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IN VITRO FERTILIZATION TREATMENT ON A PATIENT WITH ENDOMETRIOMA, PREGNANCY PERIOD AND THE IMPORTANCE OF SURGERY IN OVARIAN RESERVE: A CASE REPORT

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ABSTRACT

Aims: Endometriosis is an illness which is characterized by the estrogen-dependent endometrial tissue localizing on the non-cavity of the uterus. Endometrioma is the cystic mass growing in the ovaries caused by endometriosis. In this case report, the securing of pregnancy on a patient diagnosed with endometrioma after undergoing three in vitro fertilization attempt and reducing ovarian reserve and its relation with endometrioma was presented with literature.

Case Report: In vitro fertilization treatment was applied three times on a 30-year-old patient with endometrioma in the right ovary and a history of hypothyroidism and asthma. The patient became pregnant in the 3rd attempt of in vitro fertilization. In different periods of the pregnancy, the patient was treated for vaginal bleeding. In this case report, in vitro fertilization treatment was decided on the patient who consulted our center because of infertility. In the first and the second cycle of in vitro fertilization, the fertility could not be successful. In the third cycle, the pregnancy was conceived by transferring of the frozen embryo from the first trial. Because of the miscarriage threat, the patient was hospitalized three times but now she is 26 weeks pregnant and the follow-ups continue.

Conclusion: In some cases, surgery is thought to be useful before in vitro fertilization treatment. However, without the recommendation of any operation, our patient was successfully conceived with the frozen embryos from the first trial in vitro fertilization treatment. It can be thought that doing an operation and the time passed after the operation can cause ovarian reserve to decrease more.

Keywords: Endometrioma, in vitro fertilization, progesterone, ovarian reserve

INTRODUCTION

Endometriosis is a painful, chronic disease that affects millions of women worldwide. It occurs when endometrium which normally lines the uterus is found outside of the uterus. Endometriosis can be present on the surface of one or both ovaries, but it can also be found deep inside. Deep ovarian endometriosis forms dark fluid-filled cavities that can vary in size known as endometriomas or "chocolate cysts"(1).

In these studies, there are some resources reporting that endometrioma decreases the ovarian reserve, thus the dose of gonadotropin is higher in the in vitro fertilization (IVF) treatment, but the response to higher gonadotropin use is lower (2-5). However, it is shown that conservative ovarian surgery done on symptomatic females does not decrease the rate of IVF treatment's success (6). The diagnosis for endometrioma can be done clinically with ultrasonographic symptoms. Laparoscopic intervention on the patients who consulted to a clinic because of infertility for over a year and have not been responsive to the treatment for 3-6 months and have pelvic pain and adnexal mass that is thought to be endometrioma, increases the chance of getting pregnant in infertile females (7-9). Endometriomas that are bigger than 4 cm can be surgically removed (10). IVF treatment is especially considered in situations that have tubal factor and when other treatments have failed (11).

In this case report, it is aimed to present the patient with a medical history of endometrioma undergoing in

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vitro fertilization and after treatment relation with ovarian reserve.

CASE REPORT

Hysterosalpingography (HSG) was done on a 30-year-old patient, with a history of Hashimoto's thyroiditis and asthma. The patient consulted with complaints of dysmenorrhea and dyspareunia and HSG has shown that the cavity contours of the uterus are in order, the width of right tuba ovarica is normal and there is a flow of the contrast matter in the direction of the peritoneum, but the flow was not seen on the left side. The left ovary was seen as 30x18 mm in size in ultrasonography (USG) and there were 7 antral follicles counted, in the right ovary there was a cystic mass growing 34 mm in size and compatible with 50x50 mm endometrioma was seen and the patient was diagnosed with primer infertility caused by endometrioma. On the patient's request, the IVF treatment was started. Follicle-stimulating hormone (FSH) and 75 IU human menopausal gonadotrophins (hMG) started on the patient. After 9 days of stimulation, 6500 IU recombinant human chorionic gonadotropin (RHCG) was done in order to trigger the ovulation. Three follicles that are 18.1, 13.2 and 12 mm in size developed in the right ovary were diagnosed with endometrioma. Five follicles that are 16, 17.4, 21, 12.5, 11.5 mm in size developed in the left ovary.

