

Delayed delivery of a twin – a hazard or an acceptable method? Prospective study

Blanka VAVŘINKOVÁ, Tomáš BINDER, Radovan VLK,
Ivana ŠPÁLOVÁ, Olga ŠEBESTOVÁ, Miloš ČERNÝ

Department of Obstetrics and Gynecology 2nd Medical Faculty Charles University and Teaching Hospital Motol, Prague, Czech Republic

Correspondence to: Assoc. Prof. Blanka Vavřinková MD.,PhD.
Perinatology Center, Department of Obstetrics and Gynecology
2nd Medical Faculty Charles University Prague and Teaching Hospital Motol
V Úvalu 84, 156 00 Prague 5, Czech Republic.
TEL: +420 224 434 258; FAX: +420 224 434 218; E-MAIL: blanka@vavrinkova.cz

Submitted: 2011-04-04 *Accepted:* 2011-12-18 *Published online:* 2012-03-10

Key words: **twins; delayed delivery; preterm premature rupture of the membranes; uterine contractions; preterm delivery; late abortion**

Neuroendocrinol Lett 2012;33(1):98–101 PMID: 22467119 NEL330112A12 © 2012 Neuroendocrinology Letters • www.nel.edu

Abstract

OBJECTIVE: To examine the possibility of postponement of the delivery of fetus B after preterm delivery or late abortion of fetus A in multiple pregnancy.

METHODS: Between January 2000 and September 2010, we tried to delay delivery of the second twin in 18 cases. Group A includes women that experienced a preterm premature rupture of the membranes in fetus A (PPROM), group B includes women who presented with regular uterine activity and the vaginal finding indicated unavoidable late miscarriage or preterm delivery.

RESULTS: Thirteen (72.22%) of the 18 attempts were evaluated as unsuccessful. The interval of delay of delivery of fetus B ranged between 24 and 384 hours. Five cases were successful.

CONCLUSION: Indication for applying this therapeutic procedure to a pregnant woman must be strictly selective. The procedure will be also in future more or less reserved for women in which subsequent pregnancy is for different reasons highly improbable.

INTRODUCTION

Multiple pregnancy is associated with a number of risks that are generally known. Among the relatively more frequent complications is a shorter duration of pregnancy. Pre-term amniotic fluid break, preterm delivery or late abortion of fetus A in the second trimester, as a rule implies termination of pregnancy also for the second fetus. The question is – whether we should try in cases when the fetuses are on the threshold of viability or below, to postpone delivery of fetus B and thus improve its chance of survival. Whether the risks

of this effort is higher than its benefit is not easily answered. In addition to medical risks, it is absolutely necessary to take into account the ethical aspect.

Of great importance is a selection of patients who will be offered this method. The physician must carefully consider all the pros and cons. Based on our experience we know that the maternal instinct is so strong that every pregnant woman will in such a situation automatically agree with the efforts to save the second fetus. It is up to the physicians to consider very carefully, not only the medical aspects but if possible also the personal

opinion of the woman. They must try to assess how the pregnant woman will behave in such a critical situation. The occurrence of these situation is highly probable and the timing of which cannot be anticipated. If the physician decides to address the pregnant woman, he/she must spend enough time with the patient, explaining clearly and in detail the method and risks associated with them. In these cases the obstetrician should cooperate with the clinical psychologist. If the pregnant woman agrees with the offer she must confirm her approval by signing the Informed Consent. Although it is mainly up to the woman to decide about the fate of her pregnancy, we recommend to invite also her partner to the educational interview.

GROUP OF PATIENTS AND METHODS

Between January 2000 and September 2010, we tried to delay delivery of the second twin in 18 cases. The inclusion criteria are introduced in table No. 1.

We met two different situations and so we separated the included patients into two groups.

Group A includes women that experienced a pre-term premature rupture of the membranes in fetus A (PPROM), which was not followed by the onset of uterine contractions.

Group B includes women who presented with regular uterine activity and the vaginal finding indicated unavoidable late miscarriage or preterm delivery on the threshold of viability in both fetuses.

Antibiotics were applied intravenously, took the mother's blood for determination of inflammatory markers values (CRP and leukocytes) and scraped samples from the vagina and cervix for cultivation. Tocolytics was not used. Corticosteroids were administered only in cases in which the estimated birth weight or gestational age of fetuses gave realistic chance of survival.

In women from group A we checked at regular intervals the condition of the cervix by determination of the cervical Bishop score. Progression of the vaginal finding was usually recorded within one to two weeks after PPRM. If fetus A was deep below the threshold of viability, its abortion is accelerated by infusion of 5% glucose with 2 IU of oxytocin (oxytocin).

