

Case report: successful of a spontaneous quadruplet pregnancy

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Summary

Objective. To report a rare case of successful pregnancy and delivery of two pair of monozygotic twins (quadruplets).

Design. Case report.

Patient. A 32-year-old nulligravida, who had had a previous twin pregnancy and was herself a twin assisted hatching.

Interventions. Prophylactic cervical cerclage sec. McDonald in the 23st week of pregnancy, hospitalization, and intensive care of pregnancy, ending with delivery by planned Cesarean section (CS) in the 34th week of pregnancy.

Main Outcome Measure. Successful pregnancy and delivery of two male and two female twins in the 34th week of pregnancy.

Conclusions. Prophylactic cerclage, bed rest, prophylactic antihypertensive therapy and corticosteroids results in delivery of four healthy newborns.

KEY WORDS: quadruplets, pregnancy care, delivery, monozygotic twins, biamniotic monochorionic, monoamniotic monochorionic.

Introduction

Spontaneous pregnancies with more than two fetuses are very rare.

Hellin's Law states that before the advent of fertility methods, the natural occurrence of multiples would be Twins 1 in 90 live births, Triplets 1 in 8,100 live births, Quadruplets 1 in 729,000 live births and Quintuplets 1 in 65,610,000 live births but those numbers have decreased to 1/38, with techniques of assisted reproduction It is estimated that 60% of triplets are from fertility treatments, 90% of quadruplets are from fertility treatments, and 99% of quintuplets are due to fertility treatments (Fellman et al., 2009).

Monozygotic twins (MZT) arise from division of a fertilized ovum at various early stages of embryogenesis in particular if division occurs between the fourth and eighth day will result in biamniotic monochorionic while the splitting after the eighth day will result in monoamniotic monochorionic.

As compared with singleton pregnancies, quadruplets, and in particular monocorial pregnancies, are associated with a higher risks of hypertension, incompetent cervix, premature rupture of membranes, placenta previa, abruptio placenta, first-trimester bleeding, preterm labor, anemia, stillbirths and perinatal deaths.

The incidence of multiple-fetus pregnancies, put at 1: 803 which translates into 1: 512,010 pregnancies, has increased since the introduction of fertility drugs and new reproductive technologies (Cahill et al., 2003; Ogunnowo et al., 2004; Pons et al., 1992; Collins et al., 1990; Grgic et al., 2009; Pugliese et al., 1994; Yokoyama et al., 1995; Sebire et al., 1997).

But counseling of these patients is hampered by the lack of information regarding the outcome of multiple pregnancies, particularly supermultiples.

The management of multiple gestations creates special problems for the Obstetrician.

Early diagnosis and correct management with complete bedrest and hospitalization of the patient are essential for a successful outcome. In particular the ultrasound controls and daily monitoring of vital signs, maternal anthropometric, nutritional, attitudes and previous reproductive factors may be particularly important in the reduction of excess risks and improvement of outcomes in multiple births are most helpful (Schwendemann et al., 2005; James et al., 2009; Seoud et al., 1992; Goldman et al., 1989; Ron-El et al., 1981).

Case report

We report a 32-year-old, white, italian woman with a spontaneous quadruplet pregnancy.

The patient had had a previous twin pregnancy and was herself a twin.

When she was a healthy looking young women, with height of 1.70 meters, weight 68kg and her blood pressure was 130/80 mmHg.

Ultrasonography since start of pregnancy to 33 weeks were normal.

At the 33rd week the latter showed live quadruplet gestation cephalic, cephalic, cephalic, breech, compatible with stated gestational age and the placenta was fundal and anterior in location and the liquor volume was normal. The estimated fetal weights at this gestational age ranged from 1.8 to 2.1 kg.

In the 23st week of pregnancy occurred prophylactic cervical cerclage (sec. McDonald), hospitalization, and intensive care of pregnancy. The sporadic uterine contraction because of the increased intrauterine pressure started at the 33rd week, and tocolytic therapy with beta mimetic agent (15 mL/h intravenous infusion), and corticosteroid prophylaxis with dexamethason 12 mg intramuscular per day for 2 days.

Before hospitalization the laboratory tests and ultrasound assessment of fetal biometric measures as biparietal diameter, abdominal circumference, femur length, placental site, amniotic fluid index, as well as biophysical profile since the 29th week, and Doppler parameters with resistance index in the umbilical and the medial cerebral artery, were performed every 2 weeks.

A cardiotocogram was recorded every day from the 29th week of pregnancy. The control cervical swabs 3 weeks later were normal.

At the 33rd week blood pressure of patient increased and she received antihypertensive therapy.

At the 34th week Cesarean section was performed and four newborns, two male monochorionic monoamniotic twins, and two female monochorionic diamniotic twins, weighted between 1,400 and 2,180 g were born.

The babies were resuscitated by oro- and nasopharyngeal suctioning and ambu-aging, with supplemental oxygen.

