AIDS in the elderly

Fernanda Paixão Duarte*, Luís Dutschmann**

Abstract

The authors report a case of the 72-year-old male who was admitted into hospital with a three – four months history of general weakness, loss of appetite and weight loss. One week prior to admission, the patient developed diarrhea that was associated with cognitive and gait impairment. On physical examination, the patient was disorientated in space and time, presenting a generalized flaccid muscle weakness, impaired gait and cervical lymphadenopathy.

Complementary investigations confirmed the diagnosis of an acquired immunodeficiency syndrome and cerebral toxoplasmosis. The brain CT scan showed right cerebral hemisphere lesions conditioning signs of "space occupying lesions".

The patient had a good response to treatment indicated by a significant regression of his dementia as well as gait improvement.

We hope to call the attention, by presenting this case, to the importance of the diagnosis of AIDS as a cause of dementia in elderly patients.

Keywords: AIDS, elderly, toxoplasmosis, dementia.

Introduction

Acquired immunodeficiency syndrome was considered, for many years, as almost exclusive to young people, and it was only after 1985 that observations were described in patients aged over 60 years.[1]

Presently, 10% of the patients diagnosed each year with AIDS in the United States are aged over 50 years, and approximately 29% of these cases occur in people aged over 60 years.[1,2] In France, around 2.3 to 5% of patients with AIDS are aged over 60 years.[3,4]

The progression to disease in individuals in this age group infected by the acquired immunodeficiency virus is very rapid.[5]

This group is now growing rapidly. Initially, transmission by the blood and derivatives was considered the main epidemiological route, accounting for 46.5%-54.5% of cases; however, in the nineteen nineties, the most frequent means of transmission became homosexual contact, followed by heterosexual contact. Proportionally, the number of cases with undetermined risk factor is higher among the elderly.[1,3] In this group, there is also a need for greater use of prophylactic measures and effective health education, as only 1/6 of the individuals included in risk groups use protection.[2] The survival time is much shorter, not only due to a decrease in thymic activity and other immunological risk factors, but also due to the delayed diagnosis in this group.

Case report

J.L., male, White European, widower, retired rural worker, born in Mafra and currently residing in Amadora, came to the Emergency service of the Hospital Fernando da Fonseca on 23rd June 1996 with asthenia, anorexia, weight loss and periods of temporal/spatial disorientation, for which reasons he was admitted. The patient reported the onset of symptoms three months before admission, with the appearance of asthenia, anorexia and unquantified weight loss, which was associated with a progressive decrease in cognitive functions. One week before admission, the patient developed liquid diarrhea with seven to eight dejections of liquid feces, without blood or mucus and not accompanied by fever. Subsequently, the appearance of temporal/spatial disorientation and urinary incontinence prompted the patient to come to the Emergency service, where he was admitted. For the collection of anamnestic data, the family's collaboration was important. On clinical examination, the patient's apparent age appeared to coincide with his real age, thin, weighing 53 Kg, height of 1.59 m, apyretic, with blood pressure of 120-80 mmHg. Small cervical adenopathies were observed, supraclavicular, axillary and inguinal, of elastic consistency, not adhering to the deep layers, the largest measuring 1 cm in diameter; lung and heart auscultation were

