

# Tuberculosis Meningitis

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# What is Tuberculosis Meningitis?

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Tuberculosis Meningitis is a severe form of meningitis (inflammation of the membranes around the brain and spinal cord) caused by the bacteria *Mycobacterium tuberculosis*. TB meningitis usually occurs as a result of the spread of TB bacteria from the lungs to the brain through the bloodstream

Diagnosis of TBM is often delayed due to late presentation with atypical clinical features  
Leading to high rates of morbidity and mortality

# Clinical Manifestation

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Symptoms of TB meningitis may include headache, fever, nausea, vomiting, stiff neck, confusion, seizures, and sensitivity to light. These symptoms can develop slowly over the course of several weeks or months, making TB meningitis difficult to diagnose in its early stages.

Outcomes may be worsened by a low Glasgow Coma Scale (GCS)

Advanced stage, hydrocephalus, cranial nerve deficit, syndrome of inappropriate antidiuretic Hormone (SIADH), and an abnormal electroencephalogram (EEG) at presentation

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TB meningitis is more common in people with weakened immune systems, such as those with HIV/AIDS or who are taking immunosuppressant medications. It is also more common in children and young adults.

Treatment for TB meningitis usually involves ATT (antituberculous therapy) :

Isoniasid 250 mg

Rifampin 450mg

Pyrazinamide 1000mg

Ethambutol 400mg

# Change in the CSF sample

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Typical CSF findings in TBM include increased total protein, decreased CSF-to-serum glucose ratio, and increased total WBC with lymphocytic pleocytosis (14, 15). Bacterial meningitis is characterized by mild-to-marked elevated total protein, mild-to-marked decreased CSF-to-serum glucose ratio, and increased total WBC with neutrophil predominance.

Parameter	Normal CSF	Bacterial Meningitis	Viral Meningitis
Opening pressure (mm H <sub>2</sub> O)	100–180	Elevated >180	Variable
Leukocyte count (white blood cell/mm <sup>3</sup> )	0–5	Increased 100–5000	Increased 50–1000
Neutrophils (%)	0	≥80	<40
Protein (mg/dL)	15–50	Elevated 100–500	Normal or slightly increased
Glucose (mg/dL)	40–80; 0.6 times blood glucose level	<40; <0.4 times blood glucose level	Normal

# Case presentation

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A 33-year-old woman with no history of previous illness except headache for 20 days and with severe headache and decreased level of consciousness came to the emergency department. The patient's temperature was 40 degrees Celsius upon arrival. One week before the visit, she had delirium and severe headache. . Broad-spectrum antibiotics including ceftriaxone, meropenem, vancomycin and antiviral drug acyclovir were started for the patient. Paraclinical results of LP are as follows: WBC: 1000, lymf: 90, BS: 9, pro: 140

A CT scan of the lung showed a contusion and a CT scan of the brain showed hydrocephalus. Antituberculosis drug treatment including: rifampin (450mg), ethambutol, isoniazid (250mg) was started for the patient. Then the patient showed signs of increased icp, brain surgery consultation And Mr. Dr. Gurbanpour's nerves were done and EVD was Implanted for the patient and he was put under intubation. The drug treatment continued for 4-5 days and the patient's level of consciousness improved. Finally, after 5 days, the patient developed tachycardia and respiratory distress and due to Cardiac arrest expired.