



Central nervous system and ovarian tuberculosis an unusual association: a case report

Tuberculose ovarienne et du système nerveux central, une association rare : à propos d'un cas

Djoubairou BO^{1,2}, Moune MY¹, Bello F^{3,4}, Asseme Ntol N^{1,4}, Ntoh Ehode C¹, Njofang Teto P¹, Ongolo ZP⁵, Motah M^{2,6}, Djientcheu VDP^{4,5}

Cas clinique

1. Yaoundé Military Hospital
2. Faculty of Medicine and Pharmaceutical Sciences, Douala, Cameroon
3. Garoua General Hospital
4. Faculty of Medicine and Biomedical Sciences, Yaoundé, Cameroon
5. Yaoundé General Hospital
6. Douala Laquintinie Hospital

Corresponding author: Moune Michèle Yolande, Faculty of Medicine and Pharmaceutical Sciences, The University of Douala, Email: mounemy@outlook.com, Tel: +237 694683602

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ABSTRACT

Tuberculosis has emerged as one of the major causes of death worldwide. The areas of localizations are varied, with the most common being the lungs. Tuberculosis is associated with decreased immunity. However, with the increase in international trade, promiscuity, poverty, and malnutrition, we are witnessing the rising occurrence of tuberculosis with atypical localization among Human Immunodeficiency Virus (HIV)-negative patients. This paper reports the case of an HIV-negative female who presented with a headache, fever, and multiple episodes of vomiting, and was diagnosed with miliary brain tuberculoma. Magnetic Resonance Imaging (MRI) revealed supra and infra-tentorial tuberculoma and a right occipital abscess. While undergoing anti-tuberculous chemotherapy, she developed a tuberculous ovarian abscess and cervico-thoracic epiduritis. She underwent surgery for the occipital abscess, including abdominopelvic exploration. After 3 months of follow-up, she improved with a good recovery of motor function. However, the follow-up MRI showed the resorption of cerebral miliary tuberculosis with the appearance of a thoracolumbar syrinx as sequelae. Central nervous system and gynecological localization of tuberculosis is rare. However, Mycobacterium Tuberculosis pathophysiology explain this unusual association. Clinicians must be aware to avoid the complications such as disability and infertility.

RESUME

La tuberculose peut toucher tous les organes, cependant, l'atteinte pulmonaire reste la plus fréquente. La description des localisations atypiques est également retrouvée. Les auteurs rapportent le cas d'une patiente, HIV négative présentant un tableau d'hypertension intra-crânienne en contexte de fièvre chez qui le diagnostic de miliaire tuberculeuse cérébrale a été posée. L'IRM a mis en évidence des tuberculomes supra et infratentoriels avec un abcès occipital droit. Après le début du traitement sous antituberculeux, la patiente a présenté un abcès ovarien tuberculeux ainsi qu'une épidurite cervico-thoracique. La prise en charge a consisté en une évacuation de l'abcès tuberculeux et une exploration chirurgicale abdomino-pelvienne. Au bout de 3 mois de suivi, la patiente a présenté une amélioration de son état neurologique. L'IRM de contrôle a montré une résorption des images cérébrales avec apparition d'une cavité syringomyélique thoracolumbaire. La localisation cérébrale et gynécologique de la tuberculose est rare dans la littérature, cependant la physiopathologie de Mycobacterium Tuberculosis pourrait l'expliquer. Le handicap ainsi que l'infertilité sont responsables d'un préjudice important qui devrait attirer l'attention des professionnels de santé en vue d'une prise en charge rapide et adaptée.

Background

Tuberculosis is a major public health issue, especially in low- and middle-income countries. It is 20-30 times more common in HIV-positive patients and more lethal (1). The most frequent localization is pulmonary; however, rare or multiple localizations without pulmonary involvement have been described in scientific literature. Central nervous system involvement is seen in 2-5% of patients with tuberculosis (2). Patients with brain tuberculomas often present with signs indistinguishable from other brain pathologies and require surgery to obtain a histological diagnosis and reduce local mass effect. Anti-tuberculous therapy generally lends to good outcomes for these patients. This paper reports the case of a young female patient who presented with gynecological and central nervous system localization of tuberculosis.

