

Ultrasound Guided Monofetal Aspiration and Cerclage Management of Heterotopic Cervical Pregnancy in In Vitro Fertilization Twins

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ABSTRACT

This article reports the management of monofetal heterotopic cervical pregnancy in a twin pregnancy after in vitro fertilization treatment. A 23-year-old female patient with a twin dichorionic diamniotic pregnancy was diagnosed to have a six-weeks old live heterotopic cervical pregnancy and a concomitant intrauterine live pregnancy. She underwent abdominal ultrasound-guided transvaginal monofetal aspiration of the cervical heterotopic pregnancy treatment using a Karman cannula no 6. A double cervical Shirodkar suture was placed to stop active bleeding from the endocervix. After placing the Shirodkar suture on isthmic region and Mc Donald suture on distal cervix, a three cm intrauterine hematoma occurred and resolved within three weeks. The patient delivered uneventfully at 39 weeks of gestation through vaginal route. In such cases, it is possible to surgically terminate the heterotopic pregnancy through transvaginal aspiration under ultrasound guidance and stop cervical bleeding via double cerclage.

Keywords: Heterotopic cervical pregnancy, in vitro fertilization, shirodkar cervical suture

INTRODUCTION

Heterotopic pregnancy is the rarest type of all ectopic pregnancies. Although its frequency is 1/30.000, this rate has increased to 1% with the use of assisted reproductive techniques.¹ It is a dangerous type of pregnancy that can cause mortal consequences for the mother and intrauterine healthy pregnancy.² It may cause vaginal bleeding in the early period of pregnancy and may or give any symptoms. Heterotopic pregnancies can be diagnosed with transvaginal ultrasound early weeks of gestation.³ Cervical heterotopic pregnancies have a treatment challenge unlike laparoscopic removal of tubal heterotopic pregnancies and cervical ectopic pregnancies where no concerns of a remaining embryo exist.⁴ Reported management methods for heterotopic cervical pregnancies are uterine artery embolization, ultrasound-guided KCL or methotrexate injection and evacuation of pregnancy by hysteroscopy.⁵

In this case, we report the method of termination of heterotopic cervical pregnancy detected in the early period with transvaginal ultrasound-guided aspiration and cervical cerclage to prevent bleeding with term delivery of the intrauterine gestation.

CASE REPORT

A 23-year-old woman admit with the diagnosis of unexplained infertility. She was married for 4.5 years with no history of surgery, pelvic infection and her hysterosalpingography was normal. There was no pregnancy despite four cycles of clomiphene citrate use. At her first in vitro fertilization (IVF) attempt short agonist protocol with a total of 2400 unit of rFSH and eight days of 0.25 mg triptorelin was used. Trigger was performed on 8th day of treatment with 250 mcg rhCG. Two day 3 embryos were transferred under transabdominal ultrasound-guidance to the supra-isthmic region, 1 cm below the fundus of the uterin cavity. At 10 days after transfer, bHCG was positive. Estradiol 4 mg and progesterone in oil intramuscular was used for luteal support until 10th week of gestation.

The pregnant admitted to us with vaginal bleeding. Two sacs were observed at routine transvaginal ultrasound performed at 6 weeks of gestational age (Figure 1). One of the fetuses was observed in the normal uterine cavity, the crown-rump length was 6 mm, the sac was regular and the fetal heartbeat was 121 bpm/m. the other fetus was visualized as located in the cervical canal with transvaginal ultrasound. It's crl was 6.2 mm and heart beat was 122 bpm/m. Its gestational sac was regular, too.



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Figure 1. Monofetal heterotopic pregnancy in twin pregnancy after in vitro fertilization

In speculum examination, dilatation of the cervix was observed. Cervical length was measured as 15 mm to the cervical sac in transvaginal ultrasound. We recommended the patient to evacuate the cervical pregnancy and cerclage for the remaining fetus.

After cervicovaginal cleaning with povidone iodine under intravenous sedation, the anterior part of the cervix was held with the Allis clamps. There was evidence of cervical dilatation as no.8 bougie. The cervical sac was aspirated with the Karman cannula no.6 under transabdominal ultrasound guidance. Cervical pregnancy cleared completely. Shirodkar double cerclage suture was used to prevent possible cervical bleeding. One of the shirodkar double cerclage sutures was put on the isthmic region by using mersilene tape and the other by no.1 vicryl on the distal cervix. 1 g of cefazolin was administered intravenously to the patient during the procedure.

The patient was discharged the next day and she used 50 mg intramuscular progesterone and 4 mg estradiol daily. When she came to the control after one-week, cervical length was measured as 32 mm on transvaginal ultrasound. A hematoma area of approximately 3*2 cm by 4 cm was seen in the cavity around the remaining fetus.

The patient was informed about the current situation and it was explained that the treatment should be continued with the same drugs and doses and followed-up weekly until ten weeks of gestation. The hematoma resolved in three weeks and the patient delivered via vaginal route 39 weeks of gestation uneventfully. Our patient gave informed consent for this case report.

