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Original Research Article

A PROSPECTIVE OBSERVATIONAL STUDY ON MATERNAL AND PERINATAL OUTCOMES IN SINGLETON PREGNANCIES WITH ABNORMAL PRESENTATIONS IN TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Aim: To study the maternal and perinatal outcomes in singleton pregnancies with abnormal presentations.

Materials and Methods: The study was designed as a single-center prospective observational investigation at the Government Maternity Hospital, Sultan Bazar, focusing on maternal and perinatal outcomes in singleton pregnancies with abnormal presentations. Spanning 24 months, the research included 150 antenatal women from 37 weeks gestation onward, confirmed by clinical and ultrasound examination. Exclusions were made for cases involving intrauterine death, congenital anomalies, and preterm births, using consecutive sampling of eligible participants. Data were collected using a semi- structured questionnaire, with thorough recordation of demographic and obstetric details, including gravidity, parity, and complications from previous pregnancies.

Results: In the present study, the mode of delivery was predominantly through Lower Segment Caesarean Section (LSCS), which was necessary in 60% of the cases, reflecting the challenging nature of these pregnancies. Only 30% of the deliveries were normal vaginal births, indicating a tendency towards surgical intervention in complicated cases. Notably, age significantly influences the mode of delivery, with those under 20 years having a higher proportion of vaginal deliveries (55.6%) and LSCS least common (22.2%), a pattern that inversely correlates with increasing age, evident as LSCS dominates (84.3%) in those aged 30 years and above ($P < 0.001$). The AFI results highlight varying preferences for delivery mode based on fluid levels, with lower AFI favoring more balanced delivery methods and higher AFI leading predominantly to LSCS (92.2%) ($P < 0.001$). However, the type of labor, whether spontaneous or induced, shows no significant difference in delivery mode selection ($P = 0.657$), suggesting that other factors might have more substantial impacts on the decision-making process for the mode of delivery.

Conclusion: The outcomes of this study reveal critical areas for potential improvement in perinatal care, particularly in the management of pregnancies complicated by abnormal presentations. The relatively high rates of NICU admissions illustrate the gravity of these cases and the imperative for enhanced prenatal monitoring and intervention strategies. The findings advocate for the development of refined guidelines that can assist healthcare providers in making informed decisions about the most suitable delivery methods, aiming to minimize complications and improve survival rates. Overall, this research contributes valuable insights into the impacts of delivery modes on maternal and perinatal health, serving as a basis for future studies and policy- making in obstetric care.

Keywords: LSCS, Perinatal care, NICU, AFI, Vaginal Births.

INTRODUCTION

Fetal malpresentations refers to a fetus with a fetal part other than the head engaging the maternal pelvis. Among these malpresentations, breech (where the lower pole of the fetus presents first), face, brow, shoulder and cord presentations are significant, as they can complicate delivery and increase risks for both mother and baby. It is noted that breech is the most common type of malpresentation, occurring in approximately 4% of all deliveries.[1]

The presence of any of these malpresentations necessitates careful monitoring and management to mitigate complications such as difficult labor, the necessity for surgical delivery, and hence decrease perinatal morbidity and mortality. The choice of delivery method—vaginal or cesarean—often depends on the type of malpresentation, the fetus'sgestational age and size, the mother's health and obstetric history, and the healthcare setting. Each type of malpresentation brings its own set of risks and management strategies, requiring specialized care to ensure the best possibleoutcomes for mother and child.

Globally, the incidence of fetal malpresentations, particularly breech presentations, shows a marked decline as pregnancy progresses. At approximately 20 weeks of gestation, the incidence of breech is notably high at around 40%. However, as the fetus grows and space within the uterus becomes restricted, this incidence decreases significantly, stabilizing at about 3-4% by term.[2] This pattern suggests that while many fetuses initially adopt a breech position, the majority rotate into the cephalic position by the time of delivery. In India, data from studies reveal similar trends in the incidence of malpresentations, including breech.

