

Salmonella ovarian abscess in a patient with rheumatoid arthritis (RA): a case report with literature review

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Summary

Salmonella ovarian abscess in a patient with rheumatoid arthritis (RA) is reported here. A 33-year-old nulliparous woman with a 16-year history of RA who had been treated with corticosteroid and immunosuppressive drugs was diagnosed as having a non-typhoidal *Salmonella* ovarian abscess which might have been preceded by an occurrence of endometriotic cyst. Multidisciplinary therapy including surgical intervention was required to complete the eradication of infection. Although *Salmonella* ovarian abscess is rare, it may cause a serious complication in the ovary harboring endometriotic cyst through sustained presence of *Salmonella* bacteraemia.

Key words: *Salmonella* infection; Ovarian abscess; Rheumatoid arthritis, Endometriotic cyst.

Introduction

Ovarian abscess most commonly occurs among reproductive aged women and typically results from an upper genital tract infection. Multidisciplinary therapy including antibiotic injection, minimally-invasive drainage treatment, and surgical procedure are required for the treatment of ovarian abscess. Ovarian abscess sometimes causes serious conditions due to the rupture of the abscess that might result in a septic status for the patient, a potentially life-threatening disorder.

In general, gastroenteritis with non-typhoidal *Salmonella* infection causes a short, febrile, and self-limited illness. However, some *Salmonella* species can potentially cause bacteraemia that might foster localized infection [1]. Ovarian abscess formation from *Salmonella* bacteraemia is a rare event. Most of these cases have shown pre-existing ovarian cysts or benign ovarian tumors [2, 3]. It is known that immunocompromised patients who have experienced ailments such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), splenectomy, and immunodeficiencies from hemoglobinopathies are prone to opportunistic infections such as ovarian abscess [4, 5]. The authors report here a case of a RA-associated ovarian abscess, while reviewing pertinent literature.

Case Report

A 33-year-old nulliparous woman with a right ovarian endometriotic cyst was being followed for 18 months. She had a 16-year history of RA with the use of corticosteroids, mizoribine, and methotrexate, and had no high-risk sexual exposure or history of pelvic inflammatory disease. She first showed symptoms of abdominal pain, vomiting, and fever. The patient was diagnosed as suffering from gastroenteritis, and a five-day administration of flo-moxef sodium at a local hospital temporarily eased the symptoms.

After having being discharged from the hospital, the patient was readmitted to the same hospital because of recrudescence. Computed tomography (CT) revealed a pelvic abscess, and subsequently a percutaneous drainage procedure was performed. The pus culture from the patient showed *Salmonella* enteritidis and, therefore, cefpirome sulfate (2,000 mg/day) and clindamycin hydrochloride (1,200 mg/day) were administered. As the patient still had persistent fever and abdominal pain even after the administration of different antibiotics, she was referred to the present hospital.

A physical examination of the patient revealed tenderness in the right lower abdominal quadrant and a pelvic examination suggested that there was a right ovarian mass. The pelvic ultrasound scan showed a complex cystic mass in the pelvic area without any solid component (Figure 1a). A subsequent pelvis CT scan showed an ovarian cystic mass along with an irregular shaped region in thick enhanced walls (Figure 1b). The laboratory study showed a white cell count of $14.3 \times 10^3/\mu\text{l}$ and a C-reactive protein level of 5.59 mg/dl. The patient underwent a CT-guided percutaneous drainage procedure for the pelvic abscess, and the pus culture of the abscess again showed the same bacteria as detected before. The bacterial culture examination for both stool and vaginal discharge were negative at that time point. On the basis of the antibiotics susceptibility test for *Salmonella* enteritidis, ceftriaxone (1,000 mg every 12 hours intravenous injection) and lincomycin (600 mg every eight hours intravenous injection) were then administered. The follow-up CT after ten days, however, showed a persistent well-defined pelvic abscess. Furthermore, she still suffered from low grade fever and appetite loss. The patient finally underwent a right salpingo-oophorectomy and omentectomy with trans-abdominal drainage. A right ovarian abscess with filmy adhesions to the omentum and the colon was found. A pathologic examination revealed ovarian endometriosis with inflammatory changes and chronic salpingitis. The patient continued to receive the ceftriaxone and lincomycin treatment for another two weeks after the surgery, and she was discharged, without any sequelae, on the 30th day after the treatment.

