

The Impact of Mode of Delivery On Maternal and Perinatal Outcome In Vertex / Breech Presentation In The Leading Twin

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ABSTRACT

Objective To compare the impact of mode of delivery on maternal and perinatal outcome in vertex/breech presentation of leading twin.

Study design Cross sectional study.

Place & Duration of study Fatima Hospital, Baqai Medical University Karachi, from July 2018 to December 2019.

Methodology All the twin deliveries were taken into account. They were assigned into two groups A and B. Group A comprised of patients in whom leading twin had vertex and group B of patients in whom leading twin had breech presentation. Maternal and perinatal outcome were compared. Data was analysed using SPSS 20.

Results There were 78 twin deliveries which constituted 2.12% of the total deliveries. Group A comprised of 42 cases and vaginal birth was contemplated in all. Group B comprised of 36 cases, of whom 24 (66.66%) had successful vaginal births while cesarean section was done in 12 (33.33%). In twin 2 of group B apgar score <7 at 5 min was more frequent in second twin. Other neonatal outcome measures including apgar score at 5 min, still birth, perinatal mortality, admission to NICU, birth trauma, neonatal asphyxia, respiratory distress syndrome, neonatal jaundice, and neurological deficit were not different markedly between the two groups. Maternal morbidity were common between the groups. There was one maternal death reported in group B.

Conclusion Vaginal birth in twin gestations with leading twin as breech did not worsen the maternal and perinatal outcome in our study.

Key words Twin, Breech delivery, Maternal outcome, Perinatal outcome.

INTRODUCTION:

Twin gestation constitutes approximately 1% of all pregnancies.¹ There has been a rise in the incidence of twin pregnancy which is explained predominantly by increasing use of assisted fertility techniques and advanced maternal age. The incidence varies

worldwide, highest frequency is reported from Nigeria and lowest in Japan.² Management of twin pregnancies poses challenge to the obstetricians. Twin pregnancies carry greater maternal and perinatal risks.³ The combination of presentations in twin gestation is considered one of the highest dexterity in obstetrics. Twin gestations are expected to have a higher possibility of cesarean delivery due to various causes mainly due to the morbidity and mortality of the second twin.⁴ It is stated that losing expertise in vaginal births has endangered us with a vicious circle in favor of cesarean section.⁵

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Studies determining the safest mode of delivery for twins were mostly retrospective and comparison was made between twins born vaginally and cesarean

section, or between twins with planned vaginal delivery and planned cesarean delivery. The conclusions of those studies did not reach an end point, with some finding benefit of cesarean delivery and others finding no difference in outcomes. Previous studies did not take into account confounding factors either statistically or by randomization. Parity, medical, obstetric or emergency indications for a cesarean section are the important confounding factors which were not studied. There are no clear guidelines regarding the preferred mode of delivery with leading twin as breech.

The report of Term Breech Trial by Hannah et al has resulted in marked decrease in neonatal mortality and morbidity in the planned cesarean section group compared to the planned vaginal delivery group. The results have been extrapolated to twin gestations with first twin in breech presentation and planned cesarean has been adopted to be the preferred mode of delivery in most centers.⁶ This study was undertaken to find out the impact of breech leading twin on the mode of delivery and safety of vaginal delivery in such cases.

METHODOLOGY:

This study was conducted at Fatima hospital which is a tertiary care hospital affiliated with Baqai Medical University Karachi. All the twin deliveries from July 2018 till December 2019 were taken into account. All women admitted with diagnosis of twin pregnancy after 28 weeks of gestation were included in the study after taking informed consent. The cases of previous cesarean section and with transverse lie of leading twin, known fetal malformations in either or both twins, were excluded from the study.

Depending on presentation of the leading twin patients were assigned into group A and B. In group A and B leading twin had vertex and breech presentation respectively. A performa was designed on which different variables including demographic history, intrapartum and postpartum details, neonatal and maternal outcome measures were entered. Pilot testing of the questionnaire was done to check its sequencing, phrasing and understanding. Statistical analysis was performed using SPSS version 22.

RESULTS:

During the study period, there were 78 twin deliveries out of 3668 deliveries which constituted 2.12% of the total deliveries. Breech presentation of first twin occurred in 36 (41.5%) cases. In 64 (82.05%) cases there was breech presentation in either one or both the twins. Majority of the patients were un-booked

(n=53 - 67.9%). Mean age of the patient was 30.7 year ranging from 14-45 years. There were 3 (3.86%) primigravida and the rest were multigravida. History of ovulation induction was present in 8 (10.2%) cases.

