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MULTIPLE MENING AND BRAIN INVOLVEMENT REVEALING MULTIFOCAL TUBERCULOSIS IN A YOUNG IMMUNOCOMPETENT PATIENT: CASE REPORT

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Abstract: Goal: To report the case of an immunocompetent patient with tuberculous infection in the lungs, meninges, kidney and sacroiliac joint. **Detail of the case:** A 19-year-old female patient, with previous poorly explained syncope and convulsive episodes, presented to the emergency room with severe headache in the frontal and biparietal region, accompanied by photophobia, phonophobia and emesis. On admission, the physical examination revealed mental confusion, she was afebrile and agitated. The patient evolved with worsening neurological symptoms, impaired focal deficits, left esotropia and decreased cognition. Contrast-enhanced computed tomography of the abdomen and chest was performed in which the hypothesis of miliary tuberculosis was raised and after verifying findings suggestive of hematogenous dissemination, the diagnosis of multifocal tuberculosis was confirmed, and a tuberculostatic scheme based on quadruple therapy with rifampicin, isoniazid, ethambutol and Pyrazinamide was started, and the patient was then referred to the municipal referral service for Tuberculosis, after clinical stabilization. Final considerations: Tuberculous meningitis is a potentially lethal and rare disease, especially in immunocompetent patients. This nonspecific picture can have its genesis in several brain pathologies, which makes imaging and Cerebrospinal Fluid exams essential for diagnostic confirmation.
Keywords: Tuberculosis, Tuberculosis of the Central Nervous System, Immunocompetent Patient.

INTRODUCTION

Tuberculosis (TB) is a global public health problem, especially in developing countries. Its main risk factor is immunosuppression, especially due to concomitant HIV infection, which favors a higher incidence of

extrapulmonary manifestations, reactivation of latent diseases, as well as increases the chances of disseminated disease, however, approximately 1% of cases are described in immunocompetent individuals (OLIVEIRA et al., 2017; RODRIGUEZ-TAKEUCHI; RENJIFO; MEDINA, 2019).

Disseminated TB is defined as the concomitant involvement of two or more non-contiguous organs by Mycobacterium tuberculosis, configuring an extreme form of infection, which implies variable clinical conditions, with atypical and nonspecific presentations, which can even lead to negative tests, such as bacilloscopy and sputum culture, which makes the diagnosis challenging, and therefore increases the morbidity and mortality of the disease (VERMA, PATIL, LALLA, 2012; MOULE; CIRILLO, 2020)

This type of infection can lead to involvement of the central nervous system (CNS), which, although rare, especially in immunocompetent individuals, usually progresses as tuberculous meningitis, a more frequent presentation, but encephalitis, abscess, tuberculoma can also occur, and progress with signs and generic symptoms such as meningeal signs, headache, vomiting and even cognitive changes (GOLDEN, VIKRAM, 2005; HWANG et al., 2017).

This case report is intended to present an atypical manifestation of disseminated TB, as well as to reinforce the importance of complementary exams in aiding the diagnosis, in an immunocompetent patient who presented tuberculosis infection in the lungs, meninges, kidney and sacroiliac joint.

CASE REPORT

A 19-year-old female patient with poorly clarified previous syncope and convulsive episodes presented to the Emergency Room with severe headache in the frontal and biparietal region, accompanied by photophobia, phonophobia and emesis. She reported a past history of syncopal episodes and convulsive episodes, and an electroencephalogram was performed, in which paroxysms of acute waves suggestive of left temporal irritative activity were recorded. Carbamazepine 200mg 12/12 hours, which the patient had been using for 3 months, was prescribed.

On admission, the physical examination revealed mental confusion (Glasgow Coma Scale = 14), she was afebrile and agitated. She received analgesia with IV dipyrone, but without pain remission, and reported paresthesia in the face and left hemibody. Non-iodinated contrast-enhanced initial cranial computed tomography (CT) showed multiple hypodense subcortical foci, with no expansive or atrophic effect, sparse in the frontal lobes, left occipital lobe and ipsilateral cerebellar hemisphere. The contrast infusion showed minute nodules, with tenuous ring enhancement and a halo of vasogenic edema, raising the hypothesis of inflammatory/ infectious lesions with hematogenous dissemination (figure 1).

Given the hypothesis of herpetic encephalitis, therapy with Acyclovir 250mg and Dexamethasone was started. Rapid testing for HIV-1 and HIV-2 was performed, being non-reactive. The patient evolved with worsening neurological symptoms, impaired focal deficits, left esotropia and decreased cognition. A cerebrospinal fluid sample was collected and, on bacterioscopy, no alcohol-acid resistant bacilli (BAAR) were observed.

The diagnostic hypothesis of neurotoxoplasmosis was raised. Contrast-enhanced CT and abdominal CT were performed, which showed small diffuse pulmonary nodules bilaterally, which led to the hypothesis of miliary tuberculosis (Figures 2 and 3).

