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Case Presentation
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Conservative Management of Recurrent Ovarian Torsion during Early First Trimester Pregnancy in an Controlled Ovarian Hyperstimulation-IVF Patient

Murat Ozekinci and Fatma Ceren Guner*

Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Akdeniz University School of Medicine, Turkey

Introduction

Adnexal torsion is a gynecologic emergency affecting females at all ages where early diagnosis and prompt surgical evaluation are important, especially in children and in young female patients to preserve future ovarian function [1]. Evidence suggests that ovarian cysts and pregnancy itself are risk factors for this event [2]. The optimal surgical management of ovarian torsion has changed in the last 15 years due to reevaluation of the initial theoretical concerns and fertility preservation [3]. Previously, the traditional approach to the ischemic adnexa was salpingo-oophorectomy [4]. But, recently it has become clear that appearance of the ovary at operation does not correlate well with subsequent ovary recovery and function [5]. Leaving the necrotic adnexa was found not to cause any thromboembolic events or increases cancer risk [6]. As a result, detorsion and conservation of the involved adnexa replaced the resection of the adnexa. Here we present a 28-yearold infertile patient who underwent Controlled Ovarian Hyperstimulation (COH) cycle after 14 days oocyte retrieval diagnosed ovarian torsion and underwent laparoscopic detorsion. Three weeks later when she was 6 weeks + 4 days pregnant she presented us with recurrent ovarian torsion and managed successfully with the same approach.

Case Presentation

A 28-year-old with a 6-year history of primary infertility patient presented for IVF treatment at our infertility unit. Initial infertility evaluation was normal and previous attempts at ovulation induction with intrauterine insemination were unsuccessful. Her first IVF cycle was also cancelled due to premature luteinization. Two months later as her second cycle IVF treatment, patient underwent step down antagonist protocol. On her 3rd day of menstruel cycle 150 IU r FSH (Gonal F, Merc Serono) started for stimulation, at fifth day of stimulation antagonist (0.25 mg Ganirelix acetate, Organon) added to the stimulation protocol. When at least two leading folliclereached 17 mm in diameter and peak estradiol level was 2717 pg/ml, choriogonadotropin alpha (250 microgram Ovitrelle, Merc Serono) administered. Oocyte retrieval was performed approximately 36 hours after hCG administration, 16 MII oocytes retrieved, 13 oocytes werefertilized and one morula was transferred at day 4th uneventfully. After 2 weeks oocyte retrieval patient admitted to emergency service with sudden-onset, constant, sharp, and stabbing in nature lower abdominal pain, nausea and vomiting. The patient did not have fever, had no vaginal bleeding. She had previously undergone surgery of appendectomy several years ago. Her vital signs were within normal limits. Her physical examination revealed right lower abdominal tenderness with muscle guarding and rebounding. Transvaginal ultrasound revealed that the right ovary measured 10 cm × 8 cm and the left ovary 6 cm × 5 cm, both ovaries contained clear cysts ranging in size from 2 cm × 2 cm to 4 cm × 4 cm. Moreover, blood flow was detected on color Doppler ultra sound of the right ovary. When the transducer was placed directly over the right ovary and minimal pressure was applied, the patient reported significant abdominal pain. Her presentation was concerning for acute abdomen, most likely from ovarian torsion. Notable laboratory values included a positive human chorionic gonadotropin (HCG) test and a quantitative hCG of 148 U/L. Laboratory data showed mild leukocytosis (white blood cell count: 13,7 103 /μL) and mild C-reactive protein elevation (1,74 mg/L) and hemoglobin level was 12 g/dl, 5 g/dl.

We performed diagnostic laparoscopy by starting Verres needle insertion just below umbilicus under general anesthesia. A 13 mm Hg CO_2 pneumoperitoneum was induced. At laparoscopy, both adnexa were noted to be markedly enlarged due to COH. The right ovary that had hemorrhagic

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Correspondence:
Murat Ozekinci, Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Akdeniz University School of Medicine, Turkey, Tel: +90 242 2496000;
E-mail: mozekinci@akdeniz.edu.tr

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Figure 1: Rotating process with blunt probe to the torsioned adnexa.

changes appeared three times twisted. After inserting only one operative trocar on the left opposite side, the pedicle of the ovary was examined to establish the direction of the rotation. Because the ovarian capsule was noted to be very fragile, grasping the ovary was avoided because of fear of damage to the adnexa when handling. Detorsion of the ovary was performed by blunt probe gently rotating the adnexa as shown in (Figure 1). At the end totally unwinding of the right ovary was done successfully and at a minimum fluid was aspirated. During the operation, right ovary rapidly regained a normal-appearing color, similarly to that of the left ovary. The postoperative period was uneventful and the patient was discharged on the second day that her hCG count was gone up 244 U/L.

