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Maternal and neonatal outcomes in triplet gestations by trial of labor versus planned cesarean delivery

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Abstract

Objective: To determine the rate of vaginal delivery after vaginal trial of labor (TOL) among women with triplet gestations.

Study design: This is a retrospective cohort study of all women delivering a viable triplet gestation between 2005–16. The primary outcome was rate of vaginal delivery among all women attempting vaginal delivery. Secondary outcomes included factors associated with undergoing triplet TOL and maternal and neonatal complications by planned delivery approach.

Results: Of 83 eligible women, 21 (25.3%) underwent TOL. A majority of these (57.1%, 95% confidence interval 36.5% - 75.5%) achieved a vaginal delivery of all three triplets. Women who underwent TOL were more likely to be multiparous or to have spontaneous preterm labor. There were no differences in adverse maternal or neonatal outcomes by planned delivery approach.

Conclusion: The rate of vaginal delivery among women with triplet gestations is higher in this institution than in reported literature, without increased morbidity.

CORRESPONDING AUTHOR: Annie Dude.

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Keywords

triplet gestation; trial of labor; cesarean delivery

Introduction

The number of triplet gestations delivered annually in the United States has increased over the past thirty years, mainly due to the widespread use of assisted reproductive technology. (1) Over 90% of triplet gestations in the United States are delivered via planned cesarean delivery,(2) perhaps due to a perception that a trial of labor (TOL) in triplet gestations is unsafe, or due to provider discomfort with labor management of women with triplets. Yet, the high rate of cesarean deliveries among women with multiple gestations contributes to the high cesarean delivery rate in the U.S. and has potential implications for the already high morbidity of triplet gestations.

The evidence base, however, yields mixed conclusions regarding the safety and efficacy of a TOL in triplet gestations. Recent data from Lappen et. al. using a multicenter cohort indicate that attempted vaginal delivery was associated with increased maternal and neonatal risks.(3) Moreover, in the report by Lappen et al, the reported success of a triplet trial of labor was 16.7%, and none had a combined delivery.(3) Earlier studies are conflicting, with some showing increased rates of morbidity and mortality among neonates born via vaginal delivery,(4–10) while others show increased neonatal morbidity following cesarean delivery, (11–13) or no difference between these two groups.(14) Perhaps due to these conflicting studies, the American College of Obstetricians and Gynecologists currently makes no formal recommendation regarding the safest route of delivery for triplet gestations.(15)

In addition to conflicting existing data, much of the data regarding triplet deliveries is greater than 15 years old, and studies are not always clear with regard to a woman's intent to undergo a TOL. Prior data (1993–97) from our institution demonstrated the rate of vaginal delivery for women with triplet gestations who underwent TOL was 87.9%.(14) In light of both these older data and more recent data suggesting a lower rate of success of a triplet TOL, our objectives for this study are to use detailed clinical records to describe the rate of vaginal delivery among those undergoing triplet vaginal trial of labor, identify factors associated with vaginal trial of labor, and determine maternal and neonatal outcomes by delivery approach in a well-characterized, updated triplet cohort at our large, academic tertiary care center. We hypothesized that the rate of vaginal delivery is higher than that found in previous literature.

Methods

This was a retrospective cohort study of all women who delivered a triplet gestation at 24.0 weeks' gestation or beyond at Northwestern Memorial Hospital from January 1, 2005 to March 1, 2016. Eligible records were identified from a database of all ultrasounds performed in this department. Of note, all women who deliver triplets at this institution have at least one formal ultrasound in the system, even if just to establish presentation and chorionicity prior to delivery. The electronic medical record, comprising ultrasound, outpatient, and

inpatient data, was then utilized to obtain all maternal clinical data. Women were excluded if they did not deliver at Northwestern Memorial Hospital, experienced antenatal death of one or more fetuses, or had twin-to-twin transfusion syndrome (TTTS). Additionally, women whose triplet gestations were electively or spontaneously reduced to a singleton or twin gestation were excluded. Further, women were excluded if they had a contradiction to a trial of labor, such as a placenta previa or a prior classical cesarean delivery. Women were not excluded if they had a prior cesarean delivery as long as they were otherwise eligible for a trial of labor after cesarean (TOLAC). Following delivery, the neonatal hospital records were used to obtain all neonatal data. The study was approved by the Northwestern University Institutional Review Board with a waiver of informed consent. The authors have no conflicts of interest to report.

