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Case Report

Successful Management of Quadruplet Pregnancy following Spontaneous Conception: A Rare Case Report

Deepak Shrestha,[a,d] Babita Thapa,[a,d] Shreyashi Aryal,[a,d]
Buddhi Kumar Shrestha,[b,d] Kiran Panthee,[a,e] Balkrishna Kalakheti[c,e]

ABSTRACT:

Introduction: When more than two fetuses simultaneously develop in the uterus, it is called higher order multiple pregnancy. The incidence of such pregnancies ranges from 0.01% to 0.07%. **Case report:** We report a case of 26-year-old $G_2P_1L_0D_2$ with previous history of preterm vaginal twin delivery, diagnosed to have quadruplet pregnancy. She was admitted at 28 weeks of gestation for safe confinement. At 33 weeks of gestation, emergency cesarean section was conducted with outcome of two female and two male babies with quadriamniotic and quadrichorionic placenta, without any intra and post-operative complications. **Conclusion:** A multidisciplinary approach with good neonatal care facilities is warranted for a better outcome in higher order multiple pregnancies.

Keywords: high-risk pregnancy • multiple pregnancy • pregnancy outcome • quadruplet pregnancy

INTRODUCTION:

When more than two fetuses simultaneously develop in the uterus, it is termed higher order multiple pregnancy.[1] It is rare, incidence ranging from 0.01% to 0.07% and constitutes a high risk pregnancy.[1] With the introduction of fertility drugs, newer assisted reproductive techniques (ART) and childbearing at older ages, the incidence of multiple pregnancies has dramatically increased.[2-4] However, spontaneous quadruplet pregnancies are exceptional with a reported incidence of one in 512,000 to one in 677, 000 births.[5,6] Compared to singleton pregnancies, the maternal mortality and morbidity in quadruplet pregnancies are considerably greater. The perinatal mortality and morbidity are also relatively high primarily due to prematurity.[1] Here we report such a case of 26 years $G_2P_1L_0D_2$ with spontaneous conception of quadruplet pregnancy and successful outcome of two female and two male babies.

CASE REPORT:

A 26-years $G_2P_1L_0D_2$ lady, married for three years, was diagnosed to have a quadruplet pregnancy with quadriamniotic quadrichorionic placenta by a 13-weeks ultrasonography in an outreach clinic. It was her planned spontaneous pregnancy. She had had a previous preterm twin vaginal delivery with early neonatal deaths. Her second degree maternal relative also had a history of twin deliveries.

She was comprehensively counseled regarding the potential maternal and fetal risks, both short term and long term, with options for selective

a - Lecturer
b - Assistant Professor
c - Associate Professor
d - Department of Obstetric and Gynecology
Lumbini Medical College Teaching Hospital, Palpa, Nepal
e - Department of Pediatrics
Lumbini Medical College Teaching Hospital, Palpa, Nepal

Corresponding Author:
Dr. Deepak Shrestha
e-mail: thecups814@gmail.com

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fetal reduction. The couple decided to continue the pregnancy. She was then followed up regularly in the clinic till the end of 2nd trimester. She had received two doses of tetanus toxoid injection and was on iron and calcium supplementation.

At 28 completed weeks of gestation, she was admitted to our hospital for safe confinement. Barring occasional respiratory discomfort, she did not complain of any other complications. On examination, her abdomen was over distended with multiple fetal parts palpable. Three fetal heart sounds were distinctly audible on auscultation. Vaginal examination revealed a tubular, closed and uneffaced cervix. She was continued on hematinics and calcium supplementation. Micronized progesterone was added to provide uterine quiescence. For expediting fetal lung maturity, steroid (dexamethasone six mg 12 hourly for a total of four doses intramuscularly) was given at 28 weeks.

Regular fetal surveillance was done with bi-weekly ultrasound and weekly umbilical artery doppler velocimetry. At 33 weeks of gestation, she went into labour and emergency cesarean section was done with an outcome of two female and two male babies (Fig. 1). The placenta was quadriamniotic and quadrichorionic weighing 1200 grams combined. Total blood loss measured 500 ml. Intra and post- operative periods were uneventful. All the four babies were transferred to Neonatal Intensive Care Unit (NICU) (Fig. 2) for supportive therapy and two were transferred to mother side on 16th day. The patient was discharged with four live babies on her 40th postoperative day. Details of the four babies at the time of birth is given in Table 1.

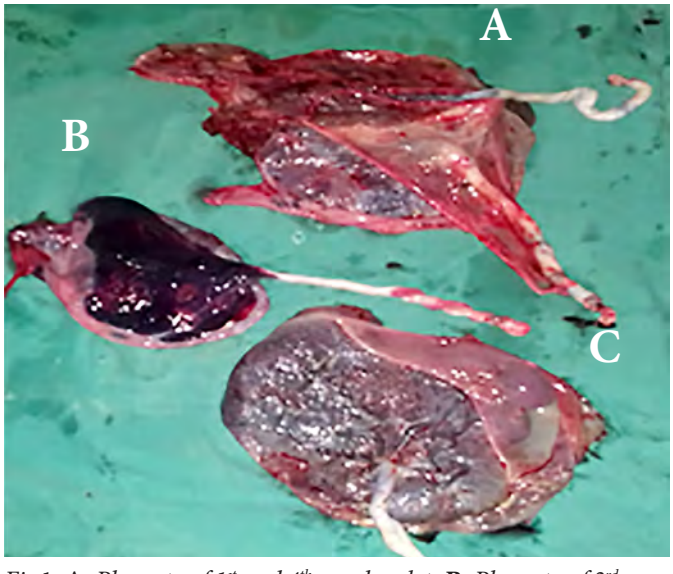

Fig 1: **A.** *Placenta of 1st and 4th quadruplets* **B.** *Placenta of 3rd quadruplet* **C.** *Placenta of 2nd quadruplet (color picture available online)*

