A Case of Ovarian Torsion Which Led to Abortion

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Abstract- Ovarian torsion occurs in 10%-22% of pregnant women, and miscarriage occurs in 11%-22% of all pregnancies, both of which are known as gynecological emergencies. The simultaneous occurrence of these two cases is rare. The present study reports a case of ovarian torsion and simultaneous abortion. In this case report, we present a 28-year-old woman in her third pregnancy with a history of two miscarriages. She was referred with an 18-week triplet pregnancy, vaginal pain and bleeding from the previous day, and colic abdominal pain with five episodes of nausea and vomiting. Upon admission to the hospital, despite performing cerclage at 13 weeks, labor pains begin, and 15 minutes later, the amniotic sac ruptures, and all three fetuses are expelled. Due to the persistence of colic pain and moderate tenderness in the lower right quadrant of the abdomen, pelvic ultrasound is reported, which shows an increase in echo parenchyma and the size of the right ovary compared to the left ovary. Doppler ultrasound showed decreased ovarian blood flow, which led to laparotomy with suspected ovarian torsion. The right ovarian peduncle had complete torsion, and the ovary appeared dark. The peduncle of ovarian torsion was opened and preserved. The patient was discharged two days after surgery and after re-color Doppler ultrasounds, which indicated ovarian blood flow.

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Introduction

Ovarian torsion is a rare but emergency condition in women. Early diagnosis is necessary to maintain the function of the ovaries and fallopian tubes and to prevent severe complications.

Ovarian torsion refers to the complete or partial rotation of the adnexal supporting organ, which is associated with ischemia (1). This disease can occur at any age in women (2). Ovarian torsion is most commonly associated with an ovarian cyst or tumor, most of which is a mature teratoma. Torsion is one of the causes of gynecological emergency surgery, and its prevalence is 3.2% (3). About 10%-22% of ovarian torsion occurs in pregnant women (1). The incidence of ovarian torsion is higher in 10-17 of gestational age and with ovarian masses larger than 4 cm (4,5).

We report a patient who has had a miscarriage at 18 weeks of gestation at the same time as a right ovarian torsion. Early diagnosis, appropriate surgical intervention, including the opening of the ovarian peduncle torsion, led to the preservation of the patient's fertility. The purpose of this report is to simultaneously introduce abortion and ovarian torsion and the factors associated with ovarian torsion in causing abortion.

Case Report

The patient is a 28-year-old woman with polycystic ovaries. She is experiencing her third pregnancy, which is triplets triamniotic trichorionic. Conception was naturally without prescribing infertility medication. She has a history of two miscarriages in previous pregnancies at 18 weeks and now has no living children. At the current gestation, at 12 weeks and two days, two fetuses were reduced. The cerclage was performed at 13 weeks due to cervical insufficiency, 19.9 mm long. Before pregnancy, the patient was treated with Duphaston and metformin due to polycystic ovaries, which were discontinued after pregnancy. During pregnancy, due to a history of previous miscarriages and cervical insufficiency, she was using drugs with progesterone compounds. The

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gestational age according to the last menstrual period and ultrasound is 18 weeks and five days. The patient refers to Shahid Motahari Hospital in Jahrom city from Qir town with a complaint of vaginal bleeding. The patient experienced nausea and vomiting (5 times) with shivering on the morning of the visit and, after an hour, complained of pain in the right lower quadrant of the abdomen. Her bleeding started after the pain and she looked pale at the time of admission. Vital signs were as follows: BP: 105/60, PR:115, RR:18, T:37.1

After entering the hospital, labor pains begin, and 15 minutes later her amniotic sac ruptures. The cerclage was removed by a gynecologist and all three fetuses were born. Vaginal bleeding is relatively severe, leading to a blood pressure of 80/50 and pulse rate of 140, which stabilizes after fluid therapy with lactate ringer and dextrose water with oxitocin and receiving 250 cc of packed cell. The labor pains disappeared, but the right lower quadrant abdominal and flank pain continued intermittently so much so that the sudden pain caused her to wake up. The patient had mild tenderness on the right lower quadrant but no rebound tenderness. There was also a mass under the palpation. On Transvaginal Doppler color sonography, the size of the right ovary was 48×61×90 mm and its volume 140 cc and the size of the left ovary 40×36×55 mm and its volume 42 cc. Both ovaries had a polycystic appearance, the right ovarian parenchyma had an increased echo compared to the left, but no free fluid was found in the pelvic cavity. MRI was performed with and without contrast medium (gadolinium) with the possibility of right ovarian torsion. The MRI report showed that the previous right ovarian torsion had resolved spontaneously. Severe inflammatory changes were also reported in the right ovary and fallopian tube with little free fluid in the pelvic cavity. The next day, color Doppler sonography of pelvis was performed, which again showed torsion and decreased blood flow to the ovarian vessels. Despite the reduction in pain, the patient underwent laparotomy due to ovarian torsion on color Doppler ultrasound. In the right ovarian peduncle, a relatively complete torsion was observed. The ovary had a dark appearance (Figure 1) and the torsion of peduncle was opened.

