



Conservative management of triplet pregnancy after delivery of one foetus

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This paper intends to demonstrate that the conservative management of triplet pregnancy after delivery of one foetus is a feasible and reasonable approach. Three cases of triplet pregnancy with successful conservative management after miscarriage of one foetus, are presented and compared with cases in the literature. The route of delivery, as well as the role of tocolysis, cerclage, prophylactic antibiotic therapy and corticosteroids are discussed. Guidelines for conservative treatment are proposed. The deliveries of our three pregnancies were delayed by 63, 44 and 22 days respectively. Foetal and neonatal evolution are normal in five of the remaining foetuses. Only one intrauterine death is observed. No maternal complications with sequelae are reported. After abortion of the first triplet, contractions often persist and the birth of the two remaining foetuses may be unavoidable. Nevertheless, in our experience, confirmed by some reports in the literature, prolongation of the pregnancy after expulsion of the first foetus is possible. It can be achieved by cervical cerclage associated with tocolytic and antibiotic therapy. This management is not associated with significantly increased foetal-maternal morbidity. *Twin Research* (2000) 3, 71–75.

Keywords: triplet pregnancy, delayed delivery, conservative management

Introduction

The incidence of triplet pregnancy has significantly increased in the past 20 years since the introduction of artificial stimulation of ovulation and in vitro fertilization.^{1,2} Prematurity associated with increased foetal morbidity and mortality is frequently encountered in such pregnancies. The outcome for these children is uncertain and may be associated with severe sequelae.³ When tocolysis proves unsuccessful, two alternative management approaches may be considered. Spontaneous miscarriage and delivery of all the foetuses is, however, associated with risk of sequelae or neonatal death. The aim of our paper is to demonstrate that in trichorionic triamniotic triplet pregnancy, conservative management after abortion of the first foetus, in order to reduce the risks of severe prematurity for the remaining ones, may be a possible therapeutic alternative.

Case report 1

Mrs V, 27 years of age, gravida 1 para 0, with primary sterility for three years, underwent ovulation stimulation by gonadotropin leading to a trichorial triamniotic pregnancy. At 13 weeks of gestation, a MacDonald prophylactic cerclage was performed

because of short cervical length. The patient was admitted at 19 weeks of gestation for premature rupture of the membranes with a closed cervix. Tocolysis and i.v. antibiotic therapy were given. At 21 weeks of gestation, preterm labour set in together with an irreducible prolapse of the cord of the first triplet leading to foetal death. Under general anaesthesia, the cerclage was removed and extraction of the first triplet was performed with V-shaped forceps. The foetal cord remained in situ and was not ligated. Cerclage was then performed with a Mercylene R suture. Tocolysis was stopped and antibiotic therapy was continued for one week. At 29 weeks of gestation, preterm labour occurred. Foetal pulmonary maturation using corticosteroids was carried out. At 30 weeks, rupture of the cerclage was observed. A Caesarean section was performed because of the abnormal foetal position and prematurity. The patient gave birth to a female of 1450 g, (Apgar score 8.9 and 10 at 1.5 and 10 min of life, respectively) and a male twin of 1200 g, (Apgar score 8.10 and 10). The post-operative course was uneventful and antibiotic therapy was continued for 10 days. There were no maternal complications. The infants had a normal neonatal outcome with normal neurological testing at one and a half months.

Case report 2

Mrs C, 26 years of age, gravida 1 para 0, with a history of primary sterility for 2 years, underwent in vitro fertilization with transfer of three embryos and was