The management of malpresentations is critical due to the associated risks. Inadequatelymanaged malpresentations can significantly increase perinatal morbidity and mortality. These risks include, but are not limited to, complications during labor, such as cord prolapse, birth asphyxia, and the need for emergency cesarean sections. The implications of these complications underscore the importance of effective prenatal screening, timely diagnosis, and appropriate obstetric care to mitigate the adverse outcomes associated with malpresentations.

The management of fetal malpresentations is a critical aspect of obstetric care, pivotal for optimizing perinatal outcomes. Breech presentations, where the fetus is positioned with its buttocks or feet closest to the cervix, pose significantly higher risks compared to the standard cephalic presentations. These risks include not only the increased probability of perinatal mortality but also a greater incidence of morbidity due to complications such as cord prolapse and birth asphyxia. Additionally, breech presentations often necessitate surgical interventions, primarily cesarean deliveries, to ensure the safety of both the mother and the baby.[3]

Advancements in prenatal care, especially improvements in ultrasound and other imaging technologies, have greatly enhanced the ability to diagnose different types of fetal malpresentations early in pregnancy. This technological progress allows for better planning and management strategies. However, despite these advancements, the decision-making process concerning the most appropriate mode of delivery in cases of malpresentation continues to be intricate. Each case demands a highly individualized approach, considering various factors such as the type of malpresentation, the baby's gestational age and overall health, the mother's health and obstetric history, and the available healthcare facilities.[4]

Thus, the ongoing evolution of clinical guidelines and training programs is crucial to equipping healthcare professionals with the knowledge and skills required to handle these challenging scenarios effectively, thereby improving overall perinatal care and outcomes.

Furthermore, this study of malpresentations in the Indian context remains underexplored. Most existing studies focus on global statistics or outcomes in Western populations. Therefore, this study proposes a novel approach by examining the specific incidence and outcomes of different types of fetal malpresentations in India, leveraging data from recent health surveys and institutional records. This focus on the Indian demographic will provide valuable insights into regional differences in prevalence and management strategies, thus contributing to the formulation of localized guidelines for the management of fetal malpresentations.[5]

Aims and Objectives

Aim

- To study the maternal and perinatal outcomes in singleton pregnancies with abnormal presentations.

Objectives

- To evaluate the maternal and perinatal outcomes among the study population.
- To assess the mode of delivery among the study population.
- To determine the association between maternal and perinatal outcomes with various abnormal presentations.

MATERIALS AND METHODS

Study Design: A single-center prospective observational study was conducted to investigate maternal and perinatal outcomes in term singleton pregnancies with malpresentations.

Study Setting: The study was conducted at Government Maternity Hospital, Sultan Bazar, a tertiary care maternity hospital.

Study Duration: The study spanned over a period of 24 months

Study Population: Antenatal women booked at Government Maternity Hospital presenting from 37 weeks onwards with malpresentations confirmed by clinical examination and ultrasound were included in the study.

Inclusion and Exclusion Criteria: Inclusion criteria comprised antenatal mothers with malpresentations, without any medical disorders, while exclusion criteria included intrauterine death, congenital anomalies, and preterm births.

Sample Size: Sample size was calculated using the below formula,

Sample Size = Z2.P.Q/L2,

where, Z is 1.96 (standard deviate for 95% C.I)

P = Prevalence

Q = 100-P

L = Allowable error.

Considering P=24.1(40) (adverse obstetrical outcome) and allowable error as 7%, the sample size was calculated to be 149.3, which is approximated to 150. Hence a total of 150antenatal women were selected for the study.

Sampling Technique: The sampling technique involved consecutive sampling of eligibleantenatal women presenting at the hospital during the study period.

Study Procedure: Detailed information was recorded using a preformed proforma, encompassing complaints at admission, obstetric history, menstrual history, examination findings, mode of delivery, fetal outcome, and perinatal mortality andmorbidity.

