

Clubfoot

Talipes equinovarus varies greatly in severity. Deformity may be so extreme that the toes touch the inside of the ankle, or it may be only vaguely apparent. In every case, the talus is deformed, the Achilles tendon shortened, and the calcaneus somewhat shortened and flattened. Depending on the degree of the varus deformity, the calf muscles are shortened and underdeveloped, and soft-tissue contractures form at the site of the deformity. The foot is tight in its deformed position and resists manual efforts to push it into normal position. Clubfoot is painless, except in elderly, arthritic patients. In older children, clubfoot may be secondary to paralysis, poliomyelitis, or cerebral palsy, in which case treatment must include management of the underlying disease.

Developmental dysplasia of the hip

Clinical effects of hip dysplasia vary with age. In neonates, dysplasia doesn't cause gross deformity or pain. However, in complete dysplasia, the hip rides above the acetabulum, causing the level of the knees to be uneven. As the child grows older and begins to walk, the abduction on the dislocated side is limited. Uncorrected bilateral dysplasia may cause him to sway from side to side, a condition known as "duck waddle"; unilateral dysplasia may produce a limp. If corrective treatment isn't begun until after age 2, DDH may cause degenerative hip changes, lordosis, joint malformation, and soft-tissue damage.

Muscular dystrophy

Although all four types of muscular dystrophy cause progressive muscular deterioration, the degree of severity and age of onset vary. Duchenne's muscular dystrophy begins insidiously, between ages 3 and 5. Initially, it affects leg and pelvic muscles but eventually spreads to the involuntary muscles. Muscle weakness produces a waddling gait, toe walking, and lordosis. Children with this disorder have difficulty climbing stairs, fall down often, can't run properly, and their scapulae flare out (or "wing") when they raise their arms. Calf muscles especially become enlarged and firm. Muscle deterioration progresses rapidly, and contractures develop. Some have abrupt intermittent oscillations of the irises in response to light (Gower's sign). Usually, these children are confined to wheelchairs by ages 9 to 12. Late in the disease, progressive weakening of cardiac muscle causes tachycardia, electrocardiogram abnormalities, and pulmonary complications. Death commonly results from sudden heart failure, respiratory failure, or infection. Signs and symptoms of Becker's muscular dystrophy resemble those of Duchenne's muscular dystrophy, but they progress more slowly. Although symptoms start around age 5, the patient can still walk well beyond age 15 — sometimes into his 40s. Cardiac involvement is much less frequent. Facioscapulohumeral dystrophy is a slowly progressive and relatively benign form of muscular dystrophy that commonly occurs before age 10 but may develop during early adolescence. The earlier the disease occurs, the more rapid and progressive it is. Initially, it weakens the muscles of the face, shoulders, and upper arms but eventually spreads to all voluntary muscles, producing a pendulous lower lip and absence of the nasolabial fold. Early symptoms include the inability to pucker the mouth or whistle, abnormal facial movements, and the absence of facial P movements when laughing or crying. Other signs consist of diffuse facial flattening that leads to a masklike expression, winging of the scapulae, the inability to raise the arms above the head and, in infants, the inability to suckle. Limb-girdle dystrophy follows a similarly slow course and commonly causes only slight disability. Usually, it begins between ages 6

and 10; less commonly, in early adulthood. The later the onset, the more rapid the progression. Muscle weakness first appears in the upper arm and pelvic muscles. Other symptoms include winging of the scapulae, lordosis with abdominal protrusion, waddling gait, poor balance, and the inability to raise the arms.

Septic arthritis

Acute septic arthritis begins abruptly, causing intense pain, inflammation, and swelling of the affected joint and low-grade fever. It usually affects a single joint. It most commonly develops in the large joints but can strike any joint, including the spine and small peripheral joints. The hip is a frequent site in infants. Systemic signs of inflammation may not appear in some patients. Migratory polyarthritis sometimes precedes localization of the infection. If the bacteria invade the hip, pain may occur in the groin, upper thigh, or buttock or may be referred to the knee.

Gout

Gout develops in four stages: asymptomatic, acute, intercritical, and chronic. In asymptomatic gout, serum urate levels rise but produce no symptoms. As the disease progresses, it may cause hypertension or nephrolithiasis, with severe back pain. The first acute attack strikes suddenly and peaks quickly. Although it generally involves only one or a few joints, this initial attack is extremely painful. Affected joints are hot, tender, inflamed, and appear dusky-red or cyanotic. The metatarsophalangeal joint of the great toe usually becomes inflamed first (podagra), followed by the instep, ankle, heel, knee, or wrist joints. Sometimes a low-grade fever is present. Mild acute attacks usually subside quickly but tend to recur at irregular intervals. Severe attacks may persist for days or weeks.

