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SOFT TISSUE RHEUMATISM AND JOINT INJECTION TECHNIQUES

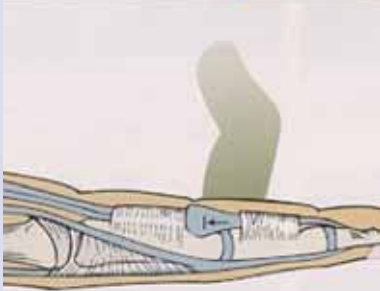
Non-articular musculoskeletal pain can arise as a result of tendinitis, bursitis, nerve entrapment syndromes, myofascial pain and fibromyalgia.

It is important to differentiate soft-tissue rheumatism from other causes of pain arising from the joint. The location of pain and inflammation, and presence of pain only on active range of motion may help to differentiate a soft-tissue problem from a joint problem. X-rays may be helpful by revealing joint problems although it must be pointed out that soft tissue problems can be the cause of pain and disability even when there is an underlying joint pathology.

TRIGGER FINGER

Clinical appearance

A trigger finger is the locking of one or several fingers in flexion so that the patient may have to pull the finger to straighten it. The cause is cartilaginous metaplasia at the first retaining pulley (at the palmar aspect of the metacarpophalangeal joint) which normally becomes taut during finger flexion. When 3 or more digits are affected, conditions such as diabetes and hypothyroidism should be considered.



Above Figure 1: Trigger Finger

Treatment

- Spontaneous improvement occurs in only 20% of cases. If untreated, the process can lead to an inability to straighten the finger and a permanent contracture
- Trigger finger is treated with corticosteroid infiltrations. With appropriate treatment, including up to 3 infiltrations, the success rate is over 95
- Rarely, surgery may be required for patients who refuse infiltrations or in whom infiltrations fail.

DE QUERVAIN'S TENOSYNOVITIS

Clinical appearance

Disabling pain in the radial aspect of the wrist at the base of the thumb. There is swelling and tenderness of the common sheath of the abductor pollicis longus and extensor pollicis brevis. De Quervain's tenosynovitis is particularly common in two settings: in mothers who repeatedly lift infants and young children and in people who use their hands in repetitive activities, such as knitting, sewing, and gardening. A positive Finkelstein's test is characteristic of the condition; in the painful hand, (a) the fully flexed thumb rests on the palm; (b) the fingers are curled over the thumb; and (c) the wrist is very gently deviated to the ulnar side. Acute pain along the tendon is diagnostic of de Quervain's tenosynovitis.

Treatment

- Corticosteroid infiltrations are very effective in de Quervain's tenosynovitis, although the success rate is slightly less than in trigger finger.
- Surgery is indicated in the event of treatment failures.

TENNIS ELBOW

Clinical appearance

Tennis elbow, or lateral epicondylitis, is common in middle-aged people, most of whom are not tennis players. Tennis elbow



results from overuse of the extensor carpi radialis brevis, a muscle that spans the lateral epicondyle, and the base of the third metacarpal, a wrist dorsiflexor. The diagnosis is suggested by the lateral location of the pain, which characteristically affects the soft tissues just distal to the epicondyle, plus pain reproduction by resisted dorsiflexion of the wrist. Passive elbow flexion and extension are normal. Medial epicondylitis (golfer's elbow) represents the mirror image of lateral epicondylitis.

Treatment

- Resolves spontaneously with time and rest of the affected arm
- Isometric and range of motion exercises for the entire upper extremity, including the shoulder, elbow, wrist, and fingers
- Local and systemic analgesics (capsaicin 0.025% 3-4 times a day plus acetaminophen 1g 3 times a day) and nonsteroidal anti-inflammatory drugs (NSAIDs)
- Corticosteroid infiltrations are frequently used in tennis elbow, and at least 50% of patients find immediate relief. However, recurrence is seen in 30% of these patients. About 10% of patients have chronic symptoms despite medical treatment, and repeated corticosteroid injections have been implicated in chronicity. Therefore, more than one injection is ill advised.

