Asynchronous delivery of twins and triplets with an interval period ranging from 48 hours to 19 weeks

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Summary

Objective: To improve perinatal survival rates by prolonging the rest of the pregnancy after an abortion or extremely premature birth of one fetus in multiple pregnancies, especially in women with low fertility potential.

Methods: Following the expulsion of one fetus a cervical cerclage was applied to all patients. The placenta of the expelled fetus including a small portion of its cord after it was ligated close to the external os, was left in situ. The patients were invariably kept on bed rest until the pregnancy was completed under close observation, tocolysis and preventive antibiosis. After the 24th week of gestation corticosteroids were administered.

Results: The delivery interval achieved ranged between two and 135 days, the longest reported. Although the survival rate was relatively low (40%) all but one of the women (83%) managed eventually to have a live child, one with twins.

Conclusions: In selected multiple pregnancies the attempt to prolong the rest or the pregnancy, following the abortion or the extremely premature birth of one fetus, seems efficacious and justified especially in women with a history of long-term infertility.

Key words: Multiple pregnancies; Asynchronous delivery.

Introduction

In multiple pregnancies, various obstetric complications may render the birth of extremely premature and of doubtful viability babies inevitable. Due to the expansion of the new methods of assisted reproduction, the problem is developing into a new clinical entity, calling for reconsideration of the classical conservative methods of management. Spontaneous conception of triplets for example, is an extremely rare occasion (one in 8,300 pregnancies) [1] but following the use of potent ovulatory drugs the rate increases drastically (nearly 80 times higher).

Among the large variety of complications associated with multiple pregnancies, especially those of high order, the most common and most important is extreme prematurity with its known consequences on the health and survival of the neonates concerned. The perinatal mortality rate is high (47-120/1,000 for twins and 93-203/1,000 for triplets) [2] and is most critical between 23 and 28 weeks primarily due to prematurity. Although multiple pregnancies can be and have been effectively reduced by transferring less than three embryos in IVF cycles, the problem will still exist, as a result of spontaneous conception of more than one fetus caused by ovarian stimulation alone.

In multiple pregnancies, as a rule, the birth of one fetus is followed by the birth of the rest. In extremely rare cases, uterine activity may cease spontaneously and the remaining fetus or fetuses may be retained in utero, usually for no more than a few hours or a few days. Such cases have been reported in at least 48 twin pregnancies so far, with a survival rate of less than 50% (41-6%) [2].

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Recently, in order to improve the perinatal morbidity and mortality and reduce the high cost involved with prematurity, the preservation of the remaining fetus or fetuses in utero, following the extremely premature birth of one fetus, has been attempted for an indefinite period using various methods. The neonates whose delivery has been delayed, have already been reported as showing a better survival rate [3, 4]. In the case of spontaneous rupture of the membranes before the 18th week, aspiration of the corresponding fetus has been attempted, with a successful final outcome for the other twin [5].

Despite the fact that such individual interventions have claimed to be associated with better prognosis, there are no commonly accepted methods so far or techniques established nor comparative statistical studies for their evaluation.

We refer to six cases (three twins and three triplets) in which the delivery interval between the first and the remaining fetus or fetuses ranged between 48 hrs and 19 weeks, with a review of the existing literature. Informed consent was obtained from all patients.

The maximal delivery interval was 135 days, which is the longest reported so far.

Material and Methods

All patients were long-term infertility cases and had all conceived after IVF treatment. The gestational age was calculated by nominating the 14th day prior to the exact day of embryo transfer as the first day of the hypothetical last menstrual period, regardless of whether they coincided or the latter took place much earlier as a result of the long Gn-RH-a protocol that was always followed prior to ovarian stimulation. Following the birth of the first fetus the umbilical cord, after its ligation close

to the cervix with silk suture, was inserted into the uterine cavity just before a cervical cerclage was invariably applied. Prophylactic antibiosis, tocolysis (ritodrine hydrochloride IV infusion) and bed rest followed, in addition to corticosteroids in most of the cases (βeta-methazone 12 mg twice daily for two days after the 24th week of gestation). All patients were under continuous surveillance for early clinical signs of intrauterine infection accompanied by regular assessments of leucocytes and C-reactive protein. There have been no major complications on the maternal side.