Mean age of the gestation was 34.4 weeks. Delivery at a preterm gestation occurred in 62 (79.48%) cases. Ten (12.8%) were delivered at gestation less than 32 weeks. Pre-labor rupture of membranes occurred in 15 (19.2%) patients. There was no case with placenta previa. Hydramnios leading to placental abruption occurred in one case. Anemia was the commonest medical disorder present in 77 patients. Hypertensive disorder in pregnancy was found in 25 patients.

Group A comprised of 42 (53.84%) patients. Mean age of the patient was 30 year and most of them were multiparous (n=40 - 95.2%). Mean gestational age was 35 weeks. Vaginal delivery was contemplated in all cases with cephalic presenting first twin. Mean birth weight of twin 1 and 2 was 2.16kg and 2.13 kg respectively. Inter-twin delivery time was 15 min in 30 (71.4%), 15-30 min in 12 (28.5%) cases.

Group B comprised of 36 (41.5%) patients. Mean age of the patient was 32 year and most of them were multiparous (n=34 - 97.1%). Mean gestational age was 34 weeks. In 24 (66.66%) cases successful vaginal birth was contemplated. They were un-booked cases and presented in active labor with satisfactory progress and fetal condition. All of them were given trial for vaginal birth. Labor was monitored by maintaining partogram. Successful vaginal births were contemplated in all cases. Mean birth weight of twin 1 and 2 was 2.17 kg and 2.14 kg respectively. In cases who had vaginal birth, twin 2 had cephalic presentation in 4 cases and breech presentation in 20 cases. Cesarean section was done in 12 (33.33%) cases, all were planned and elective cases. Inter-twin delivery time was 15 min in 18 (75%), and 15-30 min in 6 (25%) cases. In 19 (79.1%) cases the second twin was spontaneously delivered as cephalic or breech, in 3 (12.5%) breech extraction was performed and in 1 case internal podalic version was done (table I). Comparison of perinatal outcome is given in table II.

The rate of cesarean delivery for twins in our study was 15.38%. Emergency cesarean delivery for retained second twin was not required in any case. In patients where vaginal delivery was attempted, inter-twin delivery interval was < 30 minutes in all cases. Perinatal deaths resulted in 17 twin pregnancies of either of the twins or both.

Table I: Comparison of Outcome of Labor

Variable		Group A (n=42)	Group B (n=36)
Vaginal delivery		42	24
Cesarean section		0	12
Combined		0	0
Retained second twin		0	0
Inter twin delivery Time	0-15 min	30	19
	0-15 min	12	5
	>30min	0	0

Table II: Comparison of Perinatal Outcome

Variable	Group A		Group B	
	Twin 1 (n)	Twin 2 (n)	Twin 1 (n)	Twin 2 (n)
Apgar score <4 at 5 min	2	7	3	1
Apgar score <7 at 5 min	2	4	3	11
Still birth	1	2	2	4
Neonatal mortality < 7 days	5	6	6	6
Admission to NICU	10	11	11	9
Birth trauma	0	0	0	0
Neonatal asphyxia	4	4	6	6
Respiratory distress syndrome	6	7	8	8
Neurological deficit	7	6	3	3
Neonatal jaundice	12	13	10	11

Table II: Comparison of Maternal Outcome

	Group A	Group B
Postpartum hemorrhage	4	0
Requirement for blood transfusion	11	8
Genital tract trauma	1	0
Wound infection	1	1
Sepsis	0	0
Prolonged hospital stay	5	3
Thrombo-embolism	0	0
ARDS	0	0
DIC	0	0
Maternal death	0	1

There were 2 stillbirths in 2nd born twin and in three cases both the twin were still born (table II).

Most of the twins were diamniotic dichorionic (n=55 - 70.5%). Out of 23 (29.5%) cases of monoamniotic monoamniotic pregnancy, 4 (6.4%) were monoamniotic monoamniotic. Perinatal outcome was worse in monoamniotic monoamniotic pregnancy as compared to dichorionic. Perinatal mortality rate was high in dichorionic

pregnancy (21.73%) as compared to monoamniotic monoamniotic (17.27%). In monoamniotic monoamniotic twin, 3 cases presented at a preterm gestation. Cesarean section was performed in one case. One patient presented at a term and had vaginal birth with good perinatal outcome. Both the twin were still born in one case and had early neonatal death in another case. Perinatal mortality rate was 50% in monoamniotic monoamniotic twins. Details of

maternal outcome is given in table III.

DISCUSSION:

Frequency of twin births in our study was 2.12% which is comparable to the reported incidence.⁴ Most of the women in our study belonged to reproductive age group with the mean age of 30.7 year. The incidence of twin pregnancy has increased which can be explained on the grounds of increase in assisted conceptions and the rise in maternal age.⁷ In our study 8 (10.2%) cases has induced ovulation. We report a comparable incidence of twin pregnancy because most of the women belonged to the reproductive age group and a small proportion of them had induced ovulation and none underwent artificial reproductive techniques.

