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Pelvic Tuberculosis

The Great Simulator of Gynaecologic Malignancies

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Pelvic tuberculosis remains a global health problem, primarily in developing countries where insufficient health services and high human immunodeficiency virus prevalence have increased the burden of disease. Diagnosis of extra pulmonary tuberculosis is often difficult, because of its unspecific clinical, laboratory and radiological findings.The authors present two clinical cases of pelvic tuberculosis. The clinical, pathological and diagnostic features of this unusual disease are reviewed.
Key-words: pelvic tuberculosis; adnexal mass; ovarian cancer; CA 125; adenosine deaminase (ADA).

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INTRODUCTION

Tuberculosis (TB) causes almost 3 million deaths per year worldwide and is increasing in incidence. Abdominal tuberculosis, which may involve the gastrointestinal tract, peritoneum, lymph nodes or solid viscera, constitutes up to 12% of extra pulmonary TB and 1-3% of the total (1).

Individuals with the furthermost risk of TB are those with Acquired Immunodeficiency Syndrome (AIDS), immigrants from high AIDS prevalence regions such as sub-Saharan Africa, Southeast Asia and Haiti, the poor, the homeless and the elderly, mainly those in the nursing homes (2).

The disease can mimic many conditions, including bowel disease, malignancy and other infectious diseases. Diagnosis is often postponed; this may not only result in mortality but also in unnecessary surgery.

CASE REPORT

Patient 1

A 31-year-old healthy woman married, Caucasian, resident in Lousada.

Her gynaecologic and obstetrics history was resumed by: menarche at 15 years of age, regular menses, catamenia of 5 days, 1G2P (twins), contraception with pills.

Her past and family history was unremarkable.

She had a previous bacilliform contact history with her sister in law who died 1 year later by the same cause.

The patient was submitted to a caesarean section, in Gynaecology Department of Padre Americo's Hospital (with normal operatory findings) 9 months before the beginning of the symptomatology. She was evaluated by her local physician for a 3-week history of asthenia, anorexia, weight loss (5 Kg) e progressive increase in abdominal volume. She denied any respiratory symptoms or previous known history of tuberculosis.

Ultrasound scan showed a 6cm complex, multiseptate, right adnexal mass with moderate ascites and she was referred to the hospital.

Vital signs were normal and clinical examination revealed a wasted patient, with a 5-6 cm firm, mobile, nontender, right adnexal mass and an abdominal exam suggesting ascites. The rest of the physical examination was unremarkable.

Laboratory finding revealed a microcytic and normochromic anemia (Hg: 10.6 g/dl), leucopenia (WBC: 3900/mm^3), an elevated DHL of 768 (normal range: 266-500 UI/L) and CA 125 of 268 (normal range: 0-35 U/ml). Viral markers (including VIH 1 and 2) were negative.

Abdominal and pelvic computed tomography (CT) indicates dense, granular, septet ascites, tubular appearance of the adnexal areas and swelling of the bowel wall (Figure 1).

It was performed a paracentesis that showed: 1500cc of ascitic fluid, exsudative,

Adenina Deaminase (ADA)-171 UI/L, glucose-53 mg/dl, 260 cells (mainly lymphocytic cells) and negative for malignant cells and the acid-fast bacilli assay was negative.

Her chest x-ray was normal.

On the basis of these findings an exploratory lapa-

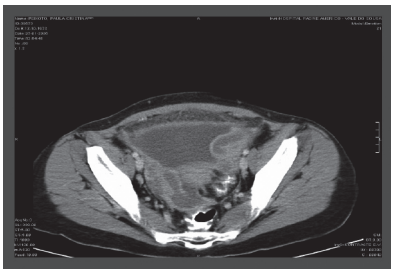

Fig. 1 - CT transverse scan: dense, granular ascitis with enhanced peritoneal captation of contrast. Tubular appearance of adnexial areas.

rotomy was planned one week later, with the presumption of ovarian cancer.

At laparotomy, dense, very friable adhesions were found matting the pelvic organs and the surrounding bowel, with multiple diffuse involvement of the visceral and parietal peritoneum, white "miliary nodules" or plaques, ascites, omental thickening and a very enlarged right fallopian tube. Both ovaries were normal in size. Salpingectomy and multiple biopsies were performed.

