

Pelvic Inflammatory Disease Caused by Salmonella Bacteremia: Report of Two Cases[✉]

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Pelvic inflammatory disease (PID) is one of the most serious complications of the sexually transmitted diseases. The most important step in early diagnosis is a high index of clinical suspicion.

In this report, we document two cases of PID due to Salmonella bacteremia.

Key Words: Salmonella, Pelvic inflammatory disease

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Pelvic inflammatory disease (PID) is one of the most serious complications of the sexually transmitted diseases. The most important step in early diagnosis is a high index of clinical suspicion.

In this report, we document two cases of PID due to Salmonella bacteremia.

Case 1

A 42 - years old multiparous woman presented with the complaints of dull abdominal pain, nausea and sweating for one week. The patient had no diarrhea or vomiting. She had been referred from the Department of General Surgery for further consultation to our institution because they had not thought acute abdomen requiring surgical exploration. Her medical history was unremarkable and had no history of PID. Her menstrual cycles were regular and she had no delayed menstruation. She was sexually active and was not using any contraceptive method.

On admission, a general physical examination revealed tenderness to palpation in both lower quadrants of the abdomen. Her axillary temperature was 36.5°C. There was severe tenderness upon motion of the cervix in gynecologic ex-

amination. Speculum examination revealed a normal cervix without vaginal discharge. Uterus and both adnexal regions could not be successfully evaluated due to voluntary guarding in both lower quadrants. Laboratory analysis demonstrated a leukocyte count of 7,610/μl, C-reactive protein of 12 mg/l, erythrocyte sedimentation rate of 88 mm/h. Transvaginal ultrasonography (TVUS) revealed a 39x14 mm hypoechoic lesion at right adnexal region and minimal free fluid around it. She was hospitalized with an initial diagnosis of PID.

At the fifth hour of hospitalization, her temperature rose to 39.2°C. Blood, urine, throat and cervical cultures were obtained. On the basis of initial symptoms, laboratory test results and elevating body temperature, intravenous antibiotic treatment was begun with 80 mg gentamycin and 900 mg clindamycin every eight hours. She was afebrile after antipyretic medication but her temperature tended to rise again, especially at evenings. Her temperature was between 37.5 and 38.6 °C at follow-up visits. On the third day of hospitalization, there was no significant clinical improvement but new onset of left epigastric pain. Bacteriological cultures of urine, throat and endocervix were negative but unexpectedly, blood culture grew Salmonella typhi (S. typhi). Antibiotic treatment was changed to ciprofloxacin 500 mg for every twelve hours. Both clinical and laboratory improvements were observed at following days. Her temperature returned to normal and pain disappeared. She was discharged from the hospital in good clinical condition with absence of S. typhi in blood culture, normal pelvic examination and laboratory results within normal limits. One month later, she was completely healthy and her control TVUS was normal.

Case 2

A 32-years old primiparous woman was admitted to our Emergency Room with the complaints of fatigue and elevat-

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ing body temperature especially at nights. Additionally, she had complaints of lower right quadrant pain and headache for one week. She had attended another Emergency Clinic with these complaints and despite treatment with intravenous Cefazolin for 5 days, no clinical improvement had been observed and she was transferred to our hospital. She had no complaints of diarrhea or vomiting. Her medical history was unremarkable and had no history of PID. Her menstrual cycles were regular and she had no delayed menstruation. She was sexually active and was not using any contraceptive method.

On admission, a general physical examination revealed tenderness to palpation in especially right lower quadrant of the abdomen. Her axillary temperature was 37.4°C. There was severe tenderness upon motion of the cervix in gynecologic examination. Speculum examination revealed a normal cervix without vaginal discharge. Laboratory analysis demonstrated a leukocyte count of 5130/µl, C-reactive protein of 24 mg/l, erythrocyte sedimentation rate of 18 mm/h. TVUS revealed 57x30 mm free fluid at posterior cul de sac. She was hospitalized with an initial diagnosis of PID.

Her temperature was between 37.5 and 38.6°C during follow up. On the basis of initial symptoms, laboratory test results and elevating body temperature, intravenous antibiotic treatment was begun with 80 mg gentamycin and 900 mg clindamycin every eight hours. On the fourth day of hospitalization, there was no significant clinical improvement. Despite antibiotic treatment, the patient remained febrile. Bacteriological cultures of urine, throat and endocervix were negative but blood culture grew *S. typhi*. Antibiotic treatment was changed to ciprofloxacin 500 mg for every twelve hours. Her body temperature was decreased at the second day of treatment and she was discharged from the hospital with absence of *S. typhi* in blood culture. One month later, she was completely healthy and her control TVUS was normal.

Discussion

S. typhi causes typhoid fever in humans and it is the most frequent *Salmonella* species causing extraintestinal infections.¹ PID caused by *Salmonellosis* is particularly very rare. In the female genital tract, the main route of this infection may be hematogenous spread or through direct contact with the inflamed bowel wall. A variety of presenting forms of genital infections have been described in patients with *Salmonella* infections. These include pelvic abscess, salpingo-oophoritis and infections in pre-existing benign ovarian tumors.²⁻⁷ Most of these cases presented after an episode of typhoid fever which is a serious and widespread disease in developing countries.⁸ Saltzman et al. presented a case with *Salmonella* enteritidis gastroenteritis and coexistent pelvic abscess caused by this organism that had underwent surgery after a failed trial of parenteral antibiotics.⁹ Very recently, Valayatham reported a

woman with suspected PID who was confirmed as *Salmonella* infection. Patient underwent hysterectomy and bilateral oophorectomy due to recurrences after the drainage of the abscess.¹⁰ *Salmonella* infections isolated in endometriotic ovarian cysts were reported and in some cases the symptoms suggested only endometriosis.^{2,3} In our patients there were no pre-existing ovarian tumors. Both cases also had no episodes of gastroenteritis, probably suggesting the primary localization of genital infection during bacteremia.

In previous reports, surgery was the mainstay of therapy. In our cases we managed the infections with conservative antibiotic treatment successfully without need of surgery. Fluoroquinolones are highly active against most *Salmonella* strains. As *Salmonella* infections are common especially in developing countries and the prognosis of these infections are good due to responding well to specific antibiotic therapies, the recognition of PID due to *Salmonella* species is of clinical importance.

As a conclusion, we emphasize the importance of early diagnosis and by this way conservative antibiotic treatment can be successful with avoidance from a surgical intervention. *Salmonella* species should be considered as potential etiologic organisms in patients presenting with signs of PID especially resistant to initial antibiotic treatments.

Salmonella Bakteremisine Bağlı Pelvik İnflamatuvar Hastalık: İki Olgu Sunumu

Pelvik inflamatuvar hastalık (PID) cinsel yolla bulaşan hastalıkların en ciddi komplikasyonlarından biridir. Erken tanıdaki en önemli basamak ciddi klinik şüphedir. Bu yazıda *Salmonella* bakteremisine bağlı iki PID vakası sunulmaktadır.

Anahtar Kelimeler: *Salmonella*, Pelvic inflamatuvar hastalık

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