Fig 2: *All the four babies together in NICU. (color pic available online)*

DISCUSSION:

Although a dramatic rise in the incidence of multiple gestations seems to be there due to the use of ovulation induction drugs and in vitro fertilization, spontaneous quadruplet pregnancy is still very uncommon.[2-4,7] As per Hellin rule, the incidence is one in 512,000 to one in 677,000 births, and is associated with greater maternal and perinatal mortality and morbidity.[5,6] Nnadi et al. has reported the incidence of such higher order multiple pregnancies ranging from 0.01% to 0.07% of all pregnancies.[7]

Till 1999, only 128 sets of quadruplet pregnancy were recorded across the world.[8] In Nepal, only two such cases have been reported before in newspaper media, thus making it one of its first kind to be published in literature.

The case here had not received any assisted reproduction. However, she had had previous history of twin preterm vaginal deliveries. That her family history was also positive for multiple pregnancies, suggests familial predisposition. In resource constrained countries, it is usually as a result of racial predisposition.[5] el-Tabbakh GH. has reported a similar case with spontaneous quadruplet pregnancy with a personal and family history of multiple pregnancies.[9]

The management of quadruplet pregnancy poses a challenge to obstetricians as all the complications of pregnancy, labour, and delivery are exaggerated.[10] Maternal complications as pre-eclampsia, gestational diabetes mellitus, cardio respiratory embarrassment, and preterm labour are well documented. In our case, occasional respiratory discomfort was noted. At 33 weeks of gestation she went into preterm labour necessitating emergency cesarean section.

Table 1*: Details of the four babies at time of birth*

Quadruplet	Sex	Weight (grams)	Presentation	APGAR scores at 1', 5'	Time of birth
First	Male	1500	Breech	7/10, 9/10	3:44 am
Second	Male	1250	Cephalic	7/10, 9/10	3:46 am
Third	Female	1700	Cephalic	6/10, 8/10	3:47 am
Fourth	Female	1250	Breech	7/10, 8/10	3:49 am

The management of higher order pregnancy requires special care and multidisciplinary approach.[11] The early involvement of neonatologists and anesthesiologists with NICU back up was instrumental in resulting a better outcome.

The main fetal complication of higher order multiple pregnancies is prematurity with its concomitant increase in perinatal mortality and morbidity.[1,12] As in our case, more than 90% of the cases end in premature deliveries.[6]

It has been well established that chorionicity rather than zygosity determines the outcome in multifetal pregnancies mainly because of increased risk of transfusion syndromes in addition to problems of prematurity.[13] Because of quadrichorionic and quadriamniotic placentation, no such complications were encountered in our case.

The average gestational age at delivery for twins is 35 weeks, triplets 32.2 weeks and quadruplets 29.9 weeks.[6,14] Quadruplet pregnancy carrying to term is rare and occurs in less than 3%.[1] This presents the greatest challenge to obstetricians as there is no clear cut approach to its management. Bed rest, beta-mimetics, progestogens and elective cervical cerclage have all been reported to have a beneficial effect in prolonging pregnancy in some literatures, but the results are yet to be substantiated by controlled trials.[6,15,16] Our patient was conservatively managed with bed rest and progesterone supplementation however cervical cerclage was not placed.

The preferred method of delivery of quadruplet pregnancies is elective cesarean section. This is because of increased risk of fetal malpresentations and difficult intrapartum fetal monitoring associated with the condition.[5,16]

Higher order multiple pregnancies delivered by cesarean section have a lower perinatal mortality and morbidity compared to vaginally delivered ones.[17] Though planned for an elective cesarean section at 34 weeks, the preterm onset of labour at 33 weeks in our case forced an emergency section. Owing to a long hospital stay, operative interference, prolonged NICU stays and expenses for the care of neonates, higher order multiple pregnancy is economically taxing. Hence in most resource poor countries, multiple births are not always welcome, while quadruplets are often seen as an abnormality.[15] Our case belonged to a poor socioeconomic background. The media coverage they received did throw them into limelight for sometime but it did not raise a sufficient fund. The hospital support in terms of logistics and NICU care and some personal and institutional donations helped them cover a substantial percentage of the expenses but not entirely. Studies show the socio-economic status of the families does influence outcome, and media coverage does not always improve their financial status.[13] Selective fetal reduction early in pregnancy should therefore always be offered wherever available though some prefer to continue the pregnancy as in ours.

CONCLUSION:

This is a rare case of successful quadruplet spontaneous pregnancy. Early ultrasonographic documentation, regular clinical, biophysical and radiological monitoring, early hospitalisation, and cesarean section as the mode of delivery were crucial in resulting a favorable outcome. The most important complication to look for is preterm labour leading to fetal prematurity, which mostly cannot be avoided despite measures. The tremendous efforts put by neonatologists post delivery was pivotal in the overall outcome. Thus, higher order multiple pregnancies, though uncommon, when occur, place great responsibilities on the clinicians and family both. A well co-ordinated multidisciplinary approach with good birth preparedness is not only mandatory but has also been shown to be effective in improving outcomes.

Conflict of interest: None declared.

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