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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20806

DOI URL: <http://dx.doi.org/10.21474/IJAR01/20806>



RESEARCH ARTICLE

ETIOLOGY FACTORS AND PERINATAL OUTCOME IN BREECH PRESENTATION : A RETROSPECTIVE STUDY

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Manuscript Info

Manuscript History

Received: 15 February 2025

Final Accepted: 19 March 2025

Published: April 2025

Key words:-

Breech presentation, Prematurity,
Oligohydramnios, Cesarean section,
Etiology, Neonatal outcome

Abstract

Background: Breech presentation is the most common type of fetal malpresentation, occurring in approximately 3–4% of all term deliveries and more frequently in preterm births. It is associated with increased maternal and neonatal risks, often requiring cesarean delivery.

Objectives: To assess the etiological factors and perinatal outcomes associated with breech presentation among women delivering at a tertiary care center.

Methods: This retrospective study was conducted in the Department of Obstetrics and Gynecology , Basaveshwara Teaching and General Hospital, Kalaburagi, over a period of 18 months from May 2023 to November 2024 . Fifty women with singleton pregnancies between 28 and 41 weeks of gestation and confirmed breech presentation were included. Data regarding maternal demographics, obstetric history, clinical findings, and neonatal outcomes were collected and analyzed descriptively.

Results: The most common etiological factors identified were prematurity (24%), oligohydramnios (18%), uterine anomalies (14%), multiparity (12%), intrauterine growth restriction (IUGR) (4%), and polyhydramnios (4%). The majority of deliveries (92%) were conducted via cesarean section, with 8% managed by assisted breech delivery. Most neonates (68%) had birth weights between 2.5–3.5 kg, and 94% had Apgar scores ≥ 7 at one minute.

Conclusion: Breech presentation is frequently associated with identifiable maternal and fetal risk factors. Prematurity and oligohydramnios were the leading contributors in this study. High cesarean section rates reflect current management preferences aimed at minimizing neonatal complications. Early diagnosis and individualized care planning are essential for optimizing outcomes.

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Introduction:-

Breech presentation, characterized by the fetus presenting buttocks or feet first instead of the typical cephalic position, occurs in approximately 3–4% of term pregnancies and at a significantly higher rate in preterm deliveries^{1,2}. This abnormal presentation presents substantial obstetric challenges and is associated with increased risks of perinatal morbidity, mortality, and maternal complications compared to cephalic presentations³. While vaginal breech delivery is selectively practiced, it carries heightened risks of birth trauma, umbilical cord prolapse, and fetal hypoxia. Consequently, cesarean section is often the preferred mode of delivery in breech cases⁴.

The etiology of breech presentation is multifactorial, encompassing both maternal and fetal factors. Maternal factors include uterine anomalies, multiparity, placenta previa, pelvic tumors, and a history of cesarean sections^{5,6}. Fetal contributors may involve prematurity, congenital malformations, multiple gestations, and abnormalities in amniotic fluid volume—either polyhydramnios or oligohydramnios⁷. Additionally, fetal neuromuscular disorders or impaired mobility may hinder the physiological cephalic rotation during the third trimester⁸. In certain instances, particularly among primigravidae at term, breech presentation may occur idiopathically without any identifiable cause⁹.

Historically, vaginal breech birth (VBB) was more commonly practiced. However, after the publication of the Term Breech Trial in 2000, which demonstrated higher neonatal morbidity and mortality in planned vaginal deliveries, there was a global shift toward elective cesarean delivery for breech presentations¹⁰. In India, where resource availability and training vary widely, mode of delivery is often influenced by institutional policy and practitioner experience¹¹. Perinatal outcomes are further influenced by gestational age, birth weight, and the preparedness of the delivery team^{12,13,14}.

Understanding the underlying causes of breech presentation is essential for the development of preventive and management strategies. Early detection through ultrasonography and timely interventions such as external cephalic version (ECV) can reduce cesarean delivery rates and enhance neonatal outcomes¹⁵.

Despite extensive global research, regional variability in etiological patterns persists, and many developing countries face a paucity of localized data to inform clinical practice. This retrospective study aims to evaluate the etiological factors associated with breech presentation among women delivering at a tertiary care centre. By identifying prevalent risk factors in this population, the study seeks to support improved antenatal surveillance, risk stratification, and delivery planning, ultimately contributing to better maternal and neonatal outcomes.