SHOULDER PAIN

Particular emphasis should be placed on determining whether paresthesias are present and, if so, their location. The common shoulder pain syndromes include rotator cuff tendinitis, subacromial impingement, frozen shoulder, and AC disease. ▶▶

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Rotator cuff tendinitis

Inflammation of the common tendon of the subscapularis, supraspinatus, infraspinatus, and teres minor may result from microcrystalline deposits (apatites), overuse, impingement on the tendon from above or below, or degenerative changes that occur with aging. Specific shoulder motions are painful, particularly abduction when combined with rotations. Range of passive motion is typically normal.

Subacromial impingement

The rotator cuff tendon, which courses through a narrow space between the acromion and the proximal humerus, may be impinged from above or below, or because increased tendon bulk acts as a tight-fitting wedge between the two bony boundaries. Impingement symptoms are largely those of tendinitis. In some cases, there are also symptoms related to the condition that causes the impingement, such as tenderness at an osteoarthritic AC joint.

Frozen shoulder

Frozen shoulder may occur in diabetic fibrosis, paraneoplastic syndrome and occasionally in scleroderma. Frozen shoulder should be distinguished from synovitis such as that seen in rheumatoid arthritis and ankylosing spondylitis, reduced motion caused by inactivity, rotator cuff tendinitis, and posttraumatic and postsurgical capsular retraction with limited joint motion. Because the joint capsule encircles the joint, passive and active shoulder motions are equally lost in all directions.

Differential diagnosis

The single feature that best assists in the diagnosis of shoulder pain is its location. The pain may be located at the top, side, front, back, or axillary sides of the joint. Lateral pain is characteristic of rotator cuff or glenohumeral disease, superior pain of AC or sternoclavicular conditions, anterior pain of bicipital tendinitis and early frozen shoulder, posterior pain of tears in labrum glenoidale and suprascapular neuropathy, and axillary pain of various neural causes. An important maneuver in establishing the presence of rotator cuff tendinitis and AC joint arthropathy is the arc of elevation test (Figure 1).

Treatment

■ Shoulder physical therapy should begin with pendular exercises during the

acute and subacute phases, followed by stretching and strengthening exercises later in the course of the disease. Heating the area with warm packs (or ultrasound) is particularly helpful prior to exercising because it facilitates stretching and provides analgesia.

- Nonsteroidal anti-inflammatory drugs
- Corticosteroid infiltrations are a very useful treatment in rotator cuff tendinitis, the initial phases of frozen shoulder, and AC osteoarthritis
- Surgery can relieve structural subacromial impingement, which is generally resistant to physical and anti-inflammatory therapy

HIP PAIN

Clinical appearance

Pain in the hip region may originate in tendinous, bursal, articular, or osseous structures or other soft tissues. It may also be due to radiculopathy or peripheral nerve injury, or be referred from elsewhere. The initial assessment should be based on the actual location of pain. Never take for granted that "hip pain" actually originates in the hip joint! To the presenting report "my hip hurts," ask "where in the hip?" The patient may point to the anterior, the lateral, or the posterior aspect of the joint.

Differential diagnosis

Anterior pain

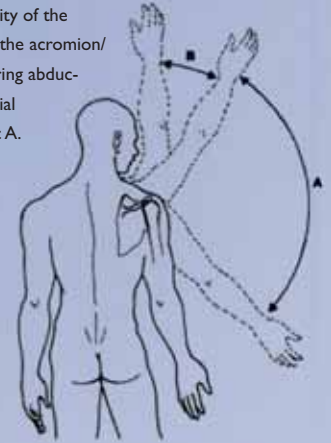
Pain originating in the hip joint is experienced anteriorly, mainly in the groin and anteromedial thigh. Hip joint disease is usually associated with limitation of motion and endpoint pain. Additional causes of anterior hip pain include iliopsoas tendinitis, capsular stretching, and iliopsoas bursitis.

