Alejandra et al., J Clin Case Rep 2014, 4:9
DOI: 10.4172/2165-7920.1000421

Journal of Clinical Case Reports

Case Report Open Access

Cerebral Venous Sinus Thrombosis Associated with Cryptococcal Meningitis in an HIV-Positive Patient

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Abstract

Cryptococcal meningitis is one of the most common neurologic complications of AIDS. Cerebral venous sinus thrombosis is a rare cerebrovascular complication, usually associatied with HIV-related thrombosis, but infrequently reported on the setting of cryptococcal meningitis. The diagnostic method of choice for cerebral venous sinus thrombosis is magnetic resonance in combination with venography. Anticoagulation is usually not used in the setting of infectious thrombosis, but proved to be useful in this case.

A 21 year-old Mexican man with recently diagnosed and untreated AIDS, presented with involuntary movements, headache, gait disturbances, and dysmetria. Cryptococcal meningitis was diagnosed and treated with amphotericin B and fluconazole, achieving some improvement. A week after diagnosis, the headache worsened and the imaging studies suggested a cerebral venous sinus thrombosis. The patient was started on non-fractionated heparin and he presented gradual recovery. He was followed-up for a year and did not present any recurrence or complication related to the thrombosis.

Keywords: Cerebral venous sinus thrombosis; Cryptococcal meningitis; Thrombocytopenia

Introduction

Cerebral Venous Sinus Thrombosis (CVST) is not well recognized as a complication of cryptococcal meningitis. We report the case of a 21 year-old male, HIV-positive, who developed CVST shortly after being diagnosed with cryptococcal meningitis. To date, this is the third case report of CVST associated with cryptococcal meningitis [1]. Because the thrombosis occurred in the setting of the infection and treatment was already installed, anticoagulation was added, and the patient´s symptoms improved.

Case Report

A 21 year-old man with HIV/AIDS began with spontaneous bilateral involuntary movements, which consisted of choreathetosis and hemiballismus, vertigo, severe headache, and gait disturbances. At that time, he was treated with niphenidol (the dose was not specified) presenting some improvement. He was not receiving treatment for HIV. Two weeks later, the patient arrived to the emergency room with recurrence of symptoms consisting of headache, gait disturbances and right arm dysmetria. The physical examination showed mild bilateral papilledema and neck stiffness. The cognitive functions, cranial nerve examination, motor strength and deep tendon reflexes were preserved. Diagnoses of intracranial hypertension, meningism, and cerebellar syndrome were diagnosed. Due to the history of HIV/AIDS, infectious or neoplastic etiologies were suspected. HIV viral count was 26,000 copies/ml and CD4+ count was 96 cells/µl. CSF examination showed 263 RBC/µl, 12 WBC/µl, glucose of 36 mg/dl and proteins of 65 mg/dl; India ink stain was positive, and a few days later, CSF positive culture for *Cryptococcus neoformans* was obtained. CBC displayed anemia, lymphocytopenia and thrombocytopenia. The metabolic panel, electrolyte panel, LFT and clotting tests were normal. Brain MRI was normal. Treatment was begun with amphotericin B (50 mg qd) and fluconazole (400 mg bid) and the symptoms were reduced. This treatment was continued for a month. Antiretroviral therapy was started with abacavir, lamivudine and efavirenz (600 mg/300 mg/600 mg qd).

A week after admission, the headache worsened and he displayed right hemiparesis. A new MRI showed an acute ischemic left temporal lesion in DWI (Figure 1A), which was hyperintense on FLAIR and did not showed gadolinium enhancement. Gradient Echo and T2 sequences showed hemorrhagic appearance of the lesion (Figures 1B and 1C). The MRI venography showed occlusion of the transverse and sigmoid sinuses and left Labbé vein, as well as a partial obstruction of the confluence of sinuses. He was started on non-fractionated heparin (25 000 IU qd) after which he presented gradual improvement.

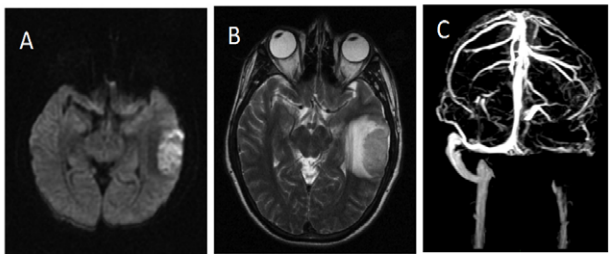

Figure 1: DWI (A) and T2 MRI (B) showing increased signal suggestive of ischemic lesions. (C) MRI venography showing decrease signal of the left transverse and sigmoid sinuses suggestive of venous thrombosis.

Discussion

CVST in HIV-positive patients have been scarcely reported [1, 2], most of them related to AIDS-related thrombosis [3] and CNS infections, specifically CMV [4]. Regional infections such as otitis and sinusitis are much more common [5].

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Received July 18, 2014; **Accepted** September 15, 2014; **Published** September 25, 2014

Citation: Alejandra GD, Carla TS, Laura MO (2014) Cerebral Venous Sinus Thrombosis Associated with Cryptococcal Meningitis in an HIV-Positive Patient. J Clin Case Rep 4: 421. doi:10.4172/2165-7920.1000421

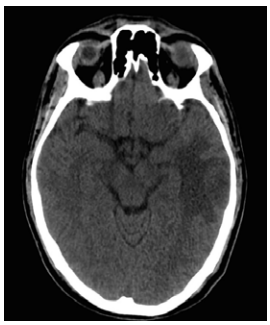

Figure 2: T1 MRI taken 3 weeks later showing the same lesion without progression in a chronic stage.

In the setting of HIV infection, several procoagulant mechanisms are involved [5], including a low CD4+:CD8+ ratio, high viral count and ineffective or absent antiretroviral therapy. All three of the risk factors were present in the patient; therefore his procoagulant risk was considered elevated.

The clinical presentation of cerebral venous thrombosis in the setting of neuroinfection is vastly variable and the average delay from the onset of symptoms to the diagnosis is seven days; the most sensitive imaging approach is the combination of brain MRI and MRI venography; on conventional MRI, gradient echo sequences may be the best diagnostic method [6], and the ideal confirmation test is MR venography.

Despite the infectious etiology, treatment consists of anticoagulation therapy; evidence shows that anticoagulant treatment is associated with reduction in the risk of death and complications [7,8]. It is not known how long should the treatment be continued. The prognosis depends significantly on the treatment, the basal condition of the patient and the comorbidities and other opportunistic infections that they may present.

Results and Conclusions

Cerebral venous sinus thrombosis is a rare complication of cryptococcal meningitis, with very few cases described in the literature [1].

The therapy used in this case was non-fractionated heparin, which is the first choice of treatment CVST even if the patient doesn't present any comorbidity. Three weeks after the diagnosis of CVST was made, a new CT scan was taken, showing shrinkage of the lesion and perilesional edema (Figure 2).

The patient has been followed for a year, remaining without complications or recurrences related to the cerebrovascular episode; the antiretroviral therapy stayed unchanged. To date, viral count is undetectable and CD4+ count is 230 cel/mm^3. The outcome in this patient, compared with the previous reports was much more positive, possibly related to the received treatment.

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