CASE REPORT

Journal of International Surgery and Clinical Medicine (*JISCM*) 2025, Volume 5, Number 1: 24-26
E-ISSN: 2807-7008

Published By :
Surgical Residency Program
Universitas Syiah Kuala

Infected endometriotic cyst due to blunt trauma: a case report

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Received: 2025-01-27
Accepted: 2025-03-24
Published: 2025-04-29

ABSTRACT

Background: Endometriosis is a common gynecological condition with a prevalence of 2–10% among women of reproductive age. Secondary infection of endometriotic cysts constitutes an uncommon yet potentially severe complication that may arise through multiple mechanisms, including trauma-mediated cyst rupture.
Case Presentation: The present case describes a-36-year_old multiparous woman with fever after abdominal massage for chronic pelvic discomfort.. The patient had previously undergone surgery for endometriosis. in 2021 and chronic dysmenorrhea. Physical examination revealed a fixed abdominal mass, and ultrasonography showed an 11.5×9.5×7.9 cm cystic mass with ground glass appearance. Laboratory findings showed elevated leukocytes (29,500 cells/mm^3) and CA125 (261 µg/dL). After antibiotic treatment, unilateral salpingo-oophorectomy was performed. Intraoperatively, infected endometriotic cyst with purulent material was found.
Conclusion: This case highlights the risk of endometriotic cyst rupture and subsequent infection following abdominal trauma, even from traditional massage therapy. Early detection and appropriate surgical care are critical for good results.

Keywords: endometriosis, infected cyst, blunt trauma, abdominal massage.
Cite This Article: Sujudi, A., Rajuddin. 2025. Infected endometriotic cyst due to blunt trauma: a case report. *Journal of International Surgery and Clinical Medicine* 5(1): 24-26. DOI: 10.51559/jiscm.v5i1.73

INTRODUCTION

Endometriosis constitutes a gynecological pathology distinguished by extrauterine implantation of endometrial-like tissue. Ovarian manifestations of this condition are designated as endometriomas or endometriotic cysts. Additional phenotypic variants include superficial peritoneal implants and deep infiltrating endometriotic lesions.[1–3] The condition demonstrates affects an estimated 2-10% of women of childbearing age; however, it accounts for 70% of chronic pelvic pain presentations within this demographic.[4]

Endometriosis presents with chronic pelvic pain, painful menstruation, painful intercourse, and subfertility.[2,5] Bimanual pelvic examination demonstrating a cystic adnexal structure, either adherent or mobile in relation to adjacent pelvic anatomy, may be indicative of endometrioma.[6] Sonographic evaluation characteristically reveals a cystic lesion containing uniformly dispersed low-level internal echoes, termed "ground glass" appearance, with preserved normal architecture of the surrounding ovarian parenchyma.[7]

Infected endometriotic cysts can occur when pathogenic bacteria enter the endometrioma fluid, which becomes a medium for bacterial growth. Pathogenic bacteria can infect endometriomas through tubal, hematogenous, lymphogenous, and iatrogenic routes.[8] Multiple risk factors are associated with elevated rates of secondary infection in endometriotic cysts, including pelvic inflammatory disease, gastrointestinal tract infections, intrauterine contraceptive device utilization, hydrosalpinx, and invasive transvaginal interventions. Furthermore, spontaneous rupture of endometriotic cysts may precipitate acute abdominal presentations.[9,10]

CASE PRESENTATION

A 36 year old multiparous female patient presented for admission to Langsa Regional General Hospital, she had a fever that had been present for seven days. The patient complained of fever following abdominal massage performed by a traditional healer 7 days before hospital admission due to chronic abdominal discomfort. She has a history of dysmenorrhea for the last ten years and had endometriotic cyst surgery in 2021. Abdominal pain had worsened significantly over the past 6 months. The pain was also experienced outside the menstrual cycle and during daily activities. The pain was not relieved by rest. The patient also complained of dyspareunia. She had been using analgesics but they did not completely eliminate the pain. The patient had 2 children, with the youngest being 6 years old, born via normal vaginal delivery. She was not using any additional contraceptive methods. Other medical history was unremarkable. No history of abnormal vaginal discharge or multiple sexual partners was reported. No complaints regarding bowel or urinary function were noted.