A. Materials and Methods

This retrospective study was conducted in the Department of Obstetrics and Gynecology at Basaveshwara Teaching and General Hospital, Kalaburagi, over a period of 18 months. Fifty women with a gestational age between 28 to 41 weeks and with singleton live fetuses with breech presentation were included. Exclusion criteria included multiple gestation, intrauterine fetal demise, and incomplete records. Data was collected from hospital records and included patient demographics, obstetric history, gestational age, etiological factors, delivery mode, birth weight, Apgar scores, and NICU admission.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 16.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to calculate frequencies and percentages..

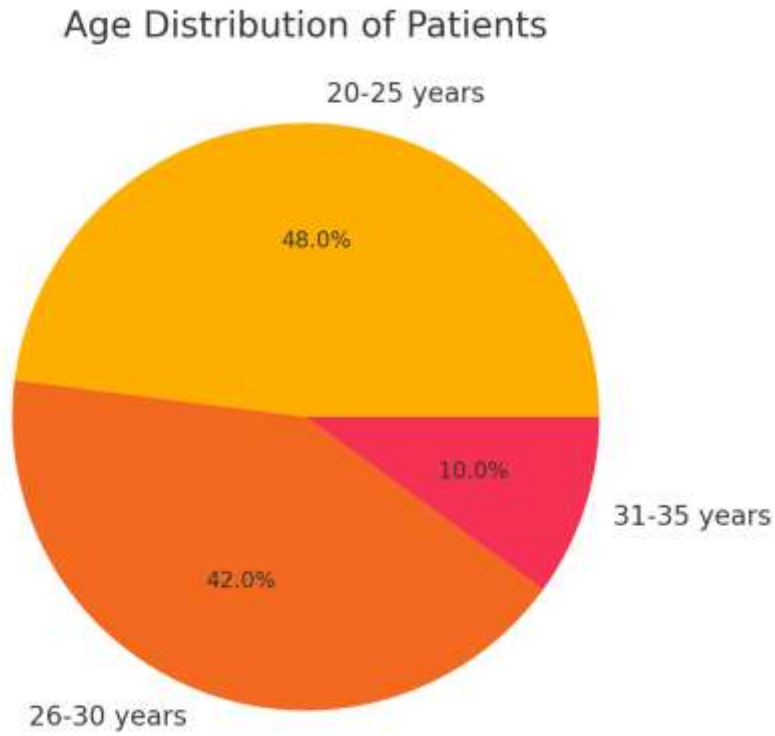
B. Results

The study included 50 women (n=50) with breech presentation. The data analysis yielded the following findings:

1) Age Distribution

Most patients (48%) were aged 20–25 years, followed by 42% aged 26–30 years, and 10% aged 31–35 years.

Age Group	Number of patients (n=50)	Percentage (%)
20-25 years	24	48
26-30 years	21	42
31-35 years	05	10

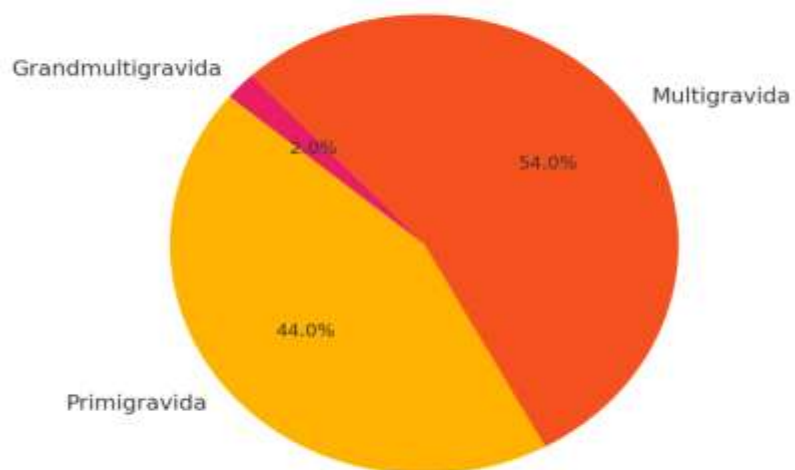


2) *Parity Distribution*

Primigravida patients comprised 44%, multigravida 54%, and grandmultigravida 2%.