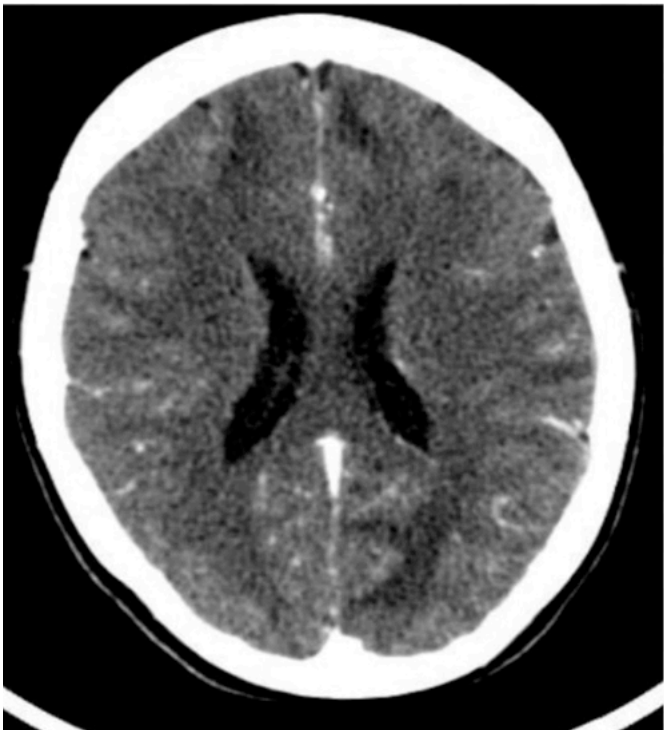

Figure 1 – Unenhanced CT in axial section, suggesting a pattern of inflammatory lesions.

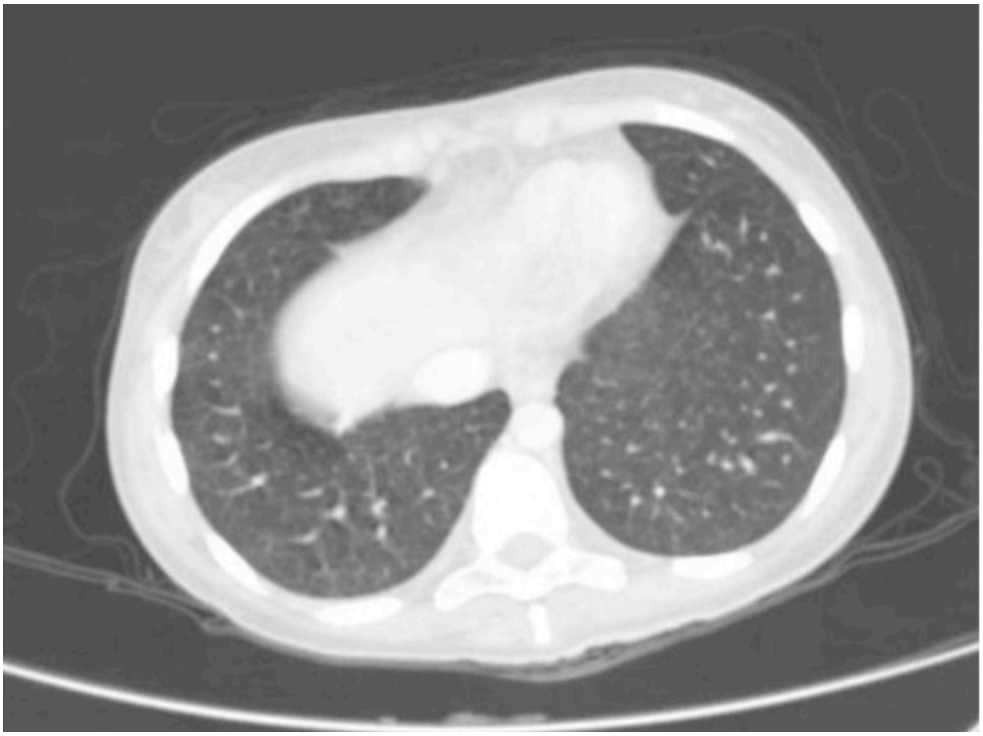

Figure 2: Contrast-enhanced CT cross-section of the chest showing small, diffuse pulmonary nodules.

