



Transvaginal Drainage of a Postpartum Tubo-Ovarian Abscess: A Case Report

Postpartum Tubo-Ovarian Abscessinin Transvajinal Drenajı: Olgu Sunumu

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ABSTRACT

A significant and most morbidly related consequence of pelvic inflammatory illness is tubo-ovarian abscess. Although tubo-ovarian abscesses are not unusual, diagnosing it might not be easy. Given the frequent use of ultrasound imaging in gynecology and obstetrics, it is crucial to comprehend the diagnostic and therapeutic utility of transvaginal ultrasound in the treatment of major gynecologic illnesses. This article's goal is to provide a thorough description of each step involved in doing transvaginal adnexal abscess drainage in a postpartum patient who underwent a cesarean section. In general, it is proposed that this treatment is a good substitute for laparoscopic or laparotomic surgery, which may be standard as a therapeutic approach.

Keywords: Transvaginal ultrasound-guided aspiration; tubo-ovarian abscess; pelvic inflammatory disease

ÖZET

Tuboovarian abse, yüksek morbidite ile bağlı olan, pelvik inflamatuvar hastalığın önemli bir komplikasyonudur. Tubo ovarian abse nadir görülen bir hastalık olmadığı halde teşhis konulması güçlük getirebilir. Kadın doğum bölümünde yüksek kullanımı göz önüne alındığında, önemli jinekolojik ve obstetrik hastalıkları kontrol etmek adına, transvajinal ultrasonun tanı ve tedavi değerini anlamak gerekir. Bu yayının amacı sezaryen geçiren doğum sonrası bir hastada transvajinal ultrason eşliğinde yapılan TOA abse aspirasyonunu detayları adımlarla tarif etmektir. Genel anlamda bu prosedür laparoskopik ve laparotomik cerrahi tedaviler için bir alternatiftir ve terapötik strateji olarak standardize edilebilir.

Anahtar Kelimeler: Transvajinal ultrason eşliğinde aspirasyon; tuboovarian abse; pelvik inflamatuvar hastalık

A tubo-ovarian abscess (TOA) affects the upper genital tract systemically as a result of the pelvic organs being inflamed due to a combination of endometritis, adnexitis, and cervicitis. It is primarily caused by spreading bacteria from the lower genital tract, specifically *Gonococcus* or Chlamydia infection. Additional culprits include *Gardnerella vaginalis*, *E. coli*, *Enterobacter*, *Streptococcus*, *Hemophilus influenzae*, *Mycoplasma*, and *Actinomyces*.¹

Long-term consequences such as chronic pelvic pain, pelvic adhesions, infertility, and ectopic pregnancy may result from inadequate therapy. Risk factors for TOA include in-vitro fertilization and oocyte extraction in endometriosis patients.²

Initial symptoms for patients include tenderness in the pelvic area, fever, nausea, and sometimes acute abdominal signs. A patient with pelvic inflammatory

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disease (PID) can have a conglomerate of the gut, ovaries, and fallopian tubes found during a bimanual vaginal exam. The possibility for TOAs to rupture could result in a surgical emergency. Ten to twenty percent of TOA cases that rupture go on to develop sepsis.³

Additionally, many TOA cases may be caused by secondary conditions like tuberculosis, appendicitis, peritonitis, chronic inflammatory bowel disease, postoperative infection, or infections related to intrauterine devices, and they can result in a life-threatening situation and be treated aggressively with medicine and surgery.⁴

The treatment options include surgery, minimally invasive drainage treatments, antibiotics, or a combination. Several studies have shown that conservative medical management of TOAs can yield success rates ranging from 16% to 95%. Most of these studies consistently report a success rate of 70% or higher.⁵ Antibiotics can be given alone if the patient's hemodynamics are stable, the TOA is not ruptured, and it is smaller than 9 cm. However, it is necessary to utilize drainage or have surgery if the patient's symptoms, such as temperature, pelvic sensitivity, increased leukocyte counts, septic signs, or mass size, do not subside.⁵

Surgery, minimally invasive aspiration procedures, and medical treatment are all options for treating TOA. The choice of a treatment modality is mainly influenced by the TOA's severity, size, location, clinical symptoms, overall health, and desire for future conception. Laparotomic and laparoscopic drainage, excision of the abscess wall, and more invasive methods such as salpingectomy are all part of the surgical management of TOAs.

In this case report, we aimed to report how to successfully treat a woman with unilateral TOA who has been diagnosed after cesarean delivery using a minimal-invasive approach.⁶

CASE REPORT

A 40-year-old female patient was admitted to the outpatient clinic with complaints of tenderness, fever, abdominal pain, and nausea. In her history, she had a C-section 2 weeks ago due to prior mural fibroid surgery. Depending on the medical records during the

c-section, there were no signs and symptoms of the possible genital tract or intraabdominal infection, and there were no difficulties or complications during the procedure. Additionally, there was minimal blood loss during the c-section. There were no indications or evidence of infection during the intraoperative and postoperative periods. Also, her history revealed no episode of pelvic inflammatory disease before or during the pregnancy.

