CASE REPORT

Peritoneal tuberculosis in pregnancy mimicking advanced ovarian cancer: a plea to avoid hasty, radical and irreversible surgical decisions

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Introduction

Many surgeons in Western countries are not familiar with tuberculous peritonitis. The disease is often characterized by the presence of many small masses in the peritoneum (both parietal and visceral), intestinal tract, diaphragm, omentum and so on. Such intra-operative findings are very similar to the ‘implants’ typically observed in advanced ovarian cancer. Therefore, the unaware surgeon could erroneously diagnose tuberculous peritonitis as advanced ovarian cancer. This serious diagnostic error might have dramatic therapeutic consequences, if radical surgery is performed during the initial surgery without histological documentation.

We present a pregnant woman with tuberculous peritonitis. The diagnostic and therapeutic problems are discussed, and the relevant literature is briefly reviewed.

Summary

Tuberculous peritonitis is rare in most Western counties, and can cause significant diagnostic and therapeutic problems. A 28-year-old pregnant female presented with nausea and vomiting, right lower quadrant abdominal pain, fever and intra-abdominal fluid. During surgery for presumed complicated acute appendicitis, many small masses (considered to be ‘implants’) were found within the peritoneal cavity, with a larger mass in the pelvis, mainly on the right. The clinical intra-operative diagnosis was advanced ovarian cancer and multiple biopsies were taken. The histological diagnosis was peritoneal tuberculosis. The patient was successfully treated conservatively. Hasty decisions to undertake radical and irreversible surgery should be avoided; this type of surgery should be performed only after histological confirmation.

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Case report

A 28-year-old pregnant female (20 weeks pregnant) from Ethiopia, Africa, presented to the Emergency Department complaining of abdominal pain, nausea and vomiting, and fever. These symptoms appeared at the early stages of pregnancy. Initially, the nausea, vomiting and abdominal pain were attributed to pregnancy, but the symptoms progressively became more severe during subsequent weeks.

Clinical examination revealed a cachectic woman with mild fever (37.5°C). Her abdomen was mildly distended. Abdominal auscultation revealed an almost complete absence of intestinal sounds. On palpation, localized pain and rebound tenderness was observed in the lower abdomen (mainly in the right lower quadrant). The Rovsing’s sign was also positive (i.e. pain in the right lower abdominal quadrant when pressing the left lower quadrant). On palpation, no pathological abdominal masses were found.

Laboratory investigation showed mild leukocytosis (11.5 x 10^9/l), lymphocytosis and anemia (hematocrit 26%). Abdominal ultrasound showed the presence of intra-abdominal fluid, mainly in the lower abdomen.

The patient was admitted with the presumed diagnosis of complicated acute appendicitis. However, the presence of free intra-abdominal fluid was not considered compatible with this diagnosis. Ultrasound-guided diagnostic paracentesis yielded a clear yellowish fluid. Microbiology and cytological examination of the ascitic fluid showed the presence of lymphocytes (55%), granulocytes (35%) and atypical cells (10%). Gram stain and culture of the ascitic fluid were negative. The albumin level within the ascitic fluid was 1.8 mg/dl.

The patient was initially treated conservatively (intravenous administration of fluids and antibiotics), but medical treatment failed to improve her clinical condition. About 36 hours after admission, the patient underwent exploratory laparotomy.

At surgery, through a midline incision, a large amount of yellowish, clear ascitic fluid was found within the abdomen. The uterus was mildly distended, as expected at this stage of pregnancy. Unexpectedly, many small masses (considered at the time of surgery to be implants) were found within the entire abdominal cavity, including the peritoneum – parietal and splanchnic (e.g. serosal surface of intestine, uterus, etc.) – and greater omentum, whereas larger masses were found in the pelvis, mainly on the right, extending up to the cecum. As a result of the presence of these larger pelvic masses, identification of the appendix and ovaries was not possible during surgery. Based on these intra-operative findings, the clinical intra-operative diagnosis was advanced (disseminated) ovarian cancer. Multiple specimens from the abdominal fluid and biopsies from the omentum and parietal peritoneum were taken. Unfortunately, during the emergency surgery, it was not possible to proceed to frozen-section biopsy. Thus, surgery terminated at this point, anticipating histological documentation of advanced ovarian cancer and subsequent potentially difficult and painful therapeutic decisions (given the pregnancy and the young age of the patient), such as the potential termination of the pregnancy and total hysterectomy, as either primary treatment or after neoadjuvant chemotherapy. Cancer marker CA125 was measured immediately following surgery and was elevated (163 U/ml; normal limits 0–35 U/ml). Increased CA15-3 (51.3 U/ml; normal limits 0–30 U/ml) and A-FP (136.8 ng/ml; normal limits 0–7 ng/ml) levels were also found, whereas CA19-9 and CEA levels were within normal limits.

