involvement has been well described, and a thorough history and examination to exclude neurologic complications is important in the evaluation of incident cases. Treatment regimens for persons with HIV, based on stage of presentation, are the same as for those without HIV. However, persons with HIV take longer to achieve a full reduction in rapid plasma reagin (RPR) titer and may continue to have low-level demonstrable RPR titers even after successful treatment.

Recurrent genital ulcers are most often caused by HSV. Viral culture or specific immunofluorescence of ulcer scrapings confirms the diagnosis.

Candida species, most often *Candida albicans*, can cause an irritating vulvovaginitis in women with HIV infection as well as in healthy HIV-seronegative women. A potassium hydroxide preparation of the cheesy white exudate reveals budding yeast or pseudohyphae.

Bacterial vaginosis and trichomoniasis are common, and although both typically respond to specific treatment (e.g., metronidazole), bacterial vaginosis often recurs.

For more information on sexually transmitted diseases, see Chapter 100.

Nervous System Diseases

Nervous system complications ultimately occur in most persons with untreated HIV infection. They range from mild cognitive disturbances or peripheral neuropathy to severe dementia and life-threatening central nervous system (CNS) infections. As with other lentiviruses, HIV enters microglial cells of the CNS early in the course of infection. Both direct neuronal destruction and effects of viral proteins on neuronal cell function may contribute to nervous system disease in AIDS.

Cognitive Dysfunction

Intellectual impairment rarely occurs early in HIV infection, but subtle changes (e.g., decreased learning accuracy and learning speed) may be present in patients with only moderate immunodeficiency. AIDS dementia complex (ADC) often begins insidiously and usually progresses over months to years. ADC is characterized by poor concentration, diminished memory, slowing of thought processes, motor dysfunction, and occasionally behavioral abnormalities characterized by social withdrawal and apathy. Symptoms of clinical depression overlap with many of the characteristics of early ADC and must be considered carefully in differential diagnosis and therapy.

Computed tomography (CT) of the head in ADC reveals only atrophy, with enlarged sulci and ventricles, but these findings do not reliably predict cognitive deficits. The CSF is most often normal on examination. Motor abnormalities may include a progressive gait ataxia. As the disease progresses, patients may develop focal neurologic complications characterized by spastic weakness of the lower extremities and incontinence secondary to vacuolar myelopathy.

Focal Lesions of the Central Nervous System

A large variety of neurologic problems can complicate the later stages of HIV infection. A neuroanatomic classification of these manifestations is presented in Table 101-8. Some of the more frequent or treatable problems are discussed here and in the next section.

Several opportunistic complications of HIV infection produce focal CNS lesions. Patients with focal neurologic signs, seizures of new onset, or recent onset of rapidly progressive cognitive impairment should undergo magnetic resonance imaging (MRI) or CT of the brain. Toxoplasmosis, CNS lymphoma, and progressive multifocal leukoencephalopathy (PML) are the most common causes of CNS focal lesions in this setting (Table 101-9).

In the absence of ART, *T. gondii* encephalitis occurs in up to one third of HIV-infected patients who have serologic evidence of *T. gondii* infection, but is rare in individuals who have no such antibodies. Patients often have progressive headache and focal neurologic abnormalities, usually associated with fever. CT with contrast usually shows multiple ring-enhancing lesions. MRI is a more sensitive technique and often shows multiple small lesions

TABLE 101-8 NEUROANATOMIC CLASSIFICATION OF NEUROLOGIC COMPLICATIONS OF HIV INFECTION

CATEGORY	CONDITION
Meningitis and headache	Aseptic meningitis
	Cryptococcal meningitis
	Tuberculous meningitis
	Neurosyphilis
Diffuse brain diseases	
With preservation of consciousness	AIDS dementia complex
	Neurosyphilis
With decreased arousal	*Toxoplasma* encephalitis
	Cytomegalovirus encephalitis
Focal brain diseases	Tuberculous brain abscess
	Primary central nervous system lymphoma
	Progressive multifocal leukoencephalopathy
	Cerebral toxoplasmosis
	Neurosyphilis
Myelopathies	Subacute or chronic progressive vacuolar myelopathy
	Cytomegalovirus myelopathy
Peripheral neuropathies	Predominantly sensory polyneuropathy
	Toxic neuropathies
	Autonomic neuropathy
	Cytomegalovirus polyradiculopathy
Myopathies	Noninflammatory myopathy
	Zidovudine myopathy

TABLE 101-9 NEUROLOGIC COMPLICATIONS OF HIV INFECTION

	CLINICAL ONSET			NEURORADIOLOGIC FEATURES		
CONDITION	***Time***	***Alertness***	***Fever***	***Number of Lesions***	***Characteristics of Lesions***	***Location of Lesions***
Cerebral toxoplasmosis	Days	Reduced	Common	Usually multiple	Spherical, ring enhancing	Basal ganglia, cortex
Primary CNS lymphoma	Days to weeks	Variable	Absent	One or few	Irregular, weakly ring enhancing	Periventricular
PML	Weeks to months	Variable	Absent	Often multiple	Multiple lesions visible on MRI	White matter

MRI, Magnetic resonance imaging; PML, progressive multifocal lymphoma.