Women who met inclusion criteria were divided into two groups by planned mode of delivery. While this study examines outcomes for all triplet gestations, in order to be eligible for a trial of labor, a patient must have the presenting triplet in the cephalic presentation without significant ($> 20\%$) growth discordance, and no other contraindications to a vaginal delivery. Women who underwent a TOL included all women with spontaneous or induced labor who attempted to deliver vaginally, as confirmed by notes in the electronic medical record made during a woman's labor course. Women who underwent a planned cesarean delivery included both women who presented in spontaneous labor who underwent a cesarean delivery on arrival to labor and delivery as well as those who underwent a pre-labor cesarean. All providers who deliver triplet gestations vaginally at this institution belong to one maternal fetal medicine practice and are trained to perform breech extraction for the second and/or third triplets when indicated. Women cared for in this group undergo standardized outpatient counseling about delivery options. All deliveries take place in the operating room, fetuses are monitored individually, and oxytocin for labor induction or augmentation is used according to standard protocols for twin and singleton gestations. Trainee physicians (residents and maternal-fetal medicine fellows) are involved in the delivery of all women with triplet gestations.

Women who underwent a trial of labor versus planned cesarean delivery were compared with respect to demographic factors, pregnancy characteristics, maternal outcomes and neonatal outcomes. Pregnancy characteristics included spontaneous preterm labor, preterm premature rupture of membranes, hypertensive disorders of pregnancy, suspected fetal growth discordance and gestational age at delivery. Maternal outcomes were postpartum hemorrhage, need for blood transfusion, and peripartum hysterectomy. Neonatal outcomes included comparisons of neonatal birthweight, arterial cord blood gas pH < 7.0 , Apgar score < 7 at five minutes, admission to the neonatal intensive care unit (NICU) and NICU length of stay, respiratory distress syndrome, need for and length of mechanical ventilation, necrotizing enterocolitis, intraventricular hemorrhage (grade III/IV), retinopathy of prematurity, hyperbilirubinemia, and confirmed sepsis. A composite outcome of adverse neonatal outcomes was also generated, consisting of respiratory distress syndrome, necrotizing enterocolitis, grade III/IV intraventricular hemorrhage, retinopathy of prematurity, and sepsis.

The primary outcome was rate of vaginal delivery of all three neonates among the cohort that underwent a vaginal trial of labor, including both spontaneous and operative vaginal deliveries as successes. Secondary outcomes included the maternal and neonatal complications as described above. Additionally, we investigated maternal demographic and clinical factors associated with undergoing TOL and achieving vaginal delivery, including parity (modeled as nulliparous versus multiparous), maternal age (in years), maternal insurance status (public versus private), self-reported maternal race/ethnicity, chorionicity. Given the fixed nature of this sample and the descriptive nature of the primary objective, a power calculation was not performed.

Continuous variables were reported as mean (standard deviation) or median (interquartile range) and compared using student *t* test or Wilcoxon rank-sum, as appropriate. Categorical variables were reported as frequency (percentage) and were analyzed by chi-square test or Fisher's exact test, as appropriate. Additionally, as described above, we performed nested case control analyses to identify factors associated with undergoing a trial of labor and with achieving vaginal delivery of all triplets. For this analysis, multivariable logistic regression retaining factors with $p < 0.05$ on bivariable analyses was used. For neonatal outcomes, we accounted for clustering by mother. Statistical analyses were carried out using STATA (release 13.0, StataCorp, College Station, TX). All analyses were two-tailed and a probability value of 0.05 was used to define statistical significance.

