ABSTRACT: Human Immunodeficiency Virus (HIV) infection is responsible for causing a major public health problem: acquired immunodeficiency syndrome (AIDS). Among the defining diseases of AIDS are extrapulmonary fungal infection by Cryptococcus spp. and the neoplasm known as Kaposi’s sarcoma. Cryptococcosis is an opportunistic systemic mycosis, whose contamination occurs by inhalation of viable propagules of the fungus and primarily involves the lungs. In addition, the fungus has tropism for the central nervous system, and can cause cryptococcal meningitis. Kaposi’s Sarcoma is a neoplasm caused by human herpesvirus-8 (HHV-8) and is a vascular tumor frequently associated with HIV patients. The present paper aims to report a clinical case of a young male patient recently diagnosed with HIV infection and also affected by neurocryptococcosis and a dermatological affection compatible with Kaposi’s sarcoma.

KEYWORDS: Cryptococcosis; Kaposi’s Sarcoma; Opportunistic Infections; Case report.

RESUMO: A infecção pelo vírus da imunodeficiência humana (HIV) é responsável por causar um importante problema de saúde pública – a síndrome da imunodeficiência adquirida (SIDA). Dentro das doenças definidoras da SIDA, estão a infecção fúngica extrapulmonar pelo Cryptococcus spp. e a neoplasia conhecida como sarcoma de Kaposi. A criptococose é uma micose sistêmica oportunista, cuja contaminação ocorre por inalação de propágulos viáveis do fungo e envolve primariamente os pulmões. Além disso, o fungo possui tropismo pelo sistema nervoso central, podendo ocasionar a meningite criptocócica. Em relação ao sarcoma de Kaposi, a doença é uma neoplasia causada pelo Herpesvírus humano-8 (HHV-8) e é um tumor vascular frequentemente associado a pacientes portadores de HIV. O presente trabalho tem por objetivo relatar um caso clínico de um paciente masculino, jovem, com diagnóstico recente de infecção pelo HIV e acometido também pela neurocryptococose e afeição dermatológica compatível com sarcoma de Kaposi.

PALAVRAS-CHAVE: Criptococose; Sarcoma de Kaposi; Infecções Oportunistas; Relato de caso.

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INTRODUCTION

Cryptococcosis is an opportunistic systemic mycosis, whose contamination occurs aerogenously, through the inhalation of dehydrated yeasts and viable propagules of Cryptococcus spp. mainly neoformans. The disease primarily involves the lungs and has tropism for the central nervous system, skin, and other organs. In the environment, Cryptococcus spp. propagules are found in bird and bat droppings, decaying organic matter in contaminated soil, and in tree hollows present in warm climates. Cryptococcosis used to be a rare disease in the past.

Cryptococcosis was of little clinical importance before the 1980’s and began to show more relevance with the advent of the discovery of HIV. Today, it is the most prevalent systemic mycosis in HIV/AIDS patients and represents a high mortality rate. In its pulmonary form, it can manifest asymptptomatically or through flu-like syndromes. In the most severe clinical presentations, cryptococcemia and meningitis occur, usually leading to death.

The laboratory diagnosis of cryptococcosis is made through culture of tracheal aspirates, tissue fragments, and respiratory tract samples, routine and culture of cerebrospinal fluid (CSF) and aspirates of skin lesions. Serology, histopathological and biochemical analysis, molecular techniques, and imaging tests can be used as auxiliary tests.

Drug treatment is initiated as soon as the diagnosis is confirmed and is divided into three phases: induction, consolidation, and maintenance. The drugs used can be the antifungals itraconazole, fluconazole, voriconazole, amphotericin B, and 5-fluocytosine.

Kaposi’s sarcoma is another disease frequently associated with HIV that affects the skin and oral cavity. It is an indolent multifocal angioproliferative neoplasm of viral etiology caused by human herpesvirus 8 and multifactorial pathogenesis, which has four clinical forms of presentation (classic, epidemic, iatrogenic, and endemic).

Kaposi’s sarcoma is manifested by nodular, elevated, irregular, hyperpigmented, or violaceous dermatological lesions, usually on the lower limbs, head, and neck. These lesions may be localized or disseminated and may involve viscera such as lungs, liver, digestive tract, and lymph nodes.