*Internal Medicine Assistant

**Director of Service

Internal Medicine Service of the Hospital Fernando da Fonseca, Amadora

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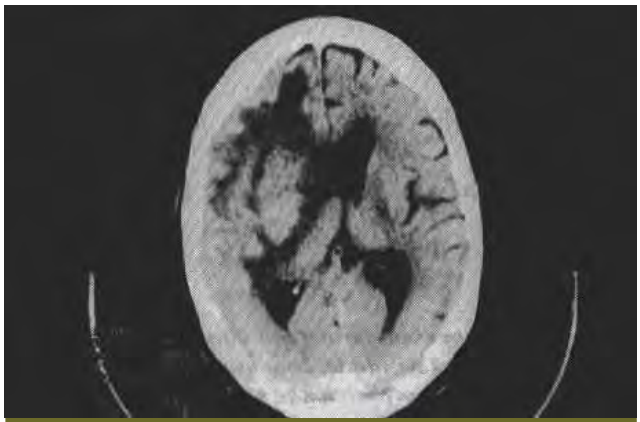
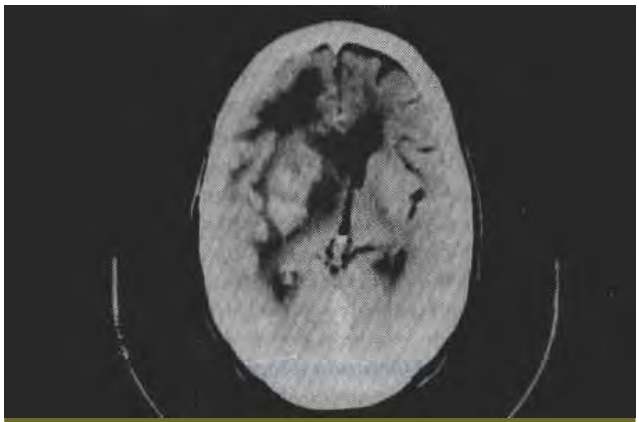


CAT – Expansive deep intra-axial lesion in the right cerebral hemisphere, surrounded by severe edema with right-left deviation of the middle structures.

FIG. 1



After administration of IV contrast solution, a moderate and heterogenous strengthening of the densities was observed.

FIG. 2

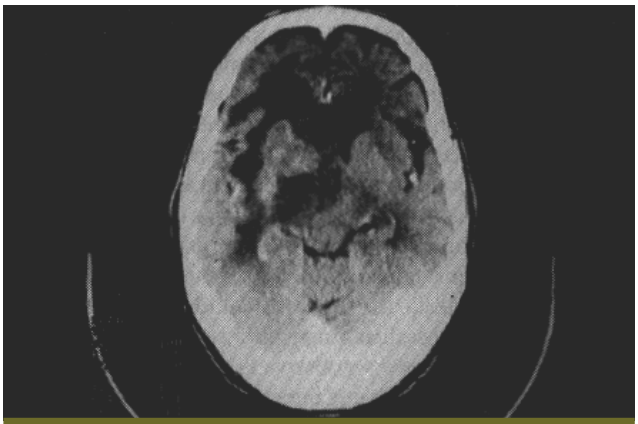
normal, and the abdomen was soft, depressible and painless on surface and deep palpation, without the liver or spleen being felt on palpation. On neurological examination, the patient was alert, autopsychically oriented, but disorientated in time and space; information capacity, abstract thinking and recent memory altered, he did not present any alterations in speech. General muscle strength was diminished, but without asymmetries, the osteotendinous reflexes were present, symmetrical, though weak, with bilateral cutaneoplantar flexion; standing and sitting were difficult, and possible only with support. Fundoscopy was normal. Laboratory tests revealed: anemia with erythrocytes of 3,500,000 to 3,170,000/mm3, Hb of 11.6 to 9.9 g/dL, leukocytes 5,900, neutrophils 53,5%, lymphocytes 39.2%, platelets 167,000, ESR 72 mm in the 1st hour, CRP 1.0 (NV < 0.8); hepatic and renal functions normal, total proteins 7.1 g/dL, albumin 3,2 g/dL and gamma globulin 2.1 g/dL; immunoglobulins with values of IgG 2150 (NV 723-1685), IgA 466 (NV 69-382), and IgM 150 (NV 63-277), respectively. The CMV serology test was negative for IgM and positive for IgG with values higher than 250 U/mL; the serology for toxoplasma was positive for IgM and for IgG with a value higher than 300 IU/mL; the serology for hepatitis B and C was negative, and the serology for HIV 1 was positive by the ELISA and Western Blot methods. Lumbar puncture showed rock crystal CSF, and cytochemical exam of the cephalorachidian fluid showed 0.8 elements, 78mg/dL of proteins and 48 mg/dL of glucose, while the direct bacteriological and cultural exam and VDRL and FTA-ABS tests were negative; serology for HIV 1 by the ELISA and Western Blot methods was positive, and the toxoplasma serology was positive for IgM and for IgG, with a value of 60 U I/mL. Study of the lymphocyte populations showed a total of 1534 lymphocytes, CD4 number of 227 (14.8%) and CD8 of 994 (61.9%).

