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Fetomaternal Outcome of Twin Pregnancy: A Retrospective Study

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Abstract

Twin pregnancies are associated with higher risks of maternal and fetal complications compared to singleton pregnancies. Understanding fetomaternal outcomes is crucial for improving prenatal care and reducing adverse events. A retrospective study was conducted at Community Based Medical College, Bangladesh (CBMC,B) Hospital, Mymensingh, Bangladesh, focusing on twin pregnancies managed in the hospital between January and June of 2024, to evaluate the fetomaternal outcomes of twin pregnancies. A total of 37 twin pregnancies were selected through purposive sampling. Data was collected from hospital records and analyzed. Our study revealed that the mean gestational age at delivery was 35.2±2.1 weeks, with 64.9% preterm births before 37 weeks. Antenatal complications included preterm labour (43.24%), preeclampsia (24.32%), gestational diabetes (16.22%) and anaemia (18.92%). Caesarean deliveries (78.4%) were predominant. Neonatal outcomes showed 56.8% low birth weight and 10.8% perinatal mortality. Maternal complications occurred in 32.4% of cases, with postpartum haemorrhage (13.5%) being the most common. Those findings highlight the significant risks associated with twin pregnancy. We would like to emphasize the need for specialized antenatal care and delivery planning. High rates of preterm birth and perinatal complications underscore the importance of vigilant monitoring in twin pregnancy to optimize outcomes for both mothers and newborns.

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Introduction

Twin pregnancies, accounting for approximately 3% of all births globally, are associated with significantly higher risks of maternal and fetal complications compared to singleton pregnancies.[1] The incidence of twin gestation has risen in recent years due to advanced maternal age, increased use of assisted reproductive technologies (ART), and improved obstetric care.[2,3] Despite medical advancements, twin pregnancies remain a high-risk condition, contributing to elevated rates of preterm birth, low birth weight, preeclampsia, gestational diabetes, and perinatal mortality.[4,5] Understanding the fetomaternal outcomes of twin pregnancies is crucial for optimizing prenatal care, reducing adverse events, and improving neonatal survival, particularly in low-resource settings like Bangladesh.[6] The global prevalence of twin pregnancies varies, with higher rates reported in Sub-Saharan Africa (up to 18–40 per 1,000 births) compared to Asia (6–9 per 1,000 births).[7] In Bangladesh, the exact incidence remains understudied, but hospital-based studies suggest an increasing trend, partly due to delayed childbearing and fertility treatments.[8] Twin pregnancies are classified into monozygotic (identical) and dizygotic (fraternal), with the latter being more common and influenced by genetic, environmental, and hormonal factors.[9] Maternal age above 30 years, multiparity, family history of twins, and ART are well-established risk factors.[10] Twin pregnancies impose a greater physiological burden on mothers, leading to higher rates of antenatal and intrapartum complications. Studies indicate that women carrying twins are at a

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2–3 times higher risk of developing hypertensive disorders (e.g., preeclampsia, gestational hypertension) compared to singleton pregnancies.[11] Additionally, anemia, gestational diabetes mellitus (GDM), and postpartum hemorrhage (PPH) are more prevalent due to increased metabolic demands and uterine overdistension.[12] The risk of cesarean delivery is also significantly higher, often due to malpresentation, fetal distress, or failed labor progression.[13] Fetal complications in twin pregnancies include intrauterine growth restriction (IUGR), discordant growth, congenital anomalies, and preterm birth.[5] Preterm delivery (before 37 weeks) occurs in nearly 60% of twin pregnancies, with a substantial proportion delivering before 34 weeks, increasing the risk of respiratory distress syndrome (RDS), necrotizing enterocolitis (NEC), and neonatal sepsis.[14] Perinatal mortality is significantly higher in twins, particularly in monochorionic pregnancies due to complications like twin-twin transfusion syndrome (TTTS).[15] Despite growing awareness of twin pregnancy risks, data from Bangladesh, particularly from tertiary care hospitals, remain limited. Most existing studies focus on singleton pregnancies, leaving a gap in understanding twin-specific outcomes in this region. Hence, this study aimed to evaluate the fetomaternal outcomes of twin pregnancies, including maternal complications, mode of delivery, neonatal morbidity, and mortality.