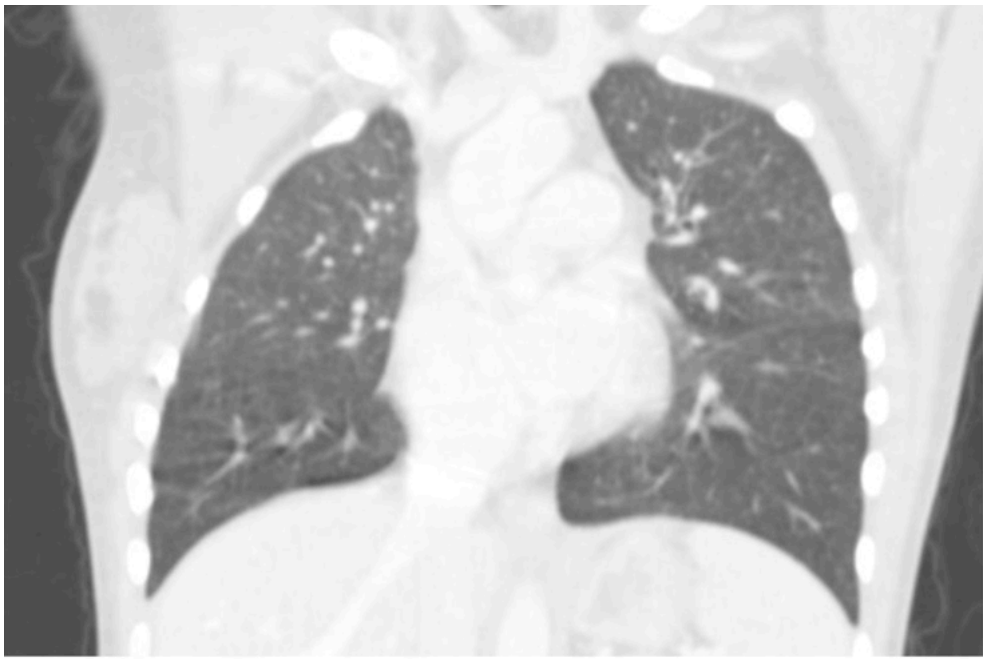

Figure 3: Coronal contrast-enhanced CT section of the chest showing small diffuse pulmonary nodules.

Low uptake images measuring up to 3mm were also identified in the bilateral renal parenchyma and spleen, compatible with miliary dissemination (figure 4) and periarticular bone erosions in the left sacroiliac joint, with interposed hyperdense foci, compatible with tuberculous sacroiliitis (figure 5).

Based on the set of findings suggestive of hematogenous dissemination associated with the pattern of miliary TB on chest CT, the diagnosis of multifocal TB was confirmed, and a tuberculostatic regimen based on quadruple therapy with rifampicin, isoniazid, ethambutol and pyrazinamide was initiated.

Intravenous dexamethasone was also started, reducing the dose weekly. Also during hospitalization, two CSF punctures were performed with the purpose of decompression, the first being PI = 50 cm H2O and the second with PI = 30 cm H2O. He evolved clinically well, but with an increase in transaminases, with hepatotoxic drugs being discontinued and progressively reintroduced in the following sequence: pyrazinamide, ethambutol, isoniazid and rifampicin.

The symptoms were suggestive of intolerance to rifampicin, with the regimen being replaced by levofloxacin, isoniazid, pyrazinamide and ethambutol for 2 months and then withdrawing the isoniazid and keeping the remainder for 10 months. She was referred to the municipal tuberculosis reference service.

DISCUSSION

Tuberculous meningitis is a rare and potentially lethal disease. Its risk factors are similar to those of pulmonary TB, including low socioeconomic status, malnutrition, immunodeficiency and living in endemic areas. It is a very rare condition in immunocompetent patients (JAWAD et al., 2017).

Its dissemination is more common in young people, although previous literature

Figure 4: Contrast-enhanced CT cross-section of the abdomen showing low uptake images in the bilateral renal parenchyma and spleen.

Figure 5: Contrast-enhanced CT cross-section of the abdomen showing periarticular bone erosions in the left sacroiliac joint, with intervening hyperdense foci.

demonstrates that CNS TB can occur in all age groups. The clinical picture is variable, although some common points can be identified, such as a prodromal phase, which lasts a few weeks, consisting of low-grade fever, malaise, headache, dizziness, vomiting and personality changes, followed by severe headache. intensity, drop in level of consciousness and cranial neuropathies. (KHANNA, KRALOVIC, PRAKASH, 2016; OLIVEIRA et al., 2017)

Seizures are uncommon, and classic features of bacterial meningitis, such as stiff neck and high fever, may be absent (HWANG et al., 2017). Our patient developed a low-grade fever, asthenia, drowsiness and severe headache, in addition to a history of seizures.

It also evolved with worsening level of consciousness, vomiting, signs of intracranial hypertension (later confirmed by spinal manometry) and convergent strabismus. The nonspecific picture can have its genesis in several brain pathologies, which makes imaging and CSF examinations essential for diagnostic confirmation (RODRIGUEZ-TAKEUCHI; RENJIFO; MEDINA, 2019).

The detection of Mycobacterium tuberculosis in CSF, however, has low sensitivity. MRI imaging using gadolinium has greater sensitivity than CT in this assessment, although there are cases in which MRI does not show changes. One of the most common - and serious - adverse effects of tuberculostatic drugs is hepatotoxicity, which can reduce the effectiveness of treatment. (VERMA, PATIL, LALLA, 2012; JEONG et al., 2015; RODRIGUEZ-TAKEUCHI, RENJIFO, MEDINA, 2019).

CONCLUSION FINAL CONSIDERATIONS

The early diagnosis of tuberculosis, especially in cases of disseminated disease, implies a reduction in morbidity and mortality and can facilitate the therapeutic response. Tuberculous meningitis is a potentially lethal and rare disease, especially in immunocompetent patients. The nonspecific picture can have its genesis in several brain pathologies, which makes imaging and Cerebrospinal Fluid exams essential for diagnostic confirmation.

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