During hospitalization, the patient had stable vital signs and was afebrile. Physical examination revealed a palpable abdominal mass extending 3 fingers below the umbilicus, originating from the left adnexa, with smooth surface, fixed, indistinct borders, and positive tenderness. No malodorous vaginal discharge

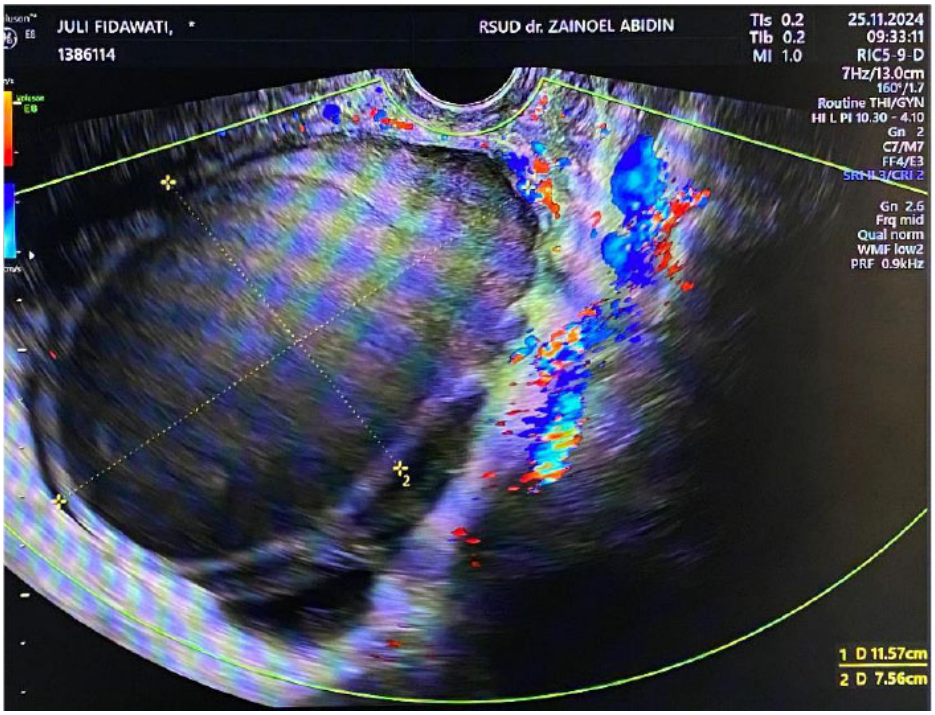

Figure 1. Ultrasonography of Endometriotic Cyst.

Figure 2. Intraoperative findings showing purulent material.

was found on speculum examination. Ultrasonographic examination revealed a cystic mass measuring 11.5×9.5×7.9 cm with ground glass appearance and fine internal echoes, originating from the left adnexa (Figure 1). Laboratory examination showed elevated leukocyte count of 29,500 cells/mm^3 and CA125 level of 261 µg/dL. Surgery was planned after 7 days of antibiotic treatment using a combination of ceftriaxone, metronidazole, and gentamicin.

Intraoperatively, dense adhesions between bowel, uterus, and ovary were found upon accessing the abdominal cavity. During adhesiolysis, 500 cc of brownish fluid mixed with pus was encountered (Figure 2) and sent for laboratory examination. The adhesions were successfully released and unilateral salpingo-oophorectomy was performed. Histopathological examination confirmed endometriotic cyst, and no bacterial growth was found in the abscess culture. The patient had an uneventful recovery and was seen in the outpatient clinic 10 days post-discharge without complaints.