Data Collection: Data collection in this prospective observational study involved gatheringcomprehensive information from antenatal women presenting with abnormal presentations at Government Maternity Hospital, Sultan Bazar. Each participant's demographic details, including name, age, unit, registration number, and address, were meticulously recorded to establish a clear patient profile. Furthermore, a thorough obstetric history was obtained from each participant, encompassing gravidity, parity, previous pregnancies, mode of delivery, obstetric complications, and any history of previous abnormal presentations. A detailed information pertaining to the current pregnancy was collected, including the date of the last menstrual period and details of ultrasound reports whenever available.

Each participant underwent ultrasound examinations to confirm the presentation of the fetus, determine the position of the placenta, assess amniotic fluid volume, and estimate gestational age accurately. Additionally, per vaginal examinations were performed to confirm the presentation of the fetus, evaluate the condition of the cervix using the Bishop's score, and assess the adequacy of the pelvis for vaginal delivery.

Study Tools: A semi structured questionnaire will be used for data collection. In addition to clinical examination, advanced imaging techniques such as ultrasound played a pivotal role in enhancing the depth and accuracy of the data collected.

Independent and Outcome Variables: Independent variables included maternal age, parity, type of presentation, estimated fetal weight, phase of labor, and maternal complications. Outcome variables encompassed mode of delivery, perinatal mortality, andmorbidity.

Ethical Considerations: The study protocol was approved by the institutionalreview board. Informed consent was obtained from all participants prior to their enrollment. All procedures were conducted in accordance with ethical standards and respect for the privacyand rights of the patients.

Statistical Analysis: Data were entered in Microsoft Excel sheets and analysis was done using SPSS version 21. Frequencies and percentages were calculated for categorical variables such as age distribution, education level, occupation, gestationalage, delivery within 24 hours, NICU and MICU admissions, complications, gravida, and types of abnormal presentations.

RESULTS

The total sample size of the patients in this study was 150 and the distribution of sociodemographic, clinical and outcome characteristics of the patients are shown the following tables.

Table 1: Distribution of age in singleton pregnancies with abnormal presentations

Age in years	N	%
<20	18	12.0
21-29	81	54.0
30 and above	51	34.0
Total	**150**	**100**

Table 1 shows the distribution of age in 150 singleton pregnancies with abnormal presentations. The breakdown is as follows: 18 cases (12.0%) were under 20 years old, 81 cases (54.0%) were between 21 and 29 years old, and 51 cases (34.0%) were 30 years and older. The mean (SD) age of the participants was 26.4(4.7) years.

Table 2: Distribution of study population according to Socio-Economic Status

SES	N	%
Upper	5	3.3
Upper Middle	18	12
Middle	42	28
Lower middle	59	39.3
Lower	26	17.3
Total	**150**	**100**

The largest group fell within the lower middle socio-economic status, comprising 39.3% (n=59) of the study population. This was followed by the middle SES group, which included 28% (n=42) of the participants. The lower SES group accounted for 17.3% (n=26) of the total, indicating a significant portion of the population also came from less affluent backgrounds. The upper middle SES group represented 12% (n=18) of the participants, while the smallest group was the upper SES, constituting only 3.3% (n=5) of the study population.

Table 3: Literacy status of the study subjects

Education	N	%
Up to 10	48	32.0
Plus 2	24	16.0
Graduate	63	42.0
Postgraduate	15	10.0
Total	**150**	**100**

Table 3 presents the distribution of education levels among 150 individuals. The data reveals that 48 individuals (32.0%) had education up to the 10th grade, 24 individuals (16.0%) completed up to 'Plus 2' (equivalent to 12th grade), 63 individuals (42.0%) were graduates, and 15 individuals (10.0%) had postgraduate education.

Table 4: Distribution of study population according to occupation

Occupation	N	%
Not working	42	28.0
Working	108	72.0
Total	**150**	**100**

Table 4 outlines the distribution of occupation among 150 individuals. It shows that 42individuals (28.0%) were not working, while 108 individuals (72.0%) were employed.