Majority of patients were multigravida in our study. Similar findings were found in other studies, however there is much higher frequency in multigravida as compared to other studies.^{8,9} In our study 79.48% births were preterm out of which 10 (12.8%) cases were delivered at gestation less than 32 weeks. Preterm births were more frequent as compared to other study where preterm births complicates 51% and early preterm births (birth at <32 weeks) in 14% of the twin gestation.¹²

In group A all patient had successful vaginal birth. Feasibility and safety of vaginal birth in uncomplicated twin pregnancies after 32 + 0 gestational weeks was approved in a prospective randomized trial previously provided if the first twin is in cephalic position.¹⁰ Gestational age < 32 weeks in 4 cases was observed in our study. Both the twins had intra-uterine fetal demise in one case. The other three cases were brought in emergency in second stage of labor and had vaginal births. Both the twin died in early neonatal period in all 3 cases. The cause of death was prematurity leading to apneic spells after birth, and neonatal jaundice. Association between vaginal birth and an increased risk of intraventricular hemorrhage was shown in a study of 193 twins with low birth weight.¹¹ Gestational age is an important determinant in choosing the optimal mode of delivery. Different studies have drawn different conclusion in this regard. Vaginal delivery was considered a safe option for twin pregnancies with a cephalic-presenting first twin at 35 weeks of gestation and onwards in a French study of 758 twins. In contrast analysis of a large twin cohort data suggest that cesarean delivery is preferable at 36 plus weeks.¹²

In 41.5% cases first twin had breech presentation. It is a high frequency as compared to other studies

where it was 25% and 28%.¹³ Breech presentation of either or both twins occurred in about 82.05% of cases which is more frequent as compared to different studies where it was 60%.⁷ If obstetrician has expertise in the skills of vaginal birth a trial of labor can be successful in as much as 77% of cases.¹⁴ A cohort study revealed that non-vertex second twin can have spontaneous vertex presentation in up to 30% of cases resulting in same rate of vaginal birth as those where twins primarily went into labor in same position. About 20% of vertex presenting second twins can undergo intrapartum change in presentation in the same manner.¹⁵

In our study change in presentation did not occur in any case. Multiparty is considered to be favorable factor in determining success of vaginal birth as proven by other studies. In our study multigravidas had successful vaginal births. Successful vaginal births with twin 1 as non-vertex has been reported in other studies too. In a study it was noted that in the absence of uterine scar or footling presentation there is no reason to prohibit vaginal delivery in breech first twins.¹⁰

Nearly half of the cases ultimately required intrapartum cesarean section in a trial when vaginal delivery was attempted for non-vertex first-twin.¹⁶ There is still 48.6% chance of vaginal delivery in high risk mothers (nulliparous, advanced maternal age, induced labor).¹⁷ In group B mean maternal age was 32 years, mostly multiparas with spontaneous onset of labor and ultimately had successful vaginal births. Practicing active management of second stage of labor, including breech extraction of second twin and internal version of non-engaged second twin can avoid cesarean delivery for the second twin after vaginal delivery of the first twin. Without active management of the second stage, the likelihood of a combined vaginal-cesarean delivery can be as high as 6–10%.¹⁸

Our study reaffirms the fact that twin 2 is more likely to have low Apgar score, as evidenced by other studies. In our study marked difference in poor Apgar score is not seen between the two groups. We practice active management in labor and inter twin delivery interval remained within 30 minutes in all cases thus neonatal outcome was not bad. Active second stage management for the second twin is also considered to be associated with better neonatal outcome.¹⁶ In this study also though there was no mortality, still NICU care was required in all breech babies less than 1.5 kg irrespective of the mode of delivery and requirement decreased with increasing birth weight.

Pakistan is ranked third among countries having highest infant mortality in the world. Perinatal death is reported to be four times higher in twin pregnancies than in singletons.¹⁸ There were more perinatal death in monochorionic gestation as compared to dichorionic but the difference was not marked. Monochorionic twins are considered to have an increased risk for fetal death (even at term). There was one maternal death in this series. There is a 3 times higher risk of maternal near miss and a 4 times higher risk of maternal death among twin pregnancy than in singleton.¹⁹

CONCLUSIONS:

Vaginal birth in patients with twin gestation and cephalic presentation did not increase maternal and perinatal risk. Multiparas with spontaneous onset labor had successful trial of labor. This avoided cesarean section in twin gestation.

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