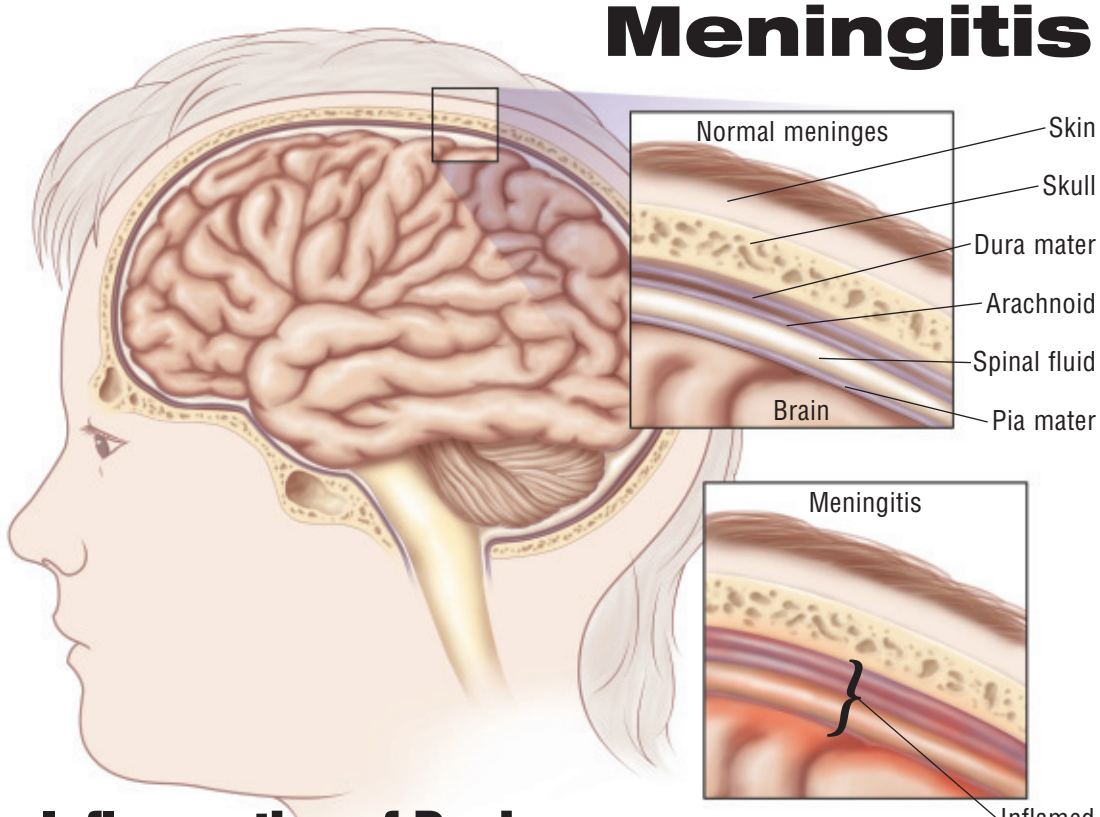
TEAR ALONG PERFORATION

Meningitis



Inflammation of Brain and Spinal Cord Membranes

Meningitis can be caused by viral, bacterial, or fungal infection or by brain trauma, cancer, or drugs. Viral meningitis *is most often caused by an enterovirus. The mumps, measles, influenza, West Nile, and herpes viruses also can cause meningitis. Viral meningitis typically occurs in the summer and early fall, and is seen primarily in children and young adults. It usually is milder than other forms of meningitis and resolves on its own within a few weeks. In* bacterial meningitis, *a bacterium enters the meninges either directly from the bloodstream or from a sinus or ear infection or a skull trauma. Bacteria that cause meningitis include* Neisseria meningitidis *(meningococcal meningitis),* Streptococcus pneumoniae *(pneumococcal meningitis), group B streptococcus (meningitis in newborns),* Haemophilus influenzae *type b, and* Listeria.