When HIV infection is poorly controlled and progresses in its natural history, it predisposes to the development of opportunistic diseases/infections and uncommon neoplasms. The objective of this paper is to report the case of an HIV-positive patient who developed concomitant cryptococcal meningitis and Kaposi’s sarcoma, seeking interactions between low cellular immunity and the evolution of AIDS-defining diseases.

METHODOLOGY

This is an observational and descriptive study of the case report type, in which a review of the patient’s electronic medical record was performed from internal records and data stored by the institution that provided assistance. In this review, data on the clinical evolution were extracted, seeking to define the initial presentation, diagnostic hypotheses put forward, complementary exams performed, and therapy adopted. Subsequently, a literature review was carried out on the diseases addressed in the study and a comparison of the patient’s clinical evolution was made with the data obtained.

CASE REPORT

A 24-year-old white male patient, HIV-positive for 6 months, was admitted to the Campos Gerais Regional University Hospital presenting with decreased level of consciousness, neck stiffness and fever for 3 days. He was in regular general condition, awake and not communicative, tachycardic and mildly hypertensive, in Glasgow Coma Scale (GCS). On dermatological examination, he presented widespread nodular lesions on the face and trunk. He was started on antibiotic therapy and a CT scan of his skull showed findings suggestive of HIV encephalopathy.

He was taking antiretroviral therapy with Tenofovir, Lamivudine, and Dolutegravir and antibiotic prophylaxis, with a viral load of 43 copies/mL and CD4 count of 128 cells/mm³. In addition, 3 months prior to his visit, he had developed meningitis and was hospitalized in the intensive care unit (ICU) for 20 days.

The patient evolved with signs of depletion, worsening of the level of consciousness (ECG 8) and sarcopenia. He was transferred to an ICU bed, where volume resuscitation, analgesia, and orotracheal intubation (OTI) were performed. The nodular lesions evolved to purpuric, erythematous, conglomerate patches spread over the face and trunk with sparse petechiae on the limbs, compatible with Kaposi’s sarcoma (Figure 1).

A routine CSF was collected, which showed the presence of Cryptococcus spp. in the cerebrospinal fluid, corroborating the diagnostic hypothesis of neurocryptococcosis. Later, the CSF fungal culture was also positive for Cryptococcus neoformans. Skull MRI showed signs of hydrocephalus associated with meningoencephalitis with ischemic vascular involvement, and ventricular dilatation (Figure 2). The treatment instituted was Amphotericin B associated with Fluconazole in the induction phase.
Figure 1 - Regular, nodular, violaceous-colored, disseminated lesions - compatible with Kaposi’s Sarcoma.

The patient evolved with desaturation, decreased level of consciousness, salivary discharge, trismus and left hemiplegia, besides worsening of hydrocephalus and seizures. He was started on phenytoin and hydantoin, since the use of benzodiazepines was not successful in controlling the seizures. In the electrophysiological study, he presented slowing due to encephalopathy, besides symmetrical and markedly disorganized baseline activity and absence of physiological rhythms of sleep or wakefulness. An emergency External Ventricular Shunt (EVD) was installed, as a new CT scan of the skull revealed increased hydrocephalus and loss of pupillary reflexes. Subsequently, there were three new episodes of loss of brainstem reflexes, and the LVAD was replaced in all of them, with recovery of the lost reflexes. The airways presented purulent secretion and the tracheal aspirate culture was positive for Enterococcus faecalis sensitive to Ampicillin. Thus, treatment with Ampicillin was performed with remission of pulmonary symptoms.

A few weeks later, the patient again presented with a large amount of airway secretion and persistent, unimproved lowering of consciousness. Because of this, new cultures were requested. The CSF culture was positive for Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin was started. The urine culture and tracheal aspirate were positive for Enterococcus faecalis and the antibiogram showed sensitivity to Vancomycin, which was already being used to treat MRSA.