Results

During the study period, 259 triplet pregnancies were identified via ultrasound records. Of this cohort, 88 women delivered as triplets at the study institution. The remainder of identified triplets were either reduced to a singleton or twins, delivered at outside institutions, or both. Five of these pregnancies were delivered at less than 24 weeks, and were thus excluded from the cohort. Thus, there were 83 women who delivered liveborn, viable triplet gestations at this institution, corresponding to 249 neonates, in the final cohort.

Among these triplet sets, 21 women (25.3%) underwent a TOL. A majority of women who attempted vaginal delivery, 57.1% ($N=12$, 95% confidence interval [CI] = 36.5% - 75.5%), achieved vaginal delivery of all three triplets, whereas 19.1% ($N=4$, 95% CI = 7.7% - 40.0%) underwent both a vaginal and a cesarean delivery. Women who attempted a vaginal delivery were more likely to be multiparous (52.3% v. 25.8%, $p = 0.03$, adjusted odds ratio [aOR] = 4.65, 95%CI = 2.21–9.78) and to have experienced spontaneous preterm labor (85.7% v. 53.2%, $p = 0.008$, aOR = 9.45, 95% CI = 3.81–23.45) (Table 1). Women who underwent a TOL were less likely to have conceived via in vitro fertilization (IVF; 30.0% v. 72.6%, $p = 0.001$, aOR = 0.11, 95% CI = 0.05–0.23; Table 1). Additionally, no women who underwent TOL had sonographically-estimated growth discordance (0% in the TOL group vs 22.6% in the group that did not attempt a TOL, $p=0.02$).

Neonates born of women who underwent a TOL did not differ significantly on any measure from the neonates whose mothers underwent a planned cesarean delivery (Table 2). Additionally, the composite outcome of adverse neonatal morbidity did not differ by delivery approach (TOL 28.6% versus planned cesarean 32.3%, $p=0.59$).

When comparing maternal outcomes by delivery approach, women who underwent a trial of labor were no more likely to experience postpartum hemorrhage (38.1% [N=8] for women undergoing a TOL vs. 53.2% [N=33] for women undergoing planned cesarean, $p = 0.31$), hysterectomy (0% vs. 4.8% [N=3], $p = 0.57$) or blood transfusion (0% vs. 11.3% [N=7], $p = 0.18$) than women who had a planned cesarean delivery.

When comparing the 12 women who successfully delivered all three neonates via vaginal delivery to the 9 women who attempted to do so but failed, we identified no significant differences in maternal, neonatal or labor characteristics other than women who delivered vaginally delivered at more advanced gestational ages, 35.5 (interquartile range [IQR] 34.3–36.6) weeks vs. 33.0 (IQR 30.1–34.6, $p = 0.01$) weeks.

Discussion

Over 90% of women with triplet gestations in the United States deliver via cesarean.(1, 10) Although the overall number of triplet pregnancies delivered by cesarean is only a small proportion of total cesarean deliveries, this remarkable bias towards delivery by cesarean has substantial potential implications for maternal short- and long-term morbidity. Our study builds on previous studies that have examined neonatal and maternal outcomes by delivery approach in triplet gestations, and shows that a trial of labor can be an option for women interested in delivering vaginally, with proper counseling and support, including physicians trained to perform triplet vaginal deliveries. Although statistical power for rare outcomes was limited, we identified no differences in major maternal or neonatal morbidity based on delivery approach.

We identified that women who are multiparous or present in spontaneous preterm labor were more likely to undergo a TOL, a logical finding as both factors may reassure providers regarding the likelihood of success of a triplet TOL. In contrast, women who conceived via IVF were less likely to undergo TOL, despite no difference in the average age of women who underwent TOL versus planned cesarean delivery; such a finding is consistent with previous studies showing a higher cesarean rate among twin pregnancies conceived using IVF than among those spontaneously conceived,(16, 17) perhaps due to increased parental anxiety or the increased risk profiles of patients who undergo IVF.(18) Further, with regard to the identification of factors that may assist providers in identifying patients who are most likely to have vaginal deliveries, in the small sub-cohort of women undergoing TOL, only a later gestational age was associated with increased likelihood of achieving vaginal deliveries of all triplets; such a finding may be informative for providers counseling on delivery approach but warrants replication in other cohorts.

