

TUBOOVARIAN ABSCESS IN PREGNANCY

Ya-Fang Chen¹, Shih-Tien Hsu¹, Esther Shih-Chu Ho^{1,2}, Min-Min Chou^{1,2}, Jenn-Jhy Tseng^{1,3,4*}

¹Department of Obstetrics and Gynecology, Taichung Veterans General Hospital, ²Chung-Shan Medical University, ³Hung-Kuang University, Taichung, and ⁴National Yang-Ming University, Taipei, Taiwan.

Cervical mucus plug and intact amniotic membrane protect against ascending infection; therefore, tuboovarian abscess (TOA) during pregnancy is an extremely rare condition. This condition not only increases maternal morbidity and mortality, but also increases the risk of fetal jeopardy [1]. Proposed pathogeneses of TOA during pregnancy are variable and include hematogenous spreading, lymphatic spreading from contiguous organ, infection in a previously existing ovarian cyst, and flare-up of an old infection [2]. In recent reports, ascending infection caused by gonococci attached to motile spermatozoa, the use of assisted reproductive technology, and structural uterine abnormalities suggested other possible causes of the formation of TOA during the gestational period [3–5].

A 35-year-old woman, gravida 2, para 0, came to our emergency room at 29 weeks' gestation with the chief complaint of flank pain and intermittent lower abdominal pain for 3 days. Fever (temperature up to 38°C) was also noted for 1 day. She denied any history of systemic diseases. Her previous pregnant history was significant owing to preterm premature rupture of membranes with oligohydramnios at 16 weeks' gestation, and the pregnancy was terminated because of poor prognosis. During the present pregnancy, she received regular antenatal care at our hospital. Group B *Streptococcus* infection was noted at 25 weeks' gestation, with the patient complaining of copious leukorrhea. A 2-week course of antibiotics was prescribed according to the sensitivity test. With problems of bilateral flank soreness and intermittent lower abdominal pain, she first visited a local clinic for help, where tocolytic agents were prescribed to control uterine contractions. However, fever with leukocytosis (white blood cell count, 14,000/mm³) and bacteriuria occurred in the following 2 days. Acute pyelonephritis (APN) was highly suspected after clinical and laboratory examinations.

Therefore, empirical antibiotics were provided. Because of persistent lower abdominal pain and fever, she was referred to our emergency room for further evaluation and management.

On arrival, the abdomen was markedly tender especially over the right lower region, but with no rebounding pain or palpable abdominal mass. Pelvic examination did not show cervical or adnexal tenderness and purulent vaginal discharge. Nitrazine test was negative. Fetal heart rate was around 130–160 beats/minute with good variability. No regular uterine contraction was observed at that time.

Serial studies were arranged to evaluate the causes of fever and abdominal pain. Complete blood cell counts, urinalysis, and liver and renal function tests were checked. Cervical culture was positive for *Escherichia coli* and group B *Streptococcus*. Transabdominal ultrasonography did not disclose any significant findings.

Under the impression of APN, antibiotics with ampicillin and gentamicin were administered. The fever subsided 1 day later, accompanied by improving clinical symptoms. Unfortunately, relapsing fever, persistent lower abdominal pain, and rising white blood cell count and C-reactive protein were noted the next day again. Acute appendicitis, abdominal abscess or acute chorioamnionitis was therefore highly suspected. After counseling, exploratory laparotomy with concomitant Cesarean delivery was performed. A male infant weighing 1,592 g was born, with Apgar scores of 5 and 8 at 1 and 5 minutes, respectively. The color, clearance and amount of the amniotic fluid was not found to be unusual. A localized TOA in the right lower quadrant, which was 5 × 5 cm in size and walled off by the cecum, terminal ileum, right fimbria and oviduct, was found. Acute salpingitis with pus accumulation in the tube was confirmed by the pathology report. Triple parenteral antibiotic treatment with amoxicillin/clavulanate potassium, gentamicin and metronidazole was administered after the operation. The patient recovered well and was discharged 1 week later.

Abdominal pain encountered during pregnancy is challenging because of the various possible causes, including physiologic effects of pregnancy and pathologic conditions related or not related to pregnancy [6].