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found to have a trichorial triamniotic pregnancy. At 23 weeks and 4 days of gestation, she was seen in the antenatal clinic with no specific complaint. The vaginal examination showed a 5 cm dilated cervix. Intravenous tocolysis and nonsteroidal anti-inflammatories were administered in association with antibiotic therapy and corticosteroids for foetal pulmonary maturation. At 24 weeks of gestation, delivery of the first triplet occurred despite tocolysis. The patient gave birth to a female of 520 g. (Apgar score of 7.7 and 8) who unfortunately died after 48 hours because of severe prematurity. After the delivery, therapeutic Wurm cerclage was performed under epidural anaesthesia. The principle of this cerclage is as follows: one needle is inserted transversally from one side to the other side and back to the first side with a node at the same level; another thread joins both anterior and posterior cervical wall with a node at the top.⁴ The placenta of the given birth triplet was left in situ and the cord was ligated at the external os of the cervix (with Ethylon 2/0 R. suture). Intravenous tocolysis and antibiotic therapy were continued. *Acinetobacter baumannii*, a multi-resistant bacteria, was diagnosed on a vaginal swab. The patient needed to be isolated for reasons of hospital hygiene. At 29 weeks and 6 days of gestation, preterm labor set in with cerclage failure. A Caesarean section was performed immediately because of foetal malposition and prematurity. The patient gave birth to a boy of 1100 g, (Apgar score of 7.7 and 8) and a girl of 1155 g, (Apgar score of 8.9 and 10). The outcome was normal. The neurological evaluation performed at one month was also normal as well as the paediatric evolution at one and half years. Pathology of the placental mass showed fibrosis immature villi in the first placenta. The mother was discharged after one week and had no complications.

Case report 3

Mrs P, 28 years of age, gravida 2 para 0, with secondary sterility, required in vitro fertilization. Three embryos were transferred and she was found to have a trichorial triamniotic pregnancy. At 23 weeks and five days of gestation, preterm labour began with a 7-cm cervical dilation. Tocolysis and antibiotic therapy were administered immediately. She delivered the first triplet, a boy of 650 g, who died after 1 minute of life. Therapeutic cerclage was then performed under tocolytic and antibiotic treatment. The follow-up was uneventful. At 25 weeks, rupture of the membranes occurred in association with preterm labour and failure of the cerclage. An inflammatory syndrome with clinical chorioamnionitis developed despite the infection prophylaxis. At

26 weeks and 5 days of gestation, intrauterine death of the second triplet was diagnosed. An emergency Caesarean section was performed. A stillborn boy of 900 g and a live female of 920 g (Apgar score of 9.10 and 10) were delivered. Neonatal and maternal evolution were both uneventful. The evolution of the child at six months is completely normal.

Results and review of the literature

Delayed delivery of one or several infants has been reported in only 14 cases of triplet pregnancy⁵⁻¹⁷ (Table 1.) Pregnancies with attempted delayed delivery in a didelphys uterus are rare but these cases are excluded from this study as the pregnancies develop in each horn.¹⁸ As shown in Table 1, in all cases, 1 or 2 newborn babies survived and the mean interval between deliveries was 54.5 days (interval 4 to 131 days).

Delivery route

For the first delivery, 100% of newborns were delivered vaginally. For the subsequent delivery, 47% were delivered vaginally (8 out of 17) and 53% by Caesarean section (9 out of 17). In all such cases, the delivery route was dictated by obstetrical indications: 6 for abnormal foetal position, 1 for maternal herpetic infection at the end of pregnancy and 2 for intrauterine death of one foetus.

Management

After the first delivery, all the placentas were left in situ. The umbilical cord was cut as close as possible to the cervix and ligated with non-absorbable thread.

As shown in Table 2, after delivery of the first triplet, cerclage is recommended by some authors.^{6,7,9-11,17} The indications are, however, still controversial.¹⁹ Indeed, surgery may increase the risk of infection such as chorioamnionitis, endometritis and wound infection.^{10,12-14,16,19,20} On the other hand, cerclage performed in optimal aseptic conditions may avoid contact with vaginal bacteria and, therefore, prevent rupture of the membranes.^{6,7,9,17}

Most authors^{6-12,15-17} suggest giving such patients tocolytic treatment. Betamimetics,^{7-12,16} non-steroidal anti-inflammatories,^{10,12,15} magnesium sulfate^{7,8,16,17} have been administered with apparent success. But, the interval for delayed delivery was not significantly different between untreated and treated groups, as shown in Table 3.