Results

We report our experience of a total of six patients since August 1996 (Table 1).

Case no. 1

A 32-year-old primigravida went into spontaneous labor in the 27th week of pregnancy and delivered a female fetus weighing 780 g which died a few hours after birth from acute respiratory distress. Despite strong tocolysis in combination with antibiosis and corticosteroids, she went into labor again three days later with moderate vaginal bleeding most likely caused by the detachment of the placenta of the fetus born three days earlier. She underwent cesarean section giving birth to a 820 g male fetus, which survived. An unexplained moderate thrombocytopenia diagnosed antenatally, was finally attributed to an undiagnosed third fetus (papyraceus).

The surviving child, apart from a non-progressing marginal hydrocephalus earlier on, is now six years old with satisfactory development.

Case no. 2

A 25-year-old primigravida suffering from Chron's disease delivered her first twin during the 28th week of her pregnancy. Despite the fact that her uterus showed no further activity following the expulsion of the first fetus which did not survive, labor had to be induced two days later because of severe distress due to an acute ileus she had meanwhile developed and also to the anxiety expressed by her relatives. However, this second twin survived. Corticosteroids had been prescribed in the interim period. Although there had not been any clinical evidence of chorio-amnionitis, culture and antibiotic sensitivity of cervical secretions revealed enterococcus and escerichia coli for which the mother was treated effectively. This child, except for a mild to moderate cataract (which was operated on), is now alive and healthy at the age of six.

Case no. 3

A 31-year-old in her second pregnancy with triplets aborted one fetus at 18 weeks. The rest of the pregnancy continued up to the 37th week uneventfully resulting in the birth of two healthy babies weighing 2,150 and 2,280 g each. A Shirodkar suture was inserted following the expulsion of the first fetus, followed by tocolysis and antibiosis. Now at four years of age they are both alive and well.

Case no. 4

This case was similar to the previous one. A woman pregnant with twins aborted one spontaneously at 19 weeks of gestation. The second twin was delivered by cesarean section at 35 weeks with no undue events.

Case no. 5

A 26-year-old primigravida with triplets had been given the option of a fetal reduction which she declined. At 18 weeks, following an acute episode of urinary tract infection with high fever, she aborted one of the fetuses. After cervical cerclage she was kept on bed rest under antibiotic treatment and tocolysis. Two weeks later, at 20 weeks' gestation, after sudden vaginal bleeding the cervical suture was removed and the second fetus was expelled in a rather macerated state including its placenta and that of the first fetus in a stage of degeneration. In the presence of an intact third fetus confirmed by ultrasound examination and in view of the complete relaxation of the uterus immediately after the expulsion of the second fetus plus the rather impressive reformation of the cervix, reinsertion of the cervical suture was performed shortly after. Seven weeks later at 27 weeks, after profuse and persistent vaginal bleeding, a cesarian section was performed and the third triplet was born with a satisfactory Apgar score and weighing 790 g. Unfortunately it only survived two weeks. Two years later, again following IVF treatment and the transfer of two embryos, she conceived twins, which were delivered by cesarean section at term.

Case no. 6

A 33-year-old primigravida who, due to her prolonged history of ten years' infertility with repeated unsuccessful IVF attempts, had four embryos transferred resulting in a quadruplet pregnancy. At ten weeks of her pregnancy a

Table 1. — *Clinical characteristics and outcome of four twin and two triplet pregnancies following asynchronous delivery of their fetuses.*

	Mode of conception	CHILD 1 Gestational age	CHILD 1 Birth weight	CHILD 2 Gestational age	CHILD 2 Birth weight	CHILD 3 Gestational age	CHILD 3 Birth weight	Interval (days)	Present age	Follow-up
1	ICSI	27 weeks –	780*	27 weeks 3 days	820	–	3	6		marginal hydrocephalus
2	IVF	28 weeks 2 days	840	28 weeks 4 days	890	–	2	6		mild cataract
3	IVF	18 weeks 2 days	–	36 weeks 5 days	2150	36 weeks 5 days	2280	135	5	alive well
4	ICSI	19 weeks 3 days	–	35 weeks 1 day	2340	–		112	4	alive wells
5	IVF	18 weeks 2 days	–	20 weeks 2 days	–	27 weeks 4 days	790	65	–	NND*
6	IVF	19 weeks 4 days	–	28 weeks 3 days	920	–		70	2	alive well DQ: normal**

