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Case Report
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A Case Series of Disseminated Tuberculosis Involving Pelvic Organs and Peritoneum Mimicking Advanced Ovarian Malignancy

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Abstract

Tuberculosis continued to be a major socio-economic burden in developing countries. It affects mainly the lung tissue, but sometimes affects any organ in a human body. Literatures described it as a great mimicker due it its unique character to present with wide variety of sign and symptoms of other illnesses. We present four cases of disseminated tuberculosis involving the pelvic organs at the age of 22 years, 35 years, and 40 years old women who presented with nonspecific gastrointestinal symptoms. The clinical history, physical examination and imaging were all suggestive of ovarian malignancies, in addition to raised tumor marker (CA-125). In all cases the women were operated with an initial impression of ovarian malignancies. Up on entry, there is a typical macroscopic feature of tuberculosis and the operating surgeon took only biopsy. The result of the biopsy confirmed pelvic tuberculosis after which anti-tuberculosis medication was initiated. In women with abdominopelvic mass, we should always consider a possibility of pelvic tuberculosis especially in countries with high burden of tuberculosis. Radical procedures like hysterectomy and salpingo-oophorectomy could have been detrimental on the reproductive performance of these women.

Keywords: Pelvic tuberculosis; Ovarian cancer; Case series

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Introduction

Tuberculosis (TB) continued to be one of the global health burdens, especially in developing countries. According to a report by World Health Organization, each year 10 million people get infected and 1.5 million people die from TB [1]. Though pulmonary TB is the commonest form, extrapulmonary TB accounts about 15% to 20% of illness worldwide [2]. Ethiopia, despite making a remarkable achievement in reducing TB, yet in the year 2016 there was more than 200,000 new cases with age adjusted mortality of 100 per 100,000 [3]. Pelvic TB is a rare accounting only about 5% of the extrapulmonary forms of tuberculosis, but still five to six-fold more common to other alimentary organs [2,4]. It is also one of the common causes of infertility in developing countries where the burden of TB is higher [5,6]. The clinical course of the illness is usually indolent and patients may present a variety of illnesses that mimics unrelated disease including pelvic malignancies [7].

Saint Paul's Hospital Millennium Medical College (SPHMMC) is a tertiary academic institution in Addis Ababa, Ethiopia and one of the two institutions in the country where there is a gynecology oncology fellowship. The hospital receives majority of oncology referrals from different parts of the country. Here we summarized four cases of patients that are referred for staging surgery with a diagnosis of ovarian malignancy from other institution.

Case Series

Case 1

A 35-years old multiparous woman presented to outpatient department of SPHMMC complaining of dull aching lower abdominal pain, abdominal swelling, anorexia and unquantified weight loss of 6 months duration. On physical examination, abdomen was grossly distended and had positive signs of intra abdominal fluid collection. Otherwise, there was no ballotable organ. Laboratory investigations were all in the normal range including white cell count and organ function test (both renal and liver function test). Tumor marker was elevated with CA-125=471.42 U/mL (normal values <35 U/mL).

Chest X-ray revealed blunt right costophrenic angle with meniscal opacity in lower lung zone

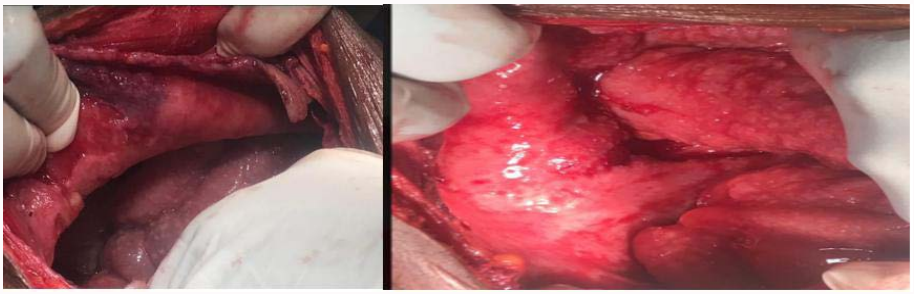

Figure 1: Intraoperative findings of the aforementioned patient. Miliary seedings on peritoneum and serosal surface of bowel.

secondary to pleural effusion. She had an ultrasound imaging that showed 9.6 cm × 2.5 cm solid mass in the left adnexa. Liver has increased echogenicity and coarsened but it has sharp margin and smooth wall. CT scan showed 3.9 cm × 7 cm predominantly cystic ovarian mass with thick contrast enhancing septation. There were multiple hypodense lesions in right hepatic lobe. Liver was normal in size with homogenous parenchyma. In addition, there was massive ascites and moderate amount of pleural effusion. The final conclusion of the CT scan was advanced ovarian cancer.