Case presentation

History and physical exams: An 18-year-old African woman, HIV negative, sexually inactive, was admitted for a headache, multiple episodes of vomiting, and fever for 3 weeks, managed in a primary health center as malaria. She started having generalized seizures 2 episodes of 3 minutes each and was transferred to our center. Physical examination showed altered level of consciousness with a Glasgow score of 13/15, signs of meningeal irritation, fever at 39.1°C, systolic blood pressure of 160 millimeters of mercury, and a pulse of 120 beats per minute. There were no motor deficits.

Imaging studies: An MRI performed showed, on T1-weighted images, supra and infratentorial rosette lesions located with a well-enhanced cortical lesion in the right occipital lobe. On T2-weighted images, all the lesions were iso-intense (figure 1). Pulmonary chest X-rays were normal.



Figure 1: pre-operative brain, cervico-thoracic MRI :A-B: MRI performed showed on T1-weighted images after injection of gadolinium identified a well enhanced cortical lesion in the right occipital lobe and multiple infra and supra tentorial military brain tuberculoma. C: Cervico-thoracic epiduritis.

Operation: A craniotomy was performed using anatomical landmarks due to lack of neuronavigation. While conducting the right occipital craniotomy, the dura was opened, and a greyish capsulated lesion was visualized. Upon excision of the hull, a caseous liquid flowed out. The entire lesion was removed

because it did not adhere to the parenchyma. Histopathology of the lesions concluded that it was tuberculosis.

Follow-up: Anti-tuberculous chemotherapy was started. Ten days after the initiation of the drugs, the patient presented with severe abdominal pains similar to peritonitis. She also had urinary retention, and physical exam showed paraparesis with muscular strength at 3/5 in both legs, diffuse radicular pain with cutaneous hyperaesthesia, jerk reflexes, and decreased tone of the anal sphincter. A medullary MRI was done and showed an iso-intense mass on T1-weighted images, and a hyperintense mass on T2-weighted images extending over C7 to T1 spine. In addition, the MRI identified an abdominal mass suspected to be a pelvic abscess repressing pelvic organs (figure 2).

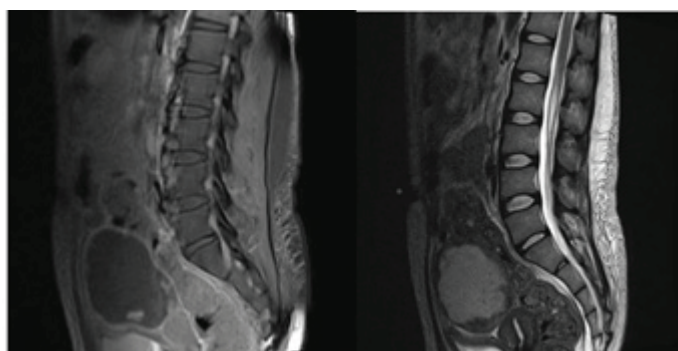


Figure 2: pre-operative pelvic images: MRI identified an abdominal mass repressing pelvic organs suspect of a pelvic abscess

Abdominal surgery was performed, and a voluminous ovarian abscess was excised. The abscess was confirmed to be tuberculous in the pathology report. The hemodynamic status of the patient was unstable; therefore, a surgical procedure on the spine could not be performed. A reduction in abdominal pain was observed within 2 days, and the patient partially recovered motor function after 1 week on corticosteroids. Anti-tuberculous therapy was continued, physiotherapy was initiated, and the patient was put on pregabalin.

After 3 months, the patient presented with no radicular pain, had muscular strength at 4/5 on evaluation, had begun ambulating with crutches, and could control her sphincters. There were no more seizures. A follow-up MRI was done and showed thoracic and lumbar syringomyelia and no rosette lesions in the brain (figure 3).

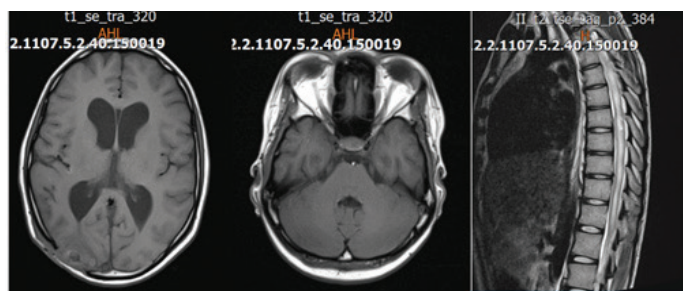


Figure 3: post-operative brain and cervico-thoracic MRI: Controlled MRI showed a thoracic and lumbar syringomyelia and no tuberculomas in the brain.

