CASE REPORT

Expectant management of unexpected quadruplet pregnancy.

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Abstract

We report a case of a 29 year old nulligravida over 3 years of marriage with a history of ovarian endometrioma and blockage of one tube. Pregnancy was achieved after mild ovulation induction with recombinant FSH that proved to be a quadruplet. The patient refused fetal reduction in spite of extensive counseling. The patient developed deep vein thrombosis in the 32nd week of pregnancy. Prophylactic and therapeutic low molecular weight heparin (Clexane) was administered, as well as hospitalization and intensive care. This eventful pregnancy resulted in delivery of two male and two female infants in the 33rd week of pregnancy. The four babies and their mother appear in good health at follow-up visit two months after delivery.

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Introduction

The incidence of four-fetus pregnancies (1:512000 to 1:677000) has increased with the introduction of fertility drugs and assisted reproductive technology, such that 90% of all quadruplets are the result of fertility treatments (Doyle, 1996; Fellman and Eriksson, 2009).

Multiple fetus pregnancies have a higher risk compared to single fetus pregnancies, with greater maternal mortality and morbidity. Perinatal mortality and morbidity are also greater due to the high risk of premature birth. The average gestational age at delivery for singleton pregnancies is 39.1 weeks. The average gestational age decreases with twins at 35.3 weeks, while triplets and quadruplets are born at an average of 32.2 weeks and 29.6 weeks of gestation respectively (Goldman et al., 1989; Doyle, 1996).

Multi-fetus pregnancies are also associated with higher risk of first trimester bleeding, pre-eclampsia, eclampsia, deep vein thrombosis, preterm delivery, anemia, placenta previa, abruptio placentae, and many other complications (Mansouri and Ghazawi, 2007).

Case Report

This report describes the multiple fetus pregnancy of a 29 year old African Chadi woman. Quadruplet pregnancy was determined on 10/9/2018 with quadriamniotic quadrichorionic placenta at 9th gestational week. Her last menstrual period was on 10/7/2018. The patient first visited the clinic on 27/01/2018 with complaints of severe pelvic pain. She was diagnosed with severe endometriosis. Transvaginal ultrasound revealed ovarian endometrioma in both ovaries. The left ovary presented with two well defined cysts with internal echo septations, measuring 69mm x 58mm and 50mm x 39mm. The right ovary presented with two cysts measuring 18mm x 17mm and 21mm x 20mm. The patient was treated with 3 doses of GNRH agonist injection, for pain management.

During the subsequent visit (26/6/2018) investigation noted the right ovary was free of cysts and the left ovary showed improvement, with a cyst measuring ~54mm x 45mm (Image 1). Hysterosalpingography was performed on 30/6/2018, which revealed a severely dextro-

rotated uterus with right tubal blockage. During the visit, the patient and her husband requested assistance in conceiving, having experienced three years of infertility.

Ovulation induction with 100iu recombinant FSH (Gonal F) was initiated on the second day of the menses and folliculometry was done on the sixth day of menses. Three follicles measuring more than 14mm, and two follicles measuring less than 12mm were detected in the right ovary. No follicles were detected in the left ovary. Two more doses of 100iu Gonal F were administered as well as triggering with 10.000iu of hCG. The couple were advised to have sex 24-30 hours after triggering.

The serum pregnancy test was positive on 4/8/2018 and the beta hCG was 21800miu/ml on 12/8/2019. The first ultrasound on 15/8/2018 showed three gestational sacs with individual yolk sac within each gestational sac (Image 2). Quadruplet pregnancy was discovered during the ultrasound on 10/9/2018 (Image 3). The couple was counseled on the maternal and fetal risks of a quadruplet pregnancy. They were offered the option of selective fetal reduction. However, the couple decided to continue with the quadruplet pregnancy in spite of extensive counseling.

The patient attended our clinic every two weeks. The results of the patient's first trimester investigations noted the blood pressure reading was 110/70mmhg, and her weight 70 kg. Blood tests showed a hemoglobin (Hb) level of 12g/dl and RBC was 100mg/dl. The patient's blood group is A negative while her husband is O positive. Indirect Coombs test was negative. Supplemental folic acid, iron, calcium and once daily 100mg progesterone vaginal inserts were prescribed to the patient.