The administration of long-term prophylactic antibiotic therapy is a matter of controversy. As shown in Table 4, preventive antibiotic therapy does not

Table 1 Review of literature: delayed delivery in triplet pregnancy

Reference	Foetuses	Delivery interval (days)	Delivery (weeks)	Route of delivery	Outcome	Sex	Weight (gr)	Cerclage	Tocolysis	Anti-biotics	Maternal complications
Uthmoller ⁵	3	4	?	V/V/V	A/A/A	F/F/F	2250/2250/2500	No	No	No	None
Simpson ⁶	3	99	23.5/38/38	V/CS/CS	D/IUD/A	M/M/F	505/1690/2580	Yes	Yes	Yes	Wound infection
Bianchi ⁷	3	131	16/34.3/34.3	V/CS/CS	D/A/A	M/M/M	92/2010/2020	Yes	Yes	No	Genital herpes
Sakala ⁸	3	74	17/27/27	V/CS/CS	D/A/A	?/F/F	109/980/900	No	Yes	No	Wound infection
Cardwell ⁹	3	04/16	23.6/24.3/26.1	V/V/V	D/D/A	M/M/M	595/504/784	Yes	Yes	Yes	Chorioamnionitis enterocolitis Endometritis
Van Heusden ¹⁰	3	49	20/26.6/26.6	V/V/V	D/A/A	M/M/?	295/1000/1200	Yes	Yes	Yes	Endometritis
Schaal ¹¹	3	23	25/25/29	V/V/V	D/D/A	F/M/M	820/920/1150	Yes	Yes	Yes	None
Poeschman ¹²	3	80	20.4/32/32	V/CS/CS	D/A/A	?/F/F	?/2000/1400	Yes	Yes	No	Septic shock
	3	9	24.5/26/26	V/V/V	D/A/D	M/M/F	710/920/850	Yes	Yes	No	Septic shock
Chavkin ¹³	3	82	19/30.5/30.5	V/CS/CS	D/A/A	?/F/F	?/1996/1808	Yes	Yes	No	Septic shock
Antsalkis ¹⁴	3	70	17.2/27.6/27.6	V/CS/CS	D/D/A	?/M/F	?/640/1040	No	No	No	None
Berghella ¹⁵	3	110	18.4/34.2/34.2	V/V/V	IUD/A/A	?/M/M	?/2810/2680	No	Yes	Yes	None
Ziegler ¹⁶	3	46	24.2/31.1/31.1	V/V/V	D/A/A	M/?/?	545/980/1550	No	Yes	Yes	None
Abifadel ¹⁷	3	4	27.3/28/28	V/V/V	D/A/A	M/F/F	810/770/940	Yes	Yes	Yes	None
Current study	3	63	21/30/30	V/CS/CS	IUD/A/A	?/F/M	?/1450/1200	Yes	Yes	Yes	None
	3	44	23.4/29.6/29.6	V/CS/CS	D/A/A	F/M/F	520/1100/1555	Yes	Yes	Yes	None
	3	22	23.5/26.5/26.5	V/CS/CS	D/IUD/A	M/M/F	6.50/900/920	Yes	Yes	Yes	Chorioamnionitis

V: Vaginal route; CS: Caesarean section; D: Neonatal death; A: Alive; IUD: Intrauterine death; M: Male; F: Female.

significantly increase the delivery interval, nor reduce infection rates. Some authors^{6,11} have advocated using antiseptic local treatment. However, these techniques are not routinely used and their

efficacy should first be demonstrated. Infection was the most frequent maternal complication (41% of cases, ie 7 out of 17) – chorioamnionitis in three cases, endometritis in one case, post-antibiotic pseudomembranous enterocolitis in one case, wound infection in two cases and septic shock in one case. There were no sequelae nor maternal deaths.