DISCUSSION

While the incidence of cervical pregnancy is between 1/6000 and 1/8000, both this rate and the incidence of cervical ectopic pregnancy have increased with the use of assisted reproductive techniques.⁶ After the IVF procedure that resulted in pregnancy, the incidence of heterotopic cervical pregnancy is 1% to 3%.⁷ There is no common view on the causes of ectopic pregnancy after IVF. Some common features such as cervical abnormality or previous curettage were encountered in patients with ectopic pregnancy.⁸ In our case, there was no previous surgery or an abnormality detected in hysterosalpingography.

Some studies have shown that the embryo transfer methods used can also cause abnormal placement.⁹ We performed our embryo transfer in the supraisthmic region, approximately 1 cm below the fundus.

As in our case, a rapid and safe increase in bHCG is observed in these pregnant women because of multiple pregnancy.

These pregnant women usually present with abnormal vaginal bleeding. Although rare, abdominal pain and spontaneous abortion may also be seen. Vaginal bleeding and other complications can reach life-threatening stage.⁶ Patients rarely have any symptoms. The definitive diagnosis is made with a gestational sac located in the cervical canal in transvaginal ultrasound. Doppler ultrasonography can be used to confirm the diagnosis in the area where cervical pregnancy is suspected. Doppler sonography shows increased blood flow in the suspected pregnancy area.¹⁰

In our case, the pregnant woman had a complaint of painless vaginal bleeding. When the bleeding started, the pregnancy was 5 weeks and 6 days according to the last menstrual date. In the transvaginal ultrasound performed, fetal findings compatible with cervical localized 5 weeks and 6 days were observed, too. Intrauterine pregnancy was also compatible with the last menstrual period. both sacs were regular and there was no bleeding area.

Cervical pregnancy should be terminated immediately after diagnosis. In the literature, there is no common opinion about the method of termination of cervical pregnancy.

The most important aim is not to endanger the life of the pregnant and to ensure the continuation of a healthy intrauterine pregnancy.

Cervical pregnancy can be terminated surgically or pharmacologically treatment. The most commonly used pharmacological agents are methotrexate and potassium chloride. potassium chloride is injected into the sac under ultrasound guidance only. Methotrexate can be given both systemically and locally, it should not be preferred because pregnancy in the cavity will also be affected when given systemically. Other fluids that will create positive oncotic pressure, such as hyperosmolar glucose and sodium chloride are also used as an alternative.^{11,12}

Dilatation and evacuation (D&E), aspiration, cerclage, extraction with forceps, foley catheter insertion, electrocauterization are other methods used to terminate cervical pregnancy. There is no consensus on which ones should be used to ensure the continuation of a healthy pregnancy.¹³ Surgically, ligation of the hypogastric artery, uterine artery embolization and hysteroscopic cervical pregnancy removal are among the methods used.⁷

In 2022, Fan et al.¹⁴ reported a succesful aspiration for removal of cervical pregnancy under ultrasound guidance, their aim was protecting the intrauterine pregnancy. They also used a gauze with tranexamic acid in order to cease the bleeding. Bleeding was ceased after 40 min later and blood loss was around 40 mL.

Honda et al.¹⁵ reported their treatment as following: in order to prevent hemorrhage vazopressin was injected afterwards

curetage performed following by methotrexate injection with intent of halt residual trophoblast evolution .

Prorocic and Vasiljevic⁷ described a cervical heterotopic pregnancy together with twin intrauterine pregnancy. In order to sustain the twin intrauterine pregnancy they used 2 DEXON sutures bilaterally on the cervix at the level of fornix vaginae performed a transvaginal ultrasound guided aspiration followed by hypertonic sodium chloride injection to the gestational sac. They removed the cervical pregnancy and reported no side effects after the treatment.⁷

In 2021 Schivardi et al.¹⁶ reported the first usage of Micro Wave Ablation in a cervical heterotopic pregnancy with an intrauterine gestation. They used transabdominal guidance and inserted the antenna inside the cervical sac in a transvaginal manner and performed the ablation. They prevented the intrauterine pregnancy and didn't describe any bleeding nor uterine contractions.¹⁶

In this case, we did not want to use any chemical agent in order to preserve the normal pregnancy in the cavity. We avoided surgical intervention. We aspirated the cervical pregnancy by vacuum curettage. Cerclage was applied to prevent the other pregnancy from being aborted.

Antibiotic therapy and progesterone was given to prevent possible infection and vaginal bleeding. In this case, the pregnancy is now 10 weeks and continues in a healthy way with a minimal bleeding area around the sac.

CONCLUSION

In this case we report successful surgical termination of heterotopic pregnancy with ultrasound guided double cerclage. On the other hand the best approach in these rare cases are yet to be determined.

Ethics

Informed Consent: Our patient gave informed consent for this case report.

Authorship Contributions

Surgical and Medical Practices: G.A., E.Ç., Concept: G.A., Design: G.A., Data Collection or Processing: G.A., E.Ç., Analysis or Interpretation: E.Ç., Literature Search: G.A., Writing: E.Ç.

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