DISCUSSION

Endometriosis is a persistent inflammatory disease defined by formation of aberrant tissue mimicking endometrium or stroma outside uterine cavity and myometrium, prompting chronic inflammatory reactions that are progressive in nature with high recurrence rates.[3] Endometriosis has 3 subtypes: superficial peritoneal endometriosis, deep endometriosis, and ovarian endometriosis (endometrioma).[11]

Infection of endometriotic cysts typically occurs following prior invasive interventions including cesarean delivery, laparoscopic procedures, and open abdominal surgery. The predominant causative bacteria include *Group-B Streptococcus*, *Staphylococcus aureus*, and *Escherichia coli*.[12,13] Pathogens acquired through sexual contact such as *Neisseria gonorrhoeae* and *Chlamydia trachomatis* can also cause infection, increasing the likelihood of tubo-ovarian abscess formation by fivefold.[14] Vaginal microbiome including *Mycoplasma hominis* and *Gardnerella vaginalis* may lead to ascending infections via the fallopian tubes.[15] Furthermore, infections can originate from other anatomical sites such as the gastrointestinal or urinary systems through hematogenous and lymphatic spread, involving microorganisms like *Helicobacter cinaedi* or *Salmonella*.[16] Overall, *Escherichia coli* is the most

frequently isolated pathogen, followed by *Gardnerella vaginalis* and *Mycoplasma genitalium*.[17]

The literature describes several hypotheses for spontaneous abscess formation in endometriomas. Firstly, dysregulation of immune mechanisms in ectopic endometrial tissue may predispose individuals with ovarian endometriosis to infectious complications. Secondly, the structural characteristics of endometriotic cysts, particularly their attenuated cyst walls relative to normal ovarian epithelium, may increase susceptibility to bacterial penetration and mechanical rupture under external force. Thirdly, the retention of menstrual debris within endometriomas creates a nutrient-rich environment conducive to bacterial proliferation.[12] In the present case, the patient had received abdominal massage therapy, which was postulated as a potential mechanical trigger for endometrioma rupture.

Previous research has demonstrated that 81.6% of patients presented with endometriomas exceeding 6 cm in mean diameter prior to cyst rupture.[18] In the current case, serial imaging revealed cystic dimensions surpassing 10 cm, indicating an elevated risk for endometrioma rupture.

Serum CA-125 concentrations serve as a significant diagnostic parameter, providing clinical utility in distinguishing benign from malignant ovarian neoplasms. Malignant pelvic masses warrant consideration even in younger patient populations when serum CA-125 values surpass 300 U/mL.[19,20] In the present case, the documented CA-125 level of 261 µg/dL suggested a lower probability of malignant transformation.

The therapeutic approach for infected endometriotic cysts consists of empirical broad-spectrum antimicrobial therapy. Frequently employed antimicrobial therapy include: (a) clavulanic acid/ampicillin 1 gram daily combined with 100 mg doxycycline administered per 12 hours; (b) clavulanic acid/ampicillin 500 mg daily with metronidazole given every 8 hours; and (c) triple therapy comprising ampicillin/clavulanic acid, doxycycline, and metronidazole. Alternative commonly utilized regimens consist of ceftriaxone (2g daily), metronidazole, and doxycycline. Following 24 to 48 hours of intravenous antimicrobial administration, laparoscopic surgical intervention is undertaken.[10] In the current case, microbiological cultures yielded negative results, attributable to preoperative antibiotic administration.

CONCLUSION

Endometriotic cysts have a high risk for complications such as rupture and infection. The risk increases significantly if abdominal massage is performed by inexperienced practitioners. Infected endometriotic cysts increase patient morbidity and can reduce quality of life if not properly managed. Early recognition, appropriate antibiotic therapy, and timely surgical intervention are essential for optimal outcomes.

DISCLOSURE

Conflict of Interest

The authors report no competing interests concerning the materials or methods utilized in this study.

Funding

Funding for this article was neither sought nor received from any public institution, commercial body, or nonprofit organization.

Author Contribution

AS conducted the study, designed the manuscript and make paper. R concepted and supervising the manuscript. The final manuscript was reviewed and endorsed by all contributing authors.

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