With a pre-operative impression of ovarian malignancy, exploratory laparotomy was performed. The intraoperative findings (Figure 1) were 500 ml of ascites with diffuse carcinomatosis over bowel loop and peritoneum. Liver has small nodules on the surface. The uterus and bladder surface were involved with seedings and rectovaginal space was obliterated. There was no visible abdominal mass except for thickening and surface seeding. Omentum is eaten up and adhered to colon with seeding. Biopsy was taken from the overlying peritoneum and serosal surfaces. Ascitic fluid taken for cytology showed hemorrhagic and proteinaceous background containing scattered clusters of bland mesothelial cells, sheets of lymphocytes and scattered histiocytes, which is negative for malignancy. The biopsy results revealed fibro adipose tissue fragments containing well-formed granulomas, numerous multinucleated giant cells and necrosis. It showed necrotizing granulomatous inflammation, consistent with tuberculosis. With above result she was diagnosed with disseminated TB and started on Anti TB for 6months. She had significant clinical improvement up on subsequent follow up.

Case 2

A 22-years old multiparous lady referred to SPHMMC with a clinical diagnosis of ovarian tumor. She had a complaint of pelvic pain of one-year duration. She also complained of bloating, easy fatigability, and anorexia of 3 weeks durations. Associated with this, she had productive cough of whitish sputum of one week. Otherwise she has no history of TB treatment or contact with a known TB patient.

Physical examination revealed a 6 cm × 8 cm right adnexal fixed, non-tender pelvic mass. On laboratory investigation, both ESR (97 mm/h) and tumor marker (CA-125 145.8) were raised. Other laboratory tests including white cell count were normal. Abdominopelvic ultrasound (Figure 2) revealed right adnexal echo-complex predominantly cystic mass with nodular solid component and thick septations measuring 10 cm × 7 cm. Left adnexa appear normal. Further imaging with MRI showed 6.5 cm × 7 cm × 10 cm right adnexal lesion with few thin septa and multiple mural solid components. There was also 3.5 cm × 4.5 cm × 4.5 cm left adnexal

Figure 2: Abdominoplevic ultrasound of 22-years-old woman showing right adnexal echo complex predominantly cystic mass with thick septations measuring 10 cm × 7 cm.

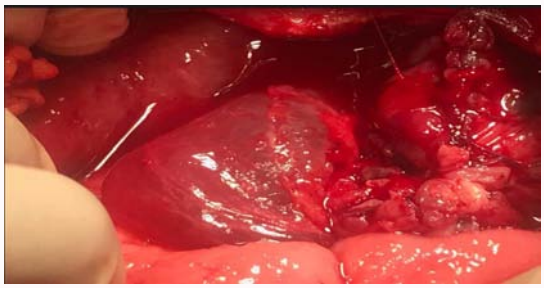

Figure 3: Laparotomy finding of the aforementioned patient showing dense adhesions between bowel loops.

lesion with thick irregular wall. Minimal pelvic fluid and multiple enlarged left external iliac lymph nodes were also identified.

Ovarian malignancy suspected and exploratory laparotomy was done. The findings (Figure 3) were multiple small nodules over peritoneum and bowel. There was significant adhesion between posterior uterine wall and sigmoid colon. Left adnexal mass measuring 6 cm × 8 cm is also identified. While releasing the adhesion between the mass and sigmoid colon, abscess cavity was entered and around 200 ml of non-foul-smelling thick pus spilled to peritoneal cavity. Multiple peritoneal biopsies, biopsy from abscess cavity and cytologic wash was taken. Microscopic result revealed necrotic background containing degenerative inflammatory cells mainly neutrophil and lymphocytes. The necrotizing inflammation was suggestive of TB. Smear from peritoneal fluid showed hemorrhagic background containing scattered sheets of oval to polygonal cells eccentric nuclei and abundant cytoplasm. The hemorrhagic ascites was negative for malignancy. With the final diagnosis of disseminated TB involving

Figure 4: Pelvic ultrasound of aforementioned patient showing complex predominantly cystic mass with septation and solid part.

