

Peri and post-menopausal women with complex adnexal masses, ascites, and raised CA-125: Is it ovarian cancer or tuberculosis?

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ABSTRACT

Pelvic and peritoneal tuberculosis may resemble advanced ovarian cancer due to the presence of ascites, complex adnexal masses, peritoneal deposits and raised CA-125 level, especially in peri- and postmenopausal women. Other common features among women with these two conditions are abdominal pain and distension, weight loss and reduced appetite. As the treatment of pelvic-peritoneal tuberculosis is completely different from that of ovarian cancer, it is important to reach a correct diagnosis. Sometimes women with pelvic-peritoneal tuberculosis may be subjected to a laparotomy for suspected ovarian cancer which is likely to increase their morbidity. In the present article, we report ten women in the peri- and post-menopausal age group where this diagnostic dilemma arose of whom seven were diagnosed only after a laparotomy had been performed for suspected ovarian cancer due to adnexal masses with ascites and raised CA-125 level. Ascitic fluid showing lymphocytic predominance, raised ADA level and absence of malignant cells are pointers to consider the possibility of pelvic-peritoneal tuberculosis, especially in endemic countries like India. In such situations, an effort should be made to obtain a cytological or histopathological diagnosis of either condition by ultrasound guided needle biopsy or laparoscopically obtained biopsy rather than proceeding with laparotomy for suspected ovarian cancer.

Key Words: Laparotomy, ovarian malignancy, pelvic-peritoneal tuberculosis

INTRODUCTION

Tuberculosis (TB) is the second leading cause of death from infectious diseases worldwide.^[1] In the year 2012, an estimated 8.6 million people developed TB, and 1.3 million died from the disease. Globally, about 13% have

extrapulmonary TB.^[1] Pelvic and peritoneal TB may resemble advanced ovarian cancer due to the presence of ascites, complex adnexal mass, peritoneal deposits, and raised CA-125 level. Symptoms such as weight loss, reduced appetite, and dull abdominal pain are also common to these two conditions. Quite often, the diagnosis of TB is made after a laparotomy for suspected ovarian cancer. A laparotomy may increase the morbidity of women with

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Access this article online

Quick Response Code:



Website:
www.jmidlifehealth.org

DOI:
10.4103/0976-7800.195700

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How to cite this article: Bagga R, Muthyala T, Saha SC, Gainer S, Saha PK, Srinivasan R, *et al.* Peri and post-menopausal women with complex adnexal masses, ascites, and raised CA-125: Is it ovarian cancer or tuberculosis?. *J Mid-life Health* 2016;7:193-6.

pelvic TB. Hence, it is important to review these two entities in detail to arrive at a diagnosis prior to performing a major surgical procedure.

We have earlier reported four women with pelvic TB who were diagnosed after laparotomy or laparoscopy for suspected ovarian cancer.^[2] From July 2012 to June 2015, we treated ten women in peri- and post-menopausal age group where this diagnostic dilemma arose of whom seven underwent laparotomy for suspected ovarian cancer.

CASE REPORT

We report four perimenopausal and six postmenopausal women who presented with features mimicking ovarian malignancy but were finally diagnosed to have pelvic-peritoneal TB. All were parous with no history of infertility, HIV negative, had a normal chest X-ray, and raised CA-125 level. There was no personal or family history of TB. The age range was between 35 and 80 years. All presented with abdominal pain and distension of varying duration of 1 month to 3 years. Two women had a history of loss of appetite and weight also, and only one woman gave a history of low-grade fever for a month. The profile of the cases is enlisted in Table 1.

Radiological imaging in these women showed complex adnexal masses ranging from 3 to 15 cm; eight among them had ascites. Ascitic fluid analysis was done in four which showed a lymphocytic predominant pattern with adenosine deaminase (ADA) levels ranging from 18 to 70 (normal <30 U/L), and absence of malignant cells. Ascitic fluid smear for acid-fast bacilli was negative in all. CA-125 was elevated in all (normal <35 IU/ml) and ranged between 144 and 1643 IU/ml. CA-125 >600 IU/L was found in three women. Polymerase chain reaction (PCR) amplification, despite its limitations, can be useful for the detection of mycobacterial DNA in ascitic fluid, allowing a specific diagnosis to be made rapidly.^[3,4] It was not done in our cases.

