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Olgu Sunumu / Case Report

Ovarian Ectopic Pregnancy: Association with Intrauterine Contraceptive Device

Ovarian Ektopik Gebelik: Rahim İçi Kontraseptif Araç ile İlişkisi

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ABSTRACT

Primary ovarian pregnancy is a rare entity. The association between ovarian pregnancy and intrauterine device use is not clear. In this paper we reported three patients with ovarian pregnancy and using intrauterine device with a brief review of the literature.

Key Words: Contraception, ectopic pregnancy, intrauterine devices, ovary

ÖZET

Primer ovarian gebelik nadir bir durumdur. Ovarian gebelik ve rahim içi araç kullanımı arasındaki ilişki açık değildir. Bu yazıda ovarian ektopik gebeliği olan ve rahim içi araç kullanan üç hastayı kısa bir literature özeti ile birlikte sunduk.

Anahtar Kelimeler: Kontrasepsiyon, ektopik gebelik, rahim içi araçlar, over

INTRODUCTION

Primary ovarian pregnancy (OP) accounts for 1–3% of all ectopic pregnancies and its incidence had been variously reported as 1 in 7,000 to 1 in 60,000 deliveries[1]. It was suggested by some authors that intrauterine device (IUD) users appear to have higher incidence of OP[2,3]. However there is a recently added study that had controversial result from these studies about IUD use and association with OP. Here we report three cases of primary OP in patients using IUD encountered during the last 4 years in our clinic and a brief literature review.

CASE REPORTS

Case 1

A 23-year old woman, gravida 2, para 2 was admitted to our outpatient clinic with suprapubic pain accounting for last three days. She had regular menses and she had been using a copper IUD for two years and she had no history of ectopic pregnancy or pelvic inflammatory disease. In her physical examination, she had 110/min of heart rate. Her blood pressure was 100/60 mmHg. She had diffuse abdominal tenderness and guarding. The cervix was tender with movements. The string of the IUD was observed by speculum examination. There was no sign of genital infection. In her bimanual pelvic examination, she had a palpable mass with diameter of 4–5 cm in the left adnexa. The laboratory tests revealed 8.5 g/dl of haemoglobin, urine pregnancy test was positive and serum beta human chorionic gonadotrophin (β-hCG) was 4948 mIU/ml. In the pelvic ultrasound the endometrial thickness was 10 mm and there was no sign of intrauterine

pregnancy. There was an enlarged left ovary with presence of a 2.2 cm sized mass. The normally placed IUD was seen in the uterine cavity. She had an urgent laparotomy with the diagnosis of ruptured ectopic pregnancy. A ruptured pregnancy material was in the proximal pole of the left ovary with diameter of 2 cm (Figure 1). We had excised the gestational sac from the ovarian tissue with minimal invasive surgical intervention instead of oophorectomy considering wish of fertility. The postoperative course of the patient was uneventful and she was discharged on her first postoperative day.

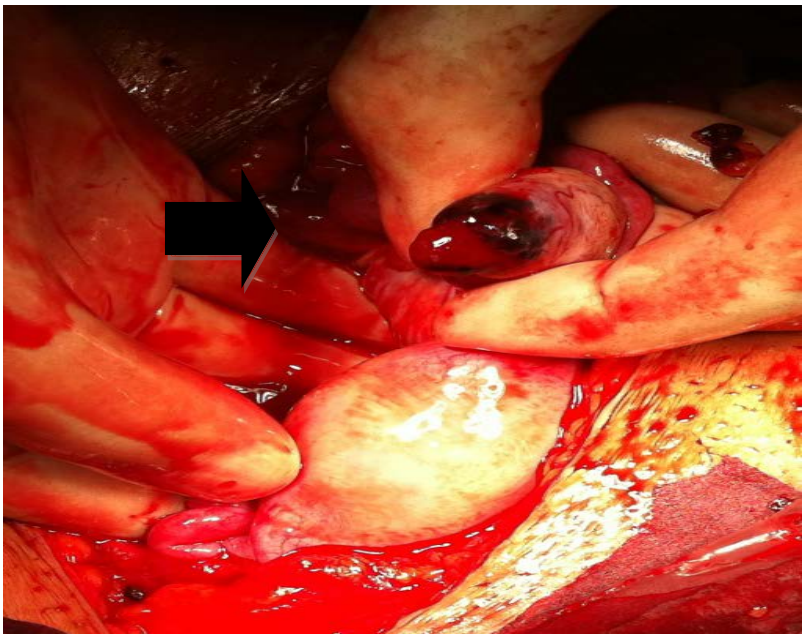

Figure 1. The black arrow shows the ovarian ectopic pregnancy protruding from the left ovary

Case 2

A 34-year-old woman admitted to our emergency clinic with lower abdominal pain. She had two normal vaginal births and she had been using a copper IUD for 3 years. In her physical examination, she had moderate abdominal tenderness and a constant mass was palpated in the right adnexa. The serum β-hCG level was 4770 mIU/ml and haemoglobin level was 6.0 g/dl. There was a normally positioned IUD in the uterine cavity and no sign of intrauterine pregnancy was observed in the pelvic ultrasound. She had tachycardia with a pale skin. The laparotomy was performed subsequently. In the exploration there was 750 mL of fresh blood in the abdominal cavity. A ruptured pregnancy material with a diameter of 1.5 cm was observed in the right ovary. The gestational sac was excised from ovarian tissue with minimal invasive surgical intervention. Her postoperative follow up was uneventful and she was discharged on her second postoperative day.