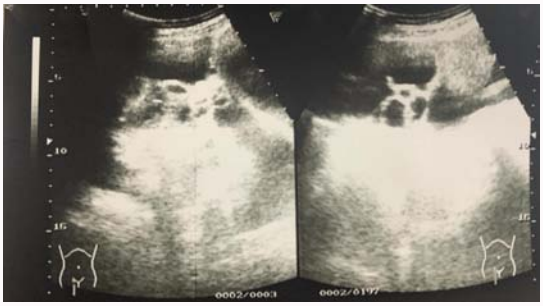

Figure 5: Pelvic sonography of aforementioned patient showing right adnexal mass with thick septation.

the pelvis, bowel and peritoneum, she was started on Anti TB.

Case 3

A 40 years old multiparous woman presented with history of exacerbation of lower abdominal pain of 2 months duration. Associated with this she has significant weight loss, loss of appetite, bloating, constipation and occasional nausea and vomiting. She has no previous history of TB treatment or previous symptoms of TB. Her laboratory investigation revealed elevated ESR (80 mm/h), otherwise tumor marker was in the normal range (CA-125=25.51). Pelvic ultrasound (Figure 4) showed 6.9 cm × 5.9 cm right adnexal echo complex mass, which is predominantly cystic. With the preoperative impression of malignant ovarian tumor, laparotomy was performed with intent of staging surgery.

Up on laparotomy, peritoneal entry was difficult due to dense adhesion between the anterior abdominal wall and abdominal viscera. Up on gently entry by separating the adhesions revealed 10 cm × 15 cm inflammatory mass which mainly contains matted bowel loops. The pelvis was frozen with multiple peritoneal seeding. There was also mesenteric lymph node enlargement. Biopsy was taken from peritoneum and mesenteric lymph nodes and histopathology revealed necrotizing granulomatous inflammation suggestive of tuberculosis. With this diagnosis of disseminated TB to the bowel, peritoneum and pelvis, the patient is started on Anti-TB medications on February 21, 2020.

Case 4

35 years old multiparous lady presented with progressively increasing abdominal swelling of 3 months duration associated with early satiety, anorexia and unquantified weight loss. Otherwise, no cough, fever or any history of chronic medical illness. Up one examination, there is 20 weeks size irregular non-tender fixed

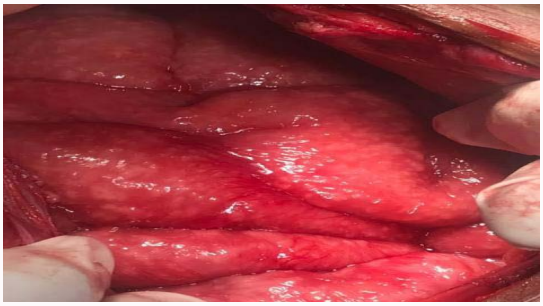

Figure 6: Intraoperative findings of the aforementioned patient showing multiple tubercles on peritoneum, omentum and serosal surface of bowel loops.

abdominopelvic mass. There is no sign of fluid collection in the abdomen. Her laboratory investigation elicited a normal finding except elevated tumor marker (CA-125) which is 89.55 u/ml. Pelvic sonography (Figure 5) showed right adnexal cystic mass with thick septation measuring 6.1 cm × 6.3 cm and fluid in the Douglas pouch. Pelvic MRI also revealed 7.8 cm × 5 cm right adnexal and 5 cm × 3.2 cm left adnexal thin walled mass with thin septation and peritoneal fluid collection in Douglas pouch. The overall impression was primary ovarian malignancy and laparotomy was performed with intent of staging surgery. Intraoperatively, there were multiple bands of adhesions between muscle and peritoneum. Multiple tubercles over bowel loop and omentum which are whitish to yellow in color (Figure 6). The pelvis also frozen with bilateral cystic adnexal mass that obliterate the culdesac and there was difficulty entering in to the pelvis. Omental, peritoneal and cyst wall biopsy was taken and histopathology revealed granuloma without caseous necrosis and correlation of the pathology with the clinical finding was suggested.

