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CASE REPORT

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A quadruplet pregnancy

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Introduction

Spontaneous occurrence of quadruplet pregnancy is extremely rare. Only 48 such pregnancies are reported in the world literature between 1900-1952 [1]. Since the introduction of gonadotrophin in 1959 and clomiphene citrate in 1961 for ovulation induction, a major increase in multifetal pregnancies has occurred. Hellin's rule for incidence of multiple births is no longer applicable. Quadruplets are reported in 0.3% of clomiphene induced pregnancies and 2.6% of gonadotrophin induced gestations [1]. Overall incidence is 0.6% [2].

Case report

A primigravida aged 30 years with quadruplet pregnancy presented at 20 weeks of gestation for antenatal registration. Her menstrual cycles were regular and her last menstrual period was on 18th May, 2003. She had ovulation induction with gonadotrophin and human chorionic gonadotrophin (10,0001.U) was given on 14th day for follicle rupture, and intrauterine insemination was done on 15th day. The luteal phase support was given with progesterone. Five days following insemination she had developed abdominal distension with breathlessness. Ultrasonography was done which showed bilateral enlarged ovaries with multiple cysts and minimal ascites. Her complete blood count and renal function tests were within normal limits. She was managed conservatively on outpatient basis. Serum βhCG level done on 30th day was positive for pregnancy (55 U/mL). At 6 weeks she was hospitalized for severe ovarian hyperstimulation syndrome (OHSS). She had severe abdominal distension with breathlessness. On examination she had marked ascites and mild pleural effusion. Ultrasonography had shown enlarged ovaries with multiple cysts and intrauterine quadruplet pregnancy of 5-6 weeks. Hemotocrit was 0.44 and leukocyte count 18,500/mm³. She was treated with intravenous fluids. Paracentesis was done. She was discharged after 5 days. Luteal phase support was continued with progesterone. Folic acid was advised.

The couple was counseled for fetal reduction but the consent was declined on moral grounds. She was rehospitalized at 8 weeks and 12 weeks for threatened abortion and treated conservatively.

She was started on hematinics and calcium from second trimester onwards and pregnancy was monitored with baseline blood and urine investigations and serial ultrasonography. Anomaly scan at 19 weeks showed no obvious congenital anomalies in any of the four fetuses. Pregnancy was monitored by frequent antenatal checkups. Her blood pressure, hemoglobin and blood sugar remained within normal limits in all the three trimesters. Ultrasonography at 28 weeks showed growth discrepancy of one fetus compared to the other three. However, amniotic fluid and doppler studies remained within normal limits. Fortnightly ultrasonography was carried out from 28 weeks which showed steady growth and increase in weight of all the fetuses. But the discrepancy in the weight of one fetus compared to other three fetuses persisted. Prophylactic dexamethasone 12 mg intramuscularly was given at 29 weeks and repeated after 12 hours.

She was hospitalized at 32 weeks for safe confinement. Sonography at 34 weeks showed no growth and increased S/D ratio of 4.1 of umbilical artery of the fetus indicating growth restriction. Five days later, repeat sonography showed

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absent end diastolic flow of that fetus. A decision was taken for an elective lower segment cesarean section (LSCS) which was carried out at 35 completed weeks under general anesthesia. The first two female babies were delivered as cephalic presentation while the third female and the fourth male baby were extracted as breech at one minute intervals. The three female babies weighed 1650 g, 1700 g and 1710 g respectively with apgar scores of 9/10 at 1 minute and 9/10 at 5 minutes. The male baby weighed 940 g with apgar scores of 3/10 at 1 minute and 9/10 at 5 minutes. Two fused anterior placentas and two fused posterior placentas were extracted completely. Injection $PGF_2\alpha$ (0.25mg) was given intramuscularly. There was no postpartum hemorrhage (PPH).

All the three female babies had no obvious congenital anomalies whereas the male baby had features of asymmetric intrauterine growth restriction with two vessel umbilical cord and increased Wharton's jelly 10 cm away from the cord insertion. All the babies were kept in the neonatal intensive care unit (NICU) for observation. Female babies were shifted to the mother's side on 4th, 5th and 6th postnatal day. The male baby was kept in NICU, ventilated, treated with antibiotics and packed cell transfusion. He was diagnosed to have vesico-rectal fistula.

On follow-up after 6 months all the four babies were doing well with the milestones appropriate for the age. The weights of the three female babies were 6.1, 6.0, and 6.2 kg. and the male baby weighed 4.120 kg. The vesico-rectal fistula is persisting in the male baby without any complication and is to be operated upon at a later date.

Discussion

The number of multiple births has risen dramatically since 1980 with 77% increase in twins, and 459% increase in triplets and higher order births. Factors that have contributed to this include a trend towards delayed childbearing and advances in assisted reproductive techniques [2]. OHSS was first described following gonadotrophin use for ovulation induction [3]. The reported incidence of severe OHSS varies between 0.5 to 10% and is associated with significantly higher rate of miscarriage, low birth weight and preterm deliveries [4].

The largest series reporting maternal and perinatal outcomes in 71 quadruplet pregnancies is published by Collins and Bley in 1990 [5]. Preterm labor was the most frequent complication affecting 98% of the pregnancies. Other maternal complications included pregnancy induced hypertension (PIH) (32%), anemia (25%), urinary tract infection (UTI) (14%), gestational diabetes mellitus (GDM) (10%) and PPH (28%). A study by Elliot and Radni [6] reporting outcome of 10 quadruplet pregnancies showed significantly increased incidence of PIH (9 out of 10); two women developed pulmonary edema. In 1999 Angel et al [7] reported the outcome of 9 quadruplet pregnancies in comparison with 25 triplet and 24 nonreduced twin and 19 reduced twin pregnancies. They reported increasing incidence of PIH, GDM and preterm labor with an increasing number of fetuses.

Although the incidence of higher order multiple gestations has increased significantly owing to the various assisted reproductive techniques the accurate information on the natural outcome of these pregnancies is still relatively uncommon because of higher fetal loss rate in these pregnancies and growing practice of fetal reduction.

Gestational age at delivery and the birth weights of multiple pregnancies are inversely proportional to the number of fetuses contained within the uterus. The average gestational age at delivery of the quadruplet is 30 weeks [8] and the mean birth weight 1414g [9].

The loss of entire pregnancy prior to viability is 50% for the unreduced quadruplets and 7-10% for the twins following multiple fetal reduction. Many women do not wish to undergo fetal reduction on moral and religious grounds. Our patient had refused fetal reduction on moral grounds.

Recent studies have suggested that multiple births from assisted reproductive techniques may experience excess morbidity including low birth weight, prematurity and higher risk for major birth defects[10]. However in our case the woman did not have any of the medical complications such as PIH, anemia, GDM, and UTI. Inspite of severe OHSS and threatened abortion, she carried the pregnancy till 35 weeks with good antenatal care and judicious obstetric management. An elective LSCS was preformed at 35 weeks in view of fetal compromise. The management of multiple pregnancies involves balancing the risk of prematurity with the risk of untoward and catastrophic perinatal loss. The equilibrium was well maintained in our case resulting in a successful obstetric outcome.

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