Three weeks later, because of recurrence of the same symptoms in a sudden onset fashion patient admitted to the emergency room again. Patient had a constant, sharp, and stabbing in nature lower abdominal pain, nausea and vomiting. Physical and pelvic examination was consisted with acute abdomen. She was afebrile and hemodynamically stable, hemoglobin level was blood 9 g/dl, the white cell count 16,2 103/μL and no C-reactive protein elevation. Transvaginal ultrasound revealed a single viable intrauterine pregnancy with a gestational age measured at 6 weeks, 3 days and normal Doppler amount of flow to both ovaries. Moreover, the right ovary measured 10 cm × 6 cm, the left ovary 6 cm × 5 cm and a small amount of free pelvic fluid was noted. We performed laparoscopy just inserting one operative trocar on the left side at the same place. Again, twisted and congested right adnexa was seen, and detorsion was performed by using a blunt probe just as the same which previously described. The postoperative recovery was uneventful, and fetal well-being was confirmed. Patient discharged at postoperative second day. For pregnancy follow up patient came to our maternal fetal medicine unit. At 33 weeks and 3 days because of rupture of membranes patient hospitalized and betamethasone (12 mg intramuscular) had been administered for respiratory distress syndrome prophylaxis and antibiotic therapy started. On follow up a caesarean section was done because of abnormal cardiotocography. A female baby with a normal birthweight for gestational age (1985 g) was born.Atcaesarean section both ovaries were normal in terms of appearance and shape.

Discussion

Torsion of the ovary is a true gynecologic emergency, and up to one-fifth of ovarian torsion occurs during pregnancy. Ovarian torsion is most common in the first trimester of pregnancyand torsion early in pregnancy seems to increase the risk for recurrence at a later gestational age. In a retrospective case-control study by Hasson

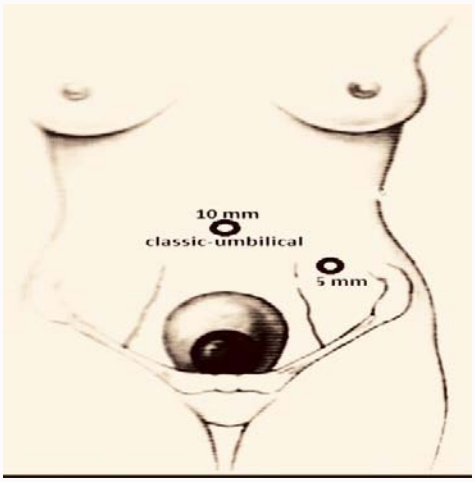

Figure 2: Trocar placement sites; optic trocar (umbilical) and operative trocar.

et al found that with the risk of recurrence rate of torsion during one gestation was 19,5% [7,8].

The approximative rate of ovarian torsion after IVF treatment has been reported as 0.025% - 0.2% [9]. After IVF with mild OHSS has increased risk of adnexal torsion and it is important point that the detected Doppler flow does not exclude the diagnosis although Doppler ultrasonography may be diagnostic. Additional symptoms may include nausea (70%), vomiting (45%), flank pain and fever (20%) [10,11]. These symptoms can be included other reason of pelvic pain that including appendicitis, ectopic pregnancy, nephrolithiasis, necrosis of leiomyoma, colitis and ruptured ovarian cysts therefore differential diagnosis may be difficult [12]. Diagnosisof ovarian torsion can be supported with physical examination, imaging and laboratory tests. Furthermore, patient should be operated without losing much time. If adnexal torsion is not promptly identified and surgically managed, it causes negative outcomes for mother and fetus. The risks of this delay include loss of ovarian function, ovarian necrosis and oophorectomy. Althoughmostly study support conservative treatment that include only untwisting the adnexa, and untwisting the adnexa and aspirating or removing associated cyst. In the past thought that untwisting the twisted adnexa could cause vascular emboli so most torsion was managed by removing the adnexa. McGovern et al found the incidence of pulmonary embolism in cases with adnexal torsion was 0.2% [13,14]. Where as, based on published studies, leaving the ischemic adnexa intact after detorsion is not associated with a further risk of thromboembolism [6]. Furthermore detorsion does not diminish ovarian reserve even if the necrotic, hemorrhagic, or bluish- black appearance of a twisted ovary [5,15].

Laparoscopy has been successfully performed during pregnancy up to 20 weeks of gestation which is also the preferred approach for adnexal torsion [15]. Due to uterine enlargement, positioning the Verres needle and the trocars should be done more carefully.

This case report describes the patient who was complicated by two episodes of adnexal torsion after IVF, during in the early first trimester. Here we performed laparoscopic ovarian detorsion with an optic trocar and with one single operative trocar as shown in (Figure 2). Detorsionof the twisted ovary could be done safely with a blunt probe through the operative trocar which inserted at the left pelvic region to

the opposite side of the right ovary. We chose to preserve the affected adnexa and thus preserve fertility. An oophoropexy was not done due to the ovary had increased vascularity and enlarged size. We were also aware of that the patient's basal ultrasounds on day three revealed no any complicated or solid cystic structures in her both ovaries so we refrain from performing any cystectomy to hyperstimulated ovary as we were knowing this would be detrimentalto the ovary and to the patient in such situation.

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