The acid-fast bacilli assay was positive in ascitic fluid and negative for malignant cells. Cultures for *Mycobacterium tuberculosis* was positive both in ascitic fluid obtained from paracentesis and during laparotomy.

The final histological report confirmed necrotizing granuloma in the fallopian tube that was consistent with tuberculosis (Figure 2).

No live organism was detected in sputum or urine.

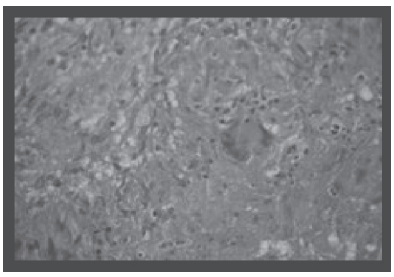

Fig. 2 - Histology: granuloma of the fallopian tube (H+E).

The patient was discharged from hospital on quadruple drug therapy (isoniazid, rifampin, ethambutol and pyrazinamide) for 2 months followed by 10 months of isoniazid and rifampin. Nowadays (2 years later) she has no signs of recurrence and the transvaginalultrasound scan is normal.

Patient 2

A 17-year-old healthy woman married, Caucasian, resident also in Lousada.

Her gynaecologic and obstetrics history was resumed by: menarche at 12 years of age, regular menses, catamenia of 3 days, 1G1P.

There was no history of exposure to tuberculosis.

The patient was submitted to a caesarean section in gynaecology Department of Padre Americo's Hospital (with normal operatory findings) 2 months before the beginning of the symptomatology, that had begun after her suns death for pneumonia (she didn't allowed autopsy). She was evaluated on the emergency room 1 months later complaining of lower abdominal pain, pain in her operatory wound and progressive abdominal swelling. She denied any respiratory symptoms or previous known history of tuberculosis.

The patient was present with fever (38ºC) and clinical examination revealed a wasted patient with a very tender gynaecological examination that was impeditive of a good bimanual examination, but it was likely to be present an enlargement of cul-de-sac. Her operatory wound had inflammatory signs. The rest of the physical examination was unremarkable.

Laboratory finding revealed microcytic and normochromic anemia (Hg: 8.8 g/dl), leucocytose (WBC: 13000/mm^3), an elevated PCR of 227 (normal range: <5 mg/L).

Viral markers (including VIH 1 and 2) were negative.

Ultrasound scan showed a moderate and septet ascites.

Abdominal and pelvic computed tomography indicates dense, granular and septet ascites and swelling of the bowel wall (Figure 3).

It was performed an urgent exploratory laparotomy on the day 2 for acute abdomen.

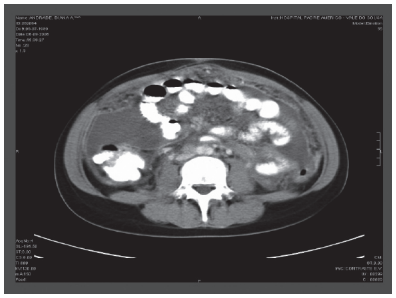

Fig. 3 - CT transverse scan: dense, granular ascitis with enhanced peritoneal captation of contrast and swelling of the bowel wall.

At surgery, it was present: pelvic adhesions, the bowel was partially agglutinated, covered by exudates and fallopian tubes were very swelled. Pelvic adhesions were broken down, bilateral salpingectomy and segmentar colectomy were performed.

Histology confirmed caseating granulomatous inflam-

mation that was consistent with tuberculosis. The acid-fast bacilli (AFB) assay was negative in ascitic fluid. Culture was positive for *Mycobacterium tuberculosis*.

Post operative chest x-ray was normal.

The post-operative course was uneventful. Tuberculostatic treatment was commenced on quadruple drug therapy (isoniazid, rifampisin, ethambutol and pyrazinamide) for 2 months followed by 10 months of isoniazid and rifampin. The mean follow-up time was 18 months.

Nowadays she waits for reanastomose of her bowel tops.

DISCUSSION

The incidence of tuberculosis is rising in the world and gynaecologists need to be aware that tuberculosis may be present in an atypical manner.

Pelvic tuberculosis (PT) infection is usually caused by reactivation of organisms from systemic distribution of *Mycobacterium tuberculosis* during primary infection. Direct transmission between sexual partners has been documented. Spread from other intraperitoneal foci is rare (3).