In both described cases after the delivery or abortion of fetus A, we immediately administrated an i.v. bolus of hexoprenaline (10 µg in 20 ml of physiological solution) with a subsequent continual i.v. tocolysis (50 µg of hexoprenaline / 12 hours) during the following 48 hours. Umbilical cord of the aborted fetus is disinfected in vaginal speculas, slightly stretched, ligated as high as possible in the cervix and cut. The umbilical stump retracts into the uterine cavity. For the following two days the woman is on full bed rest.

Supportive therapy consists of preventative administration of antibiotics for 7 days, completion of application of corticoids and anti D IgG (where mother is Rh negative). Administration of LMWH in a preventative

dosage s.c. is the method of choice in cases with signs of coagulation activation.

The condition of both the retained fetus and mother is regularly monitored. During the first week we monitor infection markers in the mother's blood (CRP, leucocytes) and the uterine condition of the retained fetus by means of CTG (where it is technically possible) and by means of ultrasound. Full bed rest is gradually reduced. During the second week we check by palpation the condition of the cervix. Maternal blood samples for determination of infection markers are taken twice a week, CTG and ultrasound examination is performed once a week. During the following weeks we adjust the therapeutic mode according to the clinical condition. As a rule it is less strict, however, we have to be very careful all the time. Our experience shows that transition of the patient to home care is not recommended before the completed 34th gestational week.

RESULTS

Thirteen (72.22%) of the 18 attempts were evaluated as unsuccessful. The interval of delay of delivery of fetus B ranged between 24 and 384 hours.

One neonate of 22+1 gestational age of this "delayed group" (birth weight 680 g) survived with moderate defects (ROP III, moderate BPD, IVH III, epilepsy). The interval of delay was only 48 hours.

Another neonate of a different mother delivered as fetus A of 21+5 gestational age (birth weight 550 g) survived with severe handicaps (blindness, IVH IV, neuro-motoric disorders).

In one case we succeeded in delaying the delivery of the second twin by 16 days. The first two weeks of physiological course changed dramatically within a few hours into a septic condition resulting in a precipitate delivery. A septic fetus of 25+3 gestational age was born (birth weight 780 g) and died 2 hours after the birth. Fetus A of the same pregnancy (birth weight 720 g) survived with a severe handicap.

Table 2 shows overview of 5 successful cases.

All neonates were placed, after birth, in the neonatal intensive care unit. One neonate (female, 1140 g) required intubation and a short-term 36-hour conventional ventilation with oxygen demand up to 30%. Other neonates were only on distention support by means of nasal cPAP (2–8 days). Post-delivery period may be evaluated as uncomplicated in 4 cases. The youngest female in terms of gestational age developed signs of necrotizing enterocolitis (NEC) on 22nd day after the delivery. After perforation of the small intestine and development of signs of stercoral peritonitis she underwent surgery for resection of 25 cm of the intestine. After the surgery, it was again necessary to apply 3-day conventional ventilation. No complications were encountered in the following period. All infants were sent home for care. Neurological follow-up after the third month of life did not reveal in the infants any

severe deviations from the normal development, except for retarded development in the two more severely premature born infants.

Histology of the placentas

As shown by the histological finding, in all the cases we find in the placentas leukocytic inflammatory infiltrates in the form of depositions in the area of the basal fibrinoid that extend as far as the chorioamniotic plate as acute deposition chorioamnionitis. The villi and basal part were in all successful cases without inflammatory changes. The placentas of the aborted fetuses were completely necrotic, due to an infarct. Necrotic villi obliterated intervillous vessels. Purulent inflammation foci of different size were found in the chorioamniotic plate. Inflammatory changes were found also in the basal part.

DISCUSSION

Delivery or abortion of a nonviable fetus and spontaneous retention of the remaining fetus in the uterus for a longer period is rare (Platt & Cesar 2001, Porreco *et al.*

1998). Iatrogenic delayed delivery of the retained twin will often cause unpredictable results. From the viewpoint of success, the most favourable situation seems to be the case of gemini biamniati, bichoriati and the delivery or abortion of the fetus simultaneously with the delivery of placenta. However, we have not encountered such situation in our group. In all cases, placenta remained retained and undetached in the uterus. Thus, bleeding was not the cause of failure in any of the cases. The risk of haemorrhage associated with detachment of the retained placenta of the aborted fetus should not be underestimated, but it does not seem to be as high as is generally assumed. Similarly, the risk of coagulation disorders in case of loss of one of the fetuses is in accordance with literature (Malone & D'Alton, 1999) very low. The exception is septic complications (Platt & Rosa 1999), and therefore coagulation relations should be carefully monitored.

The decisive factor for a successful delayed delivery of fetus B is the presence of intraamniotic infection (Malone & D'Alton 1999, van Doorn *et al.* 1999, Platt & Rosa 1999, Watson & McNelis 1998). Severity of infection upon admission of the patient in the absence of clear clinical manifestations such as fever or purulent discharge from the genitalia cannot be determined. If the pregnant woman comes with a highly progressed finding and developed uterine activity, the efforts at delaying the delivery are mostly useless. In our group of patients it is represented by 10 of 13 failed attempts. Based on our experience, we consider attempts at delaying delivery of fetus B in these cases to be of no benefit.