Computed axial tomography (CAT) of the neck, chest and abdomen/pelvis showed multiple adenopathies of small dimensions in the neck region and mediastinum on the right side, and also in both inguinal regions, the largest measuring approximately 1.5 cm, located on the left; liver, spleen, pancreas, suprarenal glands and kidneys showed no alterations.

In the cranioencephalic CAT performed on 10 July 1996, an expansive deep intra-axial lesion was observed (basal nuclei grey matter), right cerebral hemisphere, isodense to slightly hyperdense, relative to the cerebral parenchyma, surrounded by a major area of vasogenic edema, causing marked signs of mass effect, with blurring of the silvian fissures and cortical sulci, subtotal collapse of the homolateral ventricula and III ventricula, and right-left deviation of the middle structures (subfalcine hernia, *Fig. 1*). After the administration IV of iodine contrast solution, a moderate heterogeneous strengthening of densities was observed (*Fig. 2*).

Anatomical-pathological exam of the cervical lymph node showed follicular hyperplasia.

On 12th July 1996, intravenous treatment with dexamethasone was begun, which was changed to



After therapy, vast improvement with reduction of the lesion, and without significant signs of mass effect.

FIG. 3

oral administration on the 16th July, 0.5 mg/day, due to the presence of accentuated cerebral edema and the fact that the cerebral lesions were suspected lymphoma. On 30th July 1996 the patient was medicated with pyrimethamine, sulfadiazine and folinic acid, after analytical confirmation of toxoplasmosis and seropositivity for HIV 1, when the corticoid therapy was suspended. At this point, associated treatment was administered with antiretrovical therapy with zidovudine (AZT), 500 mg/day, and didanosine (ddi), 200 mg every 12 hours. With the corticoid therapy, an improvement was seen in the patient's general condition, which was vastly improved after starting therapy for toxoplasmosis. Since then, the adenopathies have disappeared, with a significant improvement in cognitive functions, and partial recovery of muscle strength and gait. After the therapy, cranioencephalic computed axial tomography showed an accentuated reduction in the size of the deep right cerebral hemispheric lesion (lenticular capsule) and in the area of surrounding vasogenic edema; no compressive effect was observed on the middle structures, or signs of subfalcine hernia. An area of heterogenous lenticular uptake persisted on the right. Another computed axial tomography carried out on 19th August 1996 showed evidence of heterogeneity in the right lenticular capsule region, but without significant signs of associated mass effect. After IV injection of iodine contrast solution, a slight strengthening of density was observed, roughly nodular and heterogeneous, in relation to the initial lesion (*Fig. 3*). The patient was discharged in September 1996, much improved and walking without help, with weight gain and improvement in cognitive functions, and with a diagnosis of acquired immunodeficiency syndrome stage C2 and cerebral toxoplasmosis, according to the 1993 CDC criteria for HIV infection. In November 1996, under the antiretroviral therapy described above, and with secondary prophylaxis for toxoplasmosis, the patient was readmitted for oroesophageal candidiasis and profuse diarrhea. The etiological agent was not isolated in the laboratory tests carried out, notably hemocultures, serologies and tests for eggs, cysts and parasites in the feces. The patient was discharged in improved condition, although thin, and died in January 1997, in a state of wasting syndrome and intense diarrhea.

Comments

In an infection, the clinical manifestations are dependant on a complex system of interactions that involve bacterial endotoxins, cell immunity, humoral immunity, and complement cascade systems and coagulation factors, with the release of various cytokines, namely interleukins (IL-1, IL-6, IL-8) and the tumor necrosis factor. Thus, with advancing age, loss of cell immunity, decreased production and heterogenicity of antibodies are associated with increased production of proinflammatory cytokines, namely IL-6, tumor necrosis factor, transformer of b-growth and interferon g, and with decreased production of IL-1.[9] In women, these mechanisms are even more accentuated, confirming the importance of the endocrine system in the infection.[9] The immunological changes in the elderly individual, with dysfunction of the macrophages and cell immunity, accelerate the risk of development of disease in individuals infected by HIV. The association of these changes in the immune system with the harmful effects on cell immunity inherent to AIDS have, in the elderly, a devastating effect and are responsible for a more accelerated clinical deterioration, compared with younger age groups, which is also the case with other viral or bacterial infections.[1,9,10] Other factors are also generally present, such as atrophy and fragility of the vaginal and rectal mucosa related to age, deficient diet, and the presence of other chronic diseases.[1]

