CASE REPORT

Combined interstitial and intrauterine pregnancies after in-vitro fertilization and embryo transfer

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A case of combined interstitial and intrauterine pregnancies after bilateral salpingectomy and in-vitro fertilization with embryo transfer is reported. The case was incorrectly diagnosed ultrasonographically as intrauterine triplets at 7 weeks gestation. The patient suffered from intra-abdominal bleeding at 14 weeks gestation. At laparotomy, a ruptured left interstitial pregnancy with a non-viable fetus was found in the left abdominal quadrant. The uterine defect was successfully repaired and gestational contents and blood were evacuated from the abdominal cavity. The intrauterine twin pregnancy progressed without incident, and a Caesarean section was performed at 36 weeks gestation, resulting in healthy male and female infants.

Keywords: heterotopic pregnancy/interstitial pregnancy/in-vitro fertilization/uterine rupture

Introduction

Combined interstitial and intrauterine pregnancy is rare in natural conception, with an incidence varying from 1 in 15 000 to 1 in 30 000 live births (Beckman et al., 1984). However, the rising incidence of the combination of interstitial and intrauterine pregnancy of 1 in 907 pregnancies following in-vitro fertilization (IVF) and embryo transfer has been reported (Perez et al., 1993). A therapeutic dilemma occurs when the interstitial pregnancy is coexistent with an intrauterine fetus. Several reports have described a successful outcome of the intrauterine pregnancy, despite cornual excision or local medical treatment of the interstitial pregnancy (Fernandez et al., 1993; Chen et al., 1995; Sherer et al., 1995). In contrast, such treatment of interstitial pregnancy may jeopardize an intrauterine gestation (Chen et al., 1992; Fernandez et al., 1993).

This article reports on a case of combined interstitial and intrauterine pregnancies after IVF and embryo transfer, with a history of bilateral salpingectomy, complicated with cornual rupture at 14 weeks and subsequent successful outcome of the intrauterine gestation.

Case report

The patient was a 38-year-old woman, gravida 5, para 0, with secondary infertility of 15 years’ duration. The right Fallopian tube had been removed because of an ectopic pregnancy at the age of 22 years. One year later, obstetric history had included an early spontaneous abortion. She had undergone left salpingectomy because of recurrent ectopic pregnancy at the age of 24 years. The patient had been subsequently treated in three cycles by ovarian stimulation and IVF and embryo transfer, without success. Following the patient’s fourth IVF embryo transfer cycle she became pregnant. Triplets were seen by ultrasonography, but unfortunately the patient experienced a spontaneous abortion at 25 weeks. During the next nine years, no pregnancy was achieved, despite five cycles of IVF embryo transfer.

During the patient’s 10th IVF–embryo transfer cycle, ovarian stimulation was initiated with human menopausal gonadotrophin (HMG, Pergonal; Serono, Freiburg, Germany). When the leading follicle reached a mean diameter of 18 mm, 10 000 IU of human chorionic gonadotrophin (HCG, Pregnyl; Organon, Oss, The Netherlands) was given and oocyte retrieval was carried out through the vagina under sonographic guidance 36 h later. The serum oestriadiol concentration before oocyte retrieval was 1850 pg/ml. Five oocytes were recovered and four were fertilized after insemination. Four embryos were transferred at the 2- to 4-cell stage. The transfer was done transcervically using a Frydman catheter (Laboratoire CCD, Paris, France). The patient was given 2500 units of HCG, on cycle days 15 and 19 after transfer. The serum β-HCG concentration was 1350 IU/l and increased to 5450 IU/l on the 20th day after transfer. Ultrasound scanning revealed living intrauterine triplets at 7 weeks gestation. With regard to the previous spontaneous abortion, a preventive cerclage was performed at 14 weeks gestation. Three days later the patient experienced severe lower abdominal pain and signs of peri-toneal bleeding and irritation. Her pulse was 110/min and weak; blood pressure was 100/70 mmHg. Sonographic examination revealed two viable embryos in the uterine cavity and the third embryo with no cardiac activity in the left abdominal quadrant. Under the impression of a heterotopic pregnancy with internal bleeding, an emergency laparotomy was performed. The operative finding showed haemoperitoneum of about 500 ml and a complete gestational sac, placenta with non-viable fetus and umbilical cord in the left abdominal quadrant. A uterine rupture about 6×2.5 cm in size with active bleeding was found over the left cornual area. During the operation careful repair of the rupture site was performed. Closure consisted of single sutures of 3-0 Dexon in three layers. All gestational contents and blood were evacuated from the abdominal cavity.
The postoperative course was uneventful, and ultrasound examination revealed living intrauterine twins. This intrauterine twin pregnancy progressed without incident. At 36 weeks the patient was seen to be in labour. A Caesarean section was performed resulting in healthy male and female infants weighing 2470 and 2490 g respectively, and with bodylengths of 47 and 49 cm respectively. Examination of the uterus at surgery revealed an intact and slightly attenuated area 2–3 cm in diameter with suture remnants encompassing the left cornu.

