HIV-induced immunosuppression paves the way for several infections, tuberculosis being very common in our country. Female genital tuberculosis (FGTB), presenting as menstrual irregularities, is a diagnostic challenge in an adolescent female when these may be considered normal. The present case is of a young female who presented with menstrual irregularities, diagnosed subsequently as a case of genital tuberculosis. Microbiological relapse after anti-tubercular treatment of six months caused suspicion of a co-existing immunodeficiency and investigations revealed HIV co-infection; thus emphasizing the need of HIV testing in all patients of tuberculosis for timely diagnosis and treatment support thereafter.

**Key words:** Genital tuberculosis, HIV, menstrual irregularities

**Introduction**

FGTB is usually a silent disease evidencing itself only when really looked for. It usually affects females of reproductive age group. However, with the advent of AIDS pandemic, no age probably remains a barrier to its spread and manifestation. FGTB mainly manifests as infertility, menstrual disturbances, leucorrhoea, or lower abdominal mass. The diagnosis may present a dilemma, especially in the case of young immediate post-pubertal unmarried females, where menstrual irregularities may be considered normal in the initial two years following menarche.

We present, here, a case of an adolescent female who presented with menstrual irregularities, diagnosed later as a case of FGTB and during investigations and follow up, was found to be co-infected with HIV.

**Case Report**

A 15-year-old, unmarried, adolescent female, resident of a village in Gorakhpur, U.P, came to the Gynaecology OPD of our hospital with chief complaints of amenorrhea for three months followed by oligomenorrhea, low grade evening rise of temperature, weight loss (two/three kg) and generalized weakness for two months. Menarche was at 14 years of age. There was neither any history of cough, use of immunosuppressants, prolonged illness or pulmonary tuberculosis, nor abdomen pain, foul smelling discharge, or any symptom suggestive of urinary tract involvement. There was no family history of tuberculosis or contact with TB patient. She had never been investigated for tuberculosis and was on medication prescribed by the village doctor for two months.

On examination, her weight was 29 kg, height 145 cm, pulse 84/ min, blood pressure (BP) 100/70 mm Hg and pallor was present. Her respiratory system and GIT examination were normal, hemoglobin (Hb) was 6.2 gm% and TLC was normal. The thyroid profile and reproductive hormonal profile, including prolactin levels, were normal, with a normal chest X-ray. Mantoux test was positive at 25×25 cm and ESR was raised- 48 mm in first hour. IgG ELISA for TB (Tuberculosis) was high positive, i.e., greater than 400 U/ml (Immuno Vision’s *M. tuberculosis* IgG Avidity ELISA test kit [USA], supplied by Amar Diagnostics, Mumbai, India). Sputum and urine examination did not reveal any AAFB. She was vaccinated with BCG at birth.

Since invasive procedures could not be undertaken in this particular patient, her menstrual blood was sent for AFB examination. Mycobacterial culture facilities were not available and hence, not done. The sample was homogenized, centrifuged at 3000 rpm for 15 minutes and smears were made from the deposit. After dehemoglobinizing the smear, it was stained by Zeihl Neelsen (ZN) stain, using 3% acid alcohol as a decolorizer. On examination under oil immersion, straight to slightly curved, beaded, acid and alcohol fast bacilli (AAFB), with morphology suggestive of *Mycobacterium tuberculosis* were seen (Fig. 1). Two consecutive samples in the same menstrual cycle were also positive for AAFB.

The patient was diagnosed as a case of genital tuberculosis and anti-tubercular therapy (ATT-category I) was started, according to RNTCP guidelines. After one month of treatment, when patient came for follow-up, she...
was afebrile. The morphology of the bacilli on ZN stain had changed. Most of them were short, with blunted ends, and almost uniform staining. Patient was continued on ATT and on subsequent examination next month, no AAFB were seen in menstrual blood smear. Her clinical condition improved, as her menstrual cycle became normal, her hemoglobin improved to 8.9 gm%, appetite increased and she gained seven kg weight in two months. She was advised repeat AAFB examination after completion of treatment, i.e. at six months. Surprisingly, this time, AAFB were again seen in the menstrual fluid. This raised suspicion of drug-resistant TB or a co-existing immunodeficiency disorder.

She was investigated further and found to be reactive for antibodies against HIV-1. CD4 count was 321 cells/µL of blood and CD4 percentage of the total lymphocytes was 15%. She was non-reactive for VDRL, TPHA was negative. The patient was continued on ATT for another two months and advised repeat AAFB examinations, which were negative, thereafter. Culture of menstrual blood was advised and found to be negative for Mycobacterium tuberculosis. The patient was subsequently referred to the ART centre in our hospital with advice for CD4/CD4 counts every six months.

Discussion

Genital tuberculosis represents 15-20% of extra pulmonary tuberculosis.[2] In 80-90% cases, FGTB affects women between 18-38 years of age with menstrual irregularities accounting for nearly 27% of manifestations of FGTB.[3] M. tuberculosis accounts for 90-95% of cases of genital TB, others being caused by M. bovis mainly.[4]

In developing countries like India, the diagnosis and follow-up of pulmonary tuberculosis is often based on repeat sputum smear examinations, wherein a reduction in the number of bacilli is an effective indicator of response to therapy and compliance, and reappearance of bacilli soon after conversion is a sign of failure. Since no follow up studies are available for genital tuberculosis; repeat menstrual smear examinations were done, and treatment extended for two months, when reappearance of bacilli was observed.