Parity	Number of patients (n=50)	Percentage (%)
Primigravida	22	44
Multigravida	27	54
Grandmultigravida	01	2

Parity Distribution

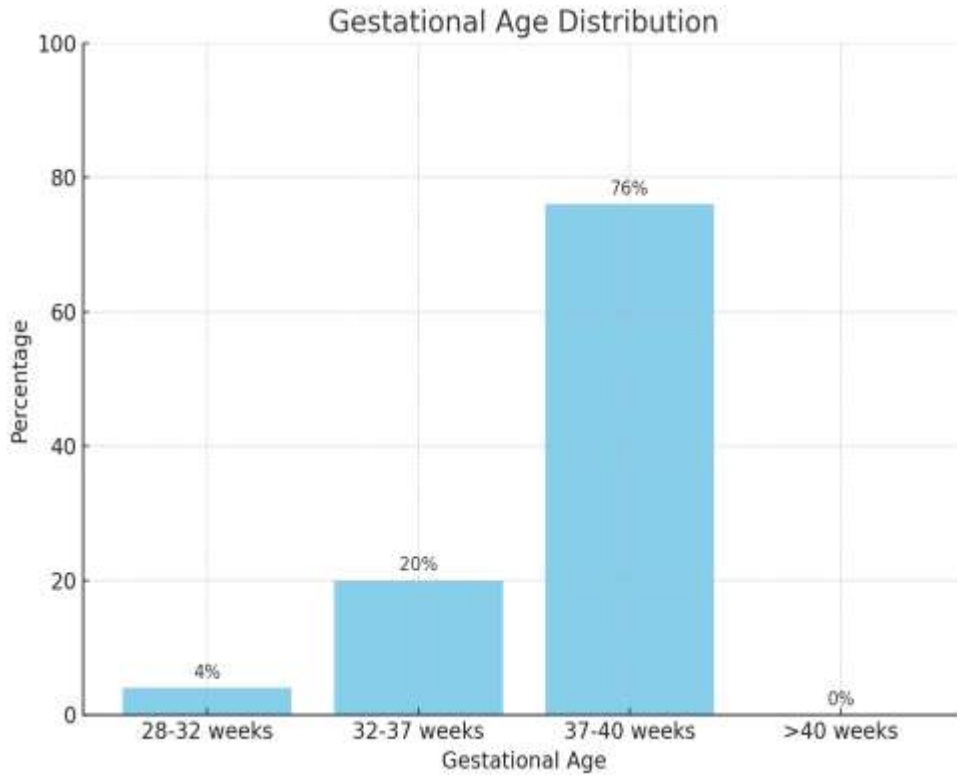


3)

4) Gestational Age Distribution

Gestational age at delivery was between 37–40 weeks in 76% of cases, 32–37 weeks in 10%, and 28–32 weeks in 4%.

Gestational Age	Number of patients (n=50)	Percentage (%)
28-32 weeks	02	4
32-37 weeks	10	20
37-40 weeks	38	76

