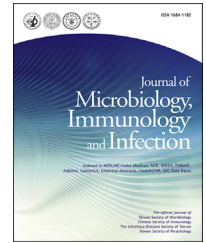




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CORRESPONDENCE

Cryptococcal meningitis complicated with a large abdominal cyst mimicking acute pancreatitis



To the Editor,

Cryptococcal meningitis usually occurs in immunocompromised patients, and shows central nervous symptoms.¹ Here, we report an unusual case of a patient with cryptococcal meningitis, who presented himself with mimicking acute pancreatitis, complicated with a large abdominal cyst at the tip of the ventriculoperitoneal (V-P) shunt. Finally, the abdominal cyst fluid was aspirated and confirmed as *Cryptococcus neoformans*.

This 80-year-old male patient had a history of normal pressure hydrocephalus, status post V-P shunt insertion for more than 10 years, and he underwent V-P shunt revision due to malfunction 3 years ago. This time, he presented himself to our emergency department with abdominal pain, diarrhea, cold sweating, and chills for 1 day. The laboratory data showed leukocytosis and elevated lipase (149 U/L) and amylase (848 U/L). Abdominal computed tomography revealed swelling of the pancreas, a large abdominal cyst of the upper left abdominal cavity, and a V-P shunt inside the abdominal cyst (Fig. 1). He was admitted to a ward and received antibiotic treatment with intravenous cefmetazole 1 g every 6 hours for 14 days. He was discharged after fever subsided and relief of gastrointestinal symptoms.

The patient started to have altered consciousness, neck stiffness, and fever on the 2nd day after discharge. He also had abdominal pain and tenderness over the abdominal cyst. Cerebrospinal fluid (CSF) obtained through shunt reservoir of the skull showed elevated protein (304 mg/dL), decreased glucose level (22 mg/dL), normal cell counts (white blood cells, 3 cells/ μ L and red blood cells, 9 cells/ μ L). Gram stain, tuberculosis polymerase chain reaction, and India ink stain of CSF all showed negative findings, but cryptococcal antigen showed a titer of 1:256, and the CSF culture yielded *C. neoformans* 2 weeks later. The V-P shunt externalization was performed and shifted to CSF diversion drainage. Specimens from the V-P shunting catheter and

abdominal cystic fluid were sent for microbiological culture. Microbiological culture of CSF, V-P shunt, and abdominal cyst fluid all revealed *C. neoformans*. The patient received intravenous amphotericin B 50 mg/day and oral flucytosine 1500 mg four times daily, without abdominal surgery. We decreased the dosage of amphotericin B to 30 mg every other day intravenously because of acute kidney injury and thrombocytopenia after infusion for 5 days.

After the patient had received intravenous amphotericin B for 3 months, all repeated CSF analysis (including fungal culture of CSF and V-P shunting catheter; cryptococcal antigen of CSF and V-P shunting catheter) showed negative findings. We clamped the extraventricular drainage tube for 1 week, and he did not show any sign of increased intracranial pressure or hydrocephalus. Then, the extraventricular drainage tube was removed. Computed tomography also showed that the abdominal cyst had shrunk and resolved at the time of discharge.

To the best of our knowledge, this is the second reported case of a non-human immunodeficiency virus (HIV)-infected patient who delayed diagnosis of cryptococcal meningitis until the development of an infected large abdominal cyst at the tip of the V-P shunt.^{1,2} The most common pathogen of V-P shunt infections is coagulase-negative *Staphylococcus*,^{1–3,5,6} but *C. neoformans* is rare and only seen in some individual case reports.^{1–4} Liliang et al⁴ have reported a case of an HIV-negative patient with shunt surgery for hydrocephalus complicating cryptococcal meningitis. We illustrated a case of cryptococcal meningitis with V-P shunt infection complicated with a large abdominal cyst mimicking acute pancreatitis initially. We considered that the abdominal cryptococcoma in our patient resulted from V-P shunt descending infection of cryptococcal meningitis. Some authors have suggested ultrasound-guided needle aspiration or surgical dissection for descending large abdominal cyst.^{2,3} However, we externalized the V-P shunt

<http://dx.doi.org/10.1016/j.jmii.2014.06.006>

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Figure 1. Abdominal computed tomography shows lobulated cystic-like lesions, with the tip of a ventriculoperitoneal shunt (white arrow).

for diversion of infectious CSF, without interventional surgical treatment for the abdominal cyst. Our patient eventually recovered and was free from any V-P shunt, and did not show any symptoms or signs of hydrocephalus.

Conflicts of interest

The authors declare that they do not have any conflicts of interest in the content of this letter.

References

1. Crum-Cianflone N, Truett A, Wallace MR. Cryptococcal meningitis manifesting as a large abdominal cyst in a HIV-infected patient with a robust CD4 count. *AIDS Patient Care STDS* 2008; **22**:359–63.
2. Izumoto S, Nakagawa H, Fujita T, Kubo S. Abdominal cyst formation following ventriculo-peritoneal shunt in a case of hydrocephalus due to cryptococcal meningitis. case report: completely cured by surgical removal of the cyst and

treatment with a newly developed anti-fungal drug (Diflucan). *Surg Neurol* 1991; **36**:394–9.

3. Liao CH, Chi CY, Wang YJ, Tseng SW, Chou CH, Ho CM, et al. Different presentations and outcome between HIV-infected and uninfected patients with cryptococcal meningitis. *J Microbiol Immunol Infect* 2012; **45**:296–304.
4. Liliang PC, Liang CL, Chang WN, Chen HJ, Su TM, Lu K, et al. Shunt surgery for hydrocephalus complicating cryptococcal meningitis in human immunodeficiency virus-negative patients. *Clin Infect Dis* 2003; **37**:673–8.
5. Lin TY, Yeh KM, Lin JC, Wang NC, Peng MY, Chang FY. Cryptococcal disease in patients with or without human immunodeficiency virus: clinical presentations and monitoring of serum cryptococcal antigen titers. *J Microbiol Immunol Infect* 2009; **42**:220–6.
6. Lee WS, Hsieh TC, Ou TY, Teng SO, Chen FL, Wang FD. Breakthrough disseminated cryptococcosis during micafungin therapy. *J Microbiol Immunol Infect* 2015; **48**:456–8. <http://dx.doi.org/10.1016/j.jmii.2013.03.002>.

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14 April 2014
Available online 26 July 2014