Cryptococcus neoformans ventriculoperitoneal shunt infection

Cryptococcus neoformans ventriculoperitoneal shunt infection is rare and the diagnosis using CSF from the shunt can be particularly difficult.

Data and previous reports suggest that cryptococcal VP shunt infections appear to be a complication of shunts placed in previously infected persons rather than nosocomial transmission of cryptococcus during placement [1].

Diagnosis

In immunocompetent patients, cryptococcal antigen tests may be negative, which makes the diagnosis more challenging.

Case reports

2016

Genebat et al., describe the first reported case of cryptococcal ventriculoperitoneal shunt (VPS) infection in an HIV-infected subject with an excellent immunovirological status, with an abdominal mass as the only clinical sign at presentation. Microbiological diagnosis was confirmed when Cryptococcus neoformans was isolated in 4 cerebrospinal fluid samples on different days. The patient was treated with dual antifungal therapy (liposomal amphotericin B plus flucytosine) and VPS was initially externalized and then definitely removed. At 12 month follow up, the patient remained asymptomatic and no VPS replacement was required.

This is the first reported case of cryptococcal VPS infection in an HIV-infected subject, with an excellent clinical outcome after dual antifungal therapy plus device withdrawal. Diagnosis and therapeutic management of this entity remains a challenge for clinicians [2].

A 52-year-old male with normal pressure hydrocephalus, status post implantation of VPS one year prior to the presentation; who was admitted with a fever, lethargy and confusion for three days. He was treated empirically with intravenous cefepime and vancomycin for VPS infection. The CSF analysis from both the lumbar puncture and the VPS was significant for a low white blood count, low glucose and high protein. Other work-up including India ink and cryptococcal antigen was unrevealing. He remained febrile despite antibiotic treatment for 5 days. The CSF from the shunt was sent for analysis again and it demonstrated similar results from the prior study, but the culture was now positive for Cryptococcus neoformans. The patient was started on oral flucytosine and intravenous liposomal amphotericin B. The VPS was removed and an externalized ventricular catheter was placed. The patient showed rapid resolution of the symptoms.

To date, there was a total of nine reported cases of cryptococcal VPS infection upon review of the literature. The presenting case and the literature review highlight the difficulties in making an

accurate diagnosis of cryptococcal shunt infection. There were case reports of false negative cryptococcal antigen tests with culture proven cryptococcal meningitis. The CSF culture from the shunt remains a mainstay for identifying cryptococcal shunt infection. Cryptococcal shunt infections are rare and early diagnosis and treatment is essential for patient management which involves shunt replacement with concomitant administration of intravenous antifungal medication. High clinical suspicion is crucial and shunt culture preferably from the valve is recommended [3].

2014

A patient who developed a cryptococcal infection of his VP shunt more than two decades following shunt placement [4].

1)
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2)
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4)
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