Methods

This retrospective study was conducted at Community Based Medical College, Bangladesh (CBMC,B) Hospital, Mymensingh, Bangladesh, focusing on twin pregnancies managed in the hospital between January and June of 2024. The study population included 37 women with twin gestation who received antenatal care and delivered at the hospital. Medical records were reviewed to extract relevant maternal and neonatal data.

Inclusion criteria: Women with confirmed twin pregnancies (diagnosed via ultrasound) who delivered at the mentioned hospital during the study period were included. Both vaginal and cesarean deliveries were considered. Cases with complete medical records, including maternal demographics, antenatal complications, delivery details, and neonatal outcomes, were selected for analysis.

Exclusion criteria: Patients with incomplete medical records, higher-order multiples (triplets or more), or those referred to other facilities after initial registration were excluded. Additionally, pregnancies with major fetal anomalies diagnosed before delivery were omitted to avoid confounding the analysis of perinatal outcomes.

Data were collected from hospital records, including maternal age, parity, antenatal complications (e.g., preeclampsia, gestational diabetes), mode of delivery, gestational age at birth, birth weight, and neonatal morbidity/mortality. A structured data extraction form was used to ensure consistency.

Data were analyzed using MS-Excel. Descriptive statistics (mean and percentages) were used to summarize findings. Six tables were generated to present maternal characteristics, complications, delivery methods, neonatal outcomes, perinatal mortality, and maternal morbidity. No inferential statistical tests were applied due to the small sample size and retrospective nature of the study.

Ethical clearance was taken from the Ethical Review Committee of Community Based Medical College, Bangladesh (CBMC,B), Mymensingh, Bangladesh.

Results

The mean maternal age was 28.4±4.7 years, with the majority (62.16%) aged between 25 and 35 years. Primigravid women were 40.54%, while 59.46% had multigravida. Antenatal complications were: preterm labour (43.24%), preeclampsia (24.32%), anaemia (18.92%) and gestational diabetes (16.22%) (Table-I).

Table-I: Demographical characteristics and clinical complications of the participants (n=37)

Variables	Frequency	Percentage
Age group (in years)		
< 25	8	21.62
25–35	23	62.16
>35	6	16.22
Gravida		
Primigravida	15	40.54
Multigravida	22	59.46
Antenatal Complications		
Anaemia	7	18.92
Gestational diabetes	6	16.22
Preeclampsia	9	24.32
Preterm labour	`16	43.24

Normal vaginal delivery was in 21.6%, while Cesarean section (78.4%) was the dominant mode of delivery. Cesarean section was primarily indicated due to malpresentation (35.1%) and fetal distress (24.3%) (Table-II). The mean gestational age at delivery was 35.2±2.1 weeks, with 64.9% of births occurring before 37 weeks. The mean birth weight was 2.1±0.5 kg, with 56.8% of neonates classified as low birth weight (<2.5 kg). Neonatal complications included respiratory distress syndrome (18.9%), jaundice (13.5%), and birth asphyxia (8.1%) (Table-III). Perinatal mortality was observed in 10.8% of cases, predominantly due to extreme prematurity (50%) and respiratory failure (37.5%) (Table-IV).

Maternal complications were observed in 32.4% of women including postpartum haemorrhage (13.5%) and blood transfusion for anaemia (10.8%) and infection (8.1%) were notable (Table-V).

Table-II: Mode of delivery in twin pregnancies (n=37)

Mode of delivery	Frequency	Percentage
Vaginal delivery	8	21.6
Caesarean section	29	78.4
Indications of Caesarean section		
Malpresentation	13	35.1
Fetal distress	9	24.3
Previous Cesarean section	5	13.5
Undefined	2	5.4

Table-III: Neonatal outcomes (n=74)

Outcome	Frequency	Percentage
Birth weight (in kg)		
<1.5	6	8.1
1.5–2.5	36	48.6
>2.5	32	43.2
Complications		
RDS	14	18.9
Jaundice	10	13.5
Birth asphyxia	6	8.1

Table-IV: Perinatal mortality (n=8)

Cause of Death	Frequency	Percentage
Extreme prematurity	4	50.0
Respiratory failure	3	37.5
Congenital anomalies	1	12.5

Table-V: Maternal postpartum complications (n=12)

Complications	Frequency	Percentage
Postpartum haemorrhage	5	13.5
Anaemia required blood transfusion	4	10.8
Infection	3	8.1