Lateral pain

Diagnosis of lateral hip pain may be difficult. Hip arthritis in general does not solely cause lateral pain. Trochanteric bursitis affects the bursa between the fascia lata and the greater trochanter. Bursal inflammation of the bursae underlying the gluteus medius or minimus has also been described. Radiating pain from the lumbar spine is dull and is associated with lumbar/gluteal pain. Neuropathies affecting the subcostal, iliohypogastric, and lateral cutaneous nerve of the thigh (meralgia paresthetica) cause lateral pain, paresthesias, and hypoesthesia in the corresponding territories near the iliac crest,

Figure 2: The arc of elevation maneuver

Because the greater tuberosity of the humerus has to clear under the acromion/coracoacromial ligament during abduction, patients with subacromial impingement hurt during arc A. Once the greater tuberosity has cleared, pain ceases in arc B. A similar phenomenon occurs as the arm is brought down: no pain in arc B, pain in arc A, then no pain in full dependency. Because the acromioclavicular (AC) joint has its greatest motion in terminal elevation, patients with AC arthritis hurt in arc B. Finally, when the AC joint causes impingement, e.g., in osteoarthritis, there will be pain in arc A from impingement, plus pain in arc B from stress on the diseased joint.



the area just below it, and the lateral thigh, respectively. Radiographic studies are negative in routine cases of trochanteric bursitis but are very helpful in defining bone lesions. Echography and MRI effectively detect soft tissue tumors and trochanteric bursitis.

Posterior pain

Posterior hip pain is less common than anterior and lateral pain. Pain may originate in the lumbar spine, occasionally in the sacroiliac joint, and in some cases in the hip joint, although hip joint disease almost always has coexistent anterior pain. Pain that originates in the ischial tuberosity (ischial bursitis) is aggravated by sitting.

Treatment

- Trochanteric bursitis involves identification of underlying factors, such as a 2.5-cm leg length discrepancy in favor of the affected side plus ipsilateral iliotibial band contracture, and is key to a successful long-term treatment. In such a patient, a 1.25-cm heel lift should be provided for the short limb, and the patient should be referred to physical therapy for instruction on iliotibial band stretching exercises.
- Corticosteroid infiltration is an effective mode of therapy.
- Patients refractory to medical therapy should be evaluated by an orthopedist. A longitudinal split of the iliotibial band, which relieves pressure on the underlying trochanteric bursae, often alleviates the pain. ➤ continues on pg52

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KNEE PAIN

Differential diagnosis

Anterior pain

Pain in the anterior knee may be caused by many problems including patellofemoral syndrome (chondromalacia patella); tender, inflamed medial plica which will jump under the examining finger in a medial parapatellar location during flexion and extension movements of the joint; prepatellar bursitis evident as a tender, soft tissue lump in front of the patella. Osgood-Schlatter's disease in pediatric cases results in a tender, hard lump at the tibial tuberosity.

Medial pain

Pain over the medial aspect of the knee is usually caused by a meniscal tear in a younger patient and medial compartment osteoarthritis in patients past the age of 50 years. Anserine bursitis hurts on pressure 3-5 cm distal to the medial articular line.

Medial collateral ligament bursitis, which overlaps the articular line, hurts more on pressure in flexion when the bursa is exposed than in extension when the sacs gets covered by the medial collateral ligament.

Lateral pain

Pain in the lateral knee is seen in the iliotibial band syndrome, a condition that results from the excessive friction of a tight iliotibial band on the lateral femoral condyle. Patients with this syndrome report lateral knee pain while running, going up or downstairs, and bicycling. On examination with the knee in semiflexion, a tender spot is found on the lateral femoral condyle anterior to the band. Tenderness decreases or disappears when the knee is fully extended. Other conditions affecting the lateral knee include meniscal tears and cysts, as well as the biceps femoris tenosynovitis in which there is tenderness in the posterolateral corner of the joint.