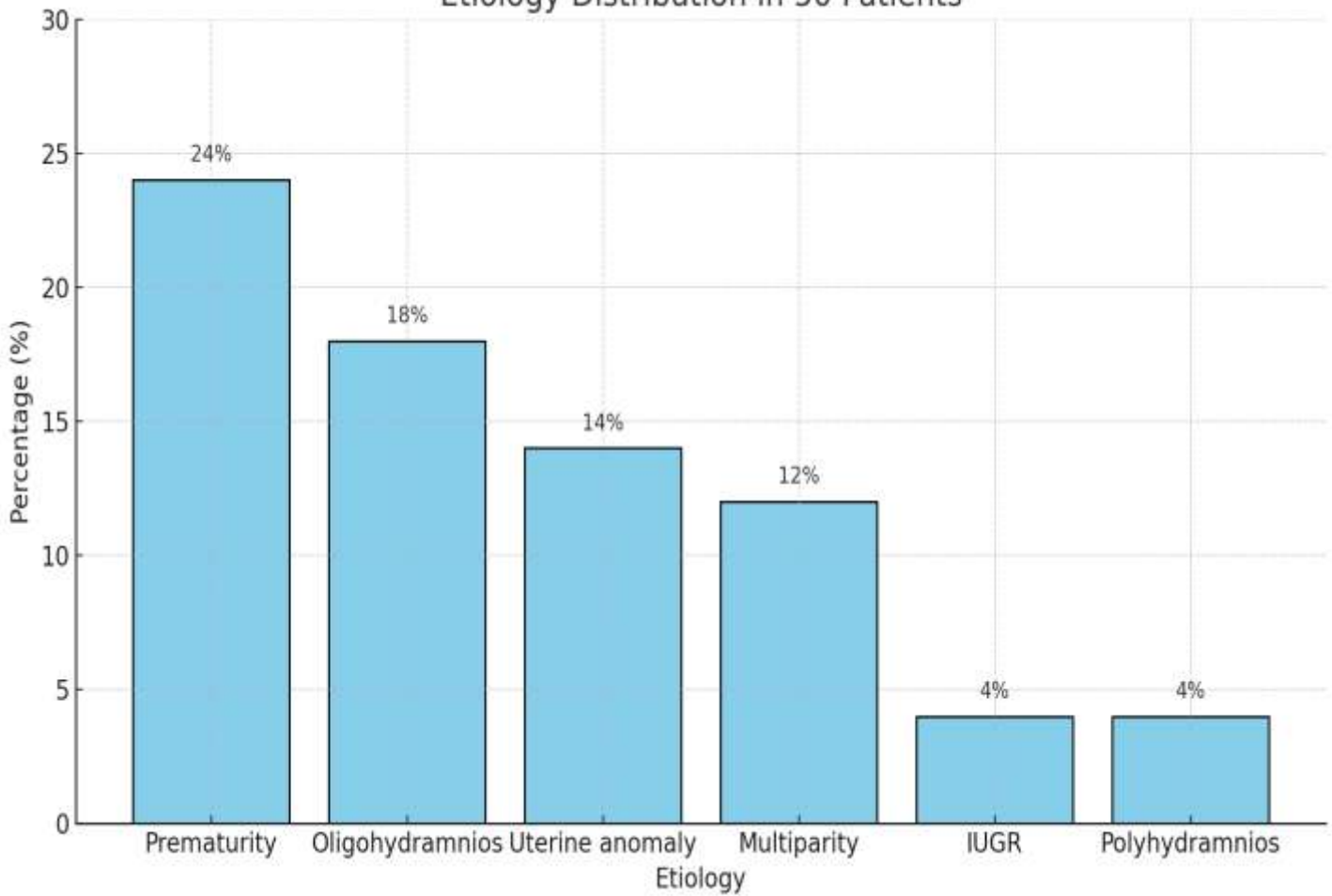


5) *Etiological Factors*

Common factors were prematurity (24%), oligohydramnios (18%), uterine anomaly (14%), multiparity (12%), IUGR (4%), and polyhydramnios (4%).

Etiology	Number of patients (n=50)	Percentage (%)
Prematurity	12	24
Oligohydramnios	09	18
Uterine anomaly	07	14
Multiparity	06	12
IUGR	02	4
Polyhydramnios	02	4

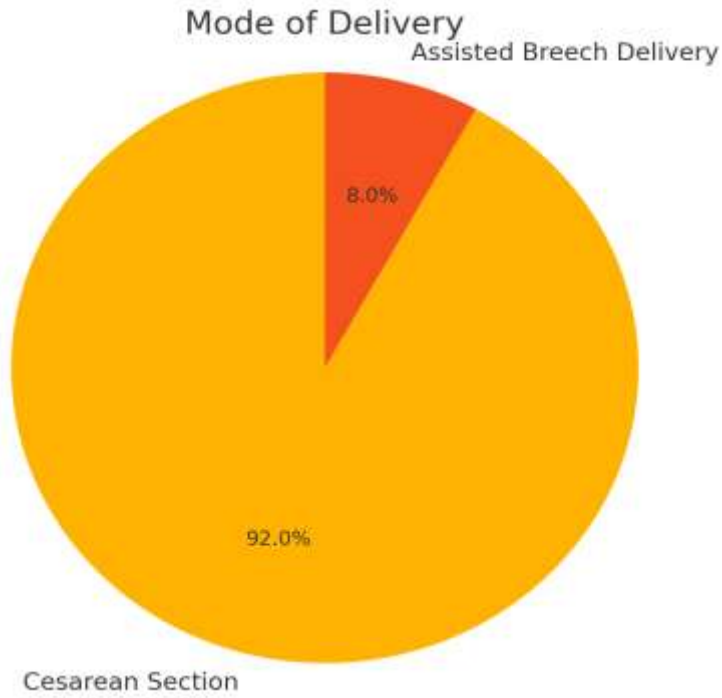
Etiology Distribution in 50 Patients



6) *Mode of Delivery*

Cesarean section was performed in 92% of cases and assisted breech delivery in 8%.

