohumeral pain is accompanied by diffuse periarticular (i.e., subacromial, bicipital) pain and tender points (i.e., trapezius or supraspinatus). The shoulder should be put through its full range of motion both actively and passively (with examiner assistance): forward flexion, extension, abduction, adduction, and internal and external rotation. Manual inspection of the periarticular structures will often provide important diagnostic information. Glenohumeral involvement is best detected by placing the thumb over the glenohumeral joint just medial and inferior to the coracoid process and applying pressure anteriorly while internally and externally rotating the humeral head. Pain localized to this region is indicative of glenohumeral pathology. Synovial effusion or tissue is seldom palpable but, if present, may suggest infection, RA, amyloidosis, or an acute tear of the rotator cuff. The examiner should apply direct manual pressure over the subacromial bursa that lies lateral to and immediately beneath the acromion (Fig. 393-4). Subacromial bursitis is a frequent cause of shoulder pain. Anterior to the subacromial bursa, the bicipital tendon traverses the bicipital groove. This tendon is best identified by palpating it in its groove as the patient rotates the humerus internally and externally. Direct pressure over the tendon may reveal pain indicative of bicipital tendinitis. Palpation of the acromioclavicular joint may disclose local pain, bony hypertrophy, or, uncommonly, synovial swelling. Whereas OA and RA commonly affect the acromioclavicular joint, OA seldom involves the glenohumeral joint, unless there is a traumatic or occupational cause.

Rotator cuff tendinitis or tear is a very common cause of shoulder pain. Nearly 30 percent of the elderly will have shoulder pain, with rotator cuff tendinitis or tear as the primary cause. The rotator cuff is formed by four tendons that attach the scapula to the proximal humerus (supraspinatus, infraspinatus, teres minor, and subscapularis tendons). Of these, the supraspinatus muscle is the most commonly damaged. Rotator cuff tendinitis is suggested by pain on active abduction (but not passive abduction), pain over the lateral deltoid muscle, night pain, and evidence of the impingement signs (pain with overhead arm activities). The Neer test for impingement is performed by the examiner raising the patient's arm into forced flexion while stabilizing and preventing rotation of the scapula. A positive sign is present if pain develops before 180° of forward flexion. Tear of the rotator cuff is common in the elderly and often results from trauma; it may manifest in the same manner as tendinitis. The drop arm test is abnormal with supraspinatus pathology and is demonstrated by passive abduction of the arm to 90° by the examiner. If the patient is unable to hold the arm up actively or unable to lower the arm slowly without dropping, the test is positive. Tendinitis or tear of the rotator cuff is best confirmed by magnetic resonance imaging (MRI) or ultrasound.

KNEE PAIN

Knee pain may result from intraarticular (OA, RA) or periarticular (anserine bursitis, collateral ligament strain) processes or be referred from hip pathology. A careful history should delineate the chronology of the knee complaint and whether there are predisposing conditions, trauma, or medications that might underlie the complaint. For example, patellofemoral disease (e.g., OA) may cause anterior knee pain that worsens with climbing stairs. Observation of the patient's gait is also important. The knee should be carefully inspected in the upright (weight-bearing) and supine positions for swelling, erythema, malalignment, visible trauma, muscle wasting, and leg length discrepancy. The most common malalignment in the knee is *genu varum* (bowlegs) or *genu valgum* (knock-knees) resulting from asymmetric cartilage loss medially or laterally. Bony swelling of the knee joint commonly results from hypertrophic osseous changes seen with disorders such as OA and neuropathic arthropathy. Swelling caused by hypertrophy of the synovium or synovial effusion may manifest as a fluctuant, ballotable, or soft tissue enlargement in the suprapatellar pouch (suprapatellar reflection of the synovial cavity) or regions lateral and medial to the patella. Synovial effusions may also be detected by balloting the patella downward toward the femoral groove or by eliciting a "bulge sign." With the knee extended, the examiner should manually compress, or "milk," synovial fluid down from the suprapatellar pouch and lateral to the patellae. The

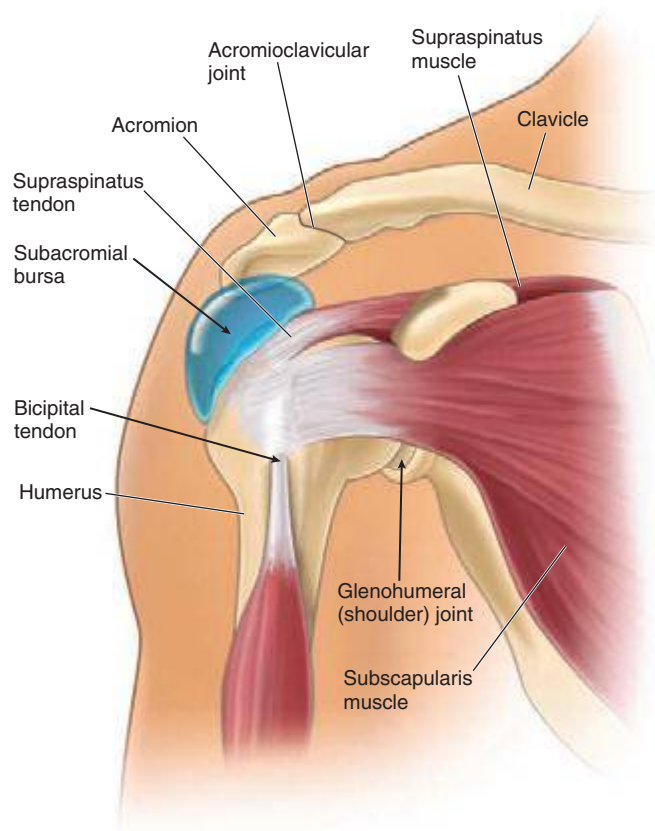


FIGURE 393-4 Origins of shoulder pain. The schematic diagram of the shoulder indicates with arrows the anatomic origins of shoulder pain.