After the oocyte collection process that was done 36 hours, 7 oocytes were collected and fertilization occurred. Three out of the five fertilized oocytes developed to 8-celled, grade 1 embryos. One of them was transferred and the other two 8-celled grade 1 embryos were frozen by vitrification. The human chorionic gonadotropin (ß-hCG) analysis that was requested after a month showed insufficient increase and because of the continuous vaginal bleeding of the patient, therapeutic curettage was done. The patient's ß-hCG results showed progressive decreasing and it was evaluated as chemical pregnancy.

The second IVF treatment was done 6 months later, on the 3rd day of the menstrual cycle with 300 IU FSH. On the 6th day of treatment, 75 IU hMG was added and the dose was increased to 375 IU. Following 10 days of controlled ovarian stimulation, in the right ovary 4 follicles which are 18.3, 14.2, 9.7, 10.5 mm in size and in the left ovary 6 follicles which are 14.3, 12.2, 14.4, 16, 13.6, 8.9 mm in size developed. In order to trigger ovulation, 6500 IU RHCG was done. 36 hours later, after the oocyte collection, 7 oocytes were collected. 6 oocytes was obtained and they were in Metaphase II. Intracytoplasmic sperm injection was performed and 3 oocytes were fertilized. The 7-celled grade 1 and 6-celled grade 2 embryos were transferred. The ß-hCG results were found negative on 12th day after the transfer of embryo and patient did not get pregnant.

In the 3rd IVF attempt, to transfer the embryos which were frozen in the first trial, endometrial preparations were done. For this procedure, starting the 3rd days of the menstrual cycle, first 4 days 3 tablet, following 4 days 4 tablets and the last 5 days 6 tablets of 2 mg estradiol hemihydrate tablets were given increasing doses in order to thicken the endometrium. Before the estradiol hemihydrate treatment, the diameter of the endometrium was 6.8 mm. After the 7th day, it increased to 8.8 mm. In addition to 6 tablets of estradiol hemihydrate, to prepare the endometrium for implantation, 800 mg vaginal micronized progesterone was given. Additionally, the assisting treatment with 2x2 mg of methylprednisolone and doxycycline was done. After starting of vaginal micronized progesterone, in the 3rd day, embryo transfer was performed. In order to support pregnancy, 1x250 mg of hydroxyprogesterone caproate was given weekly and 50 mg of micronized progesterone was given daily. Both of them were given as intramuscular injections. 12 days after the transfer, ß-hCG levels were detected as 323.5 IU/L. After one month, according to the last menstrual period (LMP), 5+5 weeks pregnancy sack was seen in the USG (Figure 1).

Figure 1: 5+5 weeks old pregnancy sack shown in the USG, one month after the transfer.

During the follow-ups, the patient was hospitalized with the pre-diagnose of abortus imminens because of the vaginal bleeding. As an addition to the proceeding treatment of the patient, the daily dose of intramuscular micronized progesterone was increased to 100 mg and 250 mg of hydroxyprogesterone caproate was given as

an additional dose. After hospitalization, Crown-rump length (CRL) was seen as 3.56 mm and fetal heart beat was detected as positive during the follow-up period. After the vaginal bleeding has stopped, she was discharged.

One week later, vaginal bleeding reoccured and the patient was admitted to the hospital again with the pre-diagnose of abortus imminens. LMP was seen as 7+0 and fetal heart beat was positive. The patient was hospitalized in the maternity ward. Treatment of the patient with weekly dose of 500 mg 1x1 hydroxyprogesterone acetate, 100 mg 1x1 IM micronized progesterone and 200 mg. 2x2 vaginal micronized progesterone were continued. After total urinanalysis showed 3+ leukocyte, 4x1 g. IV ampicillin sulbactam was added to the treatment. After five days, vaginal bleeding stopped and the patient was discharged.

