Role of microbiology laboratory in the diagnosis of patients with suspected infections of CNS

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A 28-year-old man IV drug abuser, diagnosed as HIV positive in 1989, was admitted to the hospital in June 2007 for fever, headache, seizures, vomiting, asthenia and severely depressed sensorium. Over the last 2 weeks prior to admission, he had noted a fever and a bifrontal headache, first intermittently and then constantly with increasing severity. During the last 24 hours, vomiting as well as seizures developed, and he sought medical attention. On physical examination, the temperature was 102°F and pulse 110/min. Fundoscopic examination ruled out papilledema. There were no meningeal signs. Neurologic examinations were otherwise unremarkable. He was a severely ill-appearing man without nuchal rigidity or Kernig’s/Klumpke’s sign.

A CT scan of the brain was non-diagnostic, and a lumbar puncture was carried out that revealed an opening pressure of 250 mmH₂O, CSF glucose 50mg/dL (peripheral blood glucose, 90mg/dL), protein 40 mg/dL, WBC 30 leukocytes/mm³ (90% lymphocytes), negative gram stain and bacterial antigens. Microscopic analysis of CSF sample revealed rounded and capsulated yeasts and India ink particles into the deteriorate capsules. This opportunistic infection was manifests as subacute illness.

He gave history of pulmonary tuberculosis, for which he received therapy 8 months ago. The highly active antiretroviral therapy (HAART) schedules were performed incompletely from 1999 until 20 days ago, when these were finally discontinued.

At admission, the patient had CD4+ lymphocytes count of 67 cells/µL and a viral load of 44.475 copies/ml., as indirect markers of the immunology impairment produced by the HIV infection.

The India ink microscopy of the CSF concentrate by centrifugation revealed the presence of capsulated pseudohyphae accompanied with other capsulated yeasts as observed in the figures 1 and 2. Now, what is your diagnosis? (The answer is on page 123)
**Figure 1.** Capsulated pseudohypha and yeasts in concentrate of CSF observed with India ink microscopy (1.000x).

**Figure 2.** Capsulated pseudohypha in concentrate of CSF observed with India ink microscopy (1.000x).