The usual presentation of FGTB changes with HIV co-infection. Mycobacterium tuberculosis elicits production of pro-inflammatory cytokines like TNF α, which up-regulates intra-cellular retroviral replication.[5] HIV specifically infects CD4 cells, resulting in their depletion and dysfunction. Macrophage function is also abnormal because of direct infection, coupled with lack of macrophage activation factors produced by CD4,[6] thus facilitating rapid progression of tuberculosis. This may explain the presence of AAFB in such numbers to be easily appreciated on microscopy.

The incidence of tuberculosis in countries with high HIV prevalence has increased five-fold.[7] According to a current estimate, nearly 5.1 million persons in India are infected with HIV and approximately 60% of these individuals are also infected with tuberculosis.[9] Also, 5.2% of TB patients between 15-49 years of age are HIV positive.[9] Considering this increase in the number of patients co-infected, testing for HIV is recommended for all patients with tuberculosis.[6]

Primary infection of female genital organs is very rare. It is usually a result of bacillemia from a primary focus in lungs/ kidneys. The seeding of bacilli usually occurs immediately after puberty as blood supply to the pelvic organs increases and as a result, more bacilli can reach these organs and infect them.[10] Primary infection may also occur when the male partner has active genitor-urinary TB and transmission takes place by sexual intercourse.[11] Infection of vulva, vagina and cervix may result from direct inoculation and ascending spread to other genital organs may occur.[4,12]

The present case was of menstrual irregularities, beginning a few months after menarche, mimicking the occasional physiological trend. It was only when the patient had continuous fever and weakness for two months that she presented to the hospital; and was investigated for genital tuberculosis. In this case, chest X-ray was normal but a possibility of a tubercular focus in the past cannot be ruled. A positive Mantoux test and high ESR were suggestive but not confirmatory. Pelvic ultrasound and hystero-salpingography could not be done in this case due to economic reasons. Ethically, per speculum examination was also not done. On histopathology, epitheloid cell granulomas were seen, but a definitive diagnosis was made only after the demonstration of typical AAFB suggestive of M. tuberculosis in the menstrual blood smear.[13] Culture of menstrual blood for Mycobacteria was done at LRS Institute of Tuberculosis & Respiratory Diseases, Delhi, at the end of treatment and it was negative. Culture for Mycobacteria from such sites are rarely positive.[4] In this case, microbiological relapse of the infection caused an alarm and prompted us to look for other co-morbid conditions. HIV testing was done and patient was found reactive. Also the CD4 count was low. This increased the possibility of tuberculosis being flared up because of co-infection with HIV. Pre and post test counseling was done but she denied history of all the possible modes of transmission of HIV. Considering the age, the most possible route seems to be sexual transmission. However, it could not be established if HIV or tuberculosis was the initial infection or it was a co-transmission by sexual route.

In conclusion, what appears physiological could be hiding a dense pathology inside. So, even at the slightest suspicion, testing for tuberculosis and HIV should be undertaken because these are the infections which can present in polymorphous forms and can affect any organ in the body. Therefore, a high index of suspicion, relevant investigations including HIV testing of all patients with
extra- pulmonary tuberculosis, early institution of therapy and close clinical monitoring are the keys to timely diagnosis of such co-infections.

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Received: 10-03-2009
Accepted: 25-04-2009
DOI: 10.4103/0255-0857.55461

A RARE CASE OF TUBERCULAR CEREBELLAR ABSCISS

Tubercular brain abscess are uncommon and tubercular cerebellar abscess are rarely reported. Most of these cases occur in immunocompromised patients. We report a case of multiple cerebellar abscesses in a 55-year-old HIV seronegative non-diabetic female, who complained of headache, neck pain and unsteadiness of gait since two months. She had been on treatment for pulmonary tuberculosis, diagnosed earlier. Diagnosis was made by CT scan of brain and confirmed by bacteriological examination of drained pus obtained by suboccipital craniotomy. The patient showed signs of recovery.

Key words: Cerebellar abscess, tubercular abscess

Introduction

Extrapulmonary tuberculosis is observed in approximately 20% of all tuberculosis (TB) cases and its incidence has increased in the recent years.[1-3] Central nervous system (CNS) tuberculosis, the most dangerous form of tuberculosis, accounts for approximately 5% of extrapulmonary tuberculosis. Tuberculous meningitis (TBM) is the most common form of CNS- TB; however solitary or multiple intracranial tuberculomas, in particular occur less frequently.[1-3] In the differential diagnosis of intra-cranial tuberculosis (ICTS), images on the radiological findings should be differentiated from other causes of space occupying lesions, which include malignant diseases such as glioma or lymphoma, pyogenic abscess, toxoplasmosis, neurocysticercosis, sarcoidosis, hydatidosis and late syphilitic involvement of CNS.[1] The initial diagnosis is based on radiological findings, but definitive diagnosis is done by bacteriological methods. We report a case of multiple cerebellar abscesses in a 55-year-old female. The initial diagnosis of tubercular abscess was confirmed by the isolation of Mycobacterium tuberculosis from drained abscess material.

Case Report

A 55-year-old female patient complained of headache, neck pain and unsteadiness of gait for two months. The patient, on treatment for pulmonary tuberculosis, diagnosed six months earlier, was non-diabetic and non-hypertensive. The fundus examination showed bilateral papilledema. There were no signs suggestive of cranial nerve palsy. Her pulse rate was 76/min, the blood pressure was 130/80mm Hg, jugular venous pressure was not raised and the precordial activity was normal. The respiratory and cardiovascular systems were within normal limits. The patient was seronegative for HIV antibodies. Her hemoglobin was 10gm/dl, total leukocyte count was 18,000/