Case 3

A 30-year-old multigravida female admitted to our emergency clinic with complaint of spotting and sudden onset of severe abdominal pain. She had normal menstrual cycles and had two caesarean deliveries. She had been using copper IUD for 5 years. The measured heart rate was 90/min and blood pressure was 90/60 mmHg. In her pelvic examination, the cervical ostium was closed and there was moderate vaginal bleeding. There was mild tenderness by cervical movements. The pain was present in the right adnexal area upon deep

palpation. In her laboratory work up, haemoglobin was 5.75 g/dl and β-hCG was 7983.4 mIU/ml. The pelvic ultrasound revealed a significant hemoperitoneum in the whole abdominal cavity and pelvic mass in the right adnexa. The IUD was normally located. There was more than 700 ml of blood in the abdominal cavity when performed laparotomy. There was a solid and fragile mass with measure of 2 cm in the right ovary. A partial wedge oophorectomy was performed. The postoperative course of the patient was uneventful, and she was discharged on her postoperative second day.

DISCUSSION

Ovarian ectopic pregnancy is rare and can be associated with high morbidity and mortality rates in reproductive aged women. The diagnosis of OP is still a dilemma that a diagnosis is usually obtained during the surgery. About a century ago, Spiegelberg[2] had defined four criteria for the diagnosis of primary OP that; (i) the tube on the affected side must be normal, (ii) the gestational sac must occupy the habitual place of the ovary, (iii) it must be connected to the uterus by the utero-ovarian ligament, (iv) unequivocal ovarian tissue must be histologically demonstrated in the wall of the sac. By advancing in the imaging technologies and laboratory tests, there is improvements in earlier detection of OP. The ultrasound probes with high resolution, more sensitive methods for β-hCG detection, and diagnostic laparoscopy should lead to earlier and more accurate diagnosis. However, both sonographically and at the time of surgery, the clinical challenge is to distinguish an OP from a corpus luteum or hemorrhagic cyst[4]. The histopathological confirmation and decreasing β-hCG levels are useful in final diagnosis.

The major clinical presentations in patients with OP are abdominal pain, vaginal bleeding and menstrual delay[1]. The major clinical presentation in our patients was abdominal pain and vaginal bleeding was seen only in one patient.

The risk factors for OP are: assisted reproductive technologies, endometriosis, pelvic inflammatory disease and IUD use [5]. The rate of OP in patients using IUD for contraception differs from 2% to 90%. So far there was a strong association between OP and IUD use in the literature[3,6-10]. However a recent study by Choi et al with 49 OP patients concluded that, this association was not familiar from the previous knowledge[10]. (Table 1) In our cases the IUD was present in all of the three patients.

Table 1. Ovarian ectopic pregnancy and association with IUD use

	Cases	**OP/EP ratio**	**IUD use**
Sandeveri et al(1987)	25	1:13 IUD group 1:78 non-IUD group	17(68%)
Raziel et al(1990)	20	?(3.3%)	18(90%)
Herbertsson et al(1987)	26	26/759(3.4%)	21(80.8%)
Raziel et al(2004)	19	19/694(2.7%)	13(68%)
Choi et al(2011)	49	49/3081(1.59%)	2(4.1%)
Seinera et al(1997)	8	8/300(2.6%)	3(42.85%)
Present study	3	3/186(1.6%)	3(100%)

According to general knowledge the IUD reduces the rate of intrauterine implantations by 99.5%, tubal implantations by 95.5% but have no protective effect against ovarian pregnancy[9]. However, if the patient conceives with an IUD in place, her chance of having an EP increases to 3-9%. This incidence is nearly 10 times greater than the population using no method of contraception[11]. The role of IUD in contraception was described by Lehfeldt et al.[9] as; (i) the possible enzymatic action of the IUD due to the foreign body reaction leads to a reduction in intrauterine implantations, (ii) the large number of leucocytes entering in to the uterine cavity in response to the inflammatory reaction and their products exert a toxic effect on the sperm and blastocyst. So, when an IUD-user becomes pregnant, the implantation site is more likely to be extrauterine than in other women. Ercal et al speculated that the fertilized ovum may implant in the ovary where the inflammatory reaction is much less than in the tube[11]. Thus the OP is more frequent in EP associated with IUD use. In our view the IUDs may cause inflammation, resulting obstructed ovulation and ineffective ciliary and/or peristaltic function of the endosalpinx that cause delayed ovum transport, ending with ectopic implantation.

The treatment options in OP depend on the patient's age and wish of fertility. Currently the laparoscopy is the most common treatment approach. Either the entire ovary including the ectopic pregnancy has to be removed or a wedge resection of the ovary is necessary. Medical treatment options are reported with etoposide and methotrexate if ß-hCG levels are still raised after surgery, indicating persistent trophoblastic tissue[4]. We performed laparotomy to our patients. The all three cases were emergency admissions and laparoscopy equipments and educated scrub team in laparoscopy were not available in night duty conditions in our hospital.

The preoperative diagnosis of the OP is still difficult. The laparoscopy is feasible as a minimally invasive approach to the patients with wish of fertility. The hypothesis of positive relation between OP and IUD use theorically seems to be true but this data is depend on case studies. Our present data cannot be generalised because of small number of the patients with OP. Future studies with larger series should be designed in patients with OP with and without IUD use to compare the relation between OP and IUD use.

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