A higher chance of success of the procedure may relate to the cases where the amniotic fluid breaks in fetus A, and the break is not followed by regular uterine activity. Also in these cases it is necessary to suspect infection that may be located in the cervix and ascend as far as the lower demarcated section of the foetal egg. This may result in amnionitis and premature rupture of the membranes.

Even a long-term absence of clinical and laboratory signs of infection does not completely eliminate this

Tab. 1. Recommended criteria for delaying delivery of the twin B.

Bichorionic, biamniotic twins
Gestation age 18–25 weeks
Preterm break of amniotic fluid in fetus A
Unavoidable abortion or preterm delivery of fetus A
Absence of clinical signs of infection (fever, massive purulent vaginal fluor)
Absence of clear laboratory signs of infection (high CRP and leukocyte values)
Poor obstetric history (repeated midtrimester miscarriage etc.)
Severely limited possibilities of another conception (age, repeated unsuccessful attempt IVF +ET, serious illness, lost of the partner etc.)
Informed Consent signed by the patient

Tab. 2. Successful delayed deliveries of twin B.

Age Parity	Gestat. age	Fetus A (g)	Prolong gestational age	Delayed delivery interval	Fetus B (g)/gender	Mode of labor	Neonatal outcome
37 VI/I	19+3	280	33+6	14+3	1740 boy	spont. vaginal	healthy prosper
34 I/I	23+1	430	36+6	13+5	2520 boy	s.c. hypoxia	healthy prosper
31 III/I	20+2	290	29+3	9+1	1280 girl	s.c. breech	healthy prosper
36 IV/I	22+6	480	34+5	11+6	1980 boy	spont. vaginal	healthy prosper
35 III/I	20+5	315	28+6	8+1	1140 girl	spont. vaginal	NEC prosper

risk. Histology of placentas confirmed inflammation in all cases. Antibiotic treatment together with regressive changes for a different period of duration hinders spreading of inflammation. Inflammatory changes are demarcated for a different period of time. A favourable fact in this respect is that signs of infection in neonates were not encountered in any of the successful delayed deliveries. It may be stated that the scope of inflammatory changes in placentas is similar to that we may find in placentas of preterm infants.

A quickly progressing infection leads undoubtedly to preterm uterine activity and completion of pregnancy. This situation occurred in all the cases, including the successful ones. Success is directly proportional to the length of the interval when the infection can no longer be managed. Attempts at tocolysis fail and in addition, in the presence of inflammation they are contraindicated.

The condition of the cervix was checked on 7th day after abortion of fetus A. In all cases the cervix was reformed and the umbilical cord of the aborted fetus retracted into the uterus. In our view, cerclage is not a routine part of management.

In case of a successful delay of delivery for the second twin, its subsequent management will naturally require a meticulous approach and increase the indication for caesarean section.

CONCLUSION

Indication for applying the delayed delivery of the second twin must be strictly selective. The procedure in the future will be more or less reserved for women in which subsequent pregnancy is for different reasons (IVE, age, etc.) highly improbable (Malone & D'Alton 1999, Kalchbrenner *et al.* 1998). Gestational age of fetuses should not, in our view, exceed the 24th, or maximally 26th gestational week. The patient must be clearly informed about all risks of this therapeutic procedure and confirm her approval by signing the Informed Consent.

REFERENCES

- 1 Kalchbrenner MA, Weisenborn EJ, Chyu JK, *et al.* (1998). Delayed delivery of multiple gestations: maternal and neonatal outcomes. *Am J Obstet Gynecol.* **179**(5): 1145–9.
- 2 Malone FD, D'Alton ME (1999). Multiple gestations: clinical characteristics and management. In Creasy RK, Resnik R.: *Maternal Fetal Medicine: Principles and Practice*, Philadelphia, WB Saunders; Ed 4: 598–9.
- 3 Platt JS, Cesar R (2001). Delayed interval delivery military style. *Military Med.* **166**(3): 278–80.
- 4 Platt JS, Rosa C (1999). Delayed interval delivery in multiple gestations. *Obstet Gynecol Surv.* **54**(5): 343–8.
- 5 Porreco RP, Sabin ED, Heyborne KD, Lindsay IG (1998). Delayed interval delivery in multifetal pregnancy. *Am J Obstet Gynecol.* **178**(1): 20–23.
- 6 van Doorn HC, van Wezel-Meijler G, van Geijn HP, *et al.* (1999). Delayed interval delivery in multiple pregnancies. Is optimism justified? *Acta Obstet Gynecol Scand.* **78**(8): 710–5.
- 7 Watson WJ, McNelis T (1998). Delayed interval delivery: infection is not an absolute contraindication. *Am J Perinatol.* **15**(6): 387–8.