

# A Case of Pregnancy Complicated by the Development of a Tubo-Ovarian Abscess Following an Aspiration of Endometrioma During Oocyte Pick up

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A 28 year old nulligravid woman applied to our department at 26 weeks' gestation with a severe abdominal pain. She had a medical history of an endometrioma aspiration during IVF cycle. There was no history of symptomatic pelvic inflammatory disease or abdominal surgery. Her pregnancy was progressing well until 18 weeks gestation, when she started to complain of abdominal pain. When she reached 26 weeks gestation she got fever and her abdominal pain became more severe. The patient was operated urgently. During laparotomy, we observed purulent fluid filling the abdominal cavity and a 10 cm right adnexial mass compatible with tuboovarian abscess. We drained the abscess and excised her cyst with its wall. She was started on intravenous antibiotics-metronidazole and ceftriaxone, tocolytic treatment with magnesium sulfate and indometazine. Also betametazone was added to her treatment. The patient delivered vaginally at 38 weeks of gestation. The baby was healthy and weighed 3150 gr.

**Keywords:** Tubo-ovarian abscess, In vitro fertilization, Pregnancy

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## Introduction

Pelvic infection is the second most common complication of transvaginal oocyte retrieval. However the occurrence of late pelvic infection, specifically pelvic abscess, following oocyte pick up is rarely reported. The incidence of pelvic abscess of ovarian origin occurring as a complication of vaginal oocyte retrieval has been reported to be 0.03-0.5%.<sup>1</sup> Tubo-ovarian abscess (TOA) is seen uncommonly in pregnant women. However, ovarian endometrioma increases the risk of tubo-ovarian abscess during oocyte pick up (OPU). In this report, we present a patient who developed a tubo-ovarian abscess during pregnancy following endometrioma aspiration and in vitro fertilization (IVF).

## Case Report

A 28 year old nulligravid woman applied to our department at 26 weeks' gestation with a severe abdominal pain. She

had a medical history of an endometrioma aspiration during IVF cycle. She had primary infertility due to male factor. There was no history of symptomatic pelvic inflammatory disease or abdominal surgery. On her IVF treatment, five oocytes were retrieved and two embryos were transferred that resulted in a successful singleton pregnancy. During the oocyte pick up of her first in vitro fertilization cycle, her endometrioma was aspirated. Her pregnancy was progressing well until 18 weeks gestation, when she started to complain of abdominal pain. When she reached 26 weeks gestation she got fever and her abdominal pain became more severe. On admission, she was febrile at 38.5°C, had tachycardia, tachypnea and acute abdominal findings. Her obstetric examination was compatible with a 27 weeks gestation and the cervical dilatation was 1 cm. Her laboratory diagnosis showed that she had anemia, severe leukocytosis and elevated cross reacting protein (CRP) level. With these symptoms the patient was operated urgently. During laparotomy, we observed purulent fluid filling the abdominal cavity and a 10 cm right adnexial mass compatible with tuboovarian abscess (Figure 1). We drained the abscess and excised her cyst with its wall. Afterwards, we washed the abdominal cavity with serum physiologic. We observed that her appendix was inflamed secondary to the presence of abscess so appendectomy was done. We placed two drains; one into the appendiceal lodge and another one to the Douglas cavity. The operation was ended. Postoperatively, the patient was transferred to intensive care unit because her clinical examination made us suspect for systemic inflammatory response syndrome. She was started on intravenous antibiotics-metronida-

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zole and ceftriaxone, tocolytic treatment with magnesium sulfate and indometazine. Because nifedipin has tachycardia side effect and our patient had 115/minute heart beat, magnesium was chosen as tocolytic treatment postoperatively. Also betamethazone was added to her treatment. The patient's general condition showed major improvement and her CRP level was decreased. She was discharged home with nifedipine therapy. The patient delivered vaginally at 38 weeks of gestation. The baby was healthy and weighed 3.150 gr.



Figure 1: Appearance of tuboovarian abscess formation in the patient at 26 week's gestation

## Discussion

Pelvic abscess formation is rare in pregnancy. Only 12 cases of tubo-ovarian abscess is reported during pregnancy.<sup>1</sup> The most common risk factors for pelvic abscess formation during pregnancy are pelvic inflammatory disease, previous laparotomy, and structural genital anomalies. Oocyte retrieval is another rare risk factor for pelvic abscess accumulation. The risk of pelvic infection after transvaginal oocyte retrieval (TVOR) seems to be related to a history of pelvic inflammatory disease (PID).<sup>2,3</sup> Some patients have claimed that PID complicating TVOR is mostly caused by infected semen and that infection of the endometrium in infertile women correlated with positive semen cultures. Vaginal microorganisms may inoculate directly during oocyte retrieval due to the non-sterile vaginal environment. Irrigation and re-aspiration of the punctured follicle may result in a vascular damage which can cause bleeding or hematoma in the ovary. This damaged area provides a nidus for the growth of vaginal flora. Severe endometriosis and endometriotic cysts therefore appear to represent significant risk factors for the development of a pelvic abscess after oocyte retrieval.<sup>4,5,6</sup> Indeed, it may well be the case that the presence of old blood within an endometriotic cyst provides an excellent culture medium to support the growth of bacteria following transvaginal inoculation. Cases of TOA involving endometriomas have been reported in the literature,

