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Introduction

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Cryptococcal meningitis (CM) is a life-threatening fungal infection mainly affecting immunocompromised individuals, but increasingly seen in immunocompetent patients. Limited access to advanced diagnostics in resource-limited hospitals delays timely treatment. India ink remains a practical, rapid tool that enables early detection and guides life-saving intervention.

Case Description

A 58-year-old immunocompetent male from Aceh, Indonesia, presented with high fever, severe headache, vomiting, decreased consciousness, and positive nuchal rigidity. HIV serology was negative, and there was no history of diabetes mellitus or immunosuppressive therapy. A non-contrast brain computed tomography (CT) scan revealed cerebral edema.

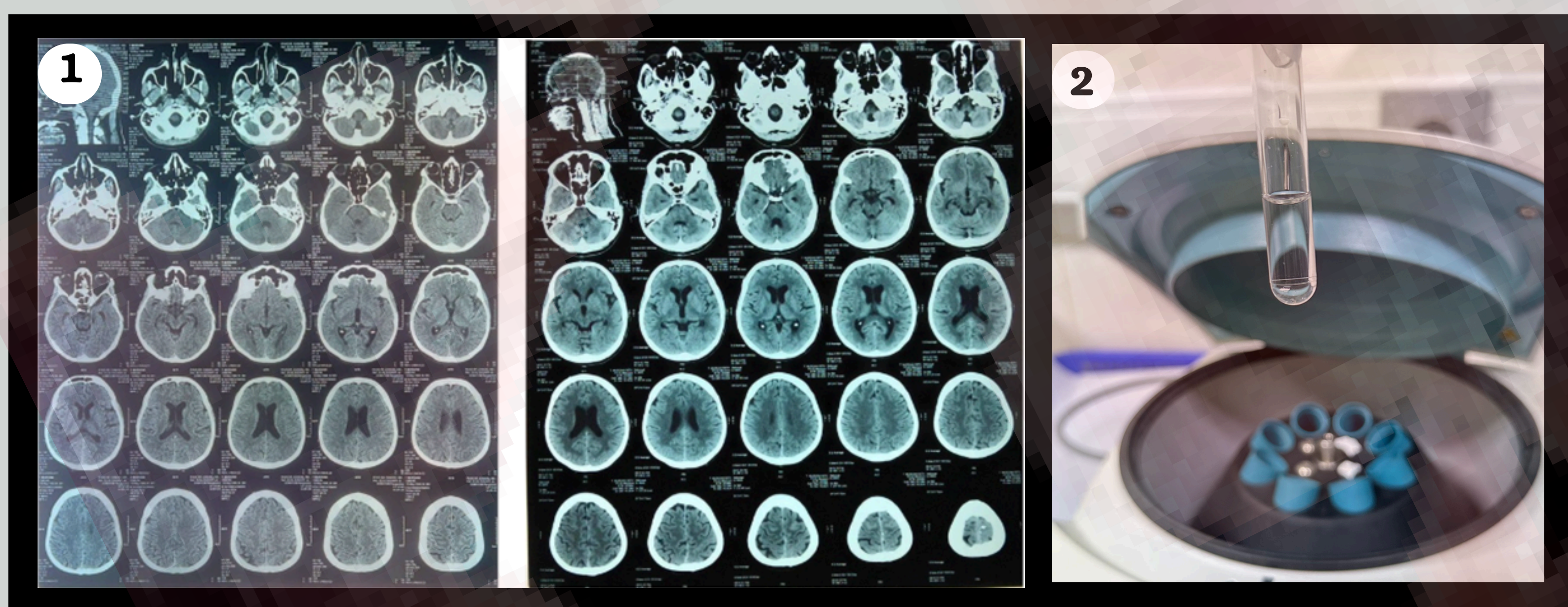


Figure 1: Non-contrast Head CT reveals no midline shift, normal ventricles, and sulcal effacement indicating cerebral edema. **Figure 2:** Clear CSF after centrifugation (3000 rpm, 10 min), prepared for India ink staining

Cerebrospinal fluid (CSF) analysis showed elevated opening pressure (390 mmH₂O), increased white blood cell count with mononuclear predominance, and positive India ink staining for encapsulated yeast. Indian ink staining of centrifuged,