Neurogenic arthropathy

Neurogenic arthropathy begins insidiously with swelling, warmth, decreased mobility, and instability in a single joint or in many joints. It can progress to deformity. The first clue to vertebral neuroarthropathy, which progresses to gross spinal deformity, may be nothing more than a mild, persistent backache. Characteristically, pain is minimal despite obvious deformity. The specific joint affected varies according to the underlying cause. Diabetes usually attacks the joints and bones of the feet; tabes dorsalis attacks the large weight-bearing joints, such as the knee, hip, ankle, or lumbar and dorsal vertebrae (Charcot spine); syringomyelia causes occurrence in the shoulder, elbow, or cervical intervertebral joint. P Neurogenic arthropathy caused by intra-articular injection of corticosteroids usually develops in the hip or knee joint.

Osteoarthritis

The most common symptom of osteoarthritis is a deep, aching joint pain, particularly after exercise or weight bearing, usually relieved by rest. Other symptoms include stiffness in the morning and after exercise (relieved by rest), aching during changes in weather, "grating" of the joint during motion, altered gait contractures, joint instability, and limited movement. These symptoms increase with poor posture, obesity, and stress to the affected joint. Osteoarthritis of the interphalangeal joints produces irreversible joint changes and node formation. The nodes eventually become red, swollen, and tender, causing numbness and loss of dexterity.

Osteomyelitis

Onset of acute osteomyelitis is usually rapid, with sudden pain accompanied by tenderness, heat, swelling, and restricted movement of the affected area. Associated systemic symptoms may include tachycardia, sudden fever, nausea, and malaise. Generally, the clinical features of both chronic and acute osteomyelitis are the same, except that chronic infection can persist intermittently for years, flaring up spontaneously after minor trauma. Sometimes, however, the only symptom of chronic infection is the persistent drainage of pus from an old pocket in a sinus tract.

Osteoporosis

Osteoporosis is usually discovered incidentally on roentgenograms; the patient may have been asymptomatic for years. Vertebral collapse, causing a backache with pain that radiates around the trunk, is the most common presenting feature. Any movement or jarring aggravates the backache. In another common pattern, osteoporosis can develop insidiously, with increasing deformity, kyphosis, and loss of height. Sometimes a dowager hump is present. As bones weaken, spontaneous wedge fractures, pathologic fractures of the neck or femur, Colles' fractures after a minor fall, and hip fractures become increasingly common. Osteoporosis primarily affects the weight-bearing vertebrae. Only when the condition is advanced or severe, as in Cushing's syndrome or hyperthyroidism, do comparable changes occur in the skull, ribs, and long bones.

Legg-Calvé-Perthes disease

The first indication of Legg-Calvé-Perthes disease is usually a persistent thigh pain or limp that becomes progressively severe. This symptom appears during the second stage, when bone resorption and deformity begin. Other effects may include mild pain in the hip, thigh, or knee that's aggravated by activity and relieved by rest; muscle spasm; atrophy of muscles in the upper thigh; slight shortening of the leg; and severely restricted abduction and internal rotation of the hip.

Osgood-Schlatter disease

The patient complains of constant aching and pain and tenderness over the tibial tubercle, which worsens during any activity that causes forceful contraction of the patellar tendon on the tubercle, such as ascending or descending stairs, running, squatting, jumping, or forced flexion. The pain may be associated with some obvious soft-tissue swelling and localized heat and tenderness.

Paget's disease

Clinical effects of Paget's disease vary. Early stages may be asymptomatic, but when pain does develop, it's usually severe and persistent and may coexist with impaired movement resulting from impingement of abnormal bone on the spinal cord or sensory nerve root. Such pain intensifies with weight bearing. The patient with skull involvement shows characteristic cranial enlargement over frontal and occipital areas (hat size may increase) and may complain of headaches. Other deformities include kyphosis (spinal curvature due to compression fractures of pagetic vertebrae), accompanied by a barrel-shaped chest and asymmetrical bowing of the tibia and femur, which commonly reduces height. Pagetic sites are warm and tender and are susceptible to pathologic

fractures after minor trauma. Pagetic fractures heal slowly and usually incompletely. Bony impingement on the cranial nerves may cause blindness and hearing loss with tinnitus and vertigo. Other complications include hypertension, renal calculi, hypercalcemia, gout, heart failure, a waddling gait (from softening of pelvic bones), and hearing loss.

Hallux valgus

Hallux valgus characteristically begins as a tender bunion covered by deformed, hard, erythematous skin and palpable bursa, typically distended with fluid. The first indication of hallux valgus may be pain over the bunion from shoe pressure. Pain can also stem from traumatic arthritis, bursitis, or abnormal stresses on the foot because hallux valgus changes the body's weight-bearing pattern. In an advanced stage, a flat, splayed forefoot may occur, with severely curled toes (hammer toes) and formation of a small bunion on the fifth metatarsal.