Posterior pain

Pain in the posterior knee may be caused by popliteal (Baker's) cysts, various lesions affecting the popliteal artery, venous thrombosis, hematomas, ganglia, and soft tissue tumors including sarcomas. Foucher's maneuver is very useful in distinguishing popliteal cysts from other mass lesions. When the knee is flexed 30-40 degrees, Baker's cysts become soft or undetectable (a positive Foucher's sign) while other popliteal masses remain unchanged. Echography, with Doppler, is particularly helpful in the analysis of posterior knee pain. Venous disease, popliteal artery aneurysms, solid tumors, and ganglia can

be reliably identified by this method.

Treatment

- Isometric quadriceps exercises
- Use of a cane on the opposite side
- Local or systemic analgesics or NSAIDs may be used Both warm packs and cold compresses are analgesic, the effect varying with the individual patient
- Anserine bursitis, medial collateral ligament bursitis, and the iliotibial band syndrome respond particularly well to corticosteroid infiltrations
- Medial plica syndrome, tight lateral retinaculum, and meniscal pathology including ruptured menisci and meniscal cysts are amenable to arthroscopic surgery
- Baker's cysts are best treated by knee drainage followed by intraarticular corticosteroids

POSTERIOR HEEL PAIN

An enlarged superficial bursa can be readily identified superficial to the Achilles tendon, which is best determined while the tendon is tense. Thickening and tenderness may be felt at the insertional or non-insertional Achilles tendon. The presence of nodules at the noninsertional area (in the absence of nodular rheumatoid arthritis and tophaceous gout) suggests partial rupture and is therefore a warning sign for a complete rupture. The extent and severity of the lesion can be fully disclosed by echography or MRI. Insertional tendinitis can be diagnosed clinically. A lateral x-ray of the heel may show an intrabursal effusion characteristic of retrocalcaneal bursitis.

Treatment

- Better shoes
- NSAIDs
- Noninsertional tendinitis patients should be referred to an orthopedist with broad experience in foot pathology, as tendon debridement or repair may be indicated
- Insertional tendinitis in the spondylarthropathies usually responds to systemic treatment.
- Corticosteroid infiltrations in the retrocalcaneal bursa are very effective treatment but care must be taken not to infiltrate the tendon, which could lead to tendon rupture
- Use of heel lifts to decrease traction on the Achilles tendon and gently performed tendon stretching exercises. Also, the use of a night splint that holds the foot at 90 degrees has been recommended for pain relief.

PLANTAR HEEL PAIN

Clinical appearance

The pain is maximal when the patient first stands in the morning and tends to decrease with walking. There are 4 clinical contexts in which the symptom develops. Fat pad failure is seen in obese patients with attrition of the plantar fat pad, in patients with a thin and flabby plantar pad, and as an iatrogenic condition in patients who sustained multiple plantar corticosteroid infiltrations for heel spurs. "Plantar fasciitis" is seen in runners with interstitial fascial rupture, in patients with flat, pronated feet in whom a collapsed longitudinal arch stretches the fascia, and in patients with spondylarthropathy and enthesitis at the calcaneal insertion. The tarsal tunnel syndrome results in plantar pain and paresthesias. It is due to a pressure neuropathy of the calcaneal branches of the posterior tibial nerve or the first branch of the lateral plantar nerve. Both are more likely to occur in patients with flat, pronated feet from excessive pressure on the medial edge of the heel. Stress fractures of the calcaneus and calcaneal cysts can also cause plantar heel pain.

Treatment

- Heel cup
- NSAIDs
- Achilles tendon and plantar fascia stretching exercises are useful once the condition becomes inactive and may help prevent recurrences
- Corticosteroid infiltrations should be avoided and reserved for those patients who have not benefited from a more conservative program including NSAIDs in full doses for 6 weeks.
- Laser therapy was found ineffective in a well-designed controlled trial
- Because spurs do not cause the pain in noninflammatory cases, they should not be surgically removed
- Plantar fasciotomy is a salvage procedure for severe, long-standing cases. There is a partial collapse of the longitudinal arch following this procedure. ■

Below Figure 3: Common ankle and foot problems

