Heterotopic Pregnancy Following Tuboplasty and Ovulation Induction by Clomiphene Citrate and Timed Intrauterine Insemination: Case Report

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ABSTRACT

A Thai woman 36 year old with post tubal sterilization. She was performed for Tuboplasty to restore fertility on new marriage. Both fallopian tubes functioned post correction. She tried natural conception, but was not successful. The doctor treated her by the way of ovarian induction with Clomiphene Citrate and intrauterine insemination. She conceived in the 4th cycle, but she had an heterotopic pregnancy. Gestational sac, fetal echo and positive fetal heart beat were detected at both the intrauterine cavity and the right adnexa, and she had no abnormal symptoms. The Diagnostic Laparoscopy was performed. Following the operation an unruptured right tubal pregnancy was found. Right salpingectomy was done and the pathological report confirmed tubal pregnancy. Post operative time, she had no signs of abortion, and normal intrauterine growth was detected.

Keywords: Heterotopic pregnancy; ovarian induction; tuboplasty

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A Thai woman 36 years old, came to Siriraj Hospital and consulted the doctor about fertility of her new marriage because she had had complete tubal sterilization. She has had 2 children before. The semen analysis of her husband was normal, so diagnostic laparoscopy was performed to detect the appearance of her remaining fallopian tubes. The operative finding revealed, the remaining 4.0 cm, 1.5 cm. in right fallopian tube and 3.5 cm., 1.5 cm. in the left side of the proximal part and distal part respectively. Tuboplasty was performed to reconstruct her fertility, with no intraopertive and immediate postoperative complications.

Three months later, hysterosalpingography revealed the potency and functionally of her both fallopian tubes. She tried to conceive naturally but was not successful 3 cycles later. She came to Siriraj Hospital again. Ovulation induction and intrauterine insemination (IUI) were performed to her. She got pregnant in the 4th cycle of ovarian induction by using Clomiphene Citrate 1 tablet twice a day on the 3rd to 7th day of her cycle combined with Gonal-F 75 unit injected on the 7th to 10th day and the endometrium was supplemented with Estrofem 16 mg per day vaginally started on the 8th day of the cycle. On the 11th day, transvaginal ultrasonography revealed the left ovary had 4 follicles 18.7, 17.3, 11.3 and 11.3 mm. in diameter, 1 small follicle in the right ovary and the endometrial thickness was 14 mm. in type II. Pregnyl 5,000 units was injected on that day and IUI was performed 36 hours later. Three weeks later, she missed her period and a urine pregnancy test was positive. Transvaginal ultrasonography detected an intrauterine gestational sac 6.5 mm. in diameter and did not find a york sac and fetal echo. A left corpus luteum was detected. Two weeks later, she was totally asymptomatic, underwent transvaginal ultrasonography again in our clinic which showed an intrauterine pregnancy. The fetus had a crown-rump length (CRL) 9 mm./ 6^{+6} weeks, positive fetal heart beat, york sac 3 mm (Fig 1), and gestational sac was detected with a fetal echo at the right adnexa, CRL 9.3 mm./ 7 weeks, a positive fetal heart beat, york sac 3.4 mm. (Fig 2,3) were detected. The diagnosis was heterotopic pregnancy. The doctor advised the patient and her husband about the diagnosis and management. Diagnostic laparoscopy was performed on that day. Intraoperative finding revealed an unruptured right tubal pregnancy at the infundibular part 3x3 cm. in size with a left corpus luteum 1.5 cm. in diameter. The uterine size was compatible with 8 weeks pregnancy size. A right salpingectomy was performed. This operation did not use the uterine elevator for moving the uterus during

