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Bilateral Tubo-ovarian Abscesses After Intrauterine Insemination: A Case Report

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Abstract

Background: Infertility is commonly treated through intrauterine insemination (IUI). However, a limited number of reports are available regarding the infectious complications including IUI.

Case Report: This study presented the cases of bilateral tubo-ovarian abscesses after IUIs in a 40-year-old woman with secondary infertility. In addition, salpingectomy and hysterectomy were needed despite treatment with triple antibiotic. Moreover, the diagnosis of tubo-ovarian abscesses was confirmed by means of pathological evaluations. Further, the patient responded well to antibiotic therapy following the surgery.

Conclusions: Given the ascending trend of pelvic infections, the IUI-assisted violation of the natural cervical barrier can theoretically pose higher risks of this complication to the patients. Therefore, pelvic infections are highly recommended to be rejected before IUI. Finally, the diagnosis and intervention are necessary for minimizing morbidity and optimize treatment as well.

Keywords: Intrauterine insemination, Infertility, Pelvic inflammatory disease

Introduction

Fertility methods are therapeutically used to help infertile couples. Assisted reproductive technology includes a variety of different types such as in vitro fertilization, intrauterine insemination (IUI), intracytoplasm sperm injection, and other modern techniques depending on the cause of infertility.

Assisted reproductive techniques are widely used while some methods are associated with maternal and fetal complications (1). IUI is an ordinary and non-aggressive method which is utilized to treat infertility (2). In addition, as an effective means of improving the pregnancy probability in couples suffering from longstanding subfertility, IUI is still a commonly practiced method (3). The IUI procedure revolves around the use of a catheter that conveys washed spermatozoa through the cervical mucus barrier to the uterine cavity, increasing the sperm concentration at the site of fertilization. Nevertheless, the pregnancy rate varies drastically per IUI cycle (4, 5). Therefore, couples are always advised to undertake three to 6 IUI cycles before deeming the IUI attempt a failure (6).

Multiple pregnancy and ovarian hyperstimulation syndrome are the common complications of IUI. Meanwhile, although the development of pelvic inflammatory disease (PID) is reported as a rare IUI-induced complication, the expected frequency is unknown (5,6). The risk of pelvic infections may increase as the catheter goes through the natural cervical barrier (7). However, according to the reports, the post-IUI development of pelvic infection varies in the range between 0.01% and 0.2% while a limited number of reports exist concerning pelvic and ovarian abscesses (8-10).

Case Report

The patient who referred to Ali Ebne Abitaleb hospital was a 40-year-old woman complaining about sharp abdominal pain radiating to her flanks with fever. She reported that the pain began 2 weeks earlier and gradually increased with additional signs of fever for the last 5 days.

With a 9-year-old child and initiating the attempts for pregnancy for 7 years and experiencing failure, she had a history of secondary infertility who had undergone diagnostic laparoscopy surgery in the previous year after performing hysteroscopy and failure in detecting the cause. PID was reported based on laparoscopic findings. Then, the patient underwent a course of antibiotic therapy. However, over the past year, she failed to become pregnant once more. A month before visiting the hospital and after ruling out PID in the examinations, the patient underwent IUIs with her husband's semen for the first time. Abdominal pain began two weeks after IUI initiation and intensified recently. Over the past 2 weeks, the patient had outpatient referrals to a urologist. Suspecting the recorded renal colic in the history file of the patient and due to the reported kidney stones in sonography, the patient' status was

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temporarily improved by prescribing painkillers, the pain continued to exist. However, she had a fever even after 10 days and her pain intensified as well. It is noteworthy that she had a history of kidney stone excretion while having no other diseases. At the initial examination, the patient was febrile (Temp: 38°C) and tachycardia (PR: 112/min) and had hypogastric tenderness, but she had no guarding or distension. In closed cervix rational examination, bilateral sensitivity of adnexa and masses with dimensions of around 5 mm were palpated on both sides and fouling secretions were found, along with vaginal bleeding as well.

In the ultrasound of the abdomen and pelvis,the uterus appeared normal in size and in myometrial echotexture, and endometrial thickness of 7 mm. The ovaries were observed separately. A dilated tubular region, along with internal echoes was observed as bilateral in the adnexas, which first suggested pyosalpinx while no free fluid was found in the cul-de-sac. Computed tomography (CT) scanning was ordered for the patient to further investigate the dimensions of the lesion.

In the CT report, the abscesses could be cleared under abdominal ultrasound guide due to the presence of intra-fallopian abscess and its surrounding edema at the site. Then, the patient was prepared for a surgical operation in addition to receiving wide spectrum antibiotics (i.e., vancomycin and meropenem).