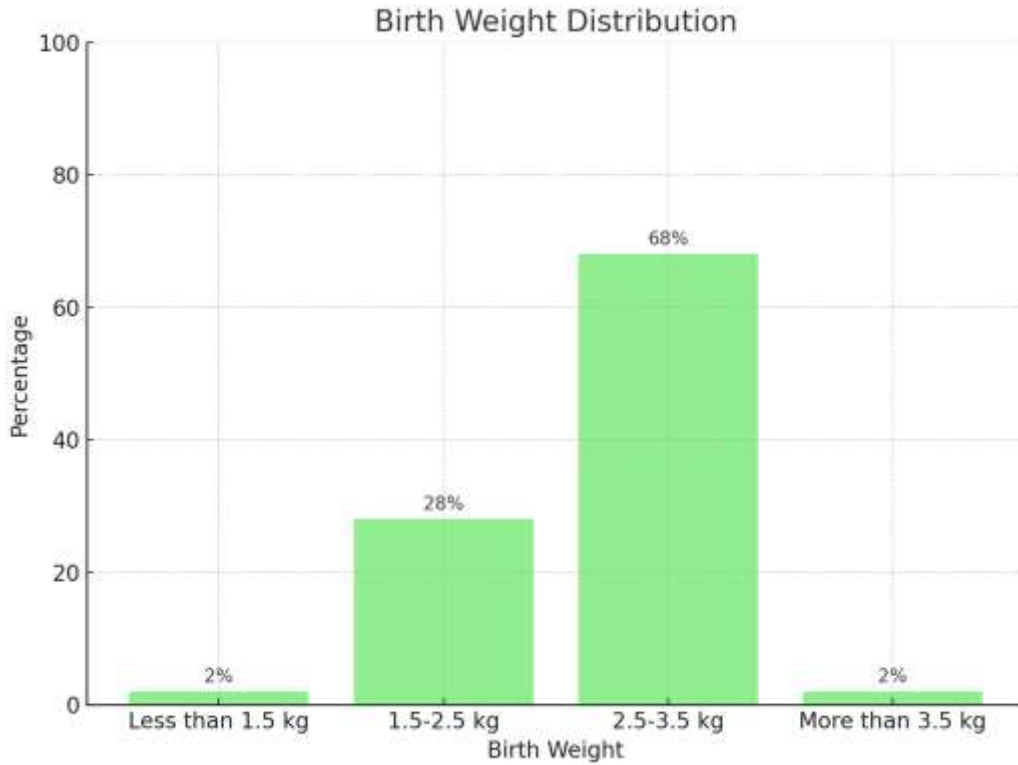
Mode of Delivery	Number of patients (n=50)	Percentage (%)
Cesarean Section	46	92
Assisted Breech Delivery	04	8



7) Birth Weight Distribution

Birth weights ranged from <1.5 kg (2%) to >3.5 kg (2%), with most babies (68%) weighing 2.5–3.5 kg.

Birth Weight	Number of patients (n=50)	Percentage (%)
Less than 1.5 kg	01	2
1.5-2.5 kg	14	28
2.5-3.5 kg	34	68
More than 3.5 kg	01	2

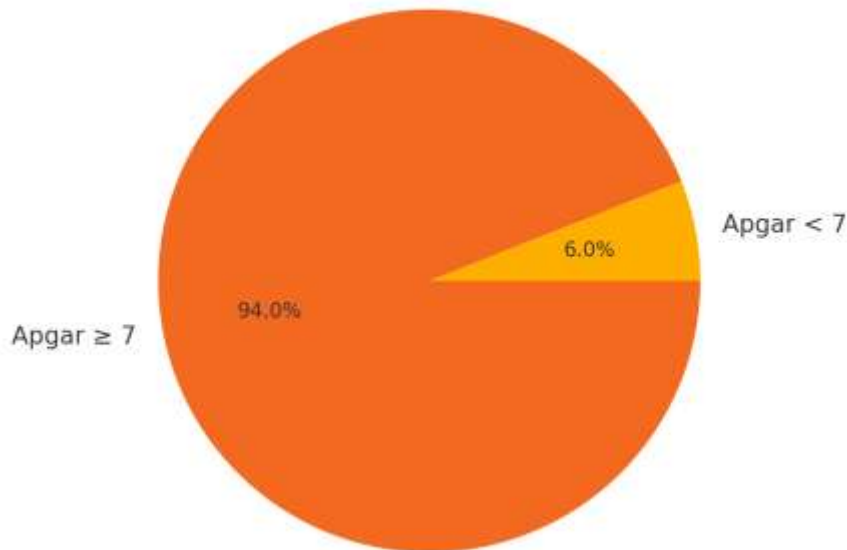


8) Apgar Scores

Most neonates (94%) had Apgar scores ≥ 7 ; only 6% had scores < 7 .