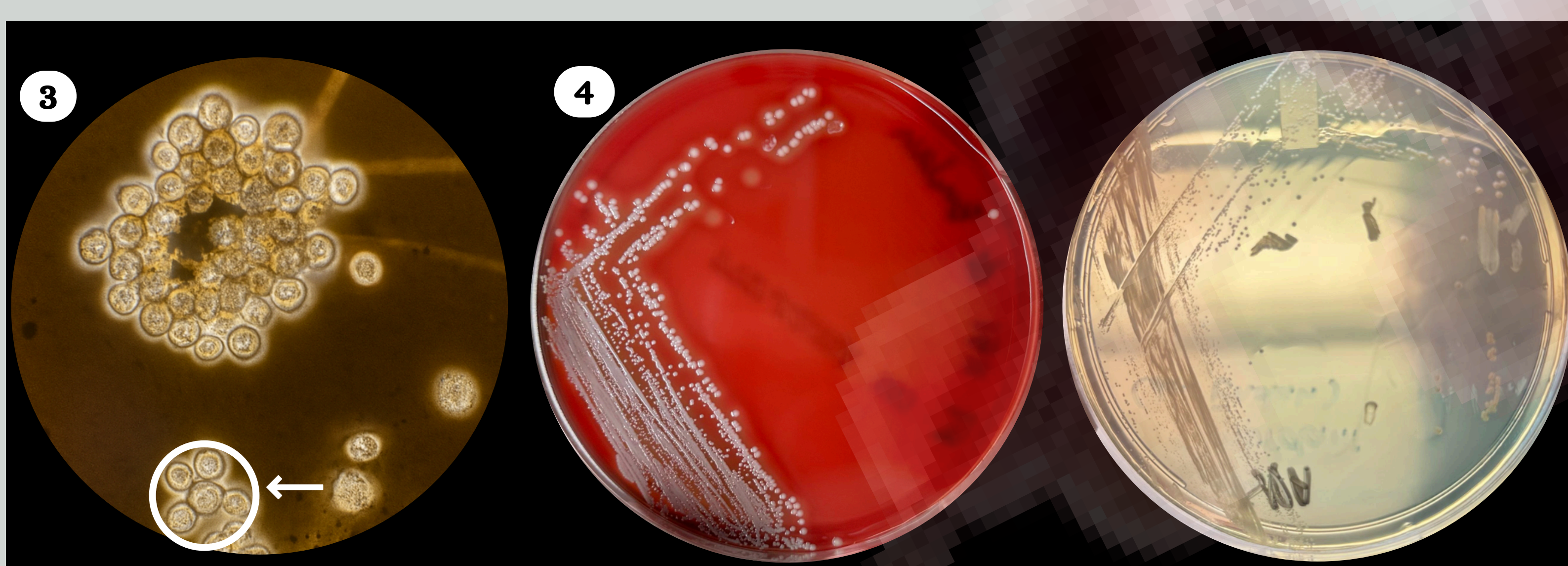


Figure 3: India ink staining of centrifuged CSF, encapsulated yeast-like cells of *Cryptococcus* sp. characterized by a clear halo indicating the polysaccharide capsule. **Figure 4:** Non-hemolytic, whitish colonies on Blood Agar and similar growth on SDA, characteristic of *Staphylococcus epidermidis*

Despite repeated CSF cultures consistently revealing *Staphylococcus epidermidis*, clinical features and laboratory evidence confirmed cryptococcal meningitis. The patient was initially treated with high-dose fluconazole 1200 mg/day for two weeks as induction therapy.

Keywords: antifungal therapy, *Cryptococcal meningitis*, *Cryptococcus*, Indian ink staining, immunocompetent host

This was followed by consolidation therapy with fluconazole 800 mg/day according to the Infectious Diseases Society of America (IDSA) guidelines. Concurrent bacterial infections were managed with targeted antibiotics, levofloxacin, and vancomycin. The patient showed clinical improvement, with normal intracranial pressure and resolution of neurological symptoms.

Discussion

This case represents cryptococcal meningitis in an immunocompetent host. India ink staining, with a sensitivity of up to 75% after centrifugation and limited specificity at low fungal loads, proved essential as a rapid, cost-effective diagnostic tool in a resource-limited setting, enabling timely antifungal therapy. CSF cultures consistently yielded *Staphylococcus epidermidis*, likely due to contamination or co-infection, with bacterial overgrowth explained by faster replication kinetics compared to fungal growth. Management followed IDSA guidelines with high-dose fluconazole induction and consolidation therapy.

Conclusion

This case highlights that India ink remains a valuable diagnostic tool in hospitals lacking advanced testing. Timely identification of cryptococcal meningitis in an immunocompetent host allowed prompt antifungal therapy, intracranial pressure control, and co-infection treatment with appropriate antibiotics, contributing to successful management.

Reference

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