CASE REPORT

Severe ovarian hyperstimulation syndrome and combined intrauterine and tubal pregnancy after in-vitro fertilization and embryo transfer

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Ovarian hyperstimulation syndrome (OHSS) and heterotopic pregnancy are two well recognized entities occurring after in-vitro fertilization (IVF). This is the first reported case of a severe OHSS and coexistent heterotopic pregnancy after IVF and embryo transfer. Diagnosis of tubal pregnancy was obscured both by stimulated ovaries which prevented accurate ultrasound definition and the coexistence of an intrauterine pregnancy which accounted for human chorionic gonadotrophin (HCG) concentrations and also for aggravation of the OHSS. The roles of transvaginal ultrasound, diagnostic laparoscopy and early paracentesis in the management of this rare complication of assisted reproductive technologies are discussed.

Key words: heterotopic pregnancy/IVF/ovarian hyperstimulation syndrome

Case report

A 29 year old woman with laparoscopically confirmed tubal infertility presented to our clinic for a subsequent in-vitro fertilization (IVF) attempt after one successful singleton IVF pregnancy in 1991. Buserelin acetate (Suprefact: Hoechst AG, Frankfurt, Germany) 225 IU/day was started 10 days later after the follicles on each side was observed. After 12 days of stimulation the follicles measured between 15 and 20 mm in diameter and the oestradiol level reached 9435 mol/l, 10 000 IU human chorionic gonadotrophin (HCG) concentrations and also for aggravation of the OHSS. The roles of transvaginal ultrasound, diagnostic laparoscopy and early paracentesis in the management of this rare complication of assisted reproductive technologies are discussed.

Key words: heterotopic pregnancy/IVF/ovarian hyperstimulation syndrome

Discussion

It is well recognized that both OHSS and heterotopic pregnancy may occur after assisted reproductive technologies. The incidence of severe OHSS after ovarian stimulation under pituitary down-regulation has been reported as 1.9% in a European series of 413 patients (Forman et al., 1990). The reported
incidence for heterotopic pregnancies after IVF multiple embryo transfer is 1% (Rizk et al., 1991). This is the first case in the literature where OHSS associated with heterotopic pregnancy occurred after IVF and embryo transfer. Diagnosis of ectopic pregnancy in the presence of an intrauterine pregnancy and OHSS is difficult because symptoms of ectopic pregnancy may be attributed to OHSS and ultrasound may not be sufficiently reliable. The routine use of early ultrasound after assisted reproductive technologies will lead to the early diagnosis of most heterotopic and ectopic pregnancies (Giurgis and Craft, 1991). The authors report that it was possible to diagnose eight of nine heterotopic pregnancies and 40 of 45 cases of ectopic pregnancy occurring after gamete intrafallopian transfer or IVF-embryo transfer. Among the five false negative results three had severe OHSS with markedly enlarged ovaries, possibly masking the ectopic pregnancy. In our case too, the ectopic pregnancy was not visualized in spite of high resolution TVS. Laparoscopy revealed the ectopic pregnancy hidden between the pelvic side wall and the enlarged ovary. These data suggest that TVS may not be a reliable tool in diagnosing an ectopic pregnancy with concomitant OHSS.

It has been reported in the literature that early paracentesis in the course of severe OHSS relieves symptoms of tense ascites immediately and is followed by diuresis and rapid disease resolution (Alboulghar et al., 1990). The same group reported a case of OHSS complicated by a coexistent ectopic pregnancy (Alboughar et al., 1991). Transvaginal ultrasonically directed ascites aspiration was done as part of their routine management of cases of severe OHSS. The ascitic fluid was noticed to be blood tinged by intraperitoneal haemorrhage and this was the clue to the diagnosis of ectopic pregnancy. In our case, the clinical picture of OHSS took more than 30 days to resolve under conservative treatment, and the ectopic pregnancy was consequently masked. If symptoms of OHSS either fail to improve after initiation of conservative therapy or became aggravated due to rising HCG levels of a developing intrauterine pregnancy, early paracentesis may improve the condition and help in the identification of a coexistent complication.

Tubal damage seems to be a determining factor in producing an ectopic pregnancy after IVF-embryo transfer (Dubuisson et al., 1991). Embryos that migrate into the tube after the transfer may not be transported back into the uterine cavity by damaged tubes. One should always be aware of this fact, specifically in the presence of severe OHSS and an intrauterine pregnancy. When clinical suspicion warrants it, it may be crucial in this situation to investigate the possibility of ectopic pregnancy. Laparoscopy should not be delayed to prevent a threatening situation for the patient and the intrauterine pregnancy although one should bear in mind that visualization of tubal pregnancy before the seventh week of gestation by laparoscopy might fail because of its reduced size at that stage.

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