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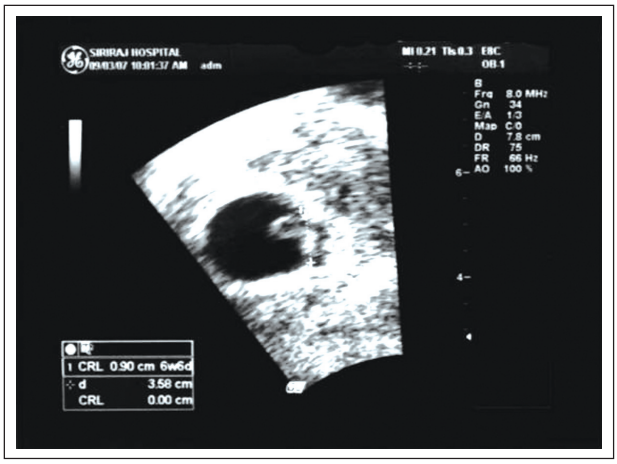

Fig 1. Show intrauterine pregnancy CRL 9 mm./ 6^{+6} weeks, positive fetal heart beat, york sac 3 mm.

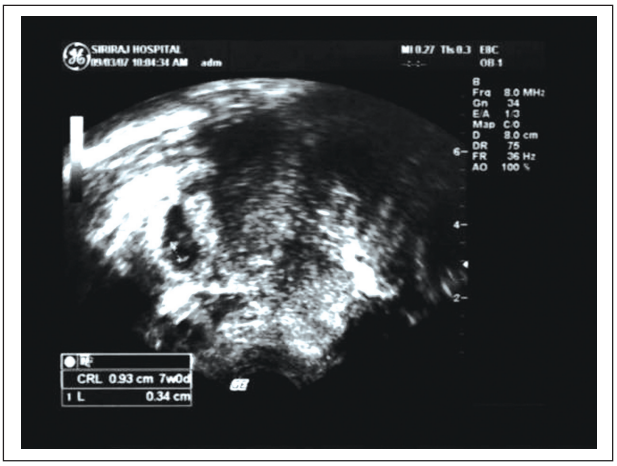

Fig 3. Show gestational sac in right adnexa and york sac 3.4 mm.

the procedure and gently manipulated the uterus to prevent the risk of abortion in the postoperative time, with no intraoperative and postoperative complication. One week later, she was followed up again. She was asymtomatic, with good healing of the surgical scar. An ultrasonography showed the normal intrauterine pregnancy. The fetus had CRL 19.6 mm./ 8^{+4} weeks, a positive fetal heart beat, a york sac 3.6 mm., and placenta adhered at the posterior upper part of the uterine cavity (Fig 4). The pathological report revealed conceptive product in the resected right fallopian tube. Utrogestan and Depot Proluton were used for luteal support. The last ultrasonography in the next 3 weeks revealed normal growth of the fetus, CRL 53.1 mm./ 12 weeks, positive fetal heart beat. The doctor advised her for antenatal care. She wanted to have antenatal care at the hospital near her home.

DISCUSSION

Heterotopic pregnancy is defined as the simultaneous occurrence of an intrauterine and ectopic pregnancy. In a spontaneous conception, heterotopic pregnancy is a rare event. The risk of heterotopic pregnancy in a spontaneous cycle varies between 3.3-6.4 per 100,000 conceptions[1,2]. The risk of ectopic pregnancy increases after inflammatory disease, and the use of an intrauterine device. Microsurgical repair of tubal damage caused by pelvic inflammatory disease is considered to be a serious risk factor[3]. Treatment with assisted reproductive technology (ART) increases the incidence of heterotopic pregnancy[4,5]. It has been reported to be as high as 0.75-1.3%[6,7]. The increase in the risk is due to ovulation induction leading to multifollicular development and multiple embryo transfer. After Clomiphene Citrate (CC) induction of ovulation the rates of multiple pregnancy and heterotopic pregnancy increase or when CC is used in combination with Human Menopause Gonadotropin (HMG) for in vitro fertilization[8]. Our patient received CC combined with Follicular Stimulating Hormone (FSH) for ovarian stimulation. She had 2 mature follicles in the left ovary but the right tubal pregnancy occurred. This phenomenon is called "Transmigration of Ovum", it means the migration of the ovum from one ovary to the opposite fallopian tube can occur by an extrauterine or intrauterine route[9]. This can cause a potential delay in transportation of the fertilized ovum to the uterus. Then trophoblastic tissue is present on the blastocyst before it reaches the uterine cavity, and therefore the trophoblastic tissue implants itself on the wall of the fallopian tube. The patient had a history of tubal surgery and was conceived by ovarian induction. These factors were the risk factors of her heterotopic pregnancy. Heterotopic pregnancy is difficult to diagnose and is a potentially dangerous condition for both the mother and the intrauterine pregnancy, which might result in tubal rupture and hemorrhagic shock. Most cases are only diagnosed following rupture and hemorrhagic shock. Fortunately, our patient had no abnormal symptoms, and