She recovered from surgery without any complication and was discharged home on the 5th post operative day. She was seen at the postnatal clinic after 20 days since the Cesarean section and the babies showed satisfactory weight gain. The blood pressure of the woman was 130/80mmhg. She was advised to report at the family planning clinic for counseling on resumption of her menstruation and infants with birth weights ranging between 1750gram and 2850grams.

Conclusions

This is a rare case of successful quadruplet spontaneous pregnancy.

As a part of our study we performed a MEDLINE search of the literature from 1980 to April 2009 using the key words: simultaneous division, monozygotic, twins, triplets and quadruplets and we found that the frequency of multiple pregnancies with more than two fetuses has increased considerably since the introduction of methods of ovulation induction, in vitro fertilization, and embryo transfer. We have analyzed the evolution of a quadruplet spontaneous pregnancy.

The diagnosis of 4 fetuses was made earlier.

Management, initiated upon diagnosis, included bed rest, high-protein diet, beta-mimetic agents, dexamethasone late in the second trimester, selective cerclage and in particular the intensive ultrasonographic controls with biophysical and Doppler parameters in addition of car-

diotocogram was important for wellness and survey of the fetuses. In Italy, at the end of the years '90, many authors consider that a caesarean section, not just reached a reasonable fetal maturity, represents the most suitable formality of birth for the multiple pregnancies, even if they miss absolute data to the respect. The mean gestational age was 34 weeks when we planned a Cesarean section and prenatal care has been shown to be effective in improving outcomes in this multiple pregnancy.

References

1. Fellman J, Eriksson WA. On the History of Hellin's Law. Australian Academic Press 2009;12:183-190.
2. Cahill DJ, Jenkins MJ, Soothill PW, Whitelaw A, Wardle PG. Quadruplet pregnancy following transfer of two embryos: Case report. Human Reproduction 2003;18(2): 441-443 European Society of Human Reproduction and Embryology
3. Ogunnowo T, Oluwole O, Aimakhu CO, Ilesanmi AO, Omigbodun AO. Case Report - Term quadruplet pregnancy: a case report. Nigerian Journal of Surgical Research 2004;6:56-58.
4. Pons JC, Frydman R. Quadruplet pregnancies; management and obstetric and paediatric outcome. J Gynecol Obstet Biol Reprod (Paris) 1992;21:557-562.
5. Collins MS, Bleyl JA. Seventy-one quadruplet pregnancies: management and outcome. Am J Obstet Gynaecol 1990;162:1384-1391.
6. Grgic O, Ivanisevic M, Djelmis J, Lucinger D, Krile L. Successful pregnancy and delivery of two sets of monozygotic twins after intracytoplasmic sperm injection and embryo transfer: case report and literature review. Fertility and Sterility 2009;92:392.e5-392.e8.
7. Pugliese A, Arsieri R, Patriarca V, Spagnolo A. Incidence and neonatal mortality of twins: Italy 1981-90. Acta Genet Med Gemellol 1994;43:139-44.
8. Yokoyama Y, Shimizu T, Hayakawa K. Prevalence of cerebral palsy in twins, triplets and quadruplets. Int J Epidemiol 1995;24:943-8.
9. Sebire NJ, Snijders RJM, Hughes K, Sepulveda W, Nicolaides KH. The hidden mortality of monochorionic twin pregnancies. Br J Obstet Gynaecol 1997;104:1203-7.
10. Luke B, Brown MB. Maternal morbidity and infant death in twin vs triplet and quadruplet pregnancies. Am J Obstet Gynecol 2008;198:401.e1-401.e10.
11. Newman RB, Ellings JM. Antepartum management of the multiple gestation: the case for specialized care. Semin Perinatol 1995;19:387-403.
12. Elliott JP. High-order multiple gestations. Semin Perinatol 2005;29:305-311.
13. Schwendemann WD, O'Brien JM, Barton JR, Milligan DA, Istwan N. Modifiable risk factors for growth restriction in twin pregnancies. Am J Obstet Gynecol 2005;192:1440-1442.
14. James S, Gil KM, Myers NA, Stewart J. Effect of parity on gestational age at delivery in multiple gestation pregnancies. J Perinatol 2009;29:13-19.
15. Seoud MA, Toner JP, Kruihoff C, Muasher SJ. Outcome of twin, triplet, and quadruplet in vitro fertilization pregnancies: the Norfolk experience. Fertil Steril 1992;57:825-834.
16. Goldman GA, Dicker D, Peleg D, Goldman JA. Is elective cerclage justified in the management of triplet and quadruplet pregnancy? Aust N Z J Obstet Gynaecol 1989;29:9-12.
17. Ron-El R, Caspi E, Schreyer P, Weinraub Z, Arieli S, Goldberg MD. Triplet and quadruplet pregnancies and management. Obstet Gynecol 1981;57:458-463.