Migratory CNS Helminthiases in Maharaj Nakorn Chiang Mai Hospital: A Retrospective Study

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ABSTRACT

Background: Helminthic invasions in the central nervous system (CNS) are the major causes of seizure and neurologic complications in adults, especially in the endemic area. However, there are no definite diagnostic criteria for “neglected” migratory helminthic invasions in the central nervous system especially for neurognathostomiasis and cerebrospinal sparganosis. This study aims to identify factors that can distinguish between these two entities.

Methods: We retrospectively reviewed migratory CNS helminthiases, including neurognathostomiasis and CNS sparganosis patients who attended Maharaj Nakorn Chiang Mai Hospital from 1 January 2006 to 31 December 2015. Medical records were reviewed to collect the data of interest including risk factors, clinical data, neuroimaging, treatment and outcomes.

Results: Ten patients were included in this study, 9 of 10 were males with median age of 45 (19-73) years. Ingestion of under cooked fish was the most common risk factors for both groups (2 of 4 cases in the sparganosis group, and 4 of 6 cases in the gnathostomiasis group). The most common symptom in the neurognathostomiasis group was headache (4 of 6 cases). The most common symptom in the CNS sparganosis group was seizure (2 of 4 cases). The most common physical finding of cranial nerve palsies and abnormal reflex were similar in both groups (2 of 4 cases in the sparganosis group, and 4 of 6 cases in the gnathostomiasis group). Almost all of the patients had multiple lesions from neuroimaging with more hemorrhage in the gnathostomiasis group (5 of 6 cases), but more migratory lesions (3 of 4 cases) found in the sparganosis group. Brainstems were the most favorite site for the gnathostomiasis group. All 6 cerebrospinal fluid samples were positive for antibodies, but only 3 blood samples were also positive for gnathostomiasis. Only 2 cases from the sparganosis group received surgical removal of the parasite; albendazole was the most common drug used to treat the condition. Nine of 10 cases had clinical improvement of which 3 of them improved without any treatment.

Conclusion: Migratory CNS helminthiases can cause many neurological complications. No significant clinical characteristics or neuroimaging results were helpful for differentiating between neurognathostomiasis and cerebrospinal sparganosis from this study. Assessing the exposure risk, obtaining the clinical presentations, performing neuroimaging and immunodiagnostic are still the best approach to make the diagnosis. Further studies in a larger population are warranted. (J Infect Dis Antimicrob Agents 2017;34:119-27.)

Note: This case was presented at the Interhospital Case Conference on Infectious Diseases (ICCID), on 25 December 2014, at Bangkok, Thailand.