Histological examination revealed numerous non-caseating epithelioid granulomas with multinucleated giant cells of the Langhans type (Figure 1a). Many suppurative granulomas containing central granular debris and recognizable neutrophils were also present (Figure 1b). Special stains, such as Ziehl–Neelsen and Warthin–Starry, failed to identify pathological microorganisms. The diagnosis of malignancy was excluded and tuberculous peritonitis was initially considered as a very probable diagnosis. The PPD skin test (Mantoux) was then performed and was positive. The patient was prescribed empiric antituberculous treatment (isoniazide, rifampicine and ethambutol). Ziehl–Neelsen stain was negative in sputum, gastric and ascitic fluids, and vaginal secretions, and in the specimens of free intra-abdominal fluid taken during surgery. However, culture of specimens from the peritoneum and the ascitic fluid was positive for Mycobacterium tuberculosis (on postoperative day 11). Two days after the administration of antituberculous treatment, the general condition of the patient significantly improved and she was discharged.

Figure 1  (A) A well-defined granuloma containing multinucleated giant cells of Langhans type. Hemotoxylin and eosin stain x10. (B) A rounded granuloma containing central granular debris and recognizable neutrophils. Hemotoxylin and eosin stain x20.
from the hospital on postoperative day 16. A retrospective
careful evaluation of the respiratory system was negative
for pulmonary tuberculosis. Of note, during the hospitaliza-
tion of the patient, the pregnancy continued without any
problems.

Discussion

Peritoneal tuberculosis (PT) is extremely rare in most Western
countries. As a result, surgeons in these countries are not
familiar with the clinical presentation of this disease. In
contrast, PT is not infrequent in many developing countries,
where it often remains undiagnosed, because of the lack of the
necessary diagnostic tools. PT typically involves the entire
abdominal cavity (omentum, intestinal tract, liver, spleen and
female genital tract, in addition to the parietal and visceral
peritoneum). It represents approximately 1—2% of all tuber-
culos is cases and is occasionally seen in association with the
pulmonary or the disseminated form of the disease.

A possible mechanism to explain the pathogenesis of PT is
the reactivation of latent tuberculous foci in the peritoneum
or hematogenous spread from primary pulmonary tubercu-
losis. However, the primary focus in the lungs is often healed
completely, thereby precluding its identification, despite
careful examination of the patient, as occurred in our case.

Pre-operative diagnosis is usually difficult, especially in
Western countries, and requires a high index of suspicion.
The patient’s country of origin and history are important
factors that should be taken into consideration when the
differential diagnosis is discussed. Because of its clinical
presentation (ascites, abdominal tenderness and abdominal
masses), PT is often misdiagnosed as advanced ovarian can-
cer. Bacteriologic examination of the ascitic fluid is not
always diagnostic and clearly is not helpful when the patient
is operated on an emergency basis (as with our patient).
Similarly, serum levels of CA125 (increased levels indicate
ovarian cancer) cannot be measured on an emergency basis.
Moreover, CA125 levels can be elevated even in benign
diseases, including peritonitis, as occurred in our case.
Accurate diagnosis requires histopathological examination
following image-guided biopsy (when possible), exploratory
laparotomy or diagnostic laparoscopy. Bacteriologic exami-
nation of the biopsy specimen should be performed, because
this could be positive for tuberculosis when histological
examination is negative. This examination includes the
identification of acid-fast bacilli (Ziehl—Neelsen staining posi-
tive), positive culture for *M. tuberculosis* and positive PCR for
*M. tuberculosis* complex.

This paper emphasizes the need to avoid hasty and irre-
versible decisions during surgery. PT is a highly curable
disease, typically occurring in young patients (peak age
20—40 years). Our case was further complicated by the
pregnancy. Obviously, in this clinical situation, total hystere-
cy would be a catastrophe and serious mistake. Conser-
vative treatment finally saved the life of the fetus and the
mother from unnecessary extensive surgery and major irre-
versible amputation (i.e. total hysterectomy).

Conflict of interest: No conflict of interest to declare.

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