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Peritoneal tuberculosis – A rare diagnosis



Dear Editor,

Peritoneal tuberculosis is a rare disease, often associated with a primary site of tuberculosis. Risk factors include HIV infection, diabetes mellitus, treatment with anti-tumor necrosis factor (TNF) agents, ongoing peritoneal dialysis and hepatic cirrhosis.

Bacilli can enter the peritoneal cavity in several ways, including transmural infection from diseased bowel or, more commonly, by hematogenous spread of infection from a pulmonary focus.¹ Even though the lung is often the primary site of infection, there is clinical or radiologic evidence of pulmonary tuberculosis in only about a third of cases.²

We report the case of a 25-year-old woman who developed asthenia, anorexia, weight loss, metrorrhagia and pelvic pain over about 3 months. She was a secretary at a business office, former smoker, and had been appendicectomized one year earlier; there was no other relevant medical history.

Because of the symptoms described, an abdominal and pelvic computed tomography (CT) scan was performed, showing bilateral multiloculated ovarian cysts, with no other relevant findings. Later she underwent diagnostic laparoscopy, revealing multiple adhesions (*frozen pelvis*) and numerous white nodules/granulomas all over the peritoneum, which were biopsied.

Because of the suspicion of tuberculosis during the surgical procedure, a chest X-ray was performed, which showed pulmonary infiltrates in both upper lobes. Later, she underwent a thoracic CT scan, showing *tree-in-bud* pattern predominantly in the upper lobes of both lungs, with a cavitated image in the left upper lobe.

The tests for potentially immunosuppressive infections were negative, including HIV, Hepatitis B and C, Epstein Barr end Cytomegalovirus. Primary immunodeficiencies were also excluded, as immunoglobulin quantification was normal.

The patient underwent fiberoptic bronchoscopy. Bronchial washing culture and polymerase chain reaction (PCR) assay were positive for *Mycobacterium tuberculosis*, even though the test for acid-fast bacilli (AFB) was negative. Analysis of peritoneal fluid samples showed lymphocytosis, with negative AFB. Biochemical analysis of the fluid (including ADA levels) was not performed. Histological examination of the biopsies later confirmed granulomatous peritonitis and culture of the specimen was also positive for *Mycobacterium tuberculosis*.

Diagnosis of pulmonary and peritoneal tuberculosis was established and the patient started antituberculous therapy. The susceptibility testing showed sensitivity to all first-line drugs.

As stated before, immunosuppression plays a major role in the pathogenesis of peritoneal tuberculosis, but in this case the patient was immunocompetent. This diagnosis is frequently difficult, given the nonspecific signs and symptoms, which usually include ascites, abdominal pain and fever.³

Although the test for AFB in the peritoneal fluid is highly specific for the diagnosis, it lacks sensitivity,⁴ which often makes early diagnosis difficult.

New diagnostic procedures like PCR assay for *M. tuberculosis* could help to address this issue, since they can significantly decrease the time taken to achieve a correct diagnosis and are especially useful when AFB test is negative.⁵ In our case, PCR was only performed on the respiratory samples collected during bronchoscopy. Although our patient's condition remained relatively stable throughout the course of investigation, PCR assay can be of utmost value in patients with negative AFB with exclusively extrapulmonary tuberculosis, particularly if their condition is deteriorating, as it can provide a diagnosis much faster than mycobacterial culture of specimens, reducing morbidity and mortality.

Despite the fact that identification of *M. tuberculosis* in any material is the gold standard diagnostic method, negative result of culture cannot exclude the diagnosis of tuberculosis and, even if it is positive, it can be a slow

process. In selected cases, laparoscopic evaluation may be appropriate when suspecting abdominal tuberculosis, since macroscopic findings can suggest the disease⁶ and it is an easier way of performing tissue biopsy. Since our patient did not have any respiratory complaints that would make one suspect tuberculosis, surgery in fact provided the first indications of tuberculosis and the tissue biopsies performed would eventually confirm the diagnosis.

In conclusion, this case emphasizes the need to consider tuberculosis as a differential diagnosis in young patients with constitutional symptoms, even if they have no respiratory complaints.

Conflicts of interest

The authors have no conflicts of interest to declare.

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COPD: A controversial disease?



COPD is today the most common chronic respiratory disease and a growing cause of worldwide morbidity and mortality, with many cardiovascular, musculoskeletal, metabolic and mental sequelae, some usually referred to as comorbidities. According to some authors, chronic obstructive pulmonary disease is not a disease in the true sense of the word, but a very popular acronym.² The defining characteristics of a disease are clinical symptoms and signs, structural abnormalities, function disorders, and causation or etiology,³ but COPD is a heterogeneous collection of different pathophysiological processes that result in the development of chronic and usually progressive airflow limitation,⁴ as defined by GOLD.⁵ Poor lung development, excess lung damage, airway remodeling and deficient lung repair are different processes affecting the development and progression of COPD. The Fletcher–Peto curve remains a landmark reference for the natural history of COPD, but because of the heterogeneous nature of the disease, several natural histories are possible, and there may be patients progressing on different natural history trajectories, from slowly progressive to rapidly progressive natural histories.⁶ Now we recognize that the term COPD brings together a number of entities with different clinical and pathophysiological features, hence the emphasis given to the great diversity of phenotypes of COPD.⁷ This emphasis in COPD phenotypes was born both from the current trend of doing a patient-centered medicine and from the need to understand the disease in its heterogeneity.

COPD is characterized by persistent airway limitation that is not fully reversible and is usually progressive.⁸ Obstruction is defined by the GOLD as a post-bronchodilator $FEV_1/FVC < 0.7$, but this criterion of obstruction has been increasingly questioned, and because there is currently no consensus about the best criterion to be used in COPD,⁹ this remains a matter of continuous debate in literature.¹⁰ Furthermore, even though obstruction is a landmark of the disease, some authors wonder if obstruction does always need to be present in early stages, or if emphysema, in the absence of obstruction, represents COPD.⁴ However, in any stage of the disease, and despite obstruction not being fully reversible, bronchodilators remain the cornerstone of the treatment, since they usually cause a significant clinical improvement, even without significantly modifying FEV_1 .¹¹

Inflammation plays a central role in the pathogenesis of COPD, and keeps on after smoking cessation, but there still persists the concept of COPD as a steroid-resistant disease.¹² Conflicting with this, clinical evidence shows an effect of inhaled corticosteroids (ICS) on the rate of COPD exacerbations and in quality of life,¹³ and consensus was reached regarding the indication of ICS in ACOS and frequent exacerbating phenotypes.¹⁴ ICS have some adverse effects, the increased incidence of pneumonia being the best-documented treatment risk,¹⁵ but, paradoxically, the risk of dying is not higher in ICS treated patients. Nevertheless, ICS have been widely used, with more than 70% of COPD patients being treated with ICS,¹⁶ and observational studies have shown the persistence of an excessive use of ICS in