

Tuberculous Meningitis With Hydrocephalus in a 17-Month-Old Infant: A Multidisciplinary Case Report

✎ Authors

✎ Abstract Background: Tuberculous meningitis (TBM) is a rare but life-threatening manifestation of *Mycobacterium tuberculosis*, especially in infants. Early recognition and multidisciplinary management are critical to improve prognosis.

Case Presentation: We report the case of a 17-month-old female presenting with hydrocephalus secondary to TBM, managed initially in the intensive care unit and later transferred to the pediatric neuro-oncology ward for anti-tuberculous therapy optimization. External ventricular drainage was required. Treatment included a quadruple anti-tuberculous regimen, corticosteroids, and supportive antifungal therapy for superimposed *Candida* mucositis and fungal dermatitis. The patient showed progressive clinical improvement with preserved neurological function at discharge.

Conclusions: This case highlights the need for high clinical suspicion and coordinated care between infectious disease specialists, intensivists, and neurosurgeons in pediatric TBM. Early CSF-PCR diagnostics and dynamic therapeutic adjustment can lead to favorable outcomes even in complex presentations.

✎ 1. Introduction Tuberculous meningitis (TBM) remains a diagnostic and therapeutic challenge in pediatric populations. Although rare in high-income countries, it requires urgent attention due to its high morbidity and mortality. This case illustrates the management of TBM complicated by hydrocephalus in a previously healthy infant.

✎ 2. Case Report A 17-month-old previously healthy girl was transferred to our unit with confirmed TBM. Initial symptoms included progressive lethargy and irritability. She was admitted to the Pediatric ICU with moderate tetraventricular hydrocephalus and underwent external ventricular drainage.

CSF analysis revealed lymphocytic pleocytosis, and PCR confirmed *Mycobacterium tuberculosis*. Initial treatment included intravenous streptomycin. After stabilization, she was transferred to our ward for oral regimen optimization.

On admission, she was hemodynamically stable and neurologically intact. Physical examination showed fungal dermatitis in the cervical and perineal folds and oral candidiasis.

Laboratory tests showed mild lymphocytosis, thrombocytosis ($590,000/\text{mm}^3$), elevated ALT (98 U/L), and normal CRP. She remained afebrile, and follow-up labs showed no signs of acute inflammation.

The antituberculous regimen was adjusted to include oral rifampicin (30 mg/kg/day), isoniazid (15 mg/kg/day), pyrazinamide (35 mg/kg/day), and ethambutol (20 mg/kg/day), along with corticosteroids (prednisolone 2 mg/kg/day). Antifungal treatment included nystatin and topical ketoconazole.

She remained neurologically stable, and follow-up with pediatric neurosurgery was arranged. She was discharged after clinical improvement and without complications.

✎ 3. Discussion This case underscores several key issues in the management of pediatric TBM:

Early identification: Prompt lumbar puncture and PCR enabled early diagnosis and specific therapy.

Multidisciplinary approach: Coordination between ICU, infectious diseases, and neurosurgery was essential.

Hydrocephalus management: External drainage allowed CSF pressure control and monitoring.

Adverse effects: Monitoring for hepatic function and superinfections (e.g., Candida) is crucial during prolonged therapy.

TBM often presents insidiously in infants. Without high clinical suspicion, diagnosis can be delayed. The literature emphasizes the role of corticosteroids in reducing mortality and sequelae, and early neurosurgical intervention is often life-saving.

□ 4. Conclusion Tuberculous meningitis in infants requires a high index of suspicion and coordinated, aggressive management. Early diagnosis, combined with neurosurgical and infectious disease collaboration, is essential for positive outcomes in these vulnerable patients.

□ Conflict of Interest The authors declare no conflicts of interest.

✍ Consent Informed consent for publication of this case was obtained from the patient's legal guardians.

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