Discussion

The study describes four cases of pelvic tuberculosis that was incidentally diagnosed intraoperatively at Saint Paul's Hospital Millennium Medical College Addis Ababa, Ethiopia. Multiple studies showed that incidence of female genital tuberculosis is higher in developing countries and reproductive aged women are mostly affected [8]. This is a show case that the incidence could be higher as some of these patients could be operated with an impression of pelvic malignancy, unless biopsy is performed and malignancy is ruled out. Similarly, the mean age of patients in our cases was also 33. Women with pelvic tuberculosis usually present with an indolent course and non-specific gastrointestinal symptoms which leads to a delayed diagnosis and management which partly contributes to its poor prognosis [6,9]. All our patients have months of non-specific symptoms including anorexia, nausea and weight loss. Ascites and abdominal swelling are also a common feature in these patients [10,11], deceiving the clinician to consider malignancy. The commonest sites involved by upper female genital tuberculosis described in literature are endometrium and fallopian tube [5,6]. In our cases, 75% of the patients had disseminated TB involving uterus, ovaries and fallopian tubes in addition to peritoneum and bowel. The diagnosis of female genital TB is usually a challenge due to its indolent course and non-specific symptoms. The challenge becomes more remarkable when the ovaries and the peritoneum are involved with accompanying ascites and raised tumor marker (CA-125) which usually leads to a misdiagnosis of ovarian malignancy. This usually leads to unnecessary aggressive surgery including hysterectomy

Table 1: Characteristics of four patients with disseminated tuberculosis involving the pelvis.

Case	Case 1	Case 2	Case 3	Case 4
Age	35	22	40	35
Parity	III	II	II	II
Symptoms	Abdominal pain and abdominal swelling	Pelvic pain, cough, weight loss	Lower abdominal pain, weight	Abdominal swelling, weight loss, anorexia loss
History of Pulmonary TB	No	No	No	No
CA- 125 (U/ml)	471.42	145.8	25.51	89.55
CXR	Pleural effusion	Normal	Normal	Normal
Pre-operative impression of TB	No	Yes	No	No
Pre-Operative diagnosis	Ovarian malignancy	Ovarian tumor	Ovarian tumor	Ovarian tumor
Affected genital Organ	Uterus, ovary, fallopian tube	Uterus, ovary and fallopian tubes	ovaries Fallopian tubes	Uterus, ovary and fallopian tubes
Affected extragenital organ	Liver, Bowel, peritoneum	Bowel, peritoneum	Bowel, Peritoneum Liver	Bowel, peritoneum
Surgery performed	Biopsy	Biopsy	Biopsy	Biopsy

which in turn has a detrimental effect on a women's reproductive performance. In our cases, all the patients have undergone laparotomy with a pre-operative impression of ovarian malignancy. None of the imaging suggested the possibility of tuberculosis (Table 1). So, usually the only definitive diagnostic modality we have is histopathologic diagnosis of the biopsy. The biopsy will also exclude the possibility of malignancy. The typical histopathologic feature of TB, granulomas with multinucleated giant cells, epithelioid cells associated with caseous necrosis, will affirm the diagnosis [9]. These cases show that it is imperative for gynecologists or gynecologic oncologists to be adept in suspecting tuberculosis and deciding for biopsy before embarking on radical surgeries, especially in countries like Ethiopia where the burden of TB is high. In all these cases extensive surgery is avoided and the entire patients were initiated with anti-TB treatment, which is the optimal management option.

Conclusion

In areas where the burden of tuberculosis is high, we need a high index of suspicion for extrapulmonary TB and histopathology saves unnecessary extensive surgeries which compromise the future reproductive performance of a women. Pre-operative impression of advanced ovarian cancer in young patients should raise the possibility of pelvic and peritoneal TB. Gynecologists and gynecologic oncologist working in high TB burden countries should also needs the experience of intraoperative gross appearance of TB.

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