Apgar Score	Number of patients (n=50)	Percentage (%)
Apgar < 7	03	6
Apgar ≥ 7	47	94

Apgar Scores

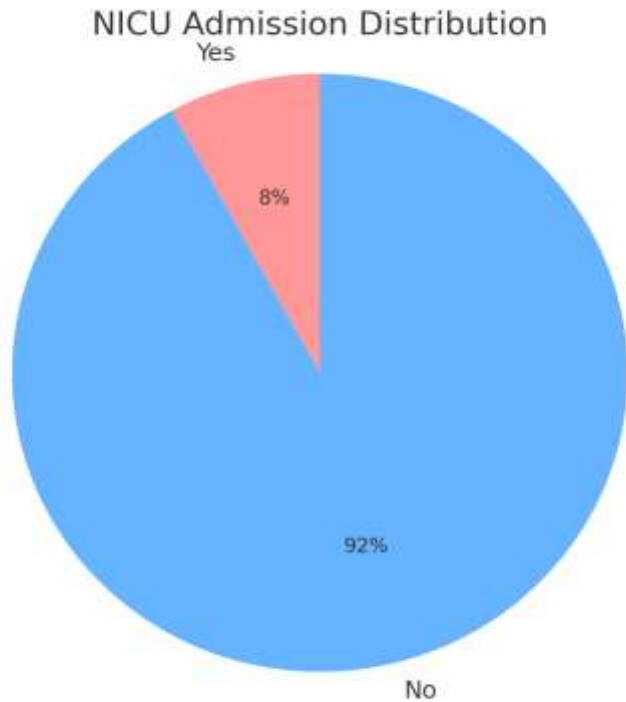


C.

1) Need for NICU admission

Most neonates (92%) were roomed-in with the mother ; only 08% neonates required NICU admission.

NICU admission	Number of patients (n=50)	Percentage (%)
Yes	04	08
No	46	92



Discussion

Breech presentation poses unique challenges in obstetric care due to its associated risks for both the mother and fetus. This retrospective study analyzed 50 cases at a tertiary care center to assess the etiological factors and fetal outcomes linked to breech presentation, with an emphasis on comparing findings with those of other published studies.

Among the 50 women analyzed, breech presentation was most common in the 20–25 year age group (48%), followed by 26–30 years (42%). These findings align with Indian studies by Mehta and Jadhav, who noted that breech presentation is not exclusive to advanced maternal age and may affect young primigravidae^{16,17}.

Multigravida women accounted for 54% of the study population. Multiparity may contribute to uterine laxity and increased fetal mobility, predisposing to malpresentation. Raut et al. also reported multiparity as a contributing factor to breech presentation¹⁸.

Gestational age at delivery was primarily between 37–40 weeks (76%), with 24% of cases preterm. This reflects the dual role of prematurity both as a cause and a consequence of breech presentation. Similar distributions have been reported in Indian hospital-based studies^{16,17}.

Prematurity (24%) and oligohydramnios (18%) were the leading etiological factors in our study. These were followed by uterine anomalies (14%), multiparity (12%), and IUGR or polyhydramnios (4% each). These findings are consistent with other Indian literature identifying fluid abnormalities, structural anomalies, and fetal growth issues as important contributors to breech presentation^{17,18}.

Cesarean section was the chosen delivery mode in 92% of cases. This reflects both the global trend toward cesarean section for breech. Other Indian studies have reported cesarean rates as high as 90–95% for breech deliveries^{10,16}.

Neonatal outcomes were favorable. Most neonates (94%) had Apgar scores ≥ 7 , and only 8% required NICU admission. These results are comparable to findings in elective cesarean deliveries reported by Mehta et al. and David et al., who observed reduced neonatal morbidity with planned cesarean sections^{10,16}. These findings underscore the need for individualized care and institution-specific protocols. While cesarean remains the preferred option for breech in most centers, training in vaginal breech delivery, where feasible, may offer a safe alternative in selected cases.

Conclusion

Breech presentation remains a significant obstetric challenge, particularly in the context of perinatal outcomes and delivery planning. This retrospective study identified prematurity, oligohydramnios, uterine anomalies and multiparity as the most common etiological factors. A high rate of cesarean section was observed, reflecting clinical practices aimed at minimizing neonatal complications. With early identification of risk factors and appropriate delivery planning, favorable outcomes can be achieved. Further research is recommended for larger population studies and outcome comparisons.

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