The telltale symptoms of meningitis are stiff neck, severe headache, fever, sensitivity to light, confusion, drowsiness, and nausea or vomiting. In infants, symptoms are lack of appetite, drowsiness, and constant crying that may worsen when the baby is held. In adults and children, symptoms can appear within hours or over several days, depending on the cause of the infection. Laboratory testing and a careful history of symptoms can help identify the cause and determine the appropriate treatment. Some types of meningitis are contagious, and close contacts may require treatment to prevent its spread.

Early diagnosis and rapid treatment of patients with symptoms of meningitis are essential to prevent potentially serious complications such as permanent neurologic damage and loss of hearing or vision. Treatment is based on correctly determining what is causing the inflammation. Symptomatic treatment involves relieving fever, pain, and meningeal swelling. If the cause is determined to be bacterial, intravenous antibiotics are prescribed. A hospital stay may be necessary, depending on the cause of the infection and the seriousness of the patient's condition.

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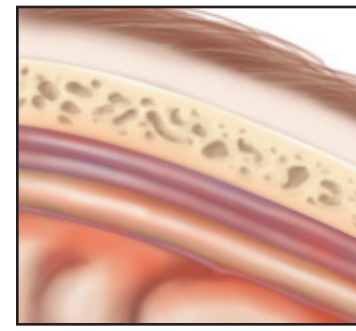
Initially, This Serious Disease May Be Mistaken for the Flu



Among the possible sources of inflammation are viral or bacterial infection and brain injury or surgery.

Meningitis is an inflammation of the membranes that cover the brain and spinal cord. The most common cause of meningitis is viral infection, but the disease also can be caused by bacterial or fungal infection, traumatic brain injury or brain surgery, cancer, or drugs. Viral meningitis is usually less serious than other types of meningitis, and patients typically recover in several weeks without serious consequences. Bacterial meningitis is far more serious; it can result in permanent disability, or even death. This form of meningitis must be treated with antibiotics.

Viral meningitis is most likely to occur in infants and people with immune deficiency. Those most likely to develop bacterial meningitis are preteens, teens, college students living in dormitories, and travelers to certain foreign countries. Bacterial meningitis is contagious and is spread through respiratory secretions by coughing or sharing utensils. People who have been exposed to someone with a confirmed case of meningococcal meningitis should be treated with antibiotics to prevent the spread of the disease. In communities where meningococcal meningitis has been confirmed, vaccination campaigns may be conducted to prevent further outbreaks.

Symptoms and Diagnosis

The early symptoms of meningitis are similar to those of the flu and may not be recognized as potentially dangerous. Meningitis symptoms also vary depending on the cause of inflammation. In general, symptoms include severe headache, stiff neck, high fever, nausea and vomiting, sensitivity to light, loss of appetite, and drowsiness. In some cases, a skin rash can develop. Anyone experiencing these symptoms should seek medical evaluation immediately.

Rapid diagnosis of meningitis and its cause is important to prevent serious consequences of this potentially deadly inflammation. Laboratory tests include throat culture, blood cultures, and CT scan of the head. A lumbar puncture (spinal tap) is performed to determine whether the fluid in the brain and spinal cord (cerebrospinal fluid) contains bacteria, inflammatory cells, or an abnormal glucose concentration. A test is available that determines in a few hours whether the cause of the inflammation is viral, thus allowing the doctor to decide whether or not to administer antibiotics.

Treatment

Treatment of meningitis includes intravenous fluids and fever-reducing medications, intravenous antibiotics (in the case of bacterial meningitis), and bed rest. Antibiotics are not useful in the treatment of viral meningitis. Hospitalization is sometimes necessary, especially in serious cases of bacterial meningitis.

Prevention

Vaccines are available that can protect against the development of some forms of bacterial meningitis. *Haemophilus influenzae* type b vaccine protects against *Haemophilus* meningitis. Meningococcal vaccine protects against *Neisseria meningitidis*, which causes one of the deadliest and most contagious forms of bacterial meningitis. Pneumococcal vaccine provides excellent protection against *Streptococcus pneumoniae* meningitis. It is extremely important that infants and children receive the appropriate vaccinations as recommended by their health care professional to prevent these forms of bacterial meningitis, as well as other preventable infectious diseases.