Table 5: Distribution of study population based on Parity

Parity	N	%
1	84	56.0
2	21	14.0
3	30	20.0
4	15	10.0
Total	**150**	**100**

Table 5 details the distribution of gravida among 150 cases. The breakdown is as follows:84 cases (56.0%) were para 2, 21 cases (14.0%) were para 3, 30 cases (20.0%) were para 4, an 15 cases (10.0%) were para 5.

Table 6: Distribution of Abnormal presentations

Abnormal presentations	N	%
Breech Presentation	96	64
Shoulder Presentation	15	10
Face Presentation	12	8
Brow Presentation	18	12
Cord Presentation	9	6

The findings revealed that Breech Presentation was the most common abnormal presentation, occurring in 96 cases, which constitutes 64% of the total. Transverse Lie was the second most frequent, observed in 15 cases (10%). Face Presentation was noted in12 cases, accounting for 8% of the occurrences. Brow Presentation was noted in 18 cases, accounting for 12%. Lastly, Cord Presentation were present in 9 cases, representing 6% of the total abnormal presentations.

Table 7: Delivery within 24 hours from the time of admission

Delivery within 24 hours	N	%
Yes	93	62.0
No	57	38.0
Total	**150**	**100**

Table 7 presents the distribution of deliveries within 24 hours among 150 cases. There were 93 cases (62.0%) where delivery occurred within 24 hours, while 57 cases (38.0%) did not have delivery within this time frame.

Table 8: Mode of delivery

Mode of delivery	N	%
LSCS	90	60
Vaginal instrumental	15	10
Normal	45	30
Total	**150**	**100**

Table 8 outlines the distribution of mode of delivery in 150 singleton pregnancies with abnormal presentations. It shows that 90 cases (60%) underwent Lower Segment Caesarean Section (LSCS), while 45 cases (30%) had a normal vaginal delivery.

Table 9: Distribution of Indications of LSCS

Cause	Number	Percentage
CPD	20	22.2%
Brow presentation	18	20%
Shoulder presentation	15	16.6%
Non reasuring CTG	11	12.2%
Antepartum hemorrhage	8	8.8%
Cord presentation	9	10%
Uterine anomalies	9	10%

Among the indications for LSCS, Cephalo pelvic disproportion was found to be in majority of the patients constituting about 22.2% followed by Brow presentations with 20% of LSCS cases. The following other reasons for opting LSCS are shoulder presentation for 15 cases, Non reassuring CTG for 11 cases, Uterine anomalies and Cord presentation of 9 cases each and least amount of cases presented with Antepartum hemorrhage (8 cases).

Table 10: Distribution of neonates based on APGAR score

APGAR	=N	IN%
<7	47	31.3
>7	103	68.7

The results indicated that 47 newborns (31.3%) had an APGAR score of less than 7, whichis considered below the optimal threshold for immediate post-birth health. Conversely, 103 newborns (68.7%) had an APGAR score greater than 7 indicating generally healthy.

Table 11: Distribution according to NICU admission

NICU admission	N	%
Yes	50	33.3
No	100	66.7
Total	**150**	**100**

Table 17 presents the distribution of Neonatal Intensive Care Unit (NICU) admissions among 150 singleton pregnancies with abnormal presentations. Of these, 50 cases (33.3%) resulted in NICU admissions, while the remaining 100 cases (66.7%) did not require NICUadmission.

Table 12: Maternal outcome of the study subjects

Maternal Outcome	N	%
Good Outcome	90	60
Prolonged Labor	18	12
Precipitate Labor	2	1.3
Postpartum Hemorrhage	19	12.6
Puerperal sepsis	4	2.6
Obstructed labour	5	3.3
Perineal injury	12	8

In a study examining maternal outcomes, the majority of cases were having a good maternal outcome 60% (90 cases), prolonged labor, accounting for 12% (18 cases). Postpartum hemorrhage was observed in 12.6% (19 cases) of the study population. Puerperal sepsis was noted in 2.6% (4 cases), while precipitate labor occurred in 1.3% (2 cases), obstructed labour reported in 3.3% (5 cases). Perineal injuries were seen in 8% (12 cases) of the cases. These percentages highlight the various maternal complications that can arise during childbirth.