The diagnosis of TB was confirmed in nine women by histopathology. One woman was prescribed antituberculosis treatment (ATT) based on her clinical profile (abdominal pain and distension, fever, and loss of weight and appetite from 1 month) and ultrasound imaging (4 cm × 2 cm complex adnexal mass and exudative ascites with ADA = 70). The adnexal masses were not approachable for fine-needle aspiration (FNA). Her symptoms improved and ascites resolved after 1 month of initiating ATT. Two women had histopathological diagnoses of pelvic peritoneal TB

Table 1: Profile of the cases

Age (years)	Symptoms and duration	Imaging (USG/CT scan/MRI)	Ascitic fluid ADA (U/L)	CA-125 (IU/L)	Method of diagnosis of TB
66	Abdominal distension and pain, 3 years	Heterogeneous pelvic mass 9.5 cm × 3.2 cm, multiple pelvic lymph nodes		255	Laparotomy - biopsy from ovary, tube, omentum (intraoperative)
35	Abdominal distension and pain, 5 months	Complex adnexal masses (5 cm × 4 cm), loss of fat planes with bowel, ascites		571	Laparotomy - bilateral salpingectomy (intraoperative)
58	Abdominal distension and pain, 5 months	Right ovary - complex mass (4 cm × 4 cm), left ovary not seen; moderate ascites	31	146	Laparotomy - omental biopsy (intraoperative)
42	Abdominal distension, pain, 3 months	Bilateral adnexal masses 5 cm × 6 cm, ascites		1643	Laparotomy - TAH + BSO + omentectomy (postoperative)
80	Abdominal distension, 6 months	Multiloculated adnexal masses, 13 cm × 15 cm, ascites, omental mass	18	>600	Laparotomy - BSO, peritoneal biopsies (intraoperative)
77	Abdominal distension, 4 months	Adnexal masses - 6 cm × 5 cm; 3 cm × 3 cm, pyometra, omental and peritoneal thickening, ascites		839	Pyometra drainage; FNA left adnexal mass (FNA) PAP: Lymphoid cell granulomas
60	Pain abdomen, 1 month	Left adnexal complex mass 7 cm × 6 cm, ascites		201	Laparotomy - broad ligament fibroid, TAH + BSO, omental biopsy (intraoperative)
45	Pain abdomen and distension, fever, 1 month	Ascites, bilateral tubo-ovarian masses (4 cm × 3 cm)	70	425	Clinical profile (mass not suitable for FNA)
45	Abdominal distension, 2 months	Complex left adnexal mass (5 cm × 4 cm), ascites	62	442	FNA from adnexal mass (FNA)
63	Prolapse uterus, 3 years	5 cm × 6 cm cystic right adnexal mass		144	Vaginal hysterectomy, proceeded with laparotomy - BSO (postoperative)

CT: Computed tomography, MRI: Magnetic resonance imaging, TB: Tuberculosis, USG: Ultrasonography, BSO: Bilateral salpingo oophorectomy, TAH: Total abdominal hysterectomy, PAP: Papanicolaou, FNA: Fine needle aspiration, ADA: Adenosine deaminase

following FNA of the adnexal mass. A 45-year-old woman had abdominal distension and weight loss for 2 months. She had complex adnexal masses with ascites on computed tomography (CT) scan. Ascitic fluid ADA was 62 U/L and fine-needle aspiration cytology (FNAC) of the adnexal mass revealed granulomatous pathology consistent with TB. The other woman was aged 77 years who presented with abdominal distension from 4 months. Abdominal and pelvic imaging reported moderate ascites with omental and peritoneal thickening with complex bilateral adnexal masses and collection within the endometrial cavity suggestive of pyometra. Her CA-125 level was 839 IU/L. Papanicolaou smear was inflammatory with histiocytes and lymphoid cell granulomas. She underwent pyometra drainage and FNAC from the adnexal mass which was consistent with TB.

Seven women underwent laparotomy due to suspected ovarian cancer. In five, intraoperative findings of tubercles on the pelvic organs and peritoneal surfaces suggested TB and frozen section of biopsies from tube, ovary, peritoneum, and omentum confirmed TB.

In two, TB was not suspected intraoperatively, and diagnosis was made postoperatively based on histopathology reports. In a 42 year old woman, para 4 with abdominal distension, pain, significant loss of weight, and CA-125 of 1643 IU/L, TB was a postoperative diagnosis. Her imaging showed bilateral adnexal masses and ascites. At laparotomy, there were multiple deposits over uterus, pelvic organs, and peritoneal surfaces. The right ovary was normal and left ovary had a cyst measuring 4 cm × 4 cm. Hysterectomy, bilateral salpingo-oophorectomy, and infracolic omentectomy were performed. The other woman presented with uterine prolapse and a right adnexal mass which appeared benign on imaging. She underwent vaginal hysterectomy with pelvic floor repair. The adnexal mass could not be removed vaginally due to adhesions, and laparotomy had to be performed to remove it. The histopathology of the adnexal mass revealed granulomatous pathology consistent with TB. None of these women developed postsurgical complications and responded to ATT thereafter.

