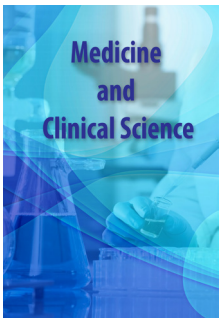
Medicine & Clinical Science

Case Report



Case report – meningitic symptoms in immunocompetent patient: an unusual case of cryptococcus gatti infection

Fish L, Ekladious A and Wheeler LP

Department of General Medicine, Bunbury Regional Hospital, Australia

Case

A 25 year-old male presented to a rural hospital emergency department with a seven day history of headaches, photophobia, myalgia, fevers, vomiting and unusual behaviour. The patient was previously fit and well with no significant past medical history, but reported daily marijuana use. Physical examination revealed mild neck stiffness, but no headache, rash or photophobia. The patient was admitted under the general medical team for investigation and management of potential meningitis or drug-induced psychosis.

Imaging including computed tomography (CT) brain was unremarkable and blood panels showed a mildly elevated CRP of 44 (<3) and normal white cell count of 6000/µL (4000-11000/µL) with polymorphonuclear leucocytosis.. A lumbar puncture was performed and cerebrospinal fluid (CSF) analysis showed no bacteria on gram stain or growth on culture, marginally elevated glucose 3.7mmol/L (2.5-3.5mmol/L), elevated protein 717mg/L (180-450mg/L), leucocytes 50/µL, neutrophils 30/µL (white cells <5/µL) With non-specific findings, dexamethasone, ceftriaxone and acyclovir were commenced to cover bacterial and viral meningitis.

After discussion with Infectious Disease physicians, he was diagnosed with bacterial meningitis and was discharged with intravenous ceftriaxone for fourteen days.

Seven days later, he was reviewed in the outpatient clinic and had persistent headaches, photophobia and neck pain and was re-admitted under the general medical team. Lumbar puncture was repeated and CSF showed elevated white cells (lymphocytes 20/µL neutrophils 10/µL), normal glucose 2.7mmol/L, and was positive on India Ink testing. Fungal cultures were conducted on this occasion and growth of *Cryptococcus gatti* was identified,. Subsequently magnetic resonance imaging (MRI) of the brain revealed multiple foci of signal abnormalities, subacute infarcts and parenchymal and leptomningeal enhancement.,He was diagnosed with cryptococcal meningitis, treated with Amphotericin B and up-transferred to a tertiary center.

During this admission, a third LP was performed. Opening pressure was measured on this occasion, and found to be elevated at 40mmHg (normal range 8-15mmHg) requiring subsequent insertion of a ventriculoperitoneal (VP) shunt. Intravenous flucytosine was then prescribed with Amphotericin B and continued for 6 weeks, stepped down to oral fluconazole 800mg for eight weeks, then 400mg for six months.

Cryptococcal meningitis is an opportunistic fungal infection caused by inhaling spores of *Cryptococcus neoformans* yeast [1]. *C. gattii* is the primary serotype in the immunocompetent patient population and infections tend to present as afebrile, with shorter symptom duration, and focal pulmonary and central nervous system mass lesions [2,3]. Diagnosis made with positive serum or CSF culture, but as seen in this case, repeat lumbar puncture with large samples may be required to mitigate high false negatives rates [4,5].

With multiple non-specific signs and symptoms, this case highlights the importance of considering all differential diagnoses, and being aware of so called 'red herrings'. Clinicians should seek alternative diagnoses when routine treatment is ineffective. In this case, differential diagnoses should have been considered when the standard antibiotic steroid therapy regimen showed little response.

This case also highlights the importance of performing opening pressures during the lumbar puncture procedure. Specifically for cryptococcal meningitis, raised intracranial pressure is a diagnostic characteristic in 50-70% of patients. Identification of raised ICP early can prevent delayed diagnosis and treatment as well as prevent procedure repetition which is both time consuming for the clinician, and uncomfortable for the patient and had this been addressed on initial admission, prompt transfer to a tertiary center would have occurred and appropriate treatment commenced. Crucially, the VP shunt may have been avoided, as delayed diagnosis led to complications from raised intracranial pressure.

References

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Correspondence

Louise Fish

Department of General Medicine, Bunbury Regional Hospital, Australia

E-mail: louise.fish@health.wa.gov.au

- Received Date: 05 Nov 2019;
- Accepted Date: 23 Nov 2019;
- Publication Date: 17 Dec 2019.

Citation: Fish L. Case report – meningitic symptoms in immunocompetent patient: an unusual case of cryptococcus gatti infection. Med Clin Sci. 2020;2(1):1-10.