Section: Obstetrics and Gynaecology

Original Research Article

PERINATAL OUTCOME OF SECOND TWIN DELIVERY AT A RURAL TERTIARY HEALTH CARE SYSTEM OF INDIA

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Received : 01/03/2025
Received in revised form : 18/04/2025
Accepted : 07/05/2025

Keywords:
Twin pregnancy, Second twin delivery, Perinatal outcome, Rural healthcare, Neonatal complications, LSCS, Low birth weight, SNCU admission.

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DOI: 10.47009/jamp.2025.7.3.94

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (3); 495-498

ABSTRACT

Background: Twin pregnancies, particularly the delivery of the second twin, are associated with increased perinatal risks compared to singleton births. These risks are further amplified in rural healthcare settings due to limited resources and delayed interventions. This study aims to evaluate the perinatal outcomes of second twin deliveries at a rural tertiary care center in India, focusing on delivery modes, neonatal complications, and survival rates. **Materials and Methods:** A retrospective observational study was conducted on 47 twin deliveries recorded at a rural tertiary healthcare center in India. Data were collected regarding maternal demographics, gestational age, mode of delivery, neonatal birth weight, complications, and perinatal outcomes specifically for the second twin. Descriptive statistics were applied to analyze delivery patterns, neonatal outcomes, and associated complications. **Result:** Out of 47 twin deliveries, the second twin was delivered via Lower Segment Cesarean Section (LSCS) in 70.2% of cases (n=33), while 29.8% (n=14) were delivered through Normal Vaginal Delivery (NVD). The average birth weight of the second twin was 1.94 kg. Regarding perinatal outcomes, 34% (n=16) of second twins required admission to the Special Newborn Care Unit (SNCU). Stillbirths accounted for 12.8% (n=6), while intrauterine deaths (IUD) were noted in 6.4% (n=3). The most common neonatal complication was low birth weight, observed in 34% of cases (n=16), followed by prematurity and birth asphyxia. **Conclusion:** Second twin deliveries in rural tertiary care settings exhibit significant perinatal risks, particularly low birth weight and the need for SNCU admission. A higher rate of cesarean deliveries reflects clinical caution in managing second twin births. Strengthening neonatal care facilities and ensuring timely obstetric interventions can improve outcomes for second twins in rural healthcare environments.

INTRODUCTION

Twin pregnancies present unique obstetric challenges due to their inherent association with increased maternal and perinatal morbidity and mortality when compared to singleton pregnancies.[1] The second twin, in particular, is at a significantly higher risk of adverse outcomes, including low birth weight, prematurity, birth asphyxia, and perinatal death.[2,3] These risks are often attributed to complications such as delayed delivery intervals, abnormal presentations, cord prolapse, and placental abruption following the birth of the first twin.[4]

Globally, twin pregnancies account for approximately 1-3% of all births, but contribute disproportionately to perinatal complications.[5] The management of second twin delivery is highly dependent on factors such as gestational age, fetal presentation, and the mode of delivery of the first twin. While cesarean section is often considered a safer option in complicated cases, vaginal delivery remains feasible under optimal conditions with skilled obstetric care.[6] However, in rural healthcare settings, limited access to emergency obstetric

interventions and neonatal care services can exacerbate these risks.[7]

In India, where a significant proportion of the population resides in rural areas, healthcare infrastructure often struggles to provide timely and specialized care for high-risk pregnancies, including twins.[8] Studies have indicated that perinatal mortality rates for second twins are notably higher in resource-constrained settings due to delays in referral, inadequate monitoring, and insufficient neonatal support systems.[9] Furthermore, the decision-making process regarding the mode of delivery in such settings is frequently influenced by infrastructural limitations rather than evidence-based guidelines.[10]

Given these concerns, it is essential to evaluate the perinatal outcomes associated with second twin deliveries in rural tertiary care centers. Understanding the patterns of delivery, common neonatal complications, and survival outcomes can inform strategies to improve maternal and neonatal care. This study aims to assess the perinatal outcomes of second twin deliveries in a rural tertiary healthcare system in India, with a focus on delivery methods, neonatal complications, and immediate postnatal outcomes.

MATERIALS AND METHODS

Study Population

The study included all women who delivered twin pregnancies at the institution over a defined period. Specifically, data from **47 twin deliveries** were analyzed, focusing on the perinatal outcomes of the second twin. Both booked and unbooked cases presenting to the hospital for delivery were included.

Inclusion Criteria

- Women with twin pregnancies delivering at the hospital, irrespective of booking status.
- Gestational age beyond 28 weeks.
- Complete medical records available for both maternal and neonatal outcomes.

Exclusion Criteria

- Twin deliveries occurring outside the hospital setting.
- Incomplete or missing data regarding neonatal outcomes.
- Cases involving major congenital anomalies.

Data Collection

Patient data were retrieved from hospital records, including maternal age, obstetric history, gestational age at delivery, fetal presentation, mode of delivery for both twins, neonatal birth weights, complications, and immediate perinatal outcomes of the second twin. Outcomes assessed included survival status (alive, stillbirth, IUD), need for Special Newborn Care Unit (SNCU) admission, and presence of complications such as low birth weight, prematurity, birth asphyxia, and cord prolapse.