In our cohort, we observed a higher rate of success than previously seen in one multicenter recent study,(3) with more than half of all women attempting a vaginal delivery successfully delivering all three neonates vaginally, and with no significant increase in neonatal or maternal morbidity. Several factors may explain these findings. One reason our success rate may be higher than that shown in Lappen et. al.,(3) for instance, is that the Lappen paper drew from multiple centers, which likely experience a high degree of heterogeneity regarding whether they encourage or even allow a TOL for triplet deliveries. All women in

our study were managed in a setting where clinicians are comfortable with the vaginal delivery of multiple gestations and have facilities to allow for a triplet TOL. Further, we are able to discern intention from our data, as we are able to examine whether women discussed and actively consented to a TOL from the clinical chart. This high quality and detailed level of data allows us to overcome a limitation of previous studies, in which an intent to undergo a TOL had to be inferred from other variables (such as whether women presented in labor), rather than actual documentation of the patient-provider conversation, and thus likely overestimated the number of women truly undergoing a TOL. Thus, in our study, even if women presented in spontaneous labor or with ruptured membranes, they were only placed in the TOL category if they were documented as consenting to a TOL.

When deciding whether to recommend a TOL, both the likelihood of success as well as the risks must be considered and compared to the risks of a cesarean delivery. Our data suggest that, at a high-volume center with physicians experienced in breech extraction and nurses who are comfortable with intrapartum fetal monitoring of triplets, the majority of women who undergo a TOL will achieve a vaginal delivery. These findings are consistent with older data from our institution, in which the majority of women with triplets undergoing TOL delivered vaginally.(14) As Grobman et. al.(14) state, the safety and success of a TOL is dependent on the proper environment, including adequate facilities and personnel to perform breech extractions, operative vaginal deliveries, emergency cesareans, and resuscitation of three neonates. Despite the high rate of successful vaginal delivery among women attempting to do so in this cohort, we would not suggest TOL should be undertaken for all women with a cephalic-presenting triplet gestation, as mode of delivery decision making for any patient with a multiple gestation must consider these training and health resources concerns. Further, our data highlight that one risk of undergoing TOL is of ending with a combined vaginal and cesarean delivery, which clearly poses increased risk of morbidity to women and which women would consider the least desirable outcome;(19) women undergoing a TOL must be counseled regarding the possibility of this occurrence.

Our data are notable for several limitations. First, although we found no difference between those undergoing a planned cesarean and those undergoing a TOL with regard to adverse maternal or neonatal outcomes, our sample size was constrained by the available patient volume over the last 11 years, and thus our data were underpowered to detect differences in relatively rare outcomes. Therefore, our findings regarding safety in particular should be interpreted in light of the sample size. Second, although we attempted to identify how women choosing a TOL differ from women who choose a cesarean delivery, unmeasured confounding likely persists. Third, as these data are derived from a single academic medical center in which all triplet gestations are managed and delivered by a discrete group of maternal-fetal medicine faculty and fellows, with resident involvement as well as around-the-clock neonatology and obstetric anesthesiology availability, these data may not be generalizable to other non-tertiary care centers. However, the triplet population cared for at this center mirrors the demographic characteristics of women with triplets nationwide.(20) Finally, while the provider population stayed relatively constant over the course of the study, the counseling of patients regarding the advisability and likelihood of success of a TOL may have changed over time, perhaps differentially for different providers. Further work must consider such factors as patient preferences, health resources involved in triplet TOL versus

cesarean delivery, and the continued importance of provider training in vaginal delivery of multiple gestations.

