Ultrasonography in Tubo-Ovarian Abscess: A Case Study

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Abstract
Tubo-ovarian abscess (TOA) is one of acute complications of pelvic inflammatory disease that usually occur in woman of childbearing age. Factors associated with TOA are reproductive age, Intra-Uterine Device (IUD) insertion, multiple sexual partners, and a history of a prior episode of PID. The classic presentation of a TOA includes abdominal pain, pelvic mass on examination, fever, and leukocytosis. However, prompt diagnostic evaluation must be undertaken to specify the diagnosis. Tubo-ovarian abscess can be found on imaging with ultrasonography, computed tomography (CT), or magnetic resonance imaging (MRI). Ultrasonography as the cheaper of all could be used as first-line diagnostic modality. This study presents an example of ultrasonography examination of 42-year-old woman presenting with stomach pain and fever. Abdominal ultrasonography was performed and we found abscess formation in adnexa. Emergency surgery was performed and antibiotics were given after surgery. This study showed us how abdominal ultrasound could diagnose tubo-ovarian abscess.

Keywords: Abscess, Fallopian Tube, Pelvic Inflammatory Disease, Ultrasonography

Background
Tubo-ovarian abscess (TOA) is one of the acute complications of PID (pelvic inflammatory disease). These abscesses usually occur in women of childbearing age and are often a continuation of a lower genital tract infection. Tubo-ovarian abscess is closely related to PID (pelvic inflammatory disease). PID is caused by microorganisms that reside in the cervix and then migrate to the endometrium and fallopian tubes. Tubal abscess is the final process of acute PID. Tubo-ovarian abscess occurs at about 18-3 % of patients with PID and tubal inflammation.1

These abscesses can occur in patients who have had a hysterectomy of the cervix. Tubo-ovarian abscess may also occur in patients who have had cervicitis and salpingitis in the past. risk factors for tubal abscess. In addition, gynecological surgery, genital cancer (genital malignancy), IVF treatment, and perforated appendicitis are also known to cause tubal abscess. A proper history, physical examination, and investigations are necessary for the diagnosis. confirm the diagnosis and prescribe appropriate treatment. And if not treated properly, its complications can lead to death, infertility and ectopic pregnancy, medical, social and economic problems.1,2

Ultrasonography is still one of the fastest and cheapest radiological tool for pelvic pathology, compares to CT Scan and MRI. Number of articles published show sensitivity of 93% and specificity of 98% for ultrasound in the diagnosis of TOA.3

TOA findings that can be found in ultrasound are complex adnexal masses, loss of tissue boundaries between pelvic organs, thick and dilated fallopian tubes.4 This finding is often overlap with other entities such as endometriosis, hemorrhagic cysts, dermoid cysts or other cystic ovarian masses.5 In this case study, we aim to present ultrasound finding in tubo-ovarian abscess to add our body of knowledge in this topic.
Discussion
We present a case of a 42-year-old woman admitted to the emergency department at Unggul Karsa Medika Hospital with complaints of stomach pain and fever. Pain had been felt for 3 weeks ago and the pain was getting worse ever since. Pain had been felt intermittently. A day before the patient went to the emergency department her body temperature was 38°C. Sometimes patients felt that the fever was fluctuating. In ultrasound examination, we found abscess formation in adnexa that suggested pelvic inflammatory disease with formed abscess in adnexa (Figure 1). The doctor then recommended immediate surgery. After the surgery she was prescribed with ceftriaxone, metronidazole, and doxycycline. Patient was discharged from hospital without any complaints.

The diagnosis of a TOA at times may be a clinical challenge, and the physician must pay special attention to subtle physical findings. Patients classically present with fever, pelvic pain, and a pelvic mass.4 Transabdominal and transvaginal ultrasounds are the preferred initial imaging investigations. We found abscess formation in adnexa that suggested TOA with transabdominal ultrasound, thus transvaginal ultrasound, CT-Scan, and MRI were not used. Ultrasonography findings of TOA may include: multi-locular complex retro uterine/adnexal mass (debris, septations, and irregular thick walls), commonly bilateral and echogenic debris within the pelvis.3,5 The “gold standard” for the diagnosis of TOA is laparoscopy. Laparoscopy provides direct visual inspection of pelvic and abdominal organs and provides access to the adnexa for possible drainage and culture of the abscesses.7 However, ultrasonography is suitable for first-line diagnostic modality due to its low cost and quite good sensitivity and specificity.3

List of abbreviations
TOA - Tubo-ovarian abscess
PID - Pelvic Inflammatory Disease
IVF - In vitro fertilization

Declarations
Ethics approval and consent to participate
Informed consent from the patient has been obtained before the study.

Consent for publication
Consent for publication regarding patient data has been obtained before the study. All the patient identity has been kept secret.

Availability of data and materials
Not Applicable

Competing interests
The authors declare that they have no competing interests.

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