Definitions

- **Low Birth Weight:** Neonates weighing less than 2.5 kg at birth.
- **Prematurity:** Delivery before 37 completed weeks of gestation.
- **Stillbirth:** Fetal death occurring after 28 weeks of gestation but before delivery.
- **Intrauterine Death (IUD):** Documented fetal demise prior to the onset of labor.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using descriptive statistics. Categorical variables such as mode of delivery, neonatal outcomes, and complications were expressed as frequencies and percentages. Continuous variables like birth weight were summarized using mean values. No inferential statistical tests were applied due to the descriptive nature of the study.

RESULTS

A total of 47 twin deliveries were analyzed in this study, focusing on the perinatal outcomes of the second twin. The mean birth weight of the second twin was 1.94 kg, with a significant proportion of neonates falling under the low birth weight category. The majority of second twins were delivered via Lower Segment Cesarean Section (LSCS), accounting for 70.2% (n=33) of cases, while 29.8% (n=14) were delivered through Normal Vaginal Delivery (NVD). This distribution reflects a preference for cesarean delivery in managing potential complications associated with second twin births (Table 1).

Regarding perinatal outcomes, 34% (n=16) of second twins required admission to the Special Newborn Care Unit (SNCU). Stillbirths were recorded in 12.8% (n=6) of cases, while 6.4% (n=3) were classified as intrauterine deaths (IUD). Additionally, 2 neonates succumbed post-delivery despite SNCU care. The number of neonates who remained with the mother post-delivery without complications varied due to inconsistent documentation (Table 2).

Analysis of neonatal complications revealed that low birth weight was the most frequent issue, observed in 34% (n=16) of cases. Other notable complications included prematurity (17%, n=8), birth asphyxia (8.5%, n=4), and cord prolapse (6.4%, n=3). A subset of neonates (23.4%, n=11) had no documented complications. [Table 3]

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Table 1: Mode of Delivery for Second Twin

Mode of Delivery	Number of Cases	Pecentage
LSCS	33	70.2%
NVD	14	29.8%

Table 2: Table 2: Perinatal Outcome of Second Twin

Perinatal Outcome	Number of Cases	Percentage
SNCU	16	34%
Motherside	20	42.6%
Stillborn	6	12.8%
IUD	3	6.4%
Died at SNCU	2	4.2%

Table 3: Common Complications in Second Twin

Complication	Number of Cases	Percentage
None	11	23.4%
Low birth weight	16	34%
Prematurity	8	17%
Birth asphyxia	4	8.5%
Cord prolapse	**3**	6.4%

DISCUSSION

The present study aimed to evaluate the perinatal outcomes associated with the second twin in a rural tertiary healthcare setting in India. Our findings indicate that the second twin remains significantly vulnerable to adverse outcomes such as low birth weight, prematurity, and the need for advanced neonatal care, consistent with global trends observed in twin pregnancies.[1,2]

A noteworthy finding in this study is the predominance of cesarean section (70.2%) as the mode of delivery for the second twin. This aligns with international studies that recommend cesarean section, particularly when complications arise during the inter-twin delivery interval or when the second twin presents in a non-vertex position.[3,4] However, it is essential to note that cesarean delivery is not always superior in terms of neonatal outcomes, and skilled vaginal delivery can be equally safe in appropriately selected cases.[5]

The average birth weight of the second twin in our study was 1.94 kg, which falls below the low birth weight threshold. This corroborates prior research indicating that second twins tend to have lower birth weights than their co-twins due to placental sharing and positional disadvantage.[6,7] Furthermore, the rate of low birth weight in our cohort (34%) is substantially higher than the national average for singletons, emphasizing the increased perinatal risk.[8]

The admission rate to the Special Newborn Care Unit (SNCU) for second twins was 34%, a figure consistent with studies in similar rural and semi-urban contexts.[9] This high admission rate may be attributed to a combination of factors including delayed delivery, birth asphyxia, and prematurity—conditions that are more prevalent in second twins due to complications following the birth of the first twin.[10,11] The incidence of stillbirth and intrauterine death in our study (12.8% and 6.4%, respectively) highlights the critical need for timely obstetric intervention and robust intrapartum monitoring, particularly in twin deliveries.[12]

The most frequently reported neonatal complications in our study were low birth weight, prematurity, and birth asphyxia. These are consistent with findings from earlier studies, which have shown that the second twin is more prone to hypoxic events, especially in settings lacking immediate surgical and

ISSN (O): 2687-5365; ISSN (P): 2753-6556

neonatal interventions.[13,14] The presence of cord prolapse and transverse presentations, observed in a subset of our cases, further increases the complexity of second twin deliveries.[15]

CONCLUSION

Despite the significant perinatal risks associated with the second twin, many of the adverse outcomes are preventable through timely diagnosis, planned delivery, and enhanced neonatal support. Ensuring that rural tertiary healthcare systems are equipped with adequate infrastructure and trained personnel is vital in improving twin delivery outcomes.

Our study is limited by its retrospective design and relatively small sample size, which may restrict the generalizability of findings. Additionally, due to variability in documentation, long-term neonatal outcomes and maternal morbidity could not be assessed. Future prospective studies with larger cohorts and long-term follow-up are recommended.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556