

Clinical Note

Tubo-ovarian abscess in a postmenopausal woman with underlying ovarian carcinoma

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Tubo-ovarian abscess (TOA) is an inflammatory mass involving the fallopian tubes, ovaries and the adjacent structures and occurs as a complication of pelvic inflammatory disease (PID). It is generally a disease of young, sexually active women of reproductive age group.¹ It is considered to be relatively rare in postmenopausal women. Among postmenopausal women with TOA, concomitant genital tract pathology, the most serious of which is malignancy, is commonly found.^{2,4} The correct diagnosis of TOA is usually made during laparotomy as it is not considered in this age-group, and history, physical examination and diagnostic tests are relatively non-specific. We describe a postmenopausal woman with ruptured TOA, who was found to have papillary serous cystadenocarcinoma of the ovary. The case highlights the difficulties in reaching the correct diagnosis pre-operatively.

A 77-year-old woman presented to the Emergency Department with fever and lower abdominal pain, most prominent in the right iliac fossa, for 2 days. The abdominal pain was constant with no radiation. She had dysuria, increased urinary frequency, 3 episodes of vomiting and was feeling nauseous. She had type 2 diabetes mellitus for 20 years and was taking Metformin 500 mg, 3 times a day and Glimepiride 5 mg, once a day. She was postmenopausal for approximately 25 years. On examination, she looked comfortable. She was febrile with temperature of 38.6°C, pulse rate of 130 beats/minute and blood pressure of 120/80 mm Hg. The abdomen was soft, non-distended with tenderness in the right iliac and suprapubic areas. No mass was palpable. Bowel sounds were present and normal. The rest of the examination showed few bibasilar crackles in the chest and an old right facial nerve palsy. Laboratory investigations showed total leucocyte count of 29,200 with 87% neutrophils; hemoglobin, hematocrit and platelet counts were normal. Urine analysis showed hazy yellow colored urine with 10-15 white blood cells, 0-2 red blood cells, and moderate epithelial cells per high power field. The erythrocyte sedimentation rate (ESR) was 87 millimeters/hour. She was admitted with probable pyelonephritis and was started on intravenous Ceftriaxone. During hospitalization, the lower abdominal pain worsened. Upon re-evaluation, 12 hours later, the abdomen was soft with tenderness on light percussion in the right iliac

fossa suggesting parietal peritoneal irritation. A diagnosis of perforated viscus, most likely appendix, with secondary peritonitis was suspected. She remained hemodynamically stable. An urgent abdominal ultrasonogram showed a right adnexal cystic structure measuring 8.3 cm by 7.2 cm by 6.5 cm with septae and scattered solid areas. An urgent laparotomy with midline incision was performed. There were bilateral adnexal swellings with irregular surface, elongated shape and cystic consistency. The right adnexal swelling measured 11 cm by 5 cm and the left swelling was 6 cm by 5 cm. Greenish yellow, pus like foul smelling material was coming from right adnexal swelling into the pelvic cavity. Both the swellings were attached to the uterus and pelvic wall on the respective sides. Ovaries could not be visualized bilaterally due to inclusion in the swellings. The uterus was small in size and atrophic. All abdominal organs, including appendix, were found to be normal. There was no ascites, enlarged lymph nodes or any apparent malignant growth. A diagnosis of bilateral TOA with rupture on the right side was made, and total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed.

The surgical specimen showed atrophic uterus with 2 adherent cystic masses with irregular thickened wall and necrotic inner surface (**Figure 1**). The right mass measured 9 cm by 6 cm by 4 cm with partly solid portion measuring 4 cm by 3 cm by 2 cm while the left cystic swelling measured 6 cm by 4 cm by 3 cm. Histology of the solid region of the right mass revealed papillary malignant epithelial tumor with cells having elongated basal nuclei and mild to moderate polymorphism. Focal regions of necrosis were seen. The stroma was fibrotic. A diagnosis of papillary serous cystadenocarcinoma of ovarian origin was made. Other sections from the tissue revealed severe