Table 2 Delivery interval and infection rate according to presence or absence of cerclage

Treatment	%	Delivery interval (days)	Infection rate (%)
Cerclage+	58 (10 in 17 cases)	53 (4–131)	50 (5 in 10 cases)
Cerclage–	42 (7 in 17 cases)	56 (4–110)	28.5 (2 in 7 cases)

The administration of corticosteroids in multi-foetal pregnancies is also controversial. The reported outcomes of the remaining triplets with prophylactic corticosteroids is good in terms of low morbidity rates.^{8,12}

As shown in Figure 1, fetuses obviously benefit from this delayed delivery management. However, the outcome of surviving children is rarely discussed

Table 3 Delivery interval according to presence or absence of tocolysis

Treatment	%	Delivery interval (days)
Tocolysis+	82 (14 in 17 cases)	55 (4–131)
Tocolysis–	18 (3 in 17 cases)	52 (4–82)

Table 4 Delivery interval and infection rate according to presence or absence of antibiotherapy

Treatment	%	Delivery interval (days)	Infection rate (%)
Antibiotics+	65 (11 in 17 cases)	44 (4–110)	45 (5 in 11 cases)
Antibiotics–	35 (6 in 17 cases)	73 (4–131)	33 (2 in 6 cases)

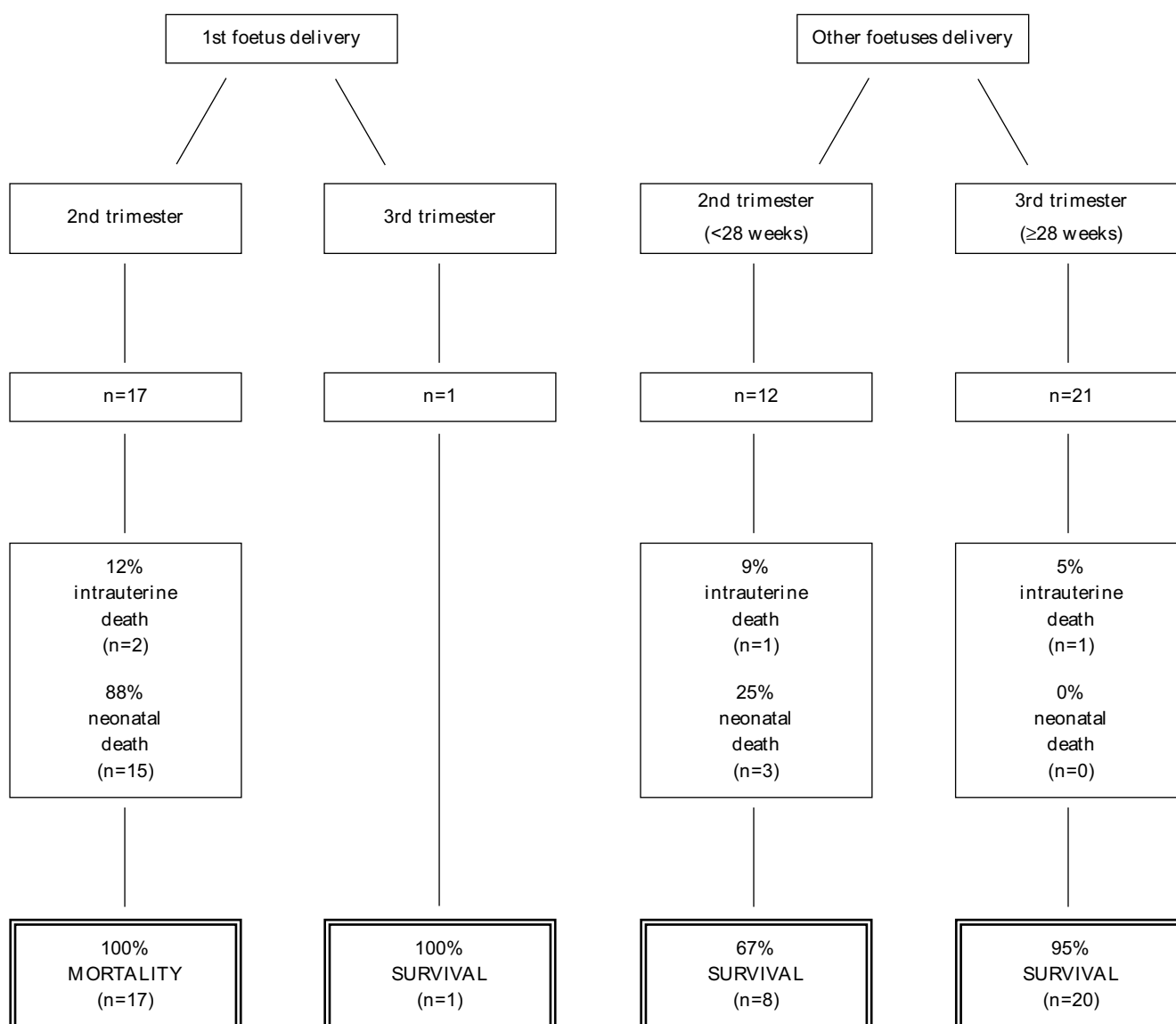


Figure 1 Foetal mortality after delayed delivery (review of literature associated with our cases)

beyond the neonatal period in the literature. Simpson,⁶ Schaal¹¹ and Berghella¹⁵ reported normal infant development after one year. Poeschman¹² described mild motor delay at 15 months in one of two remaining triplets, while the second died at 6 months because of severe bronchodysplasia.

Discussion

On the basis of our experience and after a review of the relevant literature, it may be concluded that conservative management should be performed

under specific conditions. Monochorionic pregnancy should be excluded. In cases of monochorial diamniotic pregnancy, there is a risk of vascular anastomoses associated with this placentation. In case of monochorial monoamniotic pregnancy, there are also risks of infection and umbilical cord prolapse for the remaining foetuses. Pre-term labour should stop after the delivery of the first triplet. The membranes of the other amniotic sac should be intact. Finally, infection, bleeding or foetal distress should be absent. Gestational age must be taken into account: before 28 weeks of gestation, the delayed delivery management is justified due to the risk of sequelae associated with prematurity. Beyond that time and up to 32 weeks, the procedure should be