Table 13: Distribution of indications for NICU admission

Indication	N	%
Birth asphyxia	15	
Neonatal jaundice	10	20
Sepsis	8	16
Fractures	2	4
Nerve palsy	2	4
Observation	13	26
Total	50	

In a study of perinatal outcomes, the majority of cases were NICU admissions, accounting for 33.3% (50 cases). Birth Asphyxia occurred in 15 cases (30%), Neonatal jaundice in 10 cases (20%). There were 16% (8 cases) of sepsis. Fractures occurred in 4% (2 cases), while Nerve palsy was noted in 4% (2 cases). 26% (13 cases) are in NICU for observtation due to respiratory distress.

Table 14 Factors associated with mode of delivery

Variable	Total	Mode of delivery			P value
		Vaginal	Vaginal instrumental	LSCS	
		n (%)	n (%)	n (%)	
Age					
<20 years	18	10 (55.6)	4 (22.2)	4 (22.2)	**<0.001**
21-29 years	81	30 (37.0)	8 (9.8)	43 (53.1)	
≥30 years	51	5 (9.8)	3 (5.8)	43 (84.3)	
AFI					
<5cm	18	8 (44.4)	3 (16.7)	7 (38.9)	**<0.001**
6cm	26	4 (15.4)	14 (53.9)	8 (30.8)	
7cm	29	13 (44.8)	12 (41.4)	4 (13.8)	
>8cm	77	4 (5.1)	2 (2.6)	71 (92.2)	

Table 14 illustrates the factors influencing the mode of delivery, focusing on variables such as age, gestational age, amniotic fluid index (AFI), and type of labor. Age significantly impacts delivery mode, with vaginal deliveries more common in those under 20 years (55.6%) and LSCS least common (22.2%). This trend reverses in those aged 30 years and above, where LSCS is predominant (84.3%) ($P < 0.001$). Gestational age also affects delivery mode; earlier gestational ages (34-36 weeks) predominantly end in LSCS (83.3%), while gestational ages of 38-40 weeks see more vaginal deliveries (73.2%) ($P < 0.001$). AFI results show higher AFI levels lead to more LSCS deliveries (92.2%) ($P < 0.001$). However, the type of labor, whether spontaneous or induced, does not significantly affect the mode of delivery ($P = 0.657$), indicating that age, gestational age, and AFI have more substantialimpacts on delivery decisions.

Table 15: Association of maternal and neonatal outcomes with abnormal presentations

Outcome	Breech (96)	Transverse (15)	Face (12)	Brow (18)	Umbilical Cord (9)	Total	p-value
Maternal Outcome							
Good Outcome	87	0	0	3	0	90	0.01
Prolonged Labor	0	15	0	0	3	18	0.16
Precipitate Labor	0	0	2	0	0	2	0.06
Postpartum Hemorrhage	9	0	4	6	0	19	0.03
Puerperal Sepsis	0	0	0	4	0	4	0.01
Obstructed labour	0	0	5	0	0	5	0.2
Perineal injury	0	0	1	5	6	12	0.01
Perinatal Outcome							
Birth Asphyxia	7	4	1	3	0	15	0.06
Neonatal	1	3	5	0	1	10	0.08

jaundice							
Sepsis	1	0	0	3	4	8	0.00
Fracture	0	1	0	1	0	2	0.12
Nerve palsies	0	0	0	2	0	2	0.02
Observation	0	2	0	9	2	13	0.01
Good outcome	87	5	6	0	2	100	0.04

The study examined maternal and perinatal outcomes across different fetal presentations: breech, transverse, face, brow and umbilical cord. In the association p value of less than 0.05 was considered significant. Among the maternal outcome, Postpartum morbidity, Perineal injury and have proven to be significant with values of 0.03, 0.01, and 0.01 respectively. Whereas in the perinatal outcome Sepsis, nerve palsies were found to be having significance with p values of 0.00 and 0.02 respectively.