The patient presented with anemia, recurrent vomiting, continued lowered level of consciousness and began to present with hypertensive peaks and tachycardia, with subsequent worsening of renal function and anisocoria. The cerebrospinal fluid was xanthochromic and cloudy, and septic shock developed. Amikacin and Polymyxin B were later changed to Meropenem and Vancomycin.

A CT scan of the skull revealed bilateral frontal hematoma with a halo of edema, in addition to increased dilation of the supratentorial ventricular system, dilation of the fourth ventricle, and herniation of the cerebellar tonsils through the foramen magnum.

Further cultures and CSF routines were negative for Cryptococcus and then the consolidation phase of treatment with Fluconazole was initiated. Despite all the measures and the CSF negativation, on the 51st day of hospitalization, the patient died due to refractory septic shock.

DISCUSSION

Cryptococcosis is an infection caused by inhalation of basidiospores of the fungus Cryptococcus neoformans. In immunocompromised patients, such as those with HIV, this opportunistic infection can become very serious and potentially lethal. It has a relevant prevalence worldwide and can be restricted to the lung or disseminated throughout the body.

One of the most common clinical forms of presentation is meningoencephalitis, as described in this case report. It can be isolated or concomitant with pulmonary involvement. In this case, pulmonary symptoms appeared, which may indicate respiratory involvement also by Cryptococcus.

The presentation is subacute. The patient evolves over
days with nausea, vomiting, fever, holocranial headache, progressive sensitivity alterations, and signs of meningeal irritation such as neck stiffness. In the case report, the patient came to the clinic with fever and signs of meningeal irritation, in addition to decreased level of consciousness, signs consistent with the literature1,2.

Specific diagnostic tests for cryptococcosis are extremely important for effective treatment. The cerebrospinal fluid can be stained in the fresh examination using India ink, the latex test, and culture in artificial culture medium to visualize fungal growth. In the present study, the diagnosis was initially made by the CSF routine and then confirmed by culture that found the microorganism Cryptococcus neoformans. Furthermore, intracranial hypertension was also evidenced, a factor that indicates the patient’s worse prognosis10,11.

Regarding treatment, the approach to cryptococcal meningitis should be done in three steps. The first is induction (at least two weeks), in which Amphotericin B 0.7 to 1 mg/kg/day is given until the patient’s clinical improvement and CSF culture is negative. The second stage is consolidation, which is done with fluconazole 400 to 800 mg a day. The third stage is maintenance, which is done with fluconazole 200 mg per day until the CD4 count is greater than 100 cells/mm³ for more than 3 to 6 months. In the presence of intracranial hypertension/cerebral edema, EVD can be done, paying attention to the indication of neurosurgery, as was the case of the patient in this study22.

Kaposi’s sarcoma is characterized by a malignant tumor that originates in the endothelium of blood vessels and affects mainly the skin and mucous membranes. Its origin is not well defined, but it is known that there are many factors involved and that there is a relationship with HIV infection, as occurred in the patient studied in this case24.

Clinically, most cases have a benign and long course, which is restricted to the skin and subcutaneous tissues. When it presents itself in a more severe form, it can affect viscera and especially the skin, the most affected organ, in which it manifests itself in the form of patches, papules, plaques or deep nodular lesions, multifocal, violet-brown or dark-red, located mainly on the lower limbs, rarely affecting viscera. These lesions may bleed, ulcerate, and be associated with lymphedema, pain, and secondary infection19.

Diagnosis is guided by a complete physical examination of the patient (including mucous membranes of the oral and genital cavity) and by pathological examination of the suspected lesion. Additional tests can also be performed in order to determine the stage of the disease, such as: chest X-ray, lymphocyte subpopulation and viral load study, abdominal and lymph node ultrasound, upper digestive endoscopy, and colonoscopy. In the present case, the diagnosis was essentially clinical, due to the clinical compatibility of the lesions with Kaposi’s sarcoma and the positive epidemiology of HIV infection14.

CONCLUSION

The present case report demonstrated the importance of paying attention to opportunistic infections in patients living with HIV/AIDS. Early diagnosis, proper management and accurate treatment prevent worsening of prognosis and reduce morbidity and mortality. Concomitant infections such as Kaposi’s sarcoma and cryptococcosis may predispose patients to severity and death, as happened in the case described.

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