Kyphosis

Development of adolescent kyphosis is usually insidious and may be asymptomatic except for the obvious curving of the back (sometimes more than 90 degrees). In some adolescents, kyphosis may produce mild pain at the apex of the curve (about 50% of patients), fatigue, tenderness or stiffness in the involved area or along the entire spine, and prominent vertebral spinous processes at the lower dorsal and upper lumbar levels, with compensatory increased lumbar lordosis, and hamstring tightness. Rarely, kyphosis may cause neurologic damage: spastic paraparesis secondary to spinal cord compression or herniated nucleus pulposus. In both adolescent and adult forms of kyphosis that aren't due to poor posture alone, the spine won't straighten when the patient assumes a recumbent position. Adult kyphosis produces a characteristic roundback appearance, possibly associated with pain, weakness of the back, and generalized fatigue. Unlike the adolescent form, adult kyphosis rarely produces local tenderness, except in osteoporosis with a recent compression fracture.

Herniated disk

The overriding symptom of lumbar herniated disk is severe low-back pain that radiates to the buttocks, legs, and feet, usually unilaterally. When herniation follows trauma, the pain may begin suddenly, subside in a few days, and then recur at shorter intervals and with progressive intensity. Sciatic pain follows, beginning as a dull pain in the buttocks. Valsalva's maneuver, coughing, sneezing, or bending intensifies the pain, which is commonly accompanied by muscle spasms. Herniated disk may also cause paresthesias or hyperesthesias, as well as sensory and motor loss in the area innervated by the compressed spinal nerve root and, in later stages, weakness and atrophy of leg muscles.

Scoliosis

The most common curve in functional or structural scoliosis arises in the thoracic segment, with convexity to the right, and compensatory curves (S curves) in the cervical segment above and the lumbar segment below, both with convexity to the left. (See Cobb method for measuring angle of curvature.) As the spine curves laterally, compensatory curves develop to maintain body balance and mark the deformity. Scoliosis rarely produces subjective symptoms until it's well established; when

symptoms do occur, they include backache, fatigue, and dyspnea. Because many teenagers are shy about their bodies, their parents suspect that something is wrong only after they notice uneven hemlines, pant legs that appear unequal in length, or subtle physical signs like one hip appearing higher than the other. Untreated scoliosis may result in pulmonary insufficiency (curvature may decrease lung capacity), back pain, degenerative arthritis of the spine, disk disease, and sciatica.

Tendinitis and bursitis

The patient with tendinitis of the shoulder complains of restricted shoulder movement, especially abduction, and localized pain, which is most severe at night and usually interferes with sleep. The pain extends from the acromion (the shoulder's highest point) to the deltoid muscle insertion, predominantly in the so-called painful arc—that is, when the patient abducts his arm between 50 and 130 degrees. Fluid accumulation causes swelling. In calcific tendinitis, calcium deposits in the tendon cause proximal weakness and, if calcium erodes into adjacent bursae, acute calcific bursitis. In bursitis, fluid accumulation in the bursae causes irritation, inflammation, sudden or gradual pain, and limited movement. Other symptoms vary according to the affected site. Subdeltoid bursitis impairs arm abduction, prepatellar bursitis (housemaid's knee) produces pain when the patient climbs stairs, and hip bursitis makes crossing the legs painful.

Epicondylitis

The patient's initial symptom is elbow pain that gradually worsens and commonly radiates to the forearm and back of the hand whenever he grasps an object or twists his elbow. Other associated signs and symptoms include tenderness over the involved lateral or medial epicondyle or over the head of the radius and a weak grasp. In rare instances, epicondylitis may cause local heat, swelling, or restricted range of motion.

Achilles tendon contracture

Sharp, spasmodic pain during dorsiflexion of the foot characterizes the reflex type of Achilles tendon contracture. In footdrop (fixed equinus), contracture of the flexor foot muscle prevents placing the heel on the ground.

Carpal tunnel syndrome

The patient with carpal tunnel syndrome usually complains of weakness, pain, burning, numbness, or tingling in one or both hands. This paresthesia affects the thumb, forefinger, middle finger, and half of the fourth finger. The patient is unable to clench his hand into a fist; the nails may be atrophic, the skin dry and shiny. Because of vasodilatation and venous stasis, symptoms are typically worse at night and in the morning. The pain may spread to the forearm and, in severe cases, as far as the shoulder or neck. The patient can usually relieve such pain by shaking or rubbing his hands vigorously or dangling his arms at his side.

Torticollis

The first sign of acquired torticollis is usually recurring unilateral stiffness of neck muscles followed by a drawing sensation and a momentary twitching or contraction that pulls the head to the affected

side. This type of torticollis commonly produces severe neuralgic pain throughout the head and neck.

Rhabdomyolysis

Signs and symptoms of rhabdomyolysis include myalgias or muscle pain (especially in the thighs, calves, or lower back), weakness, tenderness, malaise, fever, dark urine, nausea, and vomiting. The patient may also experience weight gain, seizures, joint pain, and fatigue. Symptoms may be subtle initially. Rhabdomyolysis can result in acute renal failure.