



A Case of Abdominal Pregnancy Following *In vitro* Fertilization in a Patient with Previous Bilateral Salpingectomy

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Authors' contributions

This work was carried out in collaboration between all authors. Author JM wrote the draft of the manuscript. Author RD edited the draft and did the literature search. Author CO supervised the work. All authors read and approved the final manuscript

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Case Study

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ABSTRACT

Although most of the ectopic pregnancies after assisted reproductive technology (ART) are tubal, 10.8% are extra tubal and more difficult to diagnose. A careful ultrasound examination should be made on patients who undergo IVF-ET and the possibility of abdominal pregnancy should be kept in mind.

Abdominal pregnancy can be regarded as either primary or secondary. Primary Abdominal pregnancy is when, to start with the blastocyst implants in abdomen while secondary is most commonly associated with early tubal rupture and subsequent implantation of blastocyst on to the peritoneal surface.

We here present a case of abdominal pregnancy, following in vitro fertilization in a patient with previous bilateral salpingectomy.

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1. CASE REPORT

A 37 year-old Caucasian woman, gravida1, para 0 was referred to our early pregnancy assessment unit two weeks after having an embryo transfer .She had no symptoms in the form of abdominal pain or bleeding. She was afebrile, had a pulse rate of 76 per minute and her blood pressure was 124/78 mm of Hg. She had a serum β -HCG concentration of 11150 mIU/mL and had an empty uterus on an transabdominal ultrasound scan performed 5 days earlier. She underwent a repeat abdominal and a transvaginal ultrasound scan both of which showed a complex cystic structure in the left adnexa measuring 3.2x3.6x4.2 cm Foetal heart was present and foetal pole measured 2mm. There was no free fluid in the pouch of Douglas and uterine cavity was empty with an endometrial thickness of 18.4mm. Repeat β -HCG concentration was 21,730mIU/mL.

She had a past medical history of primary infertility and stage 4 endometriosis. Seven months prior to this presentation she had a laparoscopic adhesiolysis, fenestration of left ovarian cyst and bilateral salpingectomy for bilateral hydrosalpinx. Six months after this procedure, she had in vitro fertilization (IVF) and embryo transfer (ET). On presentation she was on her third cycle of IVF after two previous failed attempts. On this occasion two weeks after embryo transfer she was found to have a positive pregnancy test.

Management options were discussed with her and she agreed to laparoscopy +/- laparotomy and removal of ectopic pregnancy.

During laparoscopy, dense pelvic adhesions were noted. Uterus was completely adhered with the bowels and there was no access to either adnexa or pouch of Douglas. She underwent a minilaparotomy, as a joint procedure with general surgeons. During the procedure a 2 cm ectopic gestation sac was noted on the left pelvic wall which was excised and sent for histology. Postoperatively she had an uneventful recovery and was discharged on the third postoperative day in good general condition. She was followed up with a falling serial β -HCG concentration and it was 14mIU/ml 21 days after the operation.

Pathological examination of the abdominal products of conception revealed chorionic villi showing focal trophoblastic proliferation. There was also decidua, membranes and a suggestion of primitive foetal tissue. The diagnosis of primary abdominal pregnancy was confirmed.

2. DISCUSSION

Ectopic pregnancy is a major complication of IVF-ET treatment. This has a prevalence of approximately 4.5–5% which is nearly 8 times compared to natural conception [1].

Abdominal pregnancy occurs in approximately 1 in 8000 births and in 1.4% of ectopic pregnancies [2]. The estimated maternal mortality is 5.1 per 1000 cases which is 7.7 times higher than other forms of ectopic pregnancy [3].

Abdominal pregnancy can be regarded as either primary or secondary. Primary Abdominal pregnancy is when, to start with the blastocyst implants in abdomen. Secondary abdominal pregnancy is most commonly associated with early tubal rupture and subsequent implantation of blastocyst on to the peritoneal surface.

Although most of the ectopic pregnancies after assisted reproductive technology (ART) are tubal, 10.8% are extra tubal and more difficult to diagnose [4]. Careful ultrasound surveillance of extra uterine structures is an essential part of diagnostic surveillance of first trimester pregnancies after ART.

A case of advanced abdominal pregnancy has been reported presenting at 32 weeks with haemoperitoneum. A healthy baby girl weighing 1.7 kg was delivered [5].

Exploratory laparotomy revealing a moderate amount of blood in the peritoneal cavity in a 38 year old lady with abdominal pain and vaginal bleeding presenting 21 days after embryo transfer has been reported. A mass consisting of blood clots and tissue fragments attached to the posterior aspect of the right broad ligament were removed. Pathologic examination confirmed the diagnosis of abdominal pregnancy [6].

Non surgical techniques are becoming increasingly popular as safe, effective alternative and include the selective embolization of placental vessels and administration of parental methotrexate. A case of 12 week sub-hepatic intra-abdominal pregnancy treated with ultrasound guided fetocide, followed by parenteral methotrexate has been reported [7].

The exact mechanism of abdominal pregnancy in patients with a previous bilateral salpingectomy is unclear. Some authors have suggested that uterine perforation occurs at the time of ET, whereby the embryos are placed in the abdominal cavity. This explanation seems unlikely considering the softness and flexibility of the ET catheter.

Second possibility is migration of one of the embryos through a microscopic fistulous tract in the interstitial portion of the tube and its subsequent implantation in the abdominal cavity.

A third possibility could be that one of the oocytes was either left in the abdominal cavity or might have ovulated into the cavity where it was later fertilized by spermatozoa entering the abdominal cavity through a cornual fistulous tract if the patient had had intercourse the day after follicular aspiration.

Ultrasonographic findings include visualization of the fetus separate from the uterus, failure to visualize the uterine wall between the fetus and urinary bladder, close approximation of fetal parts to the maternal abdominal wall, eccentric position or abnormal fetal attitude, and visualization of extra uterine placental tissue [8].

A careful ultrasound examination should be made on patients who undergo IVF-ET and the possibility of abdominal pregnancy should be kept in mind.

In suspected cases of abdominal pregnancy on ultrasound, MRI has been found to be useful in exact relation of foetus, placenta and maternal abdominal structures. This helps in early and safe management of abdominal pregnancy [9].

3. CONCLUSION

A diagnosis of abdominal pregnancy should always be kept in mind.

CONSENT

All authors declare that written informed consent was obtained from the patient for publication of this case report.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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