and women with stages III-IV endometriosis have been found to have an increased occurrence of TOA.<sup>7</sup> *E. coli*, *S. aureus*, *S. viridians*, *S. anginosus* were cultured from aspirated abscesses in women with concomitant endometriosis than if no endometriosis was present.<sup>1</sup> In addition, previous pelvic surgery was found to increase the risk of TOA.

Minimal inoculation of the ovarian follicles in "healthy" ovaries usually overcome without clinical symptoms, possibly due to antibiotic prophylaxis.<sup>8</sup> In endometriotic ovaries, the pseudocapsule of the endometrioma and the old blood within may both prevent antibiotic prophylaxis from overcoming the transvaginal bacterial inoculation. It may be speculated that the supraphysiological E2 levels, achieved after superovulation with hMG, stimulate ectopic tissue of endometriosis and neo-vascularization in the endometriotic wall. This may be an additional risk factor for infection following transvaginal endometrioma aspiration during OPU.<sup>9</sup>

The treatment of a pelvic abscess varies and the treatment is complicated by pregnancy. In the literature review, surgical treatment was performed in 9 pregnant patients (75%) with tubo-ovarian abscesses indicating that surgical intervention is usually necessary as reported previously.<sup>1,6,7</sup> Ultrasound-guided drainage of a pelvic abscess is an alternative treatment to surgery. Surgical intervention, using laparotomy or laparoscopy with drainage of abscess and excision of infected tissue is generally performed in cases of diagnostic uncertainty or when medical treatment is inadequate. In 8 cases, surgery was performed before delivery. In these cases, the pregnancy was terminated shortly after surgery in 6 cases. The interval between retrieval and symptom onset varies. In 7 cases, the infection developed in the first trimester.<sup>1</sup> In this case laparotomy was performed because of acute abdominal symptoms. Still the patient delivered vaginally at 38 weeks of gestation.

In conclusion, we report a case of pregnancy complicated by the development of a tuba-ovarian abscess following an aspiration of endometrioma during oocyte pick up. Only eight patients has been reported to grow tuba ovarian abscess because of endometrioma aspiration. This situation is very catastrophic for pregnancy. It is suspected that abscess formation is the result of endometrioma inoculation by vaginal bacteria. Single-dose antibiotic prophylaxis by cefazoline does not seem to prevent this late complication.<sup>10</sup> A broader-spectrum and prolonged antibiotic prophylaxis should be considered. Vaginal preparation and avoidance of repeat penetration of the vaginal wall are specifically important in these patients. Clinicians should consider the risk of pelvic abscess and be aware of the signs of late pelvic infections.<sup>11</sup> In addition, ultrasound guidance should be taken into account in patients with endometrioma.<sup>10,11</sup> A good outcome can be achieved with administration of broad-spectrum antibiotics and the drainage of the abscess.<sup>12</sup>

## Oosit Toplanması Sırasında Yapılan Endometriyoma Aspirasyonu Sonrası Gebelikte Tuboovarian Abse Gelişimi: Olgu Sunumu

28 yaşında nulligravid 26 hafta IVF gebeliği olan hasta şiddetli karın ağrısı şikayetiyle birimize başvurdu. Hastanın IVF siklusu sırasında endometriyoma aspirasyonu yapıldı. Semptomatik pelvik enflamatuvar hastalık veya abdominal cerrahi öyküsü yoktu. Hastanın gebeliği, karın ağrısının başladığı 18. haftaya kadar iyi ilerlemişti. Gebelik haftası 26 haftaya geldiğinde hastanın ateş yüksekliği oldu ve karın ağrısı şiddetlendi. Hasta acil operasyona alındı. Operasyon sırasında abdominal kaviteyi dolduran pürülan sıvı ve sağ adneksiyal bölgede 10 cm'lik tuboovaryen abse izlendi. Abse drene edildi ve kist duvarı çıkarıldı. Postoperatif dönemde hastaya intravenöz metronidazol ve seftriakson tedavisi ile tokolitik tedavi olarak magnezyum sülfat ve indometazin verildi. Ayrıca tedaviye betametazon eklendi. Gebeliğin 38. haftasında hasta vajinal yolla 3150 gr sağlıklı bebek doğurdu.

**Anahtar Kelimeler:** Tuboovarian abse, İn vitro fertilizasyon, Gebelik

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