ELSEVIER

*Correspondence to: Dr Jenn-Jhy Tseng, Department of Obstetrics and Gynecology, Taichung Veterans General Hospital, 160, Section 3, Taichungkang Road, Taichung 40705, Taiwan.
E-mail: t1018@vghtc.gov.tw
Accepted: December 17, 2007

Physiologic conditions in pregnancy include round ligament pain, uterine torsion and Braxton-Hicks contraction. Pathologic conditions related to pregnancy include spontaneous miscarriage, ischemic uterine leiomyoma, placental abruption, chorioamnionitis, preterm labor, ectopic pregnancy, ovarian hemorrhagic cyst, acute fatty liver of pregnancy, and severe gestational hypertension. Pathologic conditions not related to pregnancy include appendicitis, intestine obstruction, cholecystitis, ovarian torsion, TOA, inflammatory bowel disease, peptic ulcer, acute pancreatitis, urinary tract pathology, sickle cell crisis, porphyria, malaria, arteriovenous hemorrhage, and tuberculosis.

The most common symptoms of appendicitis and APN in pregnancy are persistent right-sided abdominal pain and tenderness. In a review by Dudley et al [7], the TOAs in pregnancy in all nine cases, as was the case in our patient, were unilateral and confined to the right side. According to the laboratory data in our case, leukocytosis and bacteriuria led to the initial mistaken diagnosis of APN.

Several radiographic modalities are available to evaluate abdominal condition in pregnancy. Sonography is usually a powerful tool to detect adnexal abscess or mass; however, its usefulness in pregnancy is limited because of the enlarged uterine size. Magnetic resonance imaging is an alternative to distinguish among appendicitis, acute pancreatitis, and pelvic abscess [8]. If obvious abscess is found using radiographic modalities, image-guided percutaneous transcatheter drainage has potential advantages to avoid surgical drainage in some patients [4]. In our case, we did not perform magnetic resonance imaging because of the long waiting list for the examination and the possible development of toxic signs of sepsis with further delay.

To ensure accurate diagnosis, laparotomy or laparoscopic intervention should be considered. In recent years, laparoscopy in pregnancy has been a feasible option. But its use is limited in the third trimester owing to an increased risk of injury to the enlarged uterus [9].

It is advisable to make a midline laparotomy incision that can be extended more easily.

The management of TOA in pregnancy is the same as in nonpregnant women. However, in our case, it was more difficult to make a diagnosis during pregnancy because of the atypical clinical presentation, laboratory data and radiographic finding. According to an early literature [1], delayed diagnosis and intervention may cause maternal death or fetal loss [1]. Surgical intervention should be considered if the condition progresses or persists after conservative medical treatment. In summary, TOA occurring in pregnancy merits our concern. The diagnosis is not easy and the treatment should be aggressive.

References

1. Jafari K, Vilovick-Kos J, Webster A, Stepto RC. Tubo-ovarian abscess in pregnancy. *Obstet Gynecol Surv* 1977;32:585-7.
2. Cummin RC. Ovarian abscess during pregnancy. *J Obstet Gynaecol Br Emp* 1951;58:1025-7.
3. James AN, Knox JM, Williams RP. Attachment of gonococci to sperm. Influence of physical and chemical factors. *Br J Vener Dis* 1976;52:128-35.
4. Sherer DM, Schwartz BM, Abulafia O. Management of pelvic abscess during pregnancy: a case and review of the literature. *Obstet Gynecol Surv* 1999;54:655-62.
5. Sogaard Andersen E, Nielsen GL. The combination of pregnancy and acute salpingitis in a case of uterus didelphys. *Acta Obstet Gynecol Scand* 1988;67:175-6.
6. Mahomed K. Abdominal pain. In: James DK, Steer PJ, Weiner CP, Gonik B, eds. *High Risk Pregnancy: Management Options*, 3rd edition. Philadelphia: Elsevier Inc., 2006: 1231-47.
7. Dudley AG, Lee F, Barclay D. Ovarian and tubo-ovarian abscess in pregnancy: report of a case and a review of the literature. *Mil Med* 1970;135:403-6.
8. Pates JA, Twickler DM. The use of radiographic modalities to diagnose infection in pregnancy. *Clin Perinatol* 2005;32: 789-802.
9. Fatum M, Rojansky N. Laparoscopic surgery during pregnancy. *Obstet Gynecol Surv* 2001;56:50-9.