Discussion

Patients with chronic diseases such as immunodeficiencies are thought to be high risk for having *Salmonella* infection [6]. In particular, an intensive immunosuppres-

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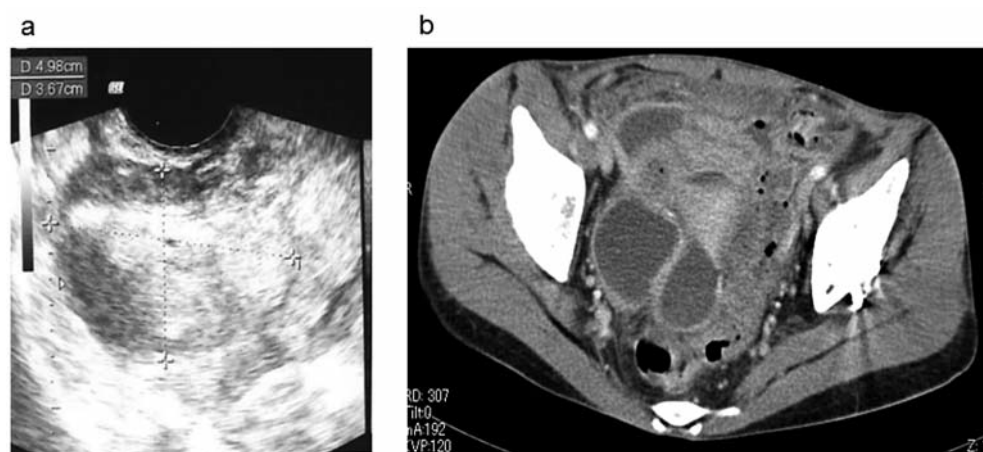


Figure 1. — Imaging studies. (a) Transvaginal ultrasonography showing a cystic mass (49 x 36 mm) in the pelvic area. (b) Pelvis CT scan showing an ovarian cystic mass along with an irregular shaped region in thick enhanced walls.

Table 1. — Reported cases of *Salmonella* infection with ovarian abscess.

Cases	Age	Past history	Pathologic finding	Etiology	Surgical management
Li and Cohen (4)	34	SLE	Endometriotic cyst	<i>Salmonella</i> group D	Drainage of bilateral tubo-ovarian abscesses
Lin <i>et al.</i> (5)	24	SLE	Endometriotic cyst	<i>S. typhimurium</i>	Right partial oophorectomy
Chao <i>et al.</i> (7)	35	SLE	Abscess with necrosis	<i>S. enterica</i> , group B	Laparoscopic enucleation of ovarian abscess
Rashmi and Divya (8)	32	None	Endometriotic cyst	<i>S. corvallis</i>	Drainage of the presumed tubo-ovarian abscesses
Ghose <i>et al.</i> (9)	28	None	Endometriotic cyst	<i>S. stanley</i>	Right salpingo-oophorectomy and left salpingectomy
Toshimitsu <i>et al.</i> (10)	48	None	Inflammatory change	<i>S. O7</i>	Bilateral salpingo-oophorectomy and total hysterectomy
Present case	33	RA	Endometriotic cyst	<i>S. enteritidis</i>	Right salpingo-oophorectomy

sive therapy for immunodeficiencies might directly compromise host immunity. Table 1 summarizes seven cases of ovarian abscesses due to *Salmonella* infection. All of these were caused by a non-typhoidal *Salmonella* infection. Among these were three cases with SLE, and three other cases with no significant medical history. It should be noted that the occurrence of endometrioma was observed in five of the seven cases, and all cases including our 33-year-old nulliparous patient needed a surgical intervention.

Once a woman is diagnosed as having pelvic inflammatory disease (PID), it is clinically important to decide whether she requires further evaluation for ovarian abscess. In particular, for a woman with PID who has acute illness, significant abdominal tenderness, adnexal masses, and poor response to antibiotic therapy, imaging studies such as pelvic ultrasonography and CT scanning should be considered for the detection of ovarian abscess. Ultrasonographic images typically reveal complex masses that often appear to contain speckled fluid and internal echoes consistent with inflammatory debris [11–13]. Treatment for ovarian abscess includes intensive antibiotic therapy, minimally-invasive drainage procedure, and/or invasive surgery. In general, a prompt surgical intervention should be

considered in cases of a suspected intra-abdominal rupture of ovarian abscess with overt signs of sepsis. On the other hand, when patients with abscess under nine cm in diameter are hemodynamically stable, respond adequately to antibiotic therapy, and are premenopausal, they are candidates for a non-invasive medical management. However, if the patients do not respond to an antibiotics treatment within 48 to 72 hours, either a minimally invasive abscess drainage procedure or surgery will be required. It was reported that bacteraemia have been observed among the immunocompromised patients who had a certain non-typhoid *Salmonella* serotype infection [14, 15]. In the present case with RA, the fact that the results of stool and leucorrhea cultures were both negative may support the idea that ovarian abscess due to *Salmonella* infection could be hematogenously disseminated.

Conclusion

In summary, we report here a rare case of *Salmonella* ovarian abscess associated with RA. It should be considered that endometriotic cysts with the collection of stagnant blood would have been a likely site for the *Salmonellae* local infection.

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