**Discussion**

The increased risk of heterotopic pregnancy associated with IVF and embryo transfer is well established (Svare et al., 1993; Marcus et al., 1995), but with increasing incidence of pelvic inflammatory disease it could also be expected in spontaneous conception (Jibodu and Darne, 1997). This is not unexpected, because multiple and ectopic gestations are more common with IVF–embryo transfer (Kerin et al., 1983; Dickey and Holtkamp, 1996; Roest et al., 1996). In an effort to minimize the risks of multiple pregnancy after IVF–embryo transfer, Kerin et al. (1983) suggested limiting the transfer to two embryos. Several attempts have been made to eliminate the risk of ectopic pregnancy after IVF–embryo transfer by bilateral salpingectomy or cornual occlusion (Steptoe and Edwards, 1976). Unfortunately, interstitial pregnancies have occurred in patients without tubes, because the interstitial parts which transverse the uterine wall remain present (Karande et al., 1991; Agarwal et al., 1996).

The options for the treatment of interstitial pregnancy combined with intrauterine pregnancy include cornual resection, as the most widely used mode (Lund et al., 1989; Chen et al., 1992; Sherer et al., 1995; Louis-Sylvestre et al., 1997), medical treatment (Perez et al., 1993) and expectant management (Fernandez et al., 1993). The main issue in the treatment of heterotopic pregnancy is to be as minimally invasive as possible to preserve the development of the intrauterine pregnancy. Laparotomy is classically reserved for cases with life-threatening haematoperitoneum and haemorrhagic shock. In the largest single-centre series reported to date of heterotopic pregnancy, with most cases treated surgically, intrauterine pregnancy proceeded to term in 50% of cases (Marcus et al., 1995). However, laparoscopic treatment concerning the prognosis for the intrauterine pregnancy presented a favourable outcome in 62.5% of cases (Louis-Sylvestre et al., 1997). Lund et al. (1989) reported a case of cornual rupture caused by unsuspected interstitial pregnancy several weeks after a spontaneous abortion. Beck et al. (1990) described survival of the interstitial pregnancy after cornual resection and delivery of a stillborn fetus following hysterotomy at laparotomy at 26 weeks. Chen et al. (1992) found two non-viable intrauterine fetuses at laparotomy after cornual resection for ruptured cornual pregnancy at 10 weeks, while the successful outcome of an intrauterine pregnancy after cornual excision for cornual pregnancy at 10 weeks has been reported in two reports (Chen et al., 1995; Louis-Sylvestre et al., 1997). However, in a patient without tubes, Sharif et al. (1994) reported a case of interstitial pregnancy at 10 weeks with cornual rupture at laparotomy, after evacuation of an intrauterine anembryonic pregnancy. In the first report of laparoscopic cornual resection of a ruptured interstitial pregnancy at 8 weeks, Sherer et al. (1995) described the subsequent successful outcome of the remaining intrauterine triplets. In some cases of heterotopic pregnancy, local treatment with potassium chloride and expectant management seems to be a good alternative to surgical treatment (Fernandez et al., 1993; Perez et al., 1993). The only method of preventing interstitial pregnancy would be cornual resection, often necessitating myometrial excision. However, this conservative surgery could predispose the patient to uterine rupture in subsequent pregnancies, which represents a far more dangerous complication than ectopic pregnancy (Weissman and Fishman, 1992).

Our case, with a history of bilateral salpingectomy, is the first report on the successful evacuation of a ruptured interstitial pregnancy and the repair of the site of rupture, with coexisting intrauterine twins after IVF embryo transfer progressing until 36 weeks. Because diagnostic difficulties with heterotopic pregnancy are well documented (Chen et al., 1992; Sharif et al., 1994; Sherer et al., 1995; Moosburger and Tews, 1996), it is therefore suggested, that it should always be included in the differential diagnosis of symptomatic patients with intrauterine pregnancy after IVF embryo transfer. However, careful repair of a ruptured interstitial pregnancy may be an effective treatment and could benefit subsequent outcome of the intrauterine gestation.

**References**


Interstitial and intrauterine pregnancy after IVF


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