

Brief Report

When Clinical History Addresses the Diagnosis in a Case of Uncommon Meningitis

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Abstract: Migraine pain is usually cyclic and may be evoked by inflammatory mediators released around the nerves and blood vessels. Acute migraine pain is more common in women than in men, and correlates with age. In this study, we report the development of an acute migraine attack in a young man (32 years old), which led to his admission to the emergency department. The positive functional brain changes recorded by electroencephalogram (EEG) during the migraine attack, and the non-contrast brain computed tomography scan showed the presence of an arachnoid cyst, which explained the acute migraine attack inducing a misdiagnosis. Using the case described herein, we aim to draw the attention of clinic/scientific communities toward the existence of brain infections in absence of the typical symptoms (e.g., fever and/or rigor nuchalis). Considering this case, we propose that when a diagnosis is uncertain the invasive liquor test should be performed.

Keywords: migraine; infection; clinical history

1. Introduction

A headache is the most common neurological syndrome presented in primary care [1]. Migraines are accepted among primary headaches, are usually treated with non-steroidal anti-inflammatory drugs (NSAIDs) [2,3]. However, migraine pain can mimic several clinical conditions [4–6]. Clinical diagnosis of infectious diseases is somewhat challenging [7], therefore patient history, clinical evaluation, and biochemical parameters, and radiological examination, may help clinicians perform a correct diagnosis. Herein we report the case of a young man initially treated for migraine pain, where a detailed history helped to reach a correct diagnosis.

2. Case Presentation

A 32-year old young man with a chronic history of migraine, treated with NSAIDs, came to our observation at Annunziata Hospital on July 1, 2016, for clinical evaluation. He reported that the day before (June 30, 2016), he was admitted to the emergency department (ED) of the same hospital for acute migraine. Clinical evaluation and biochemical analysis tests excluded the presence

of systemic diseases, while a non-contrast brain computed tomography scan revealed a hypo-dense area in brain parenchyma evaluated as the intracranial arachnoid cyst. The value of the visual analog scale of pain (VAS) documented a severe migraine pain (VAS: 8), without other clinical manifestations. Therefore, he was discharged with a chronic migraine headache diagnosis, on treatment with triptans and topiramate. He returned to the ED on July 1st for increasing migraine pain (VAS: 9), psycho-motor agitation, confusion, and disorientation. Prescribed drugs were not taken from the patient. The drug screen test was positive for cannabis, and the electroencephalogram (EEG) revealed diffuse brain sufferance (middle diffuse theta-delta activity, predominantly on the frontal region.). His clinical history highlighted that one week prior to ED admission he took amoxicillin + clavulanic acid (1 g/12 h) to treat fever (37.5 °C), ear pain, and pharyngitis as suggested by his medical practitioner. Symptoms improved quickly (1 day), but two days later he suffered an intense migraine. Upon admission, vital signs were Tmax 36.8 °C, heart rate of 85 beats/min, 18 respirations/min, blood pressure of 125/70 mm Hg, and oxygen saturation of 100% on room air. Biochemical parameters revealed an increase in neutrophils (85.5%) but not in neutrophil count (7200; normal range 2000–8000), while white blood cells were in normal range (8500; normal range 4000–11,000). Transcranial color-doppler ultrasound (to exclude microembolic signs) and color-doppler ultrasound of carotids, were normal. Magnetic resonance imaging (MRI) of the brain confirmed the presence of a hypodense area in brain parenchyma with hydrocephalus and leptomenigeal enhancement. Initial cerebrospinal fluid (CSF) studies were performed to test for bacterial meningitis, although cultures were negative. Liquor analysis revealed that it was limpid with increased levels of IgG (6.30 mg/dL; normal range 0.48–5.86), albumin (51 mg/dL; normal range 13.9–24.6), white blood cells (18,000 WBC/mm³, 82% PMNs; normal range 0–5, 0% PMNs), pressure (215 mm H₂O; normal range 10–20) and decreased levels of glucose (30 mg/dL; normal range 45–85). The patient was hospitalized with a diagnosis of CNS infection, and received empiric pharmacological treatment with cefepime (2 g tid), mannitol (100 cc bid), dexamethasone (4 mg tid), omeprazole (40 mg), and acyclovir (750 mg in saline tid). Three days later, laboratory results were negative for herpes virus in liquor (PCR-DNA: negative) and thus acyclovir was discontinued. Moreover, biomarkers for Ab-anti-HIV (Human Immunodeficiency Virus), ANA (Anti-Nuclear Antibodies) screening, Venereal disease research laboratory test, Wright test, Lyme serology, and the Mantoux skin-test (at 72 h) were also negative. Three days later we recorded improved clinical symptoms. With a normal electroencephalogram (EEG) after five extra days (11 days following the admission), the patient was discharged.

3. Conclusions

Migraine pain is usually cyclic and caused by the release of inflammatory mediators around the nerves and blood vessels [8]. Specific diagnostic biomarkers (DB) for migraine is still missing and small non coding ribo nucleic acid are emerging as DB [9,10]. It is noteworthy that an acute migraine occurs more frequently in women than in men, and correlates with the age [11]. Taking into account this knowledge, a young man with an acute migraine is alarming in the ED. However, in our patient, TC and MRI revealed a hypodense brain area that could explain both EEG data and clinical symptoms. The good health history of our patient and the biochemical algorithms lead the clinicians to investigate deeply the pharmacological treatments performed during the last month, which comprised of an antibiotic therapy for ear pain and pharyngitis that masked both signs and symptoms of a brain infection. We are not able to evaluate the role of cannabis in the development of this clinical condition, nevertheless, the aim of the present case is to consider a brain infection in a patient affected by migraine pain and exposed to a recent antibiotic therapy even in absence of typical symptoms (e.g., fever and/or rigor nuchalis). Considering this case, we propose that in cases of uncertain diagnosis, the invasive liquor test should be performed.

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L.G. Acquisition of data: F.L., M.C.C., A.C. Analysis and interpretation of data: F.L. and M.C. Drafting of the manuscript: E.C., M.C.C. and L.G. Obtained funding: None.

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