The primary focus of PT is the fallopian tubes, which are almost always affected (4,5). PT, which occur more frequently in women, typically presents with pelvic pain, infertility, poor general health or menstrual disturbances. However, less common presentations included an adnexal mass, ascites or both and thus can be difficult to distinguish from an ovarian malignancy (4,6).

Presence of tuberculosis at other sites or a patient with family history of tuberculosis may be helpful in suggesting the diagnosis, but this occur in somewhat less than 30% of patients.

CA 125, which is a tumor-associated antigen, is a nonspecific marker of ovarian cancer and may be a confusing parameter, as it is elevated in a variety of conditionssuch as infections, tuberculosis, endometriosis, Meigs syndrome, menstruation, ovarian hyperstimulation and a number of non-gynaecologic conditions like active hepatitis, acute pancreatitis, pericarditis, pneumonia, etc (4).

The diagnosis of PT is confirmed by histological examination of frozen or paraffin-embedded sections, which reveals typical granuloma and / or positive acid-fast stain and culture of endometrial biopsy tissue (5,6). If PT is suspected, histological examination of specimens of premenstrual endometrial biopsies, curettage, or both may yield granulomas in 50-70% of patients. Culture of endometrium and menstrual blood may be positive for tuberculosis in 30%. Repeated examinations of menstrual blood may be required, however (7). Hysteroscopy and selective sampling may enhance diagnostic yield. The typical lesions are epitheloid cell granulomas with or without Langerhans giant cells. Caseation necrosis is rare and tends to be a late feature (2). With increasing of experience, laparoscopy has become the diagnostic procedure of choice.

Laparoscopy is, however, invasive and expensive and associated with an overall incidence of major complications in up to 5.7% of patients. Because of this, several investigators looked at abdominal paracentesis as a diagnostic method. Ascitic fluid in abdominal tuberculosis is exsudative, usually containing 500 to 2000 cells.

Lymphocytes typically predominate. Acid-fast stains were usually negative. Though culture might eventually be positive in up to a third of cases, the time taken for growth (usually 6 weeks) was too long to be useful in diagnosis (1).

PCR of ascitic fluid obtained by ultrasound-guided fine needle aspiration is now the investigation of choice for patients with suspicious PT. Ascitic fluid ADA activity has been proposed as an useful diagnostic test for abdominal tuberculosis. In countries with a high incidence of TB and in high risk patients, this procedure might be a useful screening test. However, in populations with a low prevalence of TB and a high prevalence of cirrhosis, ascitic fluid ADA activity has been good in accuracy but poor in sensitivity and imperfect in specificity (1).

There are scant prospective data on optimal medical management of PT. Medical treatment alone may be an effective treatment in PT, declined the need for surgical intervention

In patients with ascites it is important to obtain a greater amount of ascitic fluid making possible identification *Mycobacterium tuberculosis*.

The authors find also important to screen the family and friends of patients when tuberculosis is diagnosed (4,7).

Indications for surgery include need of a correct diagnosis, persistence of pelvic mass and recurrence of pain or bleeding after 9 months of treatment (3). Surgery must be conservative, especially in women in reproductive life.

If the diagnosis could have been made before the operation than it would have been wise to postpone it until after treatment with antibiotics to reduce the risk of infectious complications.

However, ovarian cancer remains the first diagnostic consideration and for this purpose, peritoneal and/or mass tissue acquisition for pathology is mandatory. Since ascitic fluid analysis for mycobacteria provides only about 25% of the tuberculosis peritonitis diagnosis, peritoneal tissue study is often required and is recommended. An elevated ADA level in the serous cavity fluid is now considered to be a perfect marker for the diagnosis of tuberculosis, but many centers, including ours do not use it routinely as an exclusive data for the diagnosis (1). PCR of ascitic fluid obtained by ultrasound-guided fine needle aspiration is a reliable method for its diagnosis and should at least be attempted before surgical intervention (6).

The prognosis is good if the condition is promptly diagnosed and treated.

In conclusion, PT should be considered in the differential diagnosis of adnexal masses, ascites or elevated CA 125, especially in those patients at high-risk (from counties where tuberculosis and AIDS are prevalent or whose health is compromised due to homelessness) (4). PCR for *Mycobacterium tuberculosis* complex is a non-

invasive method which can provide the diagnosis in most cases. If the test is negative and a high index of clinical suspicion remains, laparoscopy tissue biopsy may be a fundamental tool in the management of such cases to avoid extended surgery (2).

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