



clinical illness. Serologies are also helpful in determining past exposure to CMV. This information is particularly relevant for monitoring immunosuppressed hosts at risk for CMV reactivation syndromes.

Primary Human Immunodeficiency Virus Infection

Because a variety of symptoms and signs may be associated with acute, symptomatic HIV infection, all patients with mononucleosis syndromes should undergo HIV testing. Published series consistently report that the most common findings are fever, generalized lymphadenopathy, sore throat, rash, myalgia or arthralgia, and headache. The HIV plasma viral load should be assessed to detect acute infection because the ELISA result may not indicate positivity for HIV until months later.

Toxoplasmosis

Toxoplasmosis, an infection with a worldwide distribution, is caused by the intracellular protozoan parasite *T. gondii*. Humans can acquire *Toxoplasma* organisms through ingestion of contaminated meat, vertical transmission, blood transfusion, exposure to oocysts from cat feces, or organ transplantation.

Immunocompetent persons with primary infection are usually asymptomatic, but latent infection can persist for the life of the host. When symptomatic infection does occur, the most common manifestation is bilateral, symmetrical, nontender cervical adenopathy. Patients may have headache, fever, and fatigue. Symptoms usually resolve within several weeks. In AIDS patients or other immunocompromised hosts who have been previously infected, *T. gondii* infection may reactivate in the brain, causing abscesses and encephalitis.

Infections Causing Regional Lymphadenopathy

Scrofula (i.e., tuberculous cervical adenitis) develops in a subacute to chronic pattern. Low-grade fever is usually associated with a large mass of matted cervical lymph nodes. In children, *M. tuberculosis* is the etiologic agent, but in adults, *Mycobacterium avium* complex and *Mycobacterium scrofulaceum* are more commonly found. Surgical excision is the treatment of choice.

Cat-Scratch Disease

Cat-scratch disease, a condition caused by *Bartonella henselae*, is characterized by self-limited regional lymphadenopathy after a cat scratch or transmission from another vector. Other manifestations can include visceral organ, neurologic, and ocular involvement. In 85% to 90% of children, cat-scratch disease manifests as a localized cutaneous and lymph node disorder near the site of organism inoculation. In some individuals, the organisms disseminate and infect the liver, spleen, eye, bone, or CNS. Patients with localized disease usually have a self-limited illness, whereas those with disseminated disease can have life-threatening complications. *B. henselae* infection should be considered in the initial evaluation of FUO in children.

The diagnosis of cat-scratch disease is based on typical clinical findings (i.e., lymphadenopathy) associated with probable exposure to cats or fleas. Laboratory testing that supports the diagnosis includes a positive *B. henselae* antibody titer or biopsy of a

lymph node with a positive Warthin-Starry stain or polymerase chain reaction (PCR) analysis of tissue.

Pyogenic Infection

S. aureus and group A streptococcal (GAS) infections can produce acute, suppurative lymphadenitis. Enlarged and tender lymph nodes usually are found in the submandibular, cervical, axillary, or inguinal areas. Patients have fever and leukocytosis. Pyoderma, pharyngitis, and periodontal infections are usually the primary sites of infection. Management includes drainage and antibiotics.

Plague

Bubonic plague is a bacterial syndrome caused by *Yersinia pestis* that usually consists of fever, headache, and a large mat of inguinal, axillary, or cervical lymph nodes. Lymph nodes suppurate and drain spontaneously. The diagnosis should be considered for acutely ill patients in the southwestern United States with possible exposure to fleas and rodents. Gram-negative coccobacilli can be seen in lymph node aspirates. The characteristic safety-pin appearance of *Y. pestis* with dark blue staining of polar bodies is seen with Wayson stain.

Sexually Transmitted Diseases

Inguinal lymphadenopathy associated with sexually transmitted diseases can be unilateral or bilateral. In primary syphilis, enlarged nodes are discrete, firm and nontender. Tender lymphadenopathies with matting are seen in lymphogranuloma venereum. The lymphadenopathy of chancroid is most often unilateral and manifests with pain and fused lymph nodes. Primary genital herpes infection also causes tender inguinal lymphadenopathy.

FACTITIOUS FEVER AND SELF-INDUCED ILLNESS

In most case series, factitious fever or self-induced illness is a relatively uncommon cause of FUO, but it may occur more often than generally appreciated. Patients with these conditions are often young women, and 50% have had training in some aspect of health care. They are often well educated, cooperative, articulate, and manipulative of family and caregivers. Patients can no longer manipulate thermometers because electronic or infrared thermometry is used, and causing factitious fever is difficult. Clues to the factitious fever diagnosis include absence of a toxic appearance despite high temperature readings, lack of tachycardia, and absent diurnal variation. Patients may appear well between episodes of fever.

Genuine fever can be induced if an individual injects or ingests pyrogenic substances such as bacterial suspensions, urine, or feces. Although intermittent polymicrobial bacteremia may suggest a diagnosis of intra-abdominal abscess, it represents self-induced infection. The discovery of needles and substances for injection in the patient's belongings may help in the diagnosis.

In most cases, a psychogenic basis for the behavior is assumed. However, one study with detailed psychological patient analyses found no evidence of major psychiatric diagnoses among individuals with self-induced or simulated illnesses. Munchausen's syndrome and Munchausen by proxy are the most extreme forms of factitious fever. Patients often agree stoically to numerous highly invasive procedures to diagnose and treat themselves or their