During the physical examination, temperature elevation (maximum 39.5°C) was noted in the left lower abdomen, along with tenderness upon palpation and discomfort upon release (rebound tenderness). Symptoms such as vaginal discharge and pain in the left inguinal area suggested the presence of TOA. A cystic complex mass measuring 5x4 cm was identified on the left adnexa, further supporting the TOA diagnosis. Upon examination, the right ovary, uterus, and Douglas pouch were found to be within normal limits. No abnormalities were detected in these areas. Laboratory testing revealed an elevated white blood cell count ($15,360 \times 10^3/\text{mcl}$) and C-reactive protein (CRP) level of 82.6 mg/L, indicating inflammation. Following consultation with the infectious disease department, the patient has been prescribed an empirical antibiotic regimen consisting of parenteral metronidazole 500mg iv infusion TID and 1 gr ceftriaxone iv BID. However, on the fourth day of antibiotic therapy, there were consistent high fever despite antibiotherapy. Surgery and non invasive approach options were discussed along with the patient. As a result, a transvaginal aspiration of the TOA was planned after obtaining informed consent and discussing all invasive treatment options with the patient. Before the aspiration procedure, the vagina was cleansed using an iodine solution.

Using sonographic guidance, a 19-gauge oocyte aspiration needle was carefully inserted into the left adnexal mass, and the aspiration pressure was set to 80 mmHg. 60 ml of purulent fluid was successfully aspirated from the abscess without complications. All portions of the multiloculated abscess were drained successfully. Subsequently, the abscess cavity was rinsed with 100 ml of sterile isotonic solution. To conduct a more detailed microbiological analysis, a sample of the aspirated fluid was sent for culture.

The microbiological analysis of the pus revealed the presence of *Escherichia coli*. Based on this positive culture result, the parenteral antibiotic regimen was adjusted to include Cefepime at two times 2 grams intravenously (IV) and Teicoplanin at one time 400 mg. By the third day following the aspiration procedure, all symptoms related to the infection subsided, the patient's fever normalized, and all laboratory results, including white blood cell count ($9,810 \times 10^3/\text{mcl}$) and C-reactive protein (CRP) level (19.5 mg/L), returned to normal levels.

After completing a ten-day course of antibiotic therapy, the patient was successfully discharged. One week after the procedure, a follow-up examination revealed a left-sided adnexal mass measuring 2x3 cm, but no visible clinical signs were present. Weekly controls were performed till 3rd month after the aspiration procedure without remarkable findings.

DISCUSSION

The standard treatment for an abscess usually involves drainage and antibiotic therapy. However, it is essential to personalize the approach based on the individual patient's condition. While antibiotics and surgery are commonly considered as the initial options, surgery is a significant and invasive procedure that comes with inherent risks.⁷ In our case, we opted for antibiotic treatment and transvaginal aspiration, which is a minimally invasive procedure. The primary goal of this approach is to enhance the effectiveness of antibiotics. By reducing the number of bacteria causing the infection, particularly those that may be blood-borne and contributing to the abscess formation, we aim to increase the success of antibiotic therapy. Although currently limited scientific evidence supports this, it can be an effective strategy. Surgery remains the primary treatment method, but due to its invasiveness and associated risks, we have chosen to prioritize antibiotic therapy to maximize its effectiveness in the initial stage, combined with minimally invasive transvaginal aspiration.⁸

This approach could be considered as a first-line option in similar cases. If unsuccessful, surgery can still be performed. The literature includes 16 case reports of transvaginal aspiration of tubo-ovarian ab-

scences. Gjelland et al. conducted a study involving 302 women who underwent a total of 449 transvaginal aspirations. The success rate was 93.4% among the 282 patients who combined this strategy with antibiotic therapy. Only 20 patients (6.6%) required surgery as they may have had a tubo-ovarian abscess.⁹

Studies comparing ultrasound-guided drainage of tubo-ovarian abscesses with laparoscopy have shown higher success rates, fewer complications, and shorter hospital stays for ultrasound-guided drainage. In another study involving 975 patients, image-guided drainage (ultrasound or computed tomography) was utilized in 42% of cases (406 cases) compared to laparoscopic drainage in 11% (107 cases).¹⁰ Image-guided drainage had success rates of 90-100% compared to success rates of 89-96% for laparoscopic surgery and 65-83% for antibiotic therapy alone. At the 6-month follow-up, image-guided drainage did not result in any complications and required shorter hospitalization (averaging 0-3 days) compared to laparoscopic surgery (5-12 days) or antibiotic therapy alone (7-9 days).¹⁰

TOA may occur following a c-section, particularly if there is a confounding risk factor such as endometriosis. Non invasive approaches should be considered before deciding for more invasive surgeries.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Emine Özhan Özturan, Emre Göksan Pabuçcu; **Design:** Emine Özhan Özturan; **Control/Supervision:** Emre Göksan Pabuçcu; **Analysis and/or Interpretation:** Emine Özhan Özturan, Emre Göksan Pabuçcu; **Literature Review:** Emine Özhan Özturan; **Writing the Article:** Emine Özhan Özturan; **Critical Review:** Emre Göksan Pabuçcu.

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