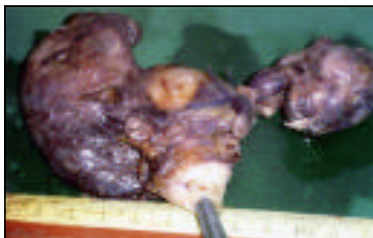


Figure 1 - Surgical specimen showing bilateral tubo-ovarian abscess with small atrophic uterus.

inflammatory changes and necrosis with marked neutrophil infiltration consistent with abscess. The patient stayed in the intensive care unit after surgery for 2 days and received intravenous Cefazidime, Gentamicin and Metronidazole. Aerobic culture of the pus from the pelvic cavity grew *Escherichia coli*; anaerobic culture of the pus had no microbial growth. Cultures of blood and urine did not reveal any microbial growth. She had an uneventful recovery and was discharged 5 days after surgery on oral amoxicillin-clavulanate. Two weeks later, she was doing well but was subsequently lost to follow up.

A literature review shows that 1.7-21.3% of TOA occur in postmenopausal women.⁵ Concomitant genital tract pathology is found in 60-67% of patients. Genital tract malignancy is the most serious concern occurring in 25-44% of patients.^{3,4} They have a higher incidence of systemic medical disorders such as diabetes mellitus and renal failure that are associated with immunosuppression and may predispose to development of TOA. Inflammation with rupture of adjacent organs such as appendix and colonic diverticula can also cause TOA.² The infection in TOA is usually polymicrobial with mixed aerobic-anaerobic organisms. The clinical presentation of TOA tends to be non-specific. Lower abdominal pain (55-100%), fever (20-88%) and vaginal bleeding (45-52%) are the commonly reported symptoms.^{2,4} Vaginal discharge is present in less than 5% of patients. Gastrointestinal symptoms such as nausea, vomiting and loose motions may occur. Urinary symptoms, such as dysuria and increased frequency of micturition, as present in our patient, have not been previously reported. Extension of inflammation to the lower end of the ureter and urinary bladder lying in proximity of TOA possibly account for these symptoms and sterile pyuria. Almost all patients have tender abdomen. Peritoneal signs are present in 0-30% of patients at the time of hospitalization.^{3,5} Palpable pelvic or lower abdominal mass is present in 55-91% patients. The laboratory investigations commonly show leucocytosis (55-94%) and elevated ESR. Blood cultures are rarely positive. Ultrasonogram or CT scan identifies adnexal mass in nearly all patients. Ultrasonogram reveals complex cystic adnexal mass with solid areas, partitions and internal echoes in more than 90% of patients. Free fluid in the pelvis may be seen. However, in most patients sonographic findings do not lead to elucidation of the true diagnosis.⁴ Secondary peritonitis due to rupture of TOA occurs as a complication in 20-41% of postmenopausal women as compared to 3-5.6% of premenopausal women.^{2,4} Ruptured TOA is associated with a high risk of development of septic shock, if urgent surgical intervention is not

undertaken.⁴ Broad spectrum antibiotics to cover polymicrobial mixed aerobic-anaerobic infection should be given promptly. Unlike the premenopausal patients, the presence of TOA in postmenopausal women is proposed as an indication for prompt surgery because of poor response to conservative treatment, high incidence of rupture, and to help identify underlying genital tract pathology.^{2,4} Prompt surgical treatment may be associated with decreased morbidity and postoperative hospitalization. Apparent malignant growth may be difficult to visualize intraoperatively, possibly due to extensive inflammation and pus, as we experienced in our patient. Careful histopathological examination of resected tissue is a must to rule out malignancy. Extensive inflammation and edema makes dissection of pelvic abscess difficult. Common intraoperative complications include inadvertent bowel injury requiring enterotomy in 10-20% patients, and accidental cystotomy and inferior vena cava laceration during dissection of periaortic lymph nodes. The postoperative course may be complicated by fascial dehiscence, requirement of blood transfusion, enterocutaneous fistula, deep venous thrombosis and need for prolonged mechanical ventilation.^{2,4}

In summary, TOA should be considered in the differential diagnosis among postmenopausal women presenting with acute lower abdominal pain. Early recognition and surgical treatment is necessary to improve outcome. Careful examination should be undertaken for underlying pelvic pathology especially genital tract malignancy.

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