Besides opportunistic infections of the central nervous system – highlighting in particular, due to their frequency, toxoplasmosis, cryptococcal meningitis, non-HIV viral encephalitis, and more rarely, candidiasis and aspergillosis – and of the tumors

– particular primitive lymphoma of the nervous system – subacute encephalitis and dementia complex associated with AIDS are also forms of presentation.[11] Of the intercranial lesions associated with AIDS, around 10-20% relate to progressive multifocal leukoencephalopathy resulting from the infection of the oligodendroglial cells by the JC virus (a papovavirus), which causes focal demineralization CNS.[11] Clinically, AIDS, in this age group, can begin insidiously with atypical or non-specific manifestations, such as weight loss, and prolonged or recurrent fever, which hinders and delays the diagnosis. Neurological and psychiatric alterations are highlighted, which are already frequent in this age group, and are present in 55% of AIDS patients in the case series observed by Nguyen, with this figure increasing to 70-80%, according to the authors, as the efficacy of the therapy of pulmonary complications improves, and in more advanced stages of the disease.[4,12] Progressive dementia related to HIV is frequent, affecting around 30% of patients, and should not be confused with Alzheimer's or Parkinson's disease, as it has a more rapid and atypical evolution.[1,5,12,13] Infection of the central nervous system by Toxoplasma gondii can produce a focal lesion with abscess, or a diffuse lesion with meningitis and encephalitis, leading to different clinical manifestations, including lethargy, cognitive alterations, convulsions, and focal symptoms.[10] Imaging exams can contribute to the diagnosis of these cerebral lesions in the presence of single or multiple lesions, with surrounding ring, hemorrhagic intralesional foci, and marked localized peripheral edema of the basal ganglia and subcortical region. However, in many cases, differential diagnosis between cerebral toxoplasmosis and lymphoma is difficult. Recently, single-photon emission computed axial tomography (SPECT) has been used, with Thallium-201, in the identification of these lymphomas.[14] The use of nuclear magnetic resonance imaging with spectroscopy, although useful in the diagnosis of intercranical tumors, does not yet present diagnostic specificity to distinguish between toxoplasmosis and cerebral lymphoma.[15] If despite anti-toxoplasma treatment, any of these lesions remains the same size or increases, then a stereotaxic biopsy should be considered.[11,16] However, as a rare exception, the response to therapy can be observed only after weeks or months of treatment, therefore an early differential diagnosis is essential, through the use of imaging techniques.[14,15] Anomalies in the laboratory tests are usual, but leukopenia, anemia and thrombocytopenia are observed more frequently among the elderly.[4] These alterations in the course of AIDS aggravate the risk of infection and create difficulties in the administration of therapy, not only because it is cytopeniant, but also due to the higher frequency of secondary actions in this age group.[1,4] In the patient presented, the survival time was reduced. The diarrhea and wasting syndrome appear to have been determining factors. The gastrointestinal apparatus is the target organ in AIDS, and diarrhea is a common problem. Diarrhea occurs in 30-60% of patients with AIDS in industrialized countries, and in more than 90% of patients in Africa or Haiti.[17] Diarrhea in these patients evolves in bursts, is generally chronic, and is associated with significant morbidity, associated debility and wasting syndrome. Pathogenic agents can be identified in 44-85% of cases of diarrhea in AIDS patients and in 10%, more than one microorganism is found condomitantly.[17] In the majority of cases, the microorganisms are bacteria, viruses or parasites. The importance of fungi in the pathogenesis of diarrhea has still not been clarified.[18] However, in 10-20% of patients with AIDS, no etiology is identified for the diarrhea by the diagnostic methods currently available.[18]

The prognosis of AIDS in the elderly is reserved. Survival from the date of diagnosis is 4.3 months, on average, although according to some authors, it can range from 39.7% to 18 months.[4,5] ■

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