DISCUSSION

The features of advanced ovarian cancer may overlap with pelvic and peritoneal TB. The common features mimicking ovarian cancer are weight loss, reduced appetite, diffuse abdominal pain and distension, ascites (exudative), complex (solid-cystic) adnexal masses, peritoneal and omental deposits, retroperitoneal lymphadenopathy, and raised serum CA-125. Although India is an endemic country, the diagnosis of pelvic and peritoneal TB is often missed until a laparotomy is performed for suspected ovarian cancer. Concerns about missing or delaying

the diagnosis of ovarian cancer result in an exploratory laparotomy, salpingo-oophorectomy, and hysterectomy in some of these women. Oge *et al.* reported twenty women with pelvic and peritoneal TB who were initially thought to have ovarian cancer. Diagnostic laparotomy, laparoscopy, and ultrasound-guided tru-cut biopsy were performed in 11, 2, and 7 women, respectively, and histopathology showed TB. The most common symptom was abdominal pain (70%) and distension (65%). CA-125 levels were elevated in 80% (mean 289 ± 186.2 IU/ml). A CT scan or ultrasound showed the presence of ascites in 85% and a pelvic mass in 60%.^[5] In the present series, nine women had abdominal distension with or without pain; all had elevated CA-125 and pelvic masses on imaging were seen in ten of them. Ascites was present in 9/11 (81.8%).

Sonographically guided core biopsy of adnexal masses helped to diagnose TB in a gynecology unit in Turkey in 55 women suspected to have ovarian cancer. A biopsy was done for women likely to have suboptimal cytoreduction (58.2%), a poor performance status (20.0%), and suspected nongynecologic tumors (21.8%). Histopathology revealed primary ovarian tumors in 65.5% and TB was the second most common disease (14.5%).^[6] This technique may be useful when peritoneal TB is considered in the diagnostic workup of women with adnexal masses and exudative ascites which has raised ADA level (>30 IU/L) and is negative for malignant cells. FNAC was used as a diagnostic modality in two of our cases. The median serum CA-125 level in epithelial ovarian cancer was reported to be significantly higher than among women with peritoneal TB ($P \leq 0.01$).^[7] Among 48 women with peritoneal TB and 370 with epithelial ovarian cancer, only one (2.1%) with peritoneal TB had a serum CA-125 level >2000 IU/ml. However, 109 women (29.5%) with epithelial ovarian cancer had a serum CA-125 level >2000 IU/ml. At the CA-125 ranges of 400 to 599 and 600 to 799, the proportions of those with peritoneal TB were 24% and 21.9%, respectively. At a serum CA-125 level >1000 IU/mL, the proportion of women with peritoneal TB was much lower (2.1%). In seven of our cases, CA-125 was <600 IU/ml (146-571). In one woman, the CA-125 was 1643 IU/ml and peritoneal TB was not suspected even at laparotomy.^[7]

A laparoscopic evaluation with biopsies is another option when the diagnostic dilemma persists, and we do not want to miss diagnosing ovarian cancer. Whenever peritoneal TB is suspected intraoperatively, frozen section histology should be utilized so that unnecessary surgery is prevented.^[8] A diagnostic tool which may differentiate between the two conditions in the future is the Xpert® MTB/RIF assay. It is a real-time PCR assay that can be used by operators with minimal technical expertise, enabling diagnosis of TB and assessment of rifampicin

resistance and has been endorsed by the WHO recently.^[9] Xpert MTB/RIF may be used as a replacement test for usual practice (conventional microscopy, culture, and histopathology) for testing of specific nonrespiratory specimens (lymph nodes and other tissues) from patients presumed to have extrapulmonary TB.

CONCLUSION

It is a diagnostic challenge to differentiate pelvic-peritoneal TB from ovarian cancer which has entirely different management and prognosis and peritoneal and pelvic TB is a differential diagnosis to be remembered while evaluating women with bilateral complex adnexal masses, ascites, and moderately raised CA-125 level. Ascitic fluid showing lymphocytic predominance, raised ADA, and no malignant cells are pointers to obtain a histopathological diagnosis by ultrasound-guided needle biopsy or laparoscopic biopsy or frozen section at laparotomy.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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