

A deceiving disease in women for clinicians: peritoneal tuberculosis

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Summary

Introduction: Peritoneal tuberculosis (TB) is uncommon in developed countries, although there is an increase in incidence due to the patients with acquired immunodeficiency syndrome and in immigrants from countries with tuberculosis. The aim of the study was to identify characteristic features of peritoneal tuberculosis (TB), which may be useful for the clinical differential diagnosis and management of this deceiving disease. **Materials and Methods:** For this retrospective study, 18 patients, who were diagnosed with peritoneal TB were identified after surgery. **Results:** Initial presentation consisted of ascites, pelvic masses, and elevated levels of CA-125. All patients were initially misdiagnosed as ovarian carcinoma. Tissue biopsies obtained from laparoscopy or laparotomy revealed accurate diagnosis of peritoneal TB. **Conclusion:** Peritoneal TB should be included in the differential diagnosis of ascites and pelvic masses and can be accurately diagnosed by laparoscopic biopsy.

Key words: CA-125; Ovarian carcinoma; Peritoneal tuberculosis.

Introduction

Improved nutrition, effective vaccination programs in endemic countries, and wide usage of chemotherapy decreased the incidence of tuberculosis (TB) during the second half of the 20th century especially in developed countries as well as developing countries. However, by the end of the century due to the spread of human immunodeficiency virus (HIV) infection and increased *Mycobacterium tuberculosis* resistance to antituberculous agents [1], there has been resurgence.

Although peritoneal TB is uncommon in the developed countries, its incidence has increased in the developing countries especially among acquired immunodeficiency syndrome (AIDS) patients. Subsequently, in the Western world, peritoneal TB is usually found in AIDS patients and foreign-born individuals [2-5]. The World Health Organization (WHO) reported an estimated 9.4 million cases of TB globally in 2009, while 7% of the cases were from Mediterranean countries [6]. Peritoneal TB is estimated to account for 1-2% of all TB cases and its association with pulmonary disease is not well defined [7]. The exact diagnosis can only be confirmed by tissue biopsies obtained from laparoscopy or laparotomy.

Clinical manifestations of peritoneal TB may resemble those of ovarian carcinoma with ascites, pelvic masses, and elevated levels of CA-125. A clinician who is not well aware of peritoneal TB may be deceived by the presentation and sometimes even by the operative findings. Therefore, patients with peritoneal TB may be misdiagnosed as having ovarian carcinoma and subjected to unnecessary extended treatment and surgery.

Turkey is an east Mediterranean country that receives immigrants especially from the Middle East as well as some of the former Soviet republics. In this paper, the authors present 18 cases of peritoneal TB in a developing country setting. The aim of the study was to identify characteristic features of peritoneal TB, which may be useful for the clinical differential diagnosis and management of this deceiving disease.

Materials and Methods

For this retrospective study, 18 patients, who were diagnosed with peritoneal TB in the gynecologic oncology clinic of Istanbul University School of Medicine, were identified. The study protocol was approved by the Ethics Committee of Istanbul University School of Medicine and informed consent was waived due to the retrospective nature of this study. The diagnosis of TB was confirmed, if pathology results revealed caseification necrosis and granulomatous inflammatory reaction and if culture results were positive for TB. The samples were obtained by biopsy from the inflammatory peritoneal tissue during either laparoscopy or laparotomy.

Thorough physical examination, complete blood count, routine biochemical tests, tumor markers such as CA-125 levels, chest x-ray, ultrasonography, and magnetic resonance imaging (MRI) were performed in all cases.

Results

Patient overview is presented in Table 1. The mean age of the patients was 53 years (range 18 to 75). Eight of the 18 patients were in the postmenopausal period. Most common symptoms were irregular vaginal bleeding, abdominal pain, ascites, weight loss, and fatigue. None of the patients had a family or past history for TB. One patient had breast cancer. Chest X-ray did not show any evidence acute or

Table 1. — Overview of 18 patients with peritoneal TB.