Surgery Description

Primary diagnosis: Numerous post-IUI abdominal and pelvic abscesses, bilateral pyosalpinx, and a history of numerous kidney stones;

Post-operative diagnosis: Various uterine abscesses, anterior, posterior, and superior to the uterine fundus, bilateral pyosalpinx, hydrosalpinx, as well as severe adhesion of omentum, intestines, and adhesion of the ureter to the uterus and bladder;

Operation description: As illustrated in Figure 1, the midline wall was opened following prep and drep under sterilized conditions by general anaesthesia. The omentum and intestines had complete adhesion, which was resolved with difficulty. In addition, various abscesses with a thick wall were detected in the anterior, posterior, and superior uterine parts, which were 6-7 cm in size with a bilateral pyosalpinx (Figures 2-5).

The anatomy was extremely disarranged. Therefore, the abscesses were opened and the pus specimen was sent to a laboratory for cytology, and then the patient underwent salpingectomy. Furthermore, the intestines were released while fortunately not being damaged and the bladder was opened during the surgery, which was found to be unaffected. Moreover, hysterectomy was performed, homeostasis was reestablished with difficulty, the bladder was repaired, and finally, the peritoneal cavity of the abdomen was washed by 3-4 L of normal saline solution. Additionally, the layers were then closed, the skin was left exposed, and the patient was delivered to

Figure 1. Dispersed Abscesses in the Abdomen (during operation).

Figure 2. Dispersed Abscesses in the Abdomen.

Figure 3. The Uterine With its Surrounding Abscess.

the recovery. During the operation, the patient received 4 platelet concentrates, 4 fresh frozen plasma, 4 units of cryoprecipitate, and 4 units of the platelet.

Foley catheter was fixed for the patient and the antibiotic order was given as well. After four days of hospitalization, the patient was retransferred to the operation room. The abdominal wall was closed and sutured following the observance and approval of the infection. Eventually, the patient was discharged from the hospital with good overall health after one day.

Discussion

Almost 85% of PID cases are among the typical infections in sexually active women of reproductive age whereas

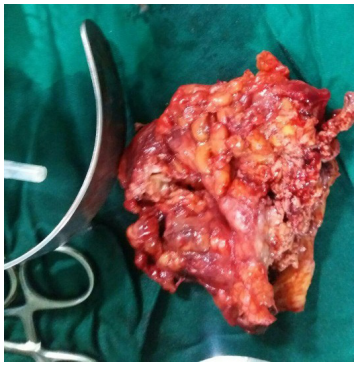

Figure 4. The Uterine With its Surrounding Abscess (Posterior View) .

Figure 5. Left and Right Fallopian Tube Abscesses.

the other 15% of infections follow the procedures that break the cervical mucus barrier. Insertion of intrauterine devices, uterine curettage, hysteroscopy, endometrial biopsy, and hysterosalpingography are several examples of these procedures (10-12).

The increasing dispersion of microorganisms from the vagina and cervix into the upper genital tract constitutes the most relevant pathogenic mechanism underlying PID. PID can hypothetically be advanced by IUIs since it sweeps away the microorganisms from the cervix. A catheter serves as a foreign body in the uterine cavity. Moreover, PID may result from the deposition of the processed sperm in the uterine cavity (13). Some case reports with similar problems were found, one of which was about a 35-year-old female with ovarian abscess following IUI which required oophorectomy (14). Another case was a 27-year-old woman with PID after IUI, on whom laparatomy was performed and left fallopian tube ruptured abscess was detected (15). Finally, a 32-year-old woman was found with bilateral tubo-ovarian abscesses arising on the endometriotic cysts of both ovaries after IUI (8).

In the case that was presented in the current study, PID was observed in the diagnostic laparoscopic investigation in the year before and the patient underwent antibiotic therapy. According to her history, the patient was examined before IUI while no sign was observed in favor of PID. Possibly the problem of the patient intensified by IUI since it could promote PID. Further, the interval during the onset of pain until the next visit to the gynecology ward lasted two weeks. The patient did not visit the center in which she had performed the IUI. Furthermore, the patient had inpatient visit to urologists since she had a history of renal colic while no other causes were ruled out relying on the ultrasound of the kidneys and observation of the stones. Accordingly, the specialists prescribed painkillers and recommended high fluid intake in order to mitigate the pain, though the patient experienced continued pain and the progression of the disease. The late diagnosis and delay in PID treatment probably caused the development of these extensive abscesses. It should be noted that differential diagnosis should never be overlooked although the risk of infection following IUI is very negligible.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

Written informed consent was obtained from the patient for publication of this case report.

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