PERITONEAL TUBERCULOSIS DIFFICULTIES OF THE DIFFERENTIAL DIAGNOSIS CASE REPORT

Mircea Onofriescu, MD, PhD
Professor and Chairman Obstetrics & Gynecology Dept. University of Medicine and Pharmacy Iasi Cuza Voda Obstetrics & Gynecology Hospital, Romania
Alexandru Luca, MD
Anca Berescu, MD
Alexandra Carp, MD
Andrei Dumitrescu, MD
Cuza Voda Obstetrics & Gynecology Hospital, Romania

Abstract

According to the US Centers for Disease Control and Prevention almost one third of the world's population is infected with tuberculosis which kills almost 2 million people per year. Abdominal TB continues to be a significant health problem in the developing countries.

Background:

Female patients who present with ascites and adnexal tumors are presumed to have ovarian carcinoma. This can lead to radical surgery, hysterectomy with bilateral adnexectomy, with its associated morbidity. An important differential diagnosis to consider is peritoneal tuberculosis which can present in a similar manner and responds well to medical treatment only.

Case presentation:

A 44 year old Caucasian woman, presented to our gynecology clinic with abdominal distension, weight loss and asthenia, sent to us from gastroenterology were she first addressed for these symptoms. Ovarian malignancy was highly suspected so she was operated. The extemporaneous exam of the right ovary with the cystic mass, hysterectomy with bilateral adnexectomy, revealed caseating granulomas with epithelioid cells and Langhan's type giant cells.

Conclusion:

There are few features that suggest the diagnosis of peritoneal TB rather than ovarian carcinoma. Apart from chest X-ray findings which may not always be present, also CT can help in the differential diagnosis. PCR and ADA

testing of ascitic fluid can also be helpful. When these tests are or negative unavailable then diagnostic laparoscopy or laparotomy is needed, because with the help of frozen section we can avoid unnecessary radical surgery in cases of peritoneal tuberculosis that responds to medical treatment only.

Keywords: Peritoneal tuberculosis, ovarian carcinoma, ascites, adnexal mass

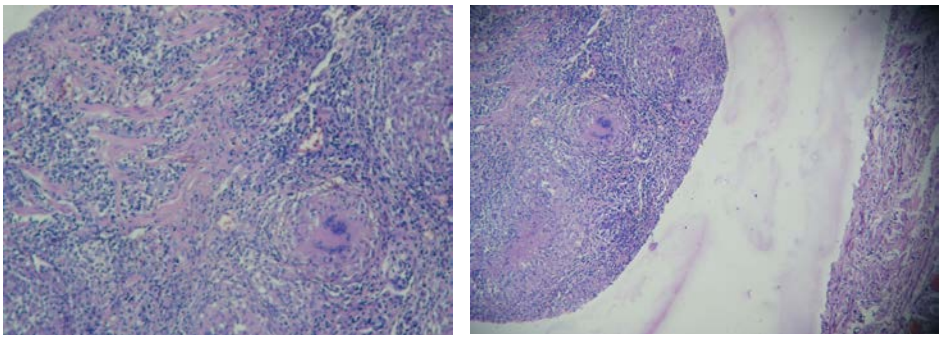
The diagnosis, however, still remains a challenge because of its insidious nature, the variability of its presentation and the limitations of the diagnostic tests. A high grade of suspicion is needed when we confront with unexplained ascites, more often in patients with a higher risk. Also BCG vaccination has limited the tuberculin skin testing because a significant proportion of vaccinated but uninfected patients have a positive skin reaction (F. M. Sanai, K. I. Bzeizi. Systematic review: tuberculous peritonitis – presenting features, diagnostic strategies and treatment, article first published online: 30 sep 2005). There is a significant correlation between the socioeconomic status and the prevalence of the disease. Poor hygiene and overcrowding have consistently been shown to be a risk factor for TB. Ingestion of unpasteurized milk might also be another reason for the increased prevalence of this disease found more commonly in rural populations (Chow KM, Chow VCY, Szeto CC. Indication for peritoneal biopsy in tuberculous peritonitis. Am J Surg 2003*;* 185*:* 567–73). Infection of the peritoneum is usually secondary to haematogenous spread from a pulmonary lesion. Abnormal chest X-ray is frequently associated, however coexistent active pulmonary disease is rare. Spread of the mycobacteria rarely occurs from lesions in the adjacent organs such as the intestine, limph nodes or the fallopian tubes (Marshall JB. Tuberculosis of the gastrointestinal tract and peritoneum. Am J Gastroenterol 1993*;* 88*:* 989–99).