Discussion

This retrospective study evaluated fetomaternal outcomes in 37 twin pregnancies, revealing several important findings that warrant discussion in the context of existing literature. The results demonstrate that twin pregnancies continue to pose significant challenges in obstetric practice, with high rates of maternal complications, preterm births, and adverse neonatal outcomes. The mean maternal age of 28.4±4.7 years in our study population aligns with findings from similar studies in South Asia.[16] Notably, 62.2% of mothers were aged 25-35 years, which corresponds with the peak reproductive years and increased likelihood of twin conception.[17] The predominance of multigravidas (59.5%) in our study supports previous observations that parity is a significant risk factor for twin pregnancies,[7] which could be due to increased follicular stimulation with advancing maternal age and subsequent pregnancies. Our findings regarding antenatal complications are particularly concerning. The high incidence of preterm labor (43.2%) and preeclampsia (24.3%) in our cohort exceeds rates reported in singleton pregnancies,[18] confirming that twin gestation remains an independent risk factor for these complications. These results are consistent with a multicenter study that reported a 2-3-fold increased risk of hypertensive disorders in twin pregnancies.[5] The 16.2% prevalence of gestational diabetes in our study was higher than the 10-12% reported in regional singleton pregnancies,[12] that reflects the greater metabolic demands of twin gestation.

Cesarean section (78.4%) observed in our study was substantially higher than both the national average for singleton deliveries and rates reported in developed countries.[13] This finding may reflect the cautious approach of Bangladeshi obstetricians toward twin deliveries, particularly given resource limitations in managing potential complications during vaginal delivery. The primary indications for Cesarean section in our study – malpresentation (35.1%) and fetal distress (24.3%), together mirror global patterns,[19] though our rates were somewhat higher than those reported in tertiary centers with more experience in vaginal twin deliveries.[5]

Neonatal outcomes in our study highlight the vulnerabilities of twin pregnancies. The mean birth weight of 2.1±0.5 kg and 56.8% rate of low birth weight (<2.5 kg) are consistent with regional data.[20] However, it was significantly worse than those outcomes reported from high-resource settings.[21] The high prevalence of respiratory distress syndrome (18.9%) and jaundice (13.5%) among neonates underscores the consequences of prematurity, which affected 64.9% of our cohort. These findings emphasize the need for improved antenatal care strategies to prolong gestation and optimize fetal growth in twin pregnancies. The perinatal mortality rate of 10.8% in our study is concerning, though comparable to other reports from low-resource settings.[5,6,20] The predominance of extreme prematurity (50% of deaths) and respiratory failure (37.5%) as causes of mortality suggests that enhancing neonatal intensive care capabilities could significantly improve outcomes. Our findings support the conclusion of another study done in Bangladesh[6] that perinatal mortality in twin pregnancies remains unacceptably high in Bangladesh and requires targeted interventions.

Maternal postpartum complications occurred in 32.4% of cases, with postpartum haemorrhage (13.5%) being the most prevalent. Our rates were higher than those reported in developed nations,[17] which indicate our limitations in antenatal detection and management of risk factors. Anaemia that requiried blood transfusion (10.8%) is particularly notable and

suggests opportunities for improved antenatal haematinic supplementation and blood banking services.

This study has several limitations, including its retrospective design, small sample size, and single-center setting, which may affect generalizability. Reliance on medical records could lead to incomplete data. Chorionicity was not analyzed, which impacts twin pregnancy outcomes. Future multicenter prospective studies are recommended. Investigations into cost-effective interventions to reduce preterm birth and improve neonatal outcomes would be particularly valuable. Despite those above-mentioned limitations, our findings have important implications for clinical practice in Bangladesh and similar settings. The high rates of maternal and neonatal complications suggest that twin pregnancies should be managed as high-risk cases from the outset.

Conclusion

This study highlights the significant risks associated with twin pregnancies, including high rates of maternal complications, preterm births, and adverse neonatal outcomes in our setting. The findings underscore the need for specialized antenatal care, improved neonatal support, and standardized management protocols to optimize fetomaternal outcomes. Healthcare providers should consider twin pregnancies as high-risk and ensure timely interventions. Future research with larger, multicenter studies is recommended to further explore strategies for reducing complications in twin gestations in low-resource settings. Specialized care should be implemented for twin pregnancy through enhanced monitoring, standardized protocols for preterm birth prevention, and strengthen neonatal intensive care services. Healthcare providers should receive targeted training in twin pregnancy management. Public health initiatives should emphasize early referral and patient education about potential complications.

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