International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Ravikumar R et al. Int J Reprod Contracept Obstet Gynecol. 2025 Jan;14(1):284-286
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20243971

Case Report

Unusual presentation of tubo-ovarian abscess in a non-sexually active adolescent girl

Akshitha Ravikumar*, Usha Natarajan

Department of Obstetrics and Gynecology, Vijaya Medical and Educational Trust, Chennai, Tamil Nadu, India

Received: 13 November 2024
Accepted: 05 December 2024

***Correspondence:**
Dr. Akshitha Ravikumar,
E-mail: akshita.ravi@gmail.com

ABSTRACT

A tubo-ovarian abscess (TOA) is a rare presentation in non-sexually active adolescent. The majority of the public health impact from pelvic inflammatory disease (PID)comes from its attributable long-term sequelae, including tubal-factor, infertility, ectopic pregnancy, and chronic pelvic pain. A 15-year-old girl presented with complaints of severe right sided lower abdominal pain for one day. She had dull-aching lower abdominal pain for 2 months. She had undergone appendicular abscess drainage with appendectomy three years ago. On examination she had tenderness over suprapubic and right iliac fossa region, no mass palpable. Blood investigations done showed leucocytosis with neutrophilic shift. Ultrasound abdomen done showed dilated tube measuring 5.6×1.7 cm with thick walls and internal echoes in the right adnexa. CECT abdomen done showed large, heterogenous loculated collection with thick enhancing walls seen in the retro-vaginal pouch of Douglas, features suggestive of tubo-ovarian abscess. She underwent Abscess drainage with Right tubo-ovarian abscess cavity resection with omental and bowel adhesiolysis. Histopathology was reported as Tubo ovarian abscess with no evidence of granulomatous inflammation. Pus and tissue sent for XPERT PCR showed no AFB present. She recovered well postoperatively and was discharged in healthy condition. Although PID is rare in non-sexually active girl but need to considered as a differential diagnosis.

Keywords: Tubo-ovarian abscess, Abdominal pain, Adolescent, Pelvic inflammatory disease

INTRODUCTION

Pelvic inflammatory disease (PID) is an inflammatory infection that affects the upper female reproductive organs, including the uterus, fallopian tubes, and ovaries.[1] It often results from sexually transmitted bacteria like Chlamydia trachomatis and Neisseria gonorrhoeae, which travel from the cervix and vagina upward into the pelvic cavity.[2,3] PID can cause symptoms like abdominal pain, fever, and abnormal discharge, although it can sometimes be asymptomatic. A serious complication of PID is the development of a tubo-ovarian abscess (TOA), a walled-off infection that forms within the fallopian tube and ovary. TOAs develop when the infectious process becomes severe, leading to abscess formation as the body attempts to contain the infection.[4] They occur in up to one-third of severe PID cases and are most common in reproductive-aged women, especially those with risk factors like a history of PID, intrauterine device (IUD) use, and multiple sexual partners.

TOAs are characterized by abdominal pain, fever, and often signs of peritoneal irritation, presenting significant diagnostic challenges due to the similarity of symptoms with other gynecological and abdominal conditions. Diagnosis is commonly confirmed through imaging, particularly ultrasound and MRI, which can reveal complex, inflammatory masses involving both the ovary and fallopian tube. Early intervention is essential as untreated TOAs carry a high risk of rupture, which can lead to generalized peritonitis, sepsis, and potentially fatal outcomes. The treatment of TOAs often requires a combination of broad-spectrum antibiotics to address the polymicrobial nature of the infection, and in cases of large

or unresponsive abscesses, surgical intervention to drain the abscess.[5] Early recognition and treatment of PID and TOAs are vital to prevent long-term complications, including chronic pelvic pain, infertility, and ectopic pregnancies

CASE REPORT

A 15-year-old female presented to the emergency department with severe lower abdominal pain, primarily in the right iliac fossa, which had intensified over the past day. The patient had experienced intermittent, dull-aching pain in the same area for two months prior. Her medical history included an appendectomy and abscess drainage in 2020. Given her young age and absence of sexual activity, standard gynecological conditions were initially considered unlikely.

Physical examination and initial findings

The patient appeared underweight, with a body mass index (BMI) of 17.5 kg/m². Physical examination revealed significant tenderness in the right iliac fossa, though no abnormal vaginal discharge or other gynecological symptoms were observed.

