

joint or neuropathic arthropathy. Tarsal, metatarsophalangeal, and tarsometatarsal joints are most commonly involved, and it can be confused with osteomyelitis on radiographs.

Diffuse idiopathic skeletal hyperostosis (DISH) is seen in up to 20% of diabetic patients, who are typically obese and older than 50 years. It is associated with neck and back stiffness rather than pain. Lateral radiographic views of the spine show four or more contiguously fused vertebrae as a result of flowing ossification of the anterior longitudinal ligament without involvement of apophyseal (facet) joints.

Diabetic amyotrophy (i.e., diabetic lumbosacral radiculoplexus neuropathy) is remarkable for acute or subacute onset of severe hip, buttock, or thigh pain followed by progressive weakness of the affected extremity. It occurs typically in older male patients who have relatively well-controlled diabetes, and there are often preceding anorexia, weight loss, and unsteady gait.

Hypothyroidism

Almost one third of patients with hypothyroidism have musculoskeletal symptoms. Arthritis of hypothyroidism can resemble early rheumatoid arthritis, affecting small joints of the hands and wrists, but it is not erosive or deforming. In contrast, myxedematous arthropathy classically involves large joints such as knees.

Many hypothyroid patients experience carpal tunnel syndrome, trigger finger, Raynaud phenomenon, and pseudogout. Acute pseudogout can be a presenting feature of hypothyroidism.

Hypothyroidism can also cause a broad spectrum of muscular diseases. Hypothyroid patients may have asymptomatic elevation of muscle enzymes, but a few patients develop proximal muscle weakness or polymyositis-like syndrome. Patients may complain of fatigue, malaise, and fibromyalgia-like generalized muscle pain. Rarely, hypothyroid myopathy manifests with muscle enlargement, stiffness, and muscle cramps (i.e., Hoffmann's syndrome).

Hyperthyroidism

Common rheumatic symptoms of hyperthyroidism include proximal myopathy, periartthritis of the shoulder, thyroid acropachy (i.e., thickened skin with periosteal new bone formation), and osteoporosis. Proximal muscle weakness is more frequently observed in elderly patients with apathetic or masked hyperthyroidism. Asking a patient to stand from a squat position can reveal the proximal muscle weakness.

Hyperparathyroidism

Musculoskeletal symptoms, often widespread and nonspecific, are common in hyperparathyroidism and can be the clinical presentation for many patients. The musculoskeletal manifestations of hyperparathyroidism include osteitis fibrosa cystica (i.e., bone pain, osteopenia, and bony cysts), subperiosteal resorption, pseudogout, rheumatoid arthritis-like disorder, diffuse osteopenia, spinal compression fracture, and proximal myopathy. Secondary hyperparathyroidism is the leading cause of renal osteodystrophy in chronic kidney disease.

Acromegaly

Acromegalic arthropathy commonly develops in the large joints and is seen in approximately 70% of the patients with acromegaly. Overgrowth of cartilage initially produces joint space widening,

but it may eventually lead to severe osteoarthritis with pain, limited range of motion, and deformity.

GASTROINTESTINAL DISEASES WITH RHEUMATIC MANIFESTATIONS

Whipple's Disease

Whipple's disease is a rare, multisystemic disease that most often affects the gastrointestinal tract. It is caused by infection with *Tropheryma whippelii*. Musculoskeletal symptoms of Whipple's disease are the most common prodrome, and they may exist for years before the diagnosis. Intermittent migratory oligoarthritis of large joints is typical, but some patients may have a florid polyarthritis. Synovial fluid is usually inflammatory with predominant mononuclear cells. Radiographs are often normal.

Hemochromatosis

Hemochromatosis is one of the most common genetic diseases among people with northern European ancestry, and it is frequently associated with osteoarthritis-like arthropathy, chondrocalcinosis, and osteoporosis. The second and third metacarpophalangeal joints of both hands are typically involved, and hooklike osteophytes on the radial side of the metacarpal are characteristic in radiographs. Chondrocalcinosis of the wrist and knee is very common in patients with hemochromatosis. Acute attacks of pseudogout can be a predominant clinical manifestation. Treatment with regular phlebotomies and iron chelation has little effect on the arthropathy.

Primary Biliary Cirrhosis

Primary biliary cirrhosis is frequently associated with other autoimmune diseases, such as limited scleroderma, rheumatoid arthritis, SS, and autoimmune thyroid disease. Vitamin D deficiency is highly prevalent among patients with primary biliary cirrhosis, and the risk of developing osteoporosis is markedly increased in women with this disease.

OTHER SYSTEMIC ILLNESSES WITH RHEUMATIC MANIFESTATIONS

Human Immunodeficiency Virus Infection

Patients with human immunodeficiency virus (HIV) disease may have osteomyelitis, osteonecrosis, reactive arthritis, or psoriatic arthritis.

Sarcoidosis

Clinical features of sarcoidosis can mimic those of many acute and chronic rheumatic diseases. Acute sarcoidosis or Löfgren's syndrome manifests with fever, erythema nodosum, hilar lymphadenopathy, and acute polyarthritis, almost invariably involving the ankles and knees. The arthritis is usually self-limited and tends to be nondeforming and nonerosive.

Chronic sarcoid arthritis is less common and usually associated with active multisystemic disease. Osseous involvement can be a focal or generalized and occurs in about 5% of patients with sarcoidosis. Bone cysts are usually asymptomatic, but they can manifest in the phalanges with sausage-like fingers or