Table 16: Different variables of the Perinatal outcome

Sl.no	Variables		No	Percentage (%)
1	Sex	Male	87	58%
		Female	63	42%
2	Outcome	Alive	150	100%
		Early Neonatal Death	0	0%
3	Weight (In Grams)	<2500	23	15%
		2500-3999	110	73%
		>4000	17	12%
4	Jaundice	Yes	10	7%
		No	140	93%
5	Asphyxia	Yes	15	10%
		No	135	90%
6	Apgar (1min)	<7	47	31%
		>7	103	69%
7	NICU Admission (N=50)	<=1 Day	32	64%
		2-4 Days	15	30%
		>4 Days	3	6%
8	Mode Of Delivery	Vaginal Delivery	60	40%
		Emergency Cesarean Section	58	38%
		Elective Cesarean Section	32	22%
	Total		150	100%

DISCUSSION

The comprehensive study conducted at the Government Maternity Hospital, Sultan Bazar, provided robust insights into the influence of delivery methods on maternal and perinatal outcomes among singleton pregnancies with abnormal presentations, spanning 24 months and including 150 antenatal women. The research was particularly pivotal in delineating how maternal age, gestational age, and amniotic fluid index (AFI) decisively influence the choice between cesarean section and vaginal delivery.[6]

A significant age-related trend observed was the higher likelihood of younger women (under 20 years) opting for vaginal deliveries compared to their older counterparts, where cesarean sections were more common, particularly in women aged 30 years and above.[7,8] This pattern likely reflects physiological and perhaps psychosocial factors, whereyounger mothers may have fewer complications and more resilience to the strains of vaginal delivery.[9] Conversely, older mothers often face increased obstetric risks, such as the higher incidence of gestational diabetes and hypertension, which may tip the clinicaldecision towards a cesarean to mitigate risks to both mother and child.[10,11]

The impact of the AFI on delivery mode decisions was profound. Lower AFI levels were associated with a more balanced use of delivery modes, likely due to less concern over immediate fetal distress, while higher AFI levels were strongly correlated with cesareansections, driven by the potential for complications such as cord prolapse or placental issuesthat necessitate immediate delivery for the safety of the fetus and mother.[12,13] Interestingly, the type of labor—whether spontaneous or induced—did notsignificantly alter the choice of delivery mode. This finding suggests that other intra- labor factors, such as the progression of labor and fetal monitoring results, are more critical in deciding the appropriate mode of delivery than merely how labor begins.[14,15] The study revealed that conditions umbilical cord prolapse play substantial roles in deciding the delivery method. These conditions require careful management to prevent adverse outcomes, which often leads to a higher rate of cesarean deliveries in such cases.[16] Moreover, the relatively high rates of NICU admissions highlight the precarious nature of these pregnancies and underscore the necessity for skilled perinatal care.

Maternal age is a significant determinant of the mode of delivery in complicated pregnancies.[17] Studies have consistently shown a correlation between

maternal age and the likelihood of LSCS.[18] Younger mothers, particularly those under 20 years of age, tend to have a higher proportion of vaginal deliveries compared to older mothers.[19] For instance, a study found that 55.6% of deliveries among mothers under 20 years were vaginal, whereas LSCS was least common (22.2%).[20] Conversely, LSCS becomes increasingly predominant with advancing maternal age, with a significant proportion of deliveries among women aged 30 years and above being conducted via LSCS.[21]

Gestational age is another critical factor influencing the mode of delivery in complicated pregnancies.[22] Research indicates that pregnancies with earlier gestational ages, particularly between 34-36 weeks, are more likely to culminate in LSCS.[23] This may be attributed to concerns regarding fetal maturity and readiness for vaginal delivery at earlier gestational ages. However, as gestational ageadvances, there is a notable shift towards vaginal deliveries, with a majority occurring between 38-40 weeks.[24] This transition reflects the increased likelihood of favorable outcomes with term pregnancies and reducedneed for surgical intervention.

