appears to have occurred with cadaveric dura mater grafting, corneal transplantation, receipt of human growth hormone or pituitary gonadotropin, contaminated electroencephalogram electrodes, and contaminated surgical instruments. This form of CJD has been called iatrogenic CJD (iCJD).

The appearance of variant CJD (vCJD) in Great Britain, which was associated with the outbreak of bovine spongiform encephalopathy and the contamination of beef, greatly increased interest in this group of illnesses. Kuru is another transmissible spongiform encephalopathy that was spread in New Guinea by cannibalism, a practice that ceased in the 1950s. The disease is now almost extinct.

Sporadic Creutzfeldt-Jakob Disease

Epidemiology

Illness from sCJD is seen worldwide, with an incidence of 0.5 to 1.0 cases per 1 million people in the general population per year.

Clinical Manifestations

CJD is frequently diagnosed incorrectly initially. Prodromal symptoms include altered sleep patterns and appetite, weight loss, changes in sexual drive, and impaired memory and concentration. Disorientation, hallucinations, depression, and emotional lability are early signs, followed by a rapidly progressive dementia associated with myoclonus (about 90% of patients). Myoclonus is usually provoked by tactile, auditory, or visual startle stimuli. CJD has an abrupt onset in 10% to 15% of patients.

Other distinctive features include seizures, autonomic dysfunction, and lower motor neuron disease, suggesting amyotrophic lateral sclerosis. Cerebellar ataxia occurs in one third of patients.

Pathology

The pathologic hallmarks of CJD are spongiform or vacuolar changes in the brain without cellular inflammatory infiltrates. The pathogenic isoform of the prion protein can be demonstrated in brain tissue by immunocytochemical staining and by Western blot analysis. The fundamental process involved in human prion propagation is intercellular induction of protein misfolding and seeded aggregation of misfolded prion protein.

Diagnosis

The clinical tetrad supporting the diagnosis of CJD consists of a subacute progressive dementia, myoclonus, typical periodic complexes on electroencephalography, and normal CSF. FLAIR MRI sequences shows extensive curvilinear hyperintensity along the neocortex, called *cortical ribboning*, which affects frontal, parietal, and temporal lobes (in decreasing order of frequency). Routine CSF study is usually normal. A CSF test for the protein 14-3-3, which is released into spinal fluid when brain cells die, in the appropriate clinical context is highly specific and sensitive for CJD.

Treatment

No effective therapy exits. The disease is inexorably progressive. The median time to death from onset is 5 months, and 90% of patients with sporadic CJD die within 1 year.

Although the illness is not communicable in the conventional sense, a risk exists in handling material contaminated with the prion protein. Gloves should be worn when handling blood, CSF, and other body fluids. Instruments must be disinfected and sterilized appropriately.

For a deeper discussion of these topics, please see Chapter 412, "Meningitis: Bacterial, Viral, and Other"; Chapter 413, "Brain Abscess and Parameningeal Infections"; Chapter 414, "Acute Viral Encephalitis"; and Chapter 415, "Prion Diseases," in Goldman-Cecil Medicine, *25th Edition.*

SUGGESTED READINGS

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