About 5-10% of the ovarian tissue was still normal when it was decided to preserve the ovary. After about 30 minutes, the color of the ovary returned to relatively normal, indicating normal blood flow. The patient was discharged two days after surgery and after Doppler color ultrasound, which showed normal ovarian blood flow and ensured the stability of the condition (Figure 2).

Figure 1. Large polycystic ovary which is dark due to torsion of the peduncle

Figure 2. Ovary after detortion

Discussion

The prevalence of ovarian torsion varies from 2% to 15% in patients undergoing adnexal mass surgery. Ovarian tumors larger than 5 cm have a risk of ovarian torsion (1). Induction of ovulation for infertility treatment may cause large ovarian follicle cysts, which increase the risk of torsion (2). But our patient became pregnant without medication despite having polycystic ovary syndrome (PCOS). In PCOS the ovaries are bilaterally enlarged and contain numerous subcapsular follicles (6,7).

It seems that the basis of torsion in this patient is a large polycystic ovary. There have been more reports of ovarian torsion on the right (8), for which two theories have been expressed, one is the presence of sigmoid on the left and its less mobility, and the other is the difference between the venous drainage systems of the ovaries (9). Our patient also had torsion on the right side.

Ovarian torsion due to the presence of adnexal mass causes various signs and symptoms. The most common symptom is the acute onset of lower abdominal pain, followed by nausea and vomiting. Abdominal pain is usually intermittent and begins suddenly (1). Although our patient had Hyperemesis gravidarum from the beginning of her pregnancy, at the time of the visit, nausea had increased. The patient's pain also started acutely and intermittently.

Imaging studies are very important in assessing pelvic

masses (10). Ultrasound is the first line of diagnosis. The twisted ovary may be rounded and enlarged compared to the opposite ovary due to edema or vascular and lymphatic involvement (11,12). Doppler ultrasound is diagnostic in 40% cases (13). This type of ultrasound has low sensitivity and high specificity. It should be considered that the absence of a report of torsion on Doppler ultrasound does not rule it out, and the diagnosis should be based on clinical suspicion (8). Finally, direct vision is needed to make a definitive diagnosis of ovarian torsion. Therefore, surgical diagnosis is necessary to save ovarian function promptly (1).

The gold standard for treating ovarian torsion is surgery, and this is the only way to confirm the torsion. There are two surgical procedures, laparoscopy and laparotomy. However, Laparoscopic surgery has become a common procedure. But if ovarian or fallopian tube cancer is suspected, laparotomy should be performed (14,15). In the past, because of the fear of embolism of necrotic material from the twisted peduncle, radical salpingo-oophorectomy was performed without the initial opening of the twisted peduncle (16). Today, due to the lack of embolism reports of necrotic material, after opening the twisted tube, ovarian preservation is recommended to preserve fertility (8). During surgery, it is important to assess ovarian viability and maintain its function. The only way to determine the survival of twisted ovary during surgery is visual inspection. Usually, large, dark ovaries may have vascular and lymphatic occlusion and seem impossible to survive. However, numerous studies have shown that even black and blue ovaries may regain their function following the opening of torsion (17,18). In our case, after opening the torsion of the peduncle, the color of the ovary returned to normal and its function was maintained.

In a systematic review study, the risk of miscarriage was reported 11 to 22% at 5 to 20 weeks of gestation (19). Oxidative stress has been suggested as one of the important causes of recurrent miscarriages (20). Biochemical markers of membrane damage due to reactive oxygen species such as lipid peroxidation products reach high levels immediately before abortion (21). In an experimental study, the levels of malondialdehyde (MDA), a marker of lipid peroxidation, and myeloperoxidase (MPO) were significantly increased in the torsion and detorsion groups (22,23).

In cervical insufficiency, painless abortion without rupture of the amniotic sac occurs, but abortion in our patient was accompanied by the onset of severe pain and rupture of the amniotic sac and bleeding, which may be related to oxidative stress caused by ovarian torsion. Because there was ultrasound evidence of ovarian torsion before the onset of labor pain, therefore, cervical insufficiency cannot be considered as the main cause of miscarriage, while the patient also had cerclage. It can be concluded that the patient may have a miscarriage associated with oxidative stress due to ovarian torsion. Therefore, ovarian peduncle torsion should be considered in women who have a large polycystic ovary. In these cases, early diagnosis leads to ovarian and future fertility preservation and prevents unwanted complications.

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