Discussion

Tuberculosis is a major public health issue, especially in low-income countries where access to primary care is difficult. Bloodborne and lymphatic stages are responsible for the extra-pulmonary forms of the disease. Central nervous system involvement in tuberculosis is rare and is seen in 10% of cases with meningitis being the most common manifestation (3,4). However, tuberculous brain abscess is an unusual manifestation (5). In developed countries, central nervous system tuberculosis is seen in 4-8% of patients with HIV (4,5). The clinical manifestations are vague, and about 8 weeks can pass before the signs of central nervous involvement develop (4). In our case, the patient was followed up in a primary health care facility for severe malaria for 3 weeks before the occurrence of seizures causing delay in diagnosis and management. Tuberculous brain abscess on MRI is usually a unique lesion, surrounded by edema, well-defined, hypo-intense on T2-weighted images showing ring enhancement and central diffusion restriction (3). Our patient's MRI showed multiple rosette lesions indicating intracranial tuberculoma and occipital lesion looking like an abscess. The aspect of the occipital lesion and the pathologic report confirmed the diagnosis of an abscess according to Whitener criteria (6).

Some authors describe atypical aspects of the localization of tuberculosis after initiation of chemotherapy. Our patient presented with a spinal involvement of tuberculosis after initiating treatment, which is seen in less than 5% of patients with tuberculosis (4). She presented with sudden paraparesis like that of vascular origin. Nevertheless, MRI showed cervico-thoracic epiduritis. After initiation of anti-tuberculous therapy, an immunological response occurs. There is a conflict between protein bacilli released by the chemotherapy and lymphocytes which result in the formation of tuberculoma. The bacilli are spread in the organism during the bloodborne phase. Additionally, after initiating chemotherapy the patient presented with a genital tract involvement of tuberculosis which is seen in only 1.3% of patients with tuberculosis (8). Genital tuberculosis is difficult to diagnose. Most of the cases are asymptomatic or

present with vague symptoms such as pelvic pain, menstrual disorders or infertility (9). Endometrium is the most common area of localization with genital tuberculosis (72%), followed by the salpinx (34%). Ovary involvement accounts for 13% of the genital localization.

Our patient presented with an ovarian abscess which was revealed by a peritonitis on examination. Tuberculosis is an unusual cause of ovarian abscess because clinical and imaging presentation indicate mostly malignant neoplasm (8). Genital tuberculosis occur between 20-40 years and most of the cases are asymptomatic (10). However, regardless of the age of our patient, we considered the clinical context to indicate an ovarian abscess of tuberculous origin as the genital involvement of tuberculosis occurs commonly secondary to a primary lesion (9). The mode of spread is via the lymphatics, the hematogenous route or less commonly by a peritoneal spread (10). Treatment is usually anti-tuberculous chemotherapy, however, surgery is indicated in the case of recurrent abdominal pains (10). In this case, the patient presented a peritonitis which justified the abdominopelvic exploration.

The patient's 3-month follow-up MRI showed a thoraco-lumbar syringomyelia. This appeared to be a non-communicating syringomyelia as is often seen in cases of trauma, tumors, or arachnoiditis. Syringomyelia following tuberculous meningitis is seen in 1-2% of patients (7). Surgery was not performed on the syringomyelia because the patient had no complaints and had improvement of the neurologic status on physiotherapy.

Conclusion

The association of central nervous system (cerebral and medullary) and gynecological localization of tuberculosis is rare especially in HIV negative and sexually inactive patients. Practitioners should be aware of the atypical manifestation of this disease as the prevalence is increasing worldwide. Attention must be paid to avoid complications such as disability and infertility.

List of Abbreviations

CSF: Cerebro Spinal Fluid
HIV: Human Immunodeficiency Virus
MRI: Magnetic Resonance Imaging

Declarations

Ethics approval and consent to participate consent was obtained from the military hospital where the patient has been managed before writing the manuscript.

Consent for publication written informed consent was obtained from the patient to publish this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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