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References

1. Martin JA, Hamilton BE, Osterman MJ, Driscoll AK, Mathews TJ. Births: Final data for 2015. Natl Vital Stat Rep. 2017;66(1):1.
2. Centers for Disease Control and Prevention. [Available from: <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5819a9.htm>.
3. Lappen JR, Hackney DN, Bailit JL. Maternal and neonatal outcomes of attempted vaginal compared with planned cesarean delivery in triplet gestations. Am J Obstet Gynecol. 2016;215(4):493 e1–6. [PubMed: 27166014]
4. Loucopoulos A, Jewelewicz R. Management of multifetal pregnancies: sixteen years' experience at the Sloan Hospital for Women. Am J Obstet Gynecol. 1982;143(8):902–5. [PubMed: 7102766]
5. Feingold M, Cetrulo C, Peters M, Chaudhury A, Shmoys S, Geifman O. Mode of delivery in multiple birth of higher order. Acta Genet Med Gemellol (Roma). 1988;37(1):105–9. [PubMed: 3223206]
6. Lipitz S, Reichman B, Paret G, Modan M, Shalev J, Serr DM, et al. The improving outcome of triplet pregnancies. Am J Obstet Gynecol. 1989;161(5):1279–84. [PubMed: 2589451]
7. Crowther CA, Hamilton RA. Triplet pregnancy: a 10-year review of 105 cases at Harare Maternity Hospital, Zimbabwe. Acta Genet Med Gemellol (Roma). 1989;38(3–4):271–8. [PubMed: 2631497]
8. Itzkowic D A survey of 59 triplet pregnancies. Br J Obstet Gynaecol. 1979;86(1):23–8. [PubMed: 760761]
9. Holcberg G, Biale Y, Lewenthal H, Insler V. Outcome of pregnancy in 31 triplet gestations. Obstet Gynecol. 1982;59(4):472–6. [PubMed: 7078901]
10. Vintzileos AM, Ananth CV, Kontopoulos E, Smulian JC. Mode of delivery and risk of stillbirth and infant mortality in triplet gestations: United States, 1995 through 1998. Am J Obstet Gynecol. 2005;192(2):464–9. [PubMed: 15695988]
11. Alran S, Sibony O, Luton D, Touitou S, Fourchette V, Feraud O, et al. Maternal and neonatal outcome of 93 consecutive triplet pregnancies with 71% vaginal delivery. Acta Obstet Gynecol Scand. 2004;83(6):554–9. [PubMed: 15144337]
12. Clarke JP, Roman JD. A review of 19 sets of triplets: the positive results of vaginal delivery. Aust N Z J Obstet Gynaecol. 1994;34(1):50–3. [PubMed: 8053876]
13. Machtinger R, Sivan E, Maayan-Metzger A, Moran O, Kuint J, Schiff E. Perinatal, postnatal, and maternal outcome parameters of triplet pregnancies according to the planned mode of delivery: results of a single tertiary center. J Matern Fetal Neonatal Med. 2011;24(1):91–5.
14. Grobman WA, Peaceman AM, Haney EI, Silver RK, MacGregor SN. Neonatal outcomes in triplet gestations after a trial of labor. Am J Obstet Gynecol. 1998;179(4):942–5. [PubMed: 9790375]
15. Practice Bulletin No. 169: Multifetal Gestations: twin, triplet, and higher-order multifetal pregnancies. Obstet Gynecol. 2016;128(4):e131–46. [PubMed: 27661652]
16. Bamberg C, Fotopoulou C, Neissner P, Slowinski T, Dudenhausen JW, Proquitt H, et al. Maternal characteristics and twin gestation outcomes over 10 years: impact of conception methods. Fertil Steril. 2012;98(1):95–101. [PubMed: 22608318]
17. McDonald S, Murphy K, Beyene J, Ohlsson A. Perinatal outcomes of in vitro fertilization twins: a systematic review and meta-analyses. Am J Obstet Gynecol. 2005;193(1):141–52. [PubMed: 16021072]

18. Domingues AP, Dinis SR, Belo A, Couto D, Fonseca E, Moura P. Impact of induced pregnancies in the obstetrical outcome of twin pregnancies. *Fertil Steril*. 2014;101(1):172–7. [PubMed: 24140038]
19. Yee LM, Kaimal AJ, Houston KA, Wu E, Thiet MP, Nakagawa S, et al. Mode of delivery preferences in a diverse population of pregnant women. *Am J Obstet Gynecol*. 2015;212(3):377 e1–24. [PubMed: 25446662]
20. Peress DA, Peaceman AM, Yee LM. Evaluation of trichorionic versus dichorionic triplet gestations from 2005 to 2016 in a large, referral maternity center. *Am J Perinatol*. 2017;34(6):599–605. [PubMed: 28264209]

Table 1.