At 20 weeks of gestation, the patient began to complain of abdominal tenderness and mild respiratory discomfort. Uterine fundal height corresponded to 30 weeks of gestation. Hydroxyprogesterone 500mg was administered once every 5 days and Hyoscine-n-butylbromide 10 mg tablets were provided for daily consumption.

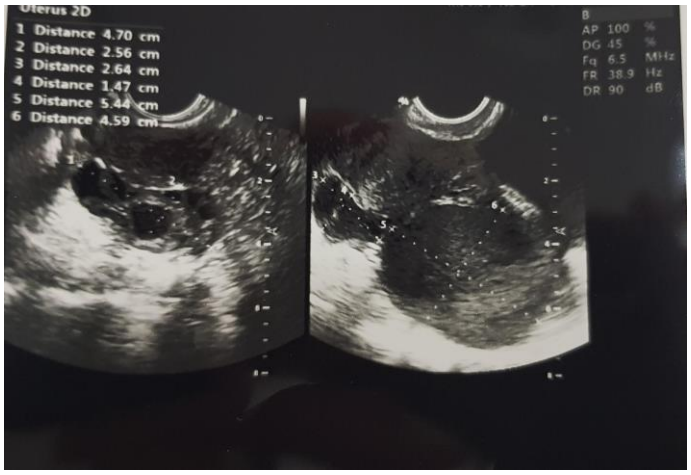
After 28 weeks of gestation, Dexamethasone 6mg bid was administered. Indirect Coombs was repeated which gave a negative reading. Prophylactic anti-D immunoglobulin was administered to neutralize any RhD positive antigens in her blood stream (anti-D 300mcg intramuscular injection was administered. Her Hb had fallen to 7.7g/dl. The patient received one dose of Ferinject (ferric carboxymaltose) intravenous infusion per week for 3 weeks. The patient developed bilateral lower limb edema and experienced difficulty moving and walking comfortably. Due to this development, the patient received daily prophylactic doses of low molecular weight heparin (Clexane) 40mg subcutaneous.

The patient was admitted to the intensive care unit (ICU) at 31 weeks of gestation due to increasing edema of her lower limbs and difficulty walking. The edema spread to her thighs and her lower abdominal area. Duplex doppler was performed for both lower limbs, which showed deep femoral vein distension with complete intraluminal isoechoic thrombus, extending to the distal part of the common femoral vein. The patient received vascular consultation, after which a therapeutic dose of Clexane 80 mg bid was administered with elastic stockings and bed rest. Pre-eclampsia was also diagnosed due to her blood pressure ranging from 145/80 to 155/87, as well as proteinuria. After 24 hours, 1.7g/dl Nifedipine Retard 20mg was administered twice a day.

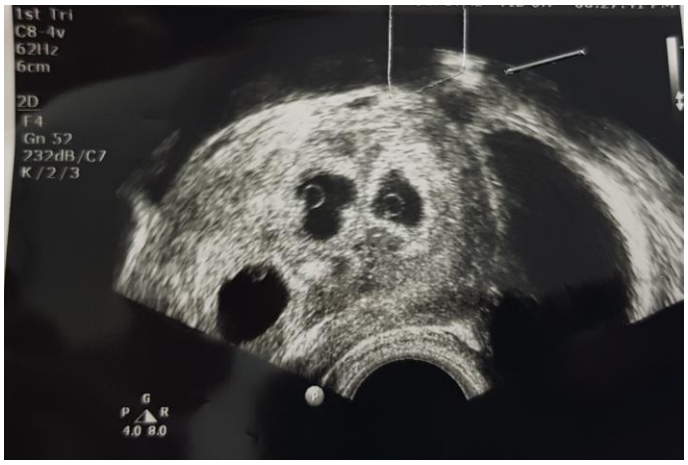
The results of the ultrasound scan on 11-02-2019 showed: live twin cephalic estimated weight (EW):1646g; second live twin, breech, EW:1312g; third live twin breech EW:1600g; and a fourth live twin breech, EW:1659g.