Laboratory and imaging results

Laboratory tests showed an elevated white blood cell count (WBC=14.8×10³/µl) with a neutrophilic shift (Neutrophils=86.4%), suggesting active infection. Ultrasound imaging revealed a dilated right fallopian tube with thickened walls and internal echoes measuring 5.6×1.7cm, along with a visible right ovary measuring 3.2×2.1 cm, consistent with a tubo-ovarian abscess (TOA). The left ovary and uterus appeared within normal size limits. Given her young age and concern for future fertility, a contrast-enhanced CT scan was performed to assess the full extent of the infection, which confirmed a large fluid collection with thick walls in the retrovaginal pouch of Douglas.

Management and surgical intervention

The patient was immediately started on broad-spectrum antibiotics, specifically Inj. Piperacillin-tazobactam to manage the infection. Due to the severity of the condition, surgical intervention was deemed necessary. The procedure involved drainage of the abscess, resection of the right tubo-ovarian abscess cavity, and adhesiolysis to address bowel and omental adhesions. Antibiotic therapy continued postoperatively to support recovery.

Histopathological and microbiological findings

Histopathology confirmed a tubo-ovarian abscess without evidence of granulomatous inflammation, ruling out tuberculosis as a potential cause. Microbiological tests, including pus culture, AFB culture, MGIT,Gene Xpert PCR for *Mycobacterium tuberculosis*, returned negative, indicating no bacterial growth and further ruling out tuberculosis and other typical pathogens.

Outcome and follow-up

The patient responded well to postoperative care and showed significant recovery with no signs of complications. She was discharged in a stable condition and is scheduled for follow-up to monitor her recovery and ensure no long-term complications.

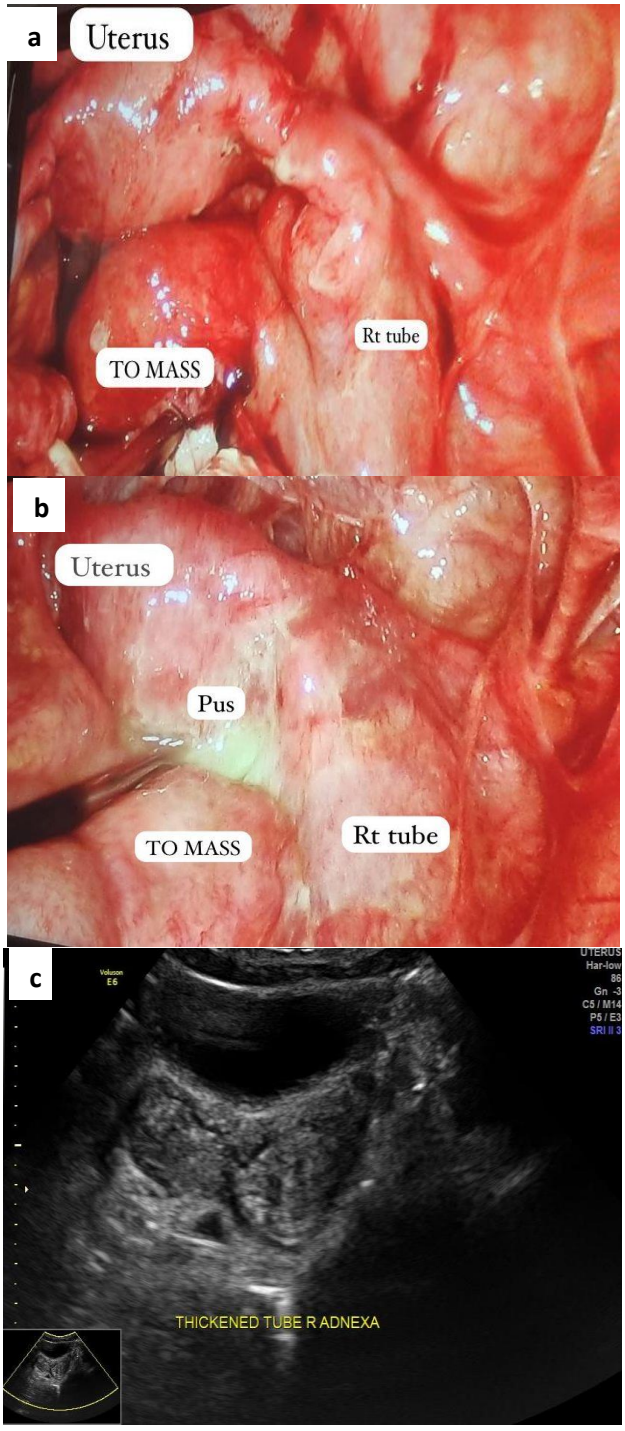

Figure 1: (a and b) Intraoperative pictures of tubo ovarian abscess, c) ultrasound picture.