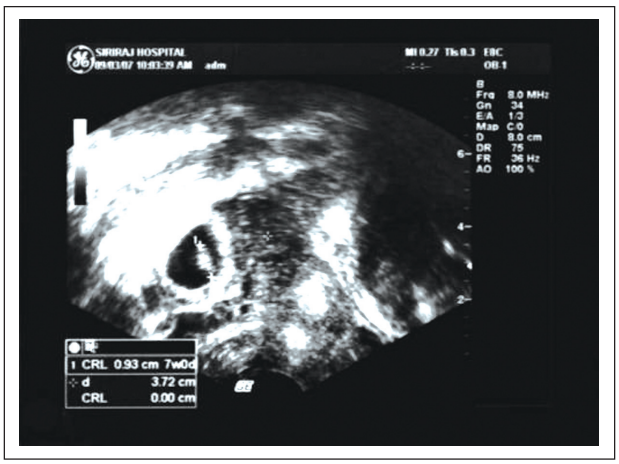

Fig 2. Show gestational sac with fetal echo in right adnexa, CRL 9.3 mm./ 7 weeks, positive fetal heart beat.

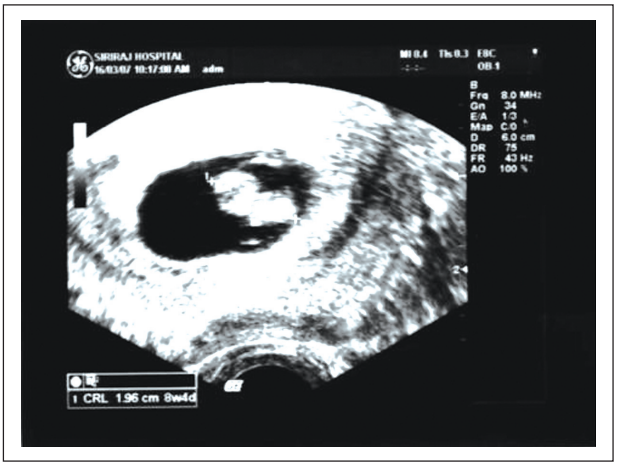

Fig 4. Show normal intrauterine pregnancy at the postoperative time.

the diagnosis was found before the complications occurred. Serial transvaginal ultrasonography was performed on her for the absolute detection of a right tubal pregnancy. Laparoscopy is a good diagnostic tool for uncertain pregnancy conditions and it is a minimally invasive procedure but is limited in some hospitals by the surgical skill of obstetricians, so that the close follow up serum β-HCG and serial ultrasonography may be important.

There are many methods to manage women with heterotopic pregnancy, including expectancy ultrasound or laparoscopic guided with a potassium chloride or methotrexate injection[10,11]. Laparoscopic salpingostomy or salpingectomy may still be an appropriate method for patients with heterotopic pregnancy[12], and exploratory laparotomy salpingostomy or salpingectomy may performed in a ruptured ectopic pregnancy with a massive hemoperitoneum or unstable hemodynamic state. In this case could detect the heterotopic pregnancy absolutely by ultrasonography. The patient had no the complication before and after laparoscopic right salpingectomy. The prognosis for intrauterine gestation is good and ongoing pregnancy rates of 75.6% were reported by Reece, et al[13] and 60% by Molloy, et al[14]. The pregnancy is progressing normally and revealed a normal development by ultrasonography. This case was followed up until 12 weeks of gestational age, her fetus had normal growth compatible with its gestational age and the estimation of delivery will occur in about October 2007 in term gestation.

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