The ultrasound was repeated daily as it was difficult to distinguish four heartbeats with the cardiotocography (CTG), while the cardiotocogram was recorded twice daily.

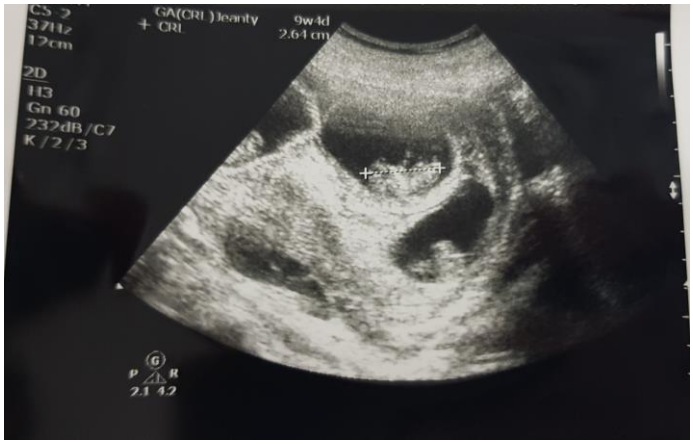
At 32 weeks and one day, the patient experienced mild vaginal bleeding and moderate uterine contractions. Clexane administration was ceased at that time. On 18/2/2019 at 9pm, the patient received loading doses of 5 grams of magnesium sulphate over 20 minutes. The patient then received a maintenance dose of 1.5 g/hour throughout the night until 9am on 19/2/2019. The patient was then moved to the operating room and a lower segment Caesarean section was performed. Two male and two female newborns (quadriamniotic and quadrichorionic) were delivered, weighing between 1130-1720 grams at birth. Details of the four babies at the time of birth is given in



Ultrasound image 1: showing left ovarian endometriomas before commencement of ovulation induction



Ultrasound image 2: showing three gestational sacs at 5 weeks with individual yolk sac within each gestational sac - one sac not in view



Ultrasound image 3: showing the quadruplets - one sac not in view

(All 3 images obtained by transvaginal imaging)

Table 1: Characteristics of the Quadruplets babies following delivery

Newborn	Presentation	SEX	Apgar Score	Birth Weight (Grams)	Blood Group	Hospital Stay
First	Cephalic	Boy	6/10-8/10	1720	O Positive	12 Days
Second	Breech	Girl	5/10-7/10	1130	O Negative	30 Days
Third	Breech	Boy	7/10-9/10	1380	O Positive	19 Days
Fourth	Breech	Girl	6/10-8/10	1410	O Negative	19 Days

Photo 1: The quadruple babies three days after delivery

Photo 2: The quadruplet babies at 8 months of post delivery

Table 1 and their picture taken three days post delivery is given in Photo 1. Three of the newborns only received supplemental oxygen therapy by nasal prong for three days. The first born and largest infant received CPAP for 2 days, and then oxygen therapy by nasal prong for 3 days. The four infants were discharged at 12, 19, 19 and 30 days respectively, weighing between 1410 grams to 1670 grams. The patient's estimated intra-operative blood loss was 400ml. She received 300mcg anti-D and continued to receive anti-hypertensive drugs. Therapeutic doses of anti-coagulant subcutaneous injections were resumed after 12 hours. With the assurance of family support at home, the patient was discharged 8 days post cesarean on oral anti-coagulants. The administration of Adalat (Nifedipine) ceased after 4 weeks. The anti-coagulants ceased after 3 months when the Duplex Doppler ultrasound reading for the lower limbs normalized. The four babies and their mother appeared to be in good health at follow-up visit two months and 6 months after delivery. The babies are thriving at eight months post-delivery at the time this report was prepared (Photo 2).

Conclusion

It is a standard practice to counsel the couple to accept fetal reduction in quadruple pregnancy. However if after extensive counseling the patient is determined to proceed with the pregnancy the service providers are left with no option but to manage the pregnancy. In this instance the outcome was favorable.

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