We usually assume that patients with ascites and adnexal masses have ovarian carcinoma and this diagnosis leads to radical surgery that includes the removal of the uterus and ovaries. Peritoneal tuberculosis however can also have these findings but often responds to medical management only. This differential diagnosis must be considered especially in cases that associate a higher risk for developing peritoneal TB such as immunosuppressed patients, but more than two thirds are diagnosed incidentally after laparotomy, where unnecessary radical surgery was performed (Rai S, Thomas WM. Diagnosis of abdominal tubercolosis: the importance of laparoscopy. J R Soc Med. 2003; 96:586–88). In this article we present a case of a premenopausal woman diagnosed with peritoneal tuberculosis that we initially thought to have ovarian carcinoma. We discuss the radiological and clinical findings of peritoneal tuberculosis and discriminating factors to aid in its differentiation from ovarian carcinoma.

Case presentation

A 44 year old Caucasian woman from urbane environment presented with a two week history of abdominal distension, weight loss, decreased appetite and asthenia, to our hospital "Maternitatea Cuza Voda" from Iasi, Romania. She previously addressed to the gastroenterology department for these symptoms, where after an ultrasound, they have detected moderate ascites and a right ovarian mass of 5 cm. From there, after this finding, she was directed to our gynecology clinic for further investigations and for therapeutics. Her medical history reveals that she was also diagnosed with irritable bowel syndrome in 2009 and with depression in 2012. Her blood work showed a normal white cell count, a haemoglobin of 11.2 g/dL, a VSH of 76 mm/h; glucose, urea, creatinine, ALT and AST levels were normal; CA125 was not dosed. Ultrasound scan showed moderate ascites with a cystic right ovarian mass of 3 cm. Chest X-ray showed no modifications regarding the lungs.

In this context primary ovarian malignancy was suspected so she was programmed for surgical intervention. Intraoperator findings were: approximately 500 ml of serous ascites; multiple lesions of maximum 5 mm width, disseminated on the intestines, the uterus, the fallopian tubes, the parietal and visceral peritoneum; and an ovarian right cystic mass of 3 cm. We performed the evacuation of the ascites after we had sampled ascitic fluid for cytology and then performed hysterectomy with bilateral adnexectomy with extemporaneous exam of the right ovary that revealed chronic granulomatous infection that arise the suspicion of peritoneal TB, the disseminated lesions being military seedlings. The result from the ascetic fluid cytology revealed frequent lymphocytes and the presence of reactive mesothelial cells. The final histological exam revealed that the patient had peritoneal TB.



Granulomatous inflammation - caseating granulomas with epithelioid and Langhan's type giant cells.

Discussions

Signs and symptoms associated with advanced ovarian carcinoma are abdominal distension, weight loss, ascites and pelvic or adnexal masses (Vagenas K, Stratis C, Spyropoulos C, Spiliotis J, Petrochilos J, Kourea H, Karavias D:**Peritoneal carcinomatosis versus peritoneal tuberculosis: a rare diagnostic dilemma in ovarian masses.** *Cancer Therapy* 2005, **3:**489-494). Many of these patients have radical surgery due to the difficulty of definitive preoperative diagnosis of ovarian cancer and the low negative predictive value of ascitic fluid cytology (Boss JD, Shah CT, Oluwole O, Sheagren JN: **TB peritonitis mistaken for ovarian carcinomatosis based on an elevated CA-125.** *Case Report Med 2012* 2012, **2012:**215293. *South Med J* 2001, **94**(12)**:**1212-1214). Peritoneal tuberculosis can have the same clinical findings and it is in most cases diagnosed incidentally, during laparotomy, in patients suspected of advanced ovarian carcinoma. The diagnosis of peritoneal TB in non-immunosuppressed patients remains a challenge requiring a high clinical suspicion. The diagnosis of this disease is so difficult because of its insidious nature, the variability of its clinical findings and the limitations of available diagnostic tests. Intra-abdominal malignancy, inflammatory bowel disease, hepatitis, chronic pancreatitis, peptic ulcer, gastrointestinal bleed and anorexia nervosa are some of the other pathologies considered in the differential diagnosis for peritoneal TB.