Maternal and pregnancy characteristics by planned mode of delivery

Variable	Bivariable analysis		P-value	Multivariable analysis	
	Trial of labor (n=21)	Planned cesarean delivery (n=62)		Adjusted odds ratio*	95% confidence interval
Maternal age, years	32.0±4.7 ^a	33.9 ±4.8	0.10		
Race/ethnicity	17(81.0)	50 (80.7)	0.93		
Non-Hispanic white	2 (9.5)	4 (6.5)			
Non-Hispanic black	1 (7.2)	5 (8.1)			
Hispanic	1 (4.8)	3 (4.8)			
Other/unknown					
Private insurance	19 (90.5)	60 (96.8)	0.24		
Married	19 (90.5)	59 (95.2)	0.44		
Multiparous	11(52.3)	16(25.8)	0.03	4.65	2.21–9.78
BMI at delivery, kg/m ²	30.6 ±4.7	31.9 ±4.9	0.13		
Triplet chorionicity	6 (28.6)	43 (69.4)	0.90		
Dichorionic/triamniotic	15 (71.4)	19(30.7)			
Trichorionic/triamniotic					
In vitro fertilization	6 (30.0)	45 (72.6)	0.001	0.11	0.05–0.23
Gestational age at delivery, weeks	34.6(30.3–34.5)	34.0(31.3–35.2)	0.24		
Preterm labor	18(85.7)	33(53.2)	0.008	9.45	3.81–23.45
Preterm premature rupture of membranes	6 (28.6)	22 (35.5)	0.56		
Antenatal corticosteroids	15 (71.4)	44 (71.0)	0.97		
Hypertensive disorder of pregnancy	6 (29.6)	22(35.5)	0.56		
Birthweight, grams	1913 ± 508	1849 ± 493	0.33		
Triplet 1	1994 ± 572	1859 ± 538			
Triplet 2	1865 ± 515	1845 ± 519			
Triplet 3					
Male sex	39 (61.9)	105 (56.5)	0.45		

Data displayed as N (%), mean (±SD), or median (IQR).

BMI, body mass index

* Adjusted for multiparity, in vitro fertilization, and preterm labor.

Table 2.

Neonatal outcomes by planned mode of delivery

	Trial of labor (n=63)	Planned cesarean delivery (n=186)	P-value
Composite outcome	18 (28.6)	60 (32.3)	0.59
Arterial cord blood gas pH <7.0	2 (3.2)	3 (1.6)	0.37
Apgar score <7 at 5 minutes	3 (4.8)	4 (2.2)	0.25
Neonatal intensive care unit admission	45 (71.4)	137 (76.1)	0.46
Neonatal intensive care unit length of stay (days)	14 (0,38)	17 (2,37)	0.21
Respiratory distress syndrome	17 (27.0)	45 (24.2)	0.39
Mechanical ventilation	11 (17.5)	26 (24.2)	0.31
Days of mechanical ventilation	8.5 ± 10.8	5.2 ± 7.2	0.29
Necrotizing enterocolitis	4 (6.4)	10 (5.4)	0.81
Intraventricular hemorrhage (Grade III/IV)	1 (1.6)	0.0	0.18
Retinopathy of prematurity	4 (6.4)	11 (6.0)	0.57
Hyperbilirubinemia	39 (61.9)	118 (63.4)	0.29
Confirmed sepsis	3 (4.8)	8 (4.3)	1.0

Data displayed as N (%), mean (±SD), or median (IQR).