One month later vaginal bleedings of the patient reoccurred and the patient was hospitalized with the pre-diagnose of abortus imminens again. During the admission to the hospital, LMP was 9+4, her general condition was well, fetal heart beat was positive and she had no active complaint. 200 mg 2x2 vaginal micronized progesterone and 500 mg hydroxyprogesterone acetate were given to the patient weekly.

Thrombophilia was detected in the patient and in order to prevent thrombosis, bemiparin sodium 3500 IU 1x1 treatment was given in all of the IVF procedures and during the pregnancy. Patient's hemodynamics were stable and she was discharged. In present, the patient is 26 weeks pregnant and her condition is being followed.

DISCUSSION

There are different treatment mechanisms for infertility caused by endometriosis. IVF treatment is quite affective and there are also various surgical treatments. In the presence of small sized endometrioma, it is reported that the success of IVF does not decrease (12). However, when there are big and multiple endometriomas present, the oocyte count drops (13). The goal of surgical treatment are the excision of endometriotic implants, removal of the endometriomas and better the pelvic anatomy that is disrupted by the adhesiolysis. Especially before the IVF treatment, the removal of the endometriomas and their affect on infertility is highly controversial. In various studies, it is seen that the follicle count and ovarian response drop after an ovarian cystectomy, and the dose of gonadotropin increases (14,15). A study by Ioannis et al. (16), comparing patients with advanced stage of endometriosis that have done laparoscopic cystectomy and patients that have given IVF treatment because of tubal factor, showed that in the patients that have done cystectomy, basal hormone levels stayed the same but, gonadotrophin response was low, estradiol levels were low in the day of the hCG, oocyte count was poor and the rate of non-successfull cycles were more.

In the study of Beretta et al. (17), the laparoscopic cystectomy on advanced staged endometrioma and its affects on fertility were examined and with the laparoscopic cystectomy the pregnancy results were found as higher. In Marcous et al's (9) study, there were a comparison between patients that had their endometrial implants removed by surgical operation and patients that had diagnostic laparoscopy, and pregnancy rates were reported higher in the patients who went under surgical treatment.

In the study of Canis et al. (18), the IVF results of patients that had endometriomas bigger than 3cm in size and have done laparoscopic cystectomy and patients that had tubal factor infertility and endometriosis but did not have any endometrioma were compared. Two groups did not show any significant difference in oocyte and embryo gain. Donnez et al's (19) study showed that there is no significant difference between an ovary that was not operated for endometrioma and another one that has under gone laser vaporization without the cyst capsule excised. A newly published study by Zhang Xr et al. (20) reported that after cystectomy there is a more serious decrease in ovarian reserve in endometriomas than other benign ovarian cysts.

In the light of all these studies, ovarian reserve is rapidly decreasing in patients with endometrioma. As it was mentioned before, some studies claim that surgical treatment before IVF is harmful and some studies claim otherwise. In our patient, with the consideration that the ovarian reserve might decrease more and without recommending any operation pregnancy was successfully conceived with the embryos frozen from the first treatment. Operating the patient would mean that, with the time after the operation, the ovarian reserve would decrease. One other reason for this; in the first treatment even with low doses of gonadotropin there were more oocytes collected and these oocytes produced quality embryos, but after only 6 months from the second treatment even with high doses of gonadotropin there were less oocytes collected, the embryos from these oocytes were low graded and the pregnancy did not happen, in

the 3rd treatment patient was conceived with the embyos from the first treatment.

As a result, with the presence of endometrioma, before IVF treatment, surgery might not be suitable in selected patient groups, treating the patients with IVF while leaving the endometrioma in place can result in pregnancy. As shown in our case, while consulting the patient, this condition should be mentioned and the options of treatment must be discussed with the infertile couple and an appropriate treatment should be decided. (2). Presumably, this number will be approximately 1.36 million cases in 2032 (2). The total number of exudative pleurisy which are followed by many different disorders is much bigger than the amount of exudative pleurisy in breast cancer. Concerning this fact only cases with exudative pleurisy in breast cancer were reviewed in this study.

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