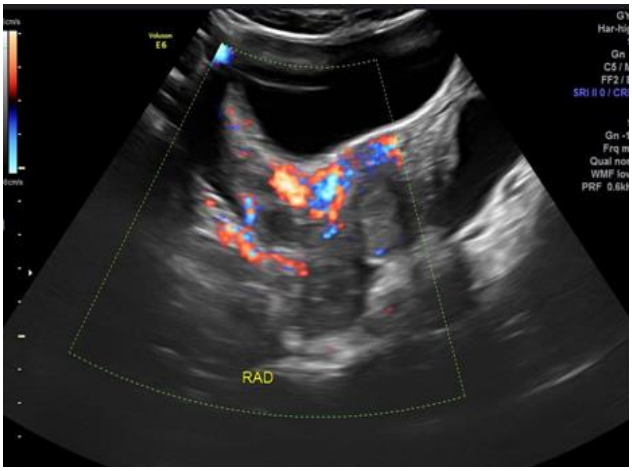

Figure 2: Ultrasonography pictures of tubo ovarian abscess.

DISCUSSION

Imaging is critical in diagnosing and managing PID and its complications, especially in ambiguous cases or when clinical findings are inconclusive. Ultrasonography, being noninvasive and accessible, is often the first-choice imaging modality6. It is essential for evaluating the severity of PID and assessing for TOA, which impacts whether a patient may require surgical intervention or hospitalization. Transvaginal sonography, specifically, provides detailed visualization of pelvic structures, while transabdominal sonography offers a broader perspective, complementing clinical findings

MRI is an excellent secondary tool, especially in complex cases where ultrasonography results are unclear. It provides high sensitivity, specificity, and diagnostic accuracy, making it highly effective for differentiating between PID-related pathologies. While CT scanning is highly sensitive for general pelvic pathology, it's typically reserved for situations where other imaging findings remain inconclusive or in emergencies due to its radiation exposure, which is less desirable in young women7.

Together, these imaging tools aid in the effective management of PID and TOA by clarifying the diagnosis, assessing severity, and guiding treatment decisions, ensuring timely and appropriate care

CONCLUSION

Tubo-ovarian abscesses (TOAs), although typically associated with sexually active individuals, can present in young, non-sexually active women, complicating diagnosis and treatment. Effective management relies on early imaging and a combination of antibiotics and surgical intervention when necessary. These cases stress the need for medical professionals to consider TOA in differential diagnoses, even in atypical populations, to avoid severe complications and ensure timely recovery.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Woodhall SC, Gorwitz RJ, Migchelsen SJ, Gottlieb SL, Horner PJ, Geisler WM, et al. Advancing the public health applications of Chlamydia trachomatis serology. Lancet Infect Dis. 2018;18(12):399-407.
2. Stevens JS, Criss AK. Pathogenesis of Neisseria gonorrhoeae in the female reproductive tract: neutrophilic host response, sustained infection, and clinical sequelae. Curr Opin Hematol. 2018;25(1):13-21.
3. Molenaar MC, Singer M, Ouburg S. The two-sided role of the vaginal microbiome in Chlamydia trachomatis and Mycoplasma genitalium pathogenesis. J Reprod Immunol. 2018;130:11-7.
4. Munro K, Gharaibeh A, Nagabushanam S, Martin C. Diagnosis and management of tubo-ovarian abscesses. Obstetric & Gynaecol. 2018;20:11–9.
5. Moore MM, Cardosi RJ, and Barrionuevo MJ. Tubo-ovarian abscess in an adolescent virgin female. Arch Pedia Adolesc med. 1999;1:91-2.
6. Dupuis CS, Kim YH. Ultrasonography of adnexal causes of acute pelvic pain in pre-menopausal non-pregnant women. Ultrasono. 2015;34:258–67
7. Kim SH, Kim SH, Yang DM, Kim KA. Unusual causes of tubo-ovarian abscess: CT and MR imaging findings. Radiograph. 2004;24:1575–89.

Cite this article as: Ravikumar A, Natarajan U. Unusual presentation of tubo-ovarian abscess in a non-sexually active adolescent girl. Int J Reprod Contracept Obstet Gynecol 2025;14:284-6.