Case No.	Age	Ascites	Pre-operative CA-125	Ultrasonography and MRI findings	Preliminary diagnosis	Operation	Frozen section for TB	Complications
1.	28	(+)	127	Semisolid mass	Ovarian carcinoma	LPT; multiple bx	(+)	(-)
2.	53	(+)	361	Bilateral semisolid mass	Ovarian carcinoma	LTP; TAH+BSO+P.Omm+ Pelvic/para-aortic LA	(-)	(+) wound infection
3.	58	(-)	23	Pelvic solid mass	Ovarian carcinoma	LPT; multiple bx	(+)	(-)
4.	70	(+)	95	Pelvic solid mass and peritoneal thickening	Ovarian carcinoma	LPT; multiple bx	(+)	(+) bowel injury
5.	55	(+)	77	Multicystic pelvic mass	Ovarian carcinoma	LPT; multiple bx	(+)	(-)
6.	40	(+)	106	Unilateral multicystic mass	Ovarian carcinoma	LPT; TAH+salpingectomy	(+)	(-)
7.	55	(+)	431	Bilateral semisolid mass	Ovarian carcinoma	LPT; TAH+BSO+P.Omm.+ Pelvic/para-aortic LA	(-)	(-)
8.	42	(+)	245	Multicystic pelvic mass with solid component	Ovarian carcinoma	LPT; TAH+USO	(-)	(-)
9.	49	(+)	178	Bilateral solid ovarian tumors (Breast cancer patient)	Metastatic ovarian carcinoma	LTP; TAH+BSO	(+)	(+) wound infection
10.	75	(+)	472	Peritoneal thickness	Ovarian carcinoma	LTP; TAH+BSO+P.Omm.	(-)	(-)
11.	47	(+)	142	Bilateral semisolid mass	Ovarian carcinoma	LTP; TAH+BSO	(-)	(-)
12.	30	(+)	87	Bilateral solid ovarian mass	Ovarian carcinoma	L/S; multiple bx	(+)	(-)
13.	50	(+)	129	Peritoneal thickening, omental cake	Ovarian carcinoma	L/S; multiple bx	(+)	(-)
14.	66	(-)	233	Unilateral semisolid ovarian mass	Ovarian carcinoma	L/S; USO	(+)	(-)
15.	18	(+)	437	Bilateral semisolid ovarian mass	Ovarian carcinoma	L/S; multiple bx	(+)	(-)
16.	43	(-)	112	Unilateral ovarian solid mass	Ovarian carcinoma	L/S; USO	(+)	(-)
17.	23	(-)	109	Unilateral ovarian solid mass	Ovarian carcinoma	L/S; cystectomy (right ovary)	(+)	(-)
18.	38	(+)	212	Unilateral ovarian solid mass	Ovarian carcinoma	L/S; USO	(+)	(-)

BSO: bilateral salpingo-oophorectomy, USO: unilateral salpingo-oophorectomy, Bx: biopsy, LA: lymphadenectomy, LPT: laparotomy, P.Omm.: partial omentectomy, TAH: total abdominal hysterectomy, L/S: laparoscopy.

chronic pulmonary disease in any of the patients. Vital signs were within normal limits for all patients.

The preliminary diagnosis was ovarian carcinoma for all patients (metastatic ovarian carcinoma for the breast cancer patient). Mean of CA-125 level was 198.67 U/ml (range 23 U/ml to 472 U/ml). Four patients had CA-125 levels < 100 U/ml.

After the complete preoperative evaluation, 11 patients (61%) were managed with laparotomy while seven patients (39%) underwent laparoscopy. Seven of the 11 patients in the laparotomy group underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, and omental biopsy. Three patients underwent third-look laparotomy. One patient underwent unilateral salpingo-oophorectomy. Three of the seven patients in the laparoscopy group underwent unilateral salpingo-oophorectomy and one patient underwent right ovarian cystectomy. Three patients underwent biopsy. Frozen section biopsy was performed in all patients. Frozen section biopsy was negative for malignancy in all patients, while positive for TB in 13 out of 18 patients (72%). The final evaluations of the specimens revealed granulomatous disease consistent with TB and no evidence of malignancy in all patients. No complications were reported in laparoscopy group, while two patients in the laparotomy group had postoperative wound infection and one patient had a bowel injury during surgery. All patients were referred to a phthisiologist postoperatively.

Discussion

The common diagnosis in patients with ascites, pelvic masses, and elevated levels of CA-125 is ovarian carcinoma. In older patients with a family history of cancer, metastatic uterine or fallopian tube malignancies may also result in these clinical findings. Peritoneal TB is significantly uncommon and requires a high index of suspicion.

The symptoms of the patients in the present study were non-specific and non-diagnostic. Most common findings were irregular vaginal bleeding, abdominal pain, ascites, weight loss, and fatigue. In none of the patients the preliminary diagnosis was TB. CA-125 levels were elevated, but the values did not exceed 472 U/ml, differentiating peritoneal TB from advanced stage disseminated ovarian carcinoma where CA-125 levels are usually higher. In line with the present findings, in most previous reported cases of peritoneal TB, CA-125 levels were < 500 U/ml [3-5, 8-9]. On the other hand, there was one recently reported case of peritoneal TB with a highly elevated level of CA-125 (2567.6 U/ml) [10]. Therefore, it is still advisable that patients who present with pelvic masses, ascites, and elevated levels of CA-125 should be preliminarily diagnosed with ovarian carcinoma until proven otherwise. Thus, the use of CA-125 as a differential diagnosis between peritoneal TB and ovarian carcinoma may be inconclusive and sometimes misleading.

The diagnosis of peritoneal TB is best made through evaluation of suspect tissue. Typically, infected tissue demonstrates granulomatous inflammation with central necrosis, which is extremely suggestive of peritoneal TB [7]. Laparoscopy seems to be an efficient and safe method to provide tissue samples because of the lower risk of complications when compared with laparotomy.

Conclusion

The rarity of peritoneal TB contributes to a low index of suspicion and a low incidence of accurate preoperative diagnosis. When peritoneal TB patients with ascites and a pelvic mass are misdiagnosed with ovarian carcinoma, they may undergo unnecessary extensive abdominal and pelvic surgeries. Hence, peritoneal TB should be included in the differential diagnosis of ascites and pelvic masses and can be accurately diagnosed by laparoscopic biopsy.

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