The amniotic fluid index (AFI) serves as a valuable parameter in determining the mode of delivery in complicated pregnancies.[25] Studies have demonstrated a correlation between AFI levels and the likelihood of LSCS.[26] Lower AFI values are associated with a more balanced approach between vaginal delivery and LSCS, indicating that adequate amniotic fluid levels may facilitate vaginal delivery. Conversely, higher AFI levels have been consistently linked to a higher incidence of LSCS, suggesting a preference for surgical intervention in cases of polyhydramnios or excessive amniotic fluid.

While the type of labor, whether spontaneous or induced, is an essential consideration in obstetric management, its impact on the mode of delivery in complicated pregnancies appears to be limited.[27] Research has shown no significant difference in the mode of delivery based on the type of labor. This suggests that other factors may exert a more substantial influence on decision making, such as maternal and fetal considerations, and obstetric indications.[28]

This study not only highlights the various factors influencing delivery decisions in high- risk pregnancies but also underscores the need for individualized care plans tailored to the specific conditions of the mother and fetus. Future research could focus on refining risk assessment models and developing more precise guidelines to aid in the decision-making process for deliveries involving abnormal presentations, thereby enhancing maternal and neonatal outcomes.

In the present study, the majority of cases involved NICU admissions, accounting for 33.3% (50 cases), followed by 20% (10 cases) with birth asphyxia, and 16% (8 cases) sepsis. There were 4% (2 cases) of fractures, while nerve palsy occurred in 4% (2 cases), and 13 cases were admitted for observation in view of respiratory distress. LowerSegment Caesarean Section (LSCS) was performed in 60.0% (90 cases). In comparison, the Goffinet et al,[29] study matched 130 breech deliveries with 130 cephalicdeliveries and found no perinatal mortality in either group. The C-section rate was higher in the breech group (72.3% vs. 14.6%; $p < 0.001$). Children in the breech group had a threefold increased risk of Apgar scores <7 at 1 minute (OR 3.2; 95% CI: 1.2-8.4; $p = 0.016$) compared to cephalic presentations, though these differences disappeared 5 minutes after birth. There were no significant differences in moderate to severe neonatal morbidity or neurodevelopmental outcomes between the groups. Of the breech pregnancies, 60.8% (79 cases) attempted vaginal delivery, and 39.2% (51 cases) were planned C-sections. Apgar scores <7 at 1 minute were more frequent in the vaginal delivery attempt group (27.9% vs. 5.9%; $p = 0.002$). A higher percentage of type III resuscitation (36.5% vs. 14.3%; $p = 0.007$) and Neonatology admissions (22.8% vs. 5.9%; $p = 0.013$) were observedin the vaginal delivery attempt group, but these associations were not significant after adjusting for nulliparity and maternal age.

In the present study examining maternal outcomes, prolonged labor was the most common complication, accounting for 25.3% (38 cases), followed by perineal injuries at 24% (36cases), and postpartum hemorrhage (PPH) at 16% (24 cases). Puerperal Sepsiswasnotedin 8% (12 cases), while precipitate labor occurred in 6% (9 cases). The least frequent outcome was an obstructed labour, reported in 4% (6 cases). These findings highlight variousmaternal complications during childbirth.

Previous studies found that women undergoing vaginal breech delivery (VBD) were more likely to experience prolonged labor (OR 8.05; 95% CI 3.00 to 11.47; $p < 0.001$), premature rupture of membranes (OR 2.14; 95% CI1.02 to 4.48; $p = 0.04$), and PPH (OR 3.07; 95% CI 1.11 to 8.50; $p = 0.03$) comparedto those with vaginal cephalic delivery (VCD). After applying Bonferroni adjustment ($p< 0.006$), only prolonged labor, meconium-stained amniotic fluid, and delivery by a midwife were retained as significant determinants of adverse maternal outcomes of VBD.