Ascitic fluid analysis is non-specific and the culture growth of *Mycobacterium tuberculosis* remains the 'gold standard' for a correct diagnosis. The determination of ADA in the ascitic fluid it's a test with excellent sensitivity and specificity. CA125 lacks specificity, its values being elevated in many other conditions even in peritoneal TB. Pulmonary X-ray can be normal in patients with peritoneal tuberculosis in approximately 40% of the cases (Moss EL, Hollingworth J, Reynolds TM: **The role of CA125 in clinical practice.** *J Clin Pathol* 2005, **58:**308-312). Abdominal CT in peritoneal TB typically shows smooth thickening and a dirty omentum. In peritoneal carcinomatosis CT reveals nodular peritoneal thickening and a nodular or caked omentum. Another finding that suggests peritoneal TB includes dense ascites (Lee WK, Van Tonder F, Tartaglia CJ, Dagia C, Cazzato RL, Duddalwar VA, Chang SD: **CT appearances of abdominal tuberculosis.** *Clin Radiol* 2012, **67**(6)**:**596-604). The skin tests and acid-fast bacillis detection in peritoneal fluid usually have a high false negative rate. [11] For preoperative detection of tuberculosis it can be used the determination of adenosine deaminase (ADA) in the ascitic fluid and also PCR analyses, if they are available. Diagnostic laparoscopy or laparotomy is usually necessary for definitive diagnosis, intraoperative biopsy can aid in establishing the diagnosis (U zunkoy A, Harma M, Harma M: **Diagnosis of abdominal tuberculosis: experience from 11 cases and review of the**

literature). A delay in diagnosis can be fatal for the patient, depriving him of correct treatment (Rai S, Thomas WM. Diagnosis of abdominal tubercolosis: the importance of laparoscopy. J R Soc Med. 2003; 96:586–88). The only treatment for peritoneal tuberculosis is pharmacological, so unnecessary radical surgical interventions must be avoided (Chow KM, Chow VCY, Hung LCT, et al. Tuberculous peritonitis-associated mortality is high among patients waiting for the results of mycobacterial culture of ascitic fluid sample. Clinical Infectious Disease 2002; 35:409–13). Therefor a combination of different diagnostic tests is needed in order establish the correct diagnosis of peritoneal TB. There is no single test that can establish the diagnosis by itself. The analyses of ascitic fluid by more defining tests, associated with exploratory laparoscopy or laparotomy with the sampling of tissue for histological and microbiological analysis are required for definitive correct diagnosis in most cases (Koc S, Beydilli G, Tulunay G, Ocalan R, Boran N, Ozgul N, et al. **Peritoneal tuberculosis mimicking advanced ovarian cancer: a retrospective review of 22 cases.** *Gynecol Oncol*. 2006; 103:565–569).

Conclusion

Many women with this disease are initially thought to have ovarian cancer and undergo unnecessary radical surgery because peritoneal TB is not a diagnosis that surgeons consider, especially in cases without a high clinical suspicion. The majority of the cases are diagnosed intraoperatively. So maintaining a high index of suspicion is very important for the successful treatment of peritoneal tuberculosis, especially in developing countries. Peritoneal tuberculosis should be considered in the differential diagnosis of adnexal masses, ascites, weight loss and elevated CA 125. The utility of ascitic fluid cultures for *Micobacterium tuberculosis* it is not so useful, because early diagnosis is very important (Koc S, Beydilli G, Tulunay G, Ocalan R, Boran N, Ozgul N, et al. **Peritoneal tuberculosis mimicking advanced ovarian cancer: a retrospective review of 22 cases.** *Gynecol Oncol*. 2006; 103:565–569). Direct analisys of ascitic fluid in peritoneal TB, which reveals a dominance of lymphocytes without malignant cells, raises suspicions indicating the correct diagnosis.

Particular radiological findings, if the X-ray is concluding can help differentiate between tuberculosis and ovarian malignancy. Ascitic fluid ADA levels and PCR can also help establishing the correct diagnosis. If these tests are negative and clinical suspicion still remains, laparoscopy or laparotomy that permits direct visualization of the lesions and tissue biopsy can confirm the diagnosis. Therefore major unnecessary surgery can be avoided using minimally invasive methods.

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