discussed. After 32 weeks, delivery of all foetuses should be encouraged.¹¹

After birth of the first triplet, we recommend the following management. Ligation of the cord must be done as high as possible, with non-absorbable thread, in order to reduce the risk of rising infection. Bed rest should be proposed up to 30 weeks of gestation to limit the risk of infection and contractions even if this measure is controversial.²¹ Tocolysis should be administered with betamimetics or, for early gestational age, non-steroidal anti-inflammatories. Cerclage is an appropriate procedure, providing optimal aseptic condition is achieved. Foetal pulmonary maturation with corticosteroids should be carried out. This seems to be a consistent approach even though it may still be debatable for multiple pregnancies. Various parameters should be closely monitored. Daily clinical maternal and biological monitoring should be undertaken against risk of infection risk (pyrexia, uterine sensibility, white cell count and C-reactive protein). Vaginal swabs should be taken regularly in order to exclude bacterial vaginal contamination. Weekly ultrasound should be performed in order to check the foetal parameters. Long-term prophylactic antibiotic therapy does not appear to be necessary; in our experience one in three patients developed multiresistant vaginal bacteria.

Conclusion

The conservative management of triplet pregnancy has proved successful. The possibility of increasing the interval between births in cases of pre-viable gestational age (<24 weeks), is not considered standard management, but may be highly advantageous for the remaining foetuses. Obstetricians should be encouraged to practice this new approach, respecting specific conditions, because it can significantly improve prognosis for the foetus in terms of premature sequelae.

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