

What Is Encephalitis?

Encephalitis is an inflammation of the brain. It usually results from an infection, most often by a virus, but sometimes by bacteria, a fungus, or parasites. In rare cases, it is caused by brain injury, a drug or vaccine reaction, or poison.



A virus, or other germ in the blood stream, can be carried to the brain. Germs in the brain attract white blood cells, the body's main line of defense against invaders, and this sets up an inflammatory reaction. The brain tissue then swells (called cerebral edema); bleeding may occur within the brain (called intracerebral hemorrhage), and brain damage may occur.

About 1 in 200,000 people develop encephalitis each year in the United States. While anyone can succumb, children, the elderly, and those with weakened immune systems are more vulnerable.

Facts About Encephalitis

* The patients featured in the film "Awakenings" were victims of an epidemic in the 1920s of encephalitis lethargica, which left tens of thousands of people with permanent brain damage. Its cause was never definitively identified, and it was thought to have died out. However, a handful of potential new cases have cropped up in England.

- Keeping track of encephalitis became more difficult in 1995 after it was taken off the list of illnesses that must be reported to the U.S. Centers for Disease Control and Prevention.

What Causes Encephalitis?

Doctors know surprisingly little about the causes of encephalitis. Outbreaks of encephalitis in a community are usually linked to insect-borne viruses, like the West Nile virus carried by mosquitoes that sickened more than 50 and led to seven deaths in the New York City area in 1999.



But many more encephalitis cases are isolated, and usually even the most diligent attempts to pinpoint a cause fail.

Viruses and bacteria are believed to account for most cases, but a specific germ is positively identified in fewer than half of all cases.

The virus gets into the body through insect bites, skin contact, or in food or drink. The viruses may be carried by mosquitoes or ticks (see arboviruses), especially in rural areas. In urban areas, other types of viruses, usually enteroviruses (see below), may be responsible.

Rabies, passed to people when they are bitten or scratched by an infected animal, causes a deadly form of encephalitis, but is exceedingly rare.

Better known viruses like measles, mumps, rubella, and herpes may also cause encephalitis.

How Is Encephalitis Diagnosed?

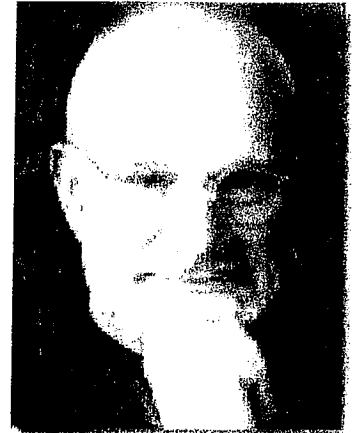
Typically, a doctor will ask for a blood sample and order a lumbar puncture (sometimes called a spinal tap), in which a needle is inserted into the lower back and a small amount of fluid (called CSF or cerebrospinal fluid) is taken from the spinal canal. This may be uncomfortable but is usually not painful when a local anesthetic is used. Doctors send the fluid for tests to see if it contains viruses or substances known to be associated with certain kinds of infections, and to test its chemistry for clues.

Some hospitals are also equipped to take a biopsy, where a tiny amount of tissue is taken from the brain while the patient is under general anesthesia. It is then tested to see if it contains viruses.

Doctors also frequently order a CT Scan or Magnetic Resonance Image (MRI), in which computerized images of the brain are obtained that show the extent of the swelling and damage to the brain.

Another test sometimes used to help confirm a diagnosis is an electroencephalogram (EEG), which records electrical events in the brain.

Biography . Oliver Sacks, MD, FRCP



Oliver Sacks was born in 1933 in London, England into a family of physicians and scientists (his mother was a surgeon and his father a general practitioner). He earned his medical degree at Oxford University (Queen's College), and did residencies and fellowship work at Mt. Zion Hospital in San Francisco and at UCLA. Since 1965, he has lived in New York, where he is a practicing neurologist. In July of 2007, he was appointed a Professor of Clinical Neurology and Clinical Psychiatry at Columbia University Medical Center, and he was designated Columbia University's first Columbia Artist.

In 1966 Dr. Sacks began working as a consulting neurologist for Beth Abraham Hospital in the Bronx, a chronic care hospital where he encountered an extraordinary group of patients, many of whom had spent decades in strange, frozen states, like human statues, unable to initiate movement. He recognized these patients as survivors of the great pandemic of sleepy sickness that had swept the world from 1916 to 1927, and treated them with a then-experimental drug, L-dopa, which enabled them to come back to life. They became the subjects of his book *Awakenings*, which later inspired a play by Harold Pinter ("A Kind of Alaska") and the Oscar-nominated feature film ("Awakenings") with Robert De Niro and Robin Williams.

Sacks is perhaps best known for his collections of case histories from the far borderlands of neurological experience, *The Man Who Mistook His Wife for a Hat* and *An Anthropologist on Mars*, in which he describes patients struggling to live with conditions ranging from Tourette's syndrome to autism, parkinsonism, musical hallucination, epilepsy, phantom limb syndrome, schizophrenia, retardation, and Alzheimer's disease.