*NND: Neonatal Death. **DQ: Developmental quotient.

fetal reduction was performed by intracardiac injection of 10% KCl, leaving two live fetuses in utero. Eight weeks later at 18 weeks' gestation, due to vague complaints, she was admitted to the hospital for observation. The following day with no warning signs she expelled one of the 'reduced' fetuses and a week later the other; both were in a state of degeneration. Ultrasound examination revealed an undisturbed normal twin pregnancy with an intact cervix (3.2 cm in length, tightly closed) in view of which the insertion of a cervical suture was not deemed necessary. The patient continued on bed rest under close observation but about ten days later, with no warning symptoms, during a routine early morning visit by the nursing staff she expelled one of the twins which was found in the vagina and removed dead. At this stage the insertion of a McDonald cervical suture was performed in a desperate attempt to preserve the one remaining fetus which appeared to continue alive and well. As in the previous cases, the placenta of the aborted twin was left in situ. The pregnancy continued uneventfully until the 28th week when after an acute episode of fever following the discontinuation of antibiotics (beta-methazone had already been given), the patient went into labor. Following a cesarean section a female fetus weighing 920 g was delivered. Two months postnatally the mother underwent laparoscopic cholocystectomy. Following this odyssy, both mother and neonate (7 months old now) are in good health.

Discussion

In selected cases of polychorionic multiple pregnancies, following the extremely premature birth of one fetus, preservation of the rest of the pregnancy may improve the perinatal mortality and morbidity of the retained fetus or fetuses. Due to the potentially dangerous complications involved, most commonly extreme prematurity, it is evident that such cases must be managed at a tertiary level therapeutic center. Prophylactic antibiosis to avoid infection, which seems to be the main problem, is of paramount importance in combination with tocolysis and corticosteroids at the appropriate stage of pregnancy. Although questioned by others [6], we believe that in such cases and especially in the presence of a dilated cervix, the value of cervical suturing after short ligation of the cord of the retained placenta of an expelled fetus increases the survival rate of the remaining fetuses as already reported long ago [7]. Bearing in mind that underlying infection is the main operating causative factor for the expulsion of the first fetus, complete reformation of the cervix is not the usual prognosis in such cases.

Until now there have been isolated reports referring to twins and triplets born at different stages of pregnancy with successful final outcomes and a maximum delivery interval reported of 117 days [8-11]. In one of our cases with triplets, this interval exceeded 19 weeks (135 days exactly between the abortion of the first fetus at 18 weeks and two days and the delivery of the remaining twins four days after the completion of the 37th week - Table 1). To our knowledge this represents the longest delivery interval reported so far.

From a total of 15 fetuses in our group of patients only six survived, a survival rate of only 40% which is similar to previous reports [2]. Nevertheless, all but one of the women managed to have a child, and one of them twins. In the only case who lost all three fetuses, the third one survived only two weeks.

When the first fetus was expelled in the first half of the pregnancy (before the 20th week) the final outcome was better than later in the same trimester and with the longest delivery intervals (cases no. 3 and 4). This could be attributed to the smaller dilatation of the cervix occurring before the 20th week and to a less sensitized myometrium due to endocrinological factors, primarily lower levels of circulating estrogens. At the same time, the chance for an infection to develop is smaller, a risk that increases parallel to the stage of pregnancy.

Conclusion

In selected multiple pregnancies, following spontaneous abortion or the extremely premature birth of one or two fetuses, the effort to try and preserve the rest of the pregnancy, prolonging it towards a viable stage, seems to be justified. This is especially indicated for women with very low fertility potential and it appears more effective before the 20th week of gestation when cerclage of the cervix is detrimental. Applying all measures available the preservation of the pregnancy with one or even two fetuses to a viable stage seems to be possible, despite the associated risks, which should always be carefully evaluated.

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