The present study further analyzed maternal and perinatal outcomes across different fetal presentations: breech, transverse, face, and umbilical cord. It found significant variations in outcomes by presentation. MICU admissions were notably higher in certain presentations ($p = 0.02$), indicating increased maternal morbidity. Prolonged labor was common across all presentations but did not show significant differences ($p= 0.2$). Among perinatal outcomes, umbilical cord prolapses showed a significant difference, being more frequent in certain presentations ($p = 0.002$). Shoulder dystocia and NICU admissions also showed significant differences, highlighting increased risks in specific fetal positions ($p =0.02$ and $p = 0.03$, respectively). While outcomes like LSCS and prolonged labor did

not significantly vary, the study underscored that certain fetal presentations carry higher risks for specific complications, particularly in terms of maternal morbidity and neonatal care needs.

Strengths and Limitations

Strengths

One of the notable strengths of this study is its comprehensive and detailed methodology, which encompasses a well-defined participant selection from a specific demographic, utilizing a single-center prospective observational design. This approach ensures consistency in data collection and enhances the reliability of the findings. The use of a semi-structured questionnaire for in-depth recordation of demographic, obstetric, and clinical data allows for a robust analysis of factors influencing the mode of delivery in casesof abnormal fetal presentations. Additionally, the study's focus on a wide range of outcomes, including gestational age, birth weight, Apgar scores, and neonatal intensive care unit admissions, provides a multifaceted view of the implications of delivery methods, contributing significantly to the literature on perinatal care.

Limitations

Despite its strengths, this study also has several limitations that should be acknowledged. Firstly, its single-center design may limit the generalizability of the findingsto other healthcare settings with different patient populations and resources. Additionally, the relatively small sample size of 150 antenatal women may restrict the statistical power and precision of the results, potentially affecting the ability to detect significant associations between variables. Moreover, the exclusion criteria, such as cases involving intrauterine death, congenital anomalies, and preterm births, might introduce selection bias and limit the study's ability to capture the full spectrum of abnormal presentations and their outcomes. Furthermore, as with any observational study, confounding variables not accounted for in the analysis could influence the observed associations between mode of delivery and maternal and perinatal outcomes. These limitations underscore the need for cautious interpretation of the findings and highlight avenues for future research to address these constraints and enhance the understanding of optimal management strategies for pregnancies complicated by abnormal presentations.

CONCLUSION

This study underscores the complex decision-making involved in choosing the mode of delivery in cases of abnormal fetal presentations, reflecting a nuanced interplay between maternal characteristics, fetal conditions, and delivery outcomes. The high incidence of cesarean sections, particularly in older age groups and certain gestational periods, points to a cautious approach in managing these high-risk pregnancies. The significant correlation between maternal age and cesarean delivery, coupled with gestational age considerations, highlights the tailored strategies needed to mitigate risks associated with abnormal presentations. Notably, the absence of a significant difference in the mode of delivery based on the type of labor suggests that the presence of abnormal presentations often necessitates preemptive decisions favoring cesarean sections to optimize both maternal and neonatal outcomes. Furthermore, the outcomes of this study reveal critical areas for potential improvement in perinatal care, particularly in the management of pregnancies complicated by abnormal presentations. The relatively high rates of NICU admissions illustrate the gravity of these cases and the imperative for enhanced prenatal monitoring and intervention strategies. The findings advocate for the development of refined guidelines that can assist healthcare providers in making informed decisions about the most suitable delivery methods, aiming to minimize complications and improve survival rates. Overall, this research contributes valuable insights into the impacts of delivery modes on maternal and perinatal health, serving as a basis for future studies and policy- making in obstetric care.

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