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Original Research Article

Maternal and perinatal outcome in term singleton breech presentation at term pregnancy

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ABSTRACT

Background: Breech presentation is defined as a fetus in a longitudinal lie with the podalic at the pelvic brim. There are three types of breech presentations: frank breech, complete, incomplete breech. The incidence of breech presentation decreases from about 20% at 28 weeks of gestation to 3-4% at term, as most babies turn spontaneously to the cephalic presentation. Studies have shown that the prevalence of term breech presentation varies globally. In India the incidence was shown to be, 2.1%, and in other Asian countries it was found to be around 2.9 -4.5%. Its incidence is around 25% at 28 weeks of gestation and it reduces to 4% by term. If patients are carefully selected, breech presentation can be delivered vaginally. However, the risk of neonatal complications still persists. sometimes the planned vaginal delivery has to be converted into emergency cesarean section. Such probability varies from 17.4 to 51%.

Methods: This was a prospective observational study conducted in department of obstetrics and gynaecology department of SAMC and PGI, Indore, Madhya Pradesh from 1st April, 2021 to 31st October 2022. Ethical approval was taken from the institutional review committee. All term pregnant women (≥37 weeks) aged 18 years and above, admitted to the maternity and labor ward with the diagnosis of singleton breech presentation during the study period were included in the study. The patients were identified as having breech presentation on admission using physical examination and ultrasound. Those women who presented with antepartum hemorrhage, uterine rupture, fetuses with major congenital anomalies and intrauterine deaths were excluded from the study. After through exclusion sample of 70 people were included in study.

Results: During the study period, 896 deliveries were conducted in this hospital. Among them, 70 (7.86%) of the deliveries were singleton breech delivery. The age of the participants in the study ranged from 16 to 45 years, with a mean age of 27.07±8.56 years. Most of them had elective cesarean section, and few had emergency cesarean section. The most common indication for emergency cesarean section was footling presentation. Most of the new-borns were males, mean weight of new-borns 2.75±0.5 kg. 21.9% neonates required admission in neonatal intensive care unit, 2.8% mothers developed wound infection and 10% had post-partum haemorrhage.

Conclusions: Proper guidance, education and strict adherent to principles and steps of breech delivery, like monitoring taking up call for emergency c-sections, having proper NICU setup, trained doctors will help in reduction of complications. A protocol for the management of breech delivery and a regular training facility for junior health professionals to conduct assisted vaginal breech delivery are highly recommended.

Keywords: Apgar, Breech, C-section, Post-partum hemorrhage, Term pregnancy

INTRODUCTION

Breech presentation is defined as a fetus in a longitudinal lie with the podalic at the pelvic brim. There are three types of breech presentation. The first one is called frank breech where the fetus has flexion of both hips and the legs are straight with the feet near the fetal face. The second is complete breech where the fetus is sitting with flexion of both hips and legs. The last one is incomplete breech where the fetus can have any combination of one or both hips extended, also known as footling breech.[1]

The incidence of breech presentation decreases from about 20% at 28 weeks of gestation to 3-4% at term, as most babies turn spontaneously to the cephalic presentation.[1,2] Studies have shown that the prevalence of term breech presentation varies globally. In India the incidence was shown to be, 2.1%, and in other Asian countries it was found to be around 2.98-4.5%.[3-5]

Its incidence is around 25% at 28 weeks of gestation and it reduces to 4% by term.2 if patients are carefully selected, breech presentation can be delivered vaginally. However, the risk of neonatal complications still persists.[3] sometimes the planned vaginal delivery has to be converted into emergency caesarean section. Such probability varies from 17.4 to 51%.[4]

The discussion about the best mode of delivery is twofold; what are the best clinical practice guidelines in terms of risk management and what are the risks versus benefits of cesarean delivery (C/D) between the fetus and the mother. Breech presentation and delivery have been classified as high risk because of the increased incidence of perinatal and maternal complications. Comprehensive obstetric care and intensive neonatal care play a crucial role to decrease complications related to breech delivery.

The primary objective of this study was to find out maternal and fetal outcome of breech presentation at term. It also aimed to present the mode of delivery conducted and to highlight the maternal and fetal complications associated with it.

METHODS

This was a prospective observational study conducted in Department of Obstetrics and Gynaecology department of SAMC and PGI, Indore, Madhya Pradesh from 1st April, 2021 to 31st October 2022.

Ethical approval was taken from the institutional review committee.

All term pregnant women (≥37 weeks) aged 18 years and above, admitted to the maternity and labor ward with the diagnosis of singleton breech presentation during the study period were included in the study. The patients were identified as having breech presentation on admission using physical examination and ultrasound.

Those women who presented with antepartum hemorrhage, uterine rupture, fetuses with major congenital anomalies and intrauterine deaths were excluded from the study.

After through exclusion sample of 70 people were included in study.

After explaining the purpose, importance, and procedure in detail a written informed consent was obtained from all the participants. Detailed history from the mother was taken to collect demographic information, personal and past history and obstetric characteristics. The gestational age was derived on the basis of last normal menstrual period.

The breech presentation was assessed from the aspect of incidence, aetiology, type of breech, various factors acting on maternal and perinatal outcome and mode of delivery. After taking detailed history taking and clinical (general and systemic) examination, assessment of size of fetus as well as pelvis were done. With the help of ultra sound presentation was assessed and confirmed.

The plan for mode of delivery was made after considering various factors like size of the baby, pelvic assessment, previous obstetric history of the patient, associated obstetrical risk factors, condition of the fetus.

Pregnancy with high risk factors was delivered by caesarean section at term. Multigravida without risk factors and also primigravida with average size baby and adequate pelvis without any adverse factors were given a trial of vaginal delivery with close monitoring.

Labor progress and fetal heart rate monitoring using Pinnard stethoscope and Doppler was done. In case of any fetal distress or a maternal complication, emergency caesarean section was done. In cases of caesarean deliveries location of placenta and uterine malformations were assessed as a routine procedure.

The new born were also evaluated for gestational age, Apgar score at 1-minute and 5-minute, congenital malformations and birth injuries. Maternal outcome was assessed in term of postpartum haemorrhage (atonic or traumatic), cervical and vaginal tear, any febrile morbidity, septicaemia, calf muscle pain and need for blood transfusion.

Mother and babies were monitored till discharge and neonatal mortality and morbidity as well as maternal morbidity was noted.

RESULTS

During the study period, 896 deliveries were conducted in this hospital. Among them, 70 (7.86%) of the deliveries were singleton breech delivery. The age of the participants in the study ranged from 16 to 45 years, with a mean age

of 27.07±8.56 years. Among them 61.4% of the patients were from rural areas, 70% were housewives and 27 (38.5%) couldn't even read and write. 51 (72.28%) of women were primi gravidae. Most of the women 62 (88.57%) had a regular ANC check-up and in 62 (88.57%) of cases the breech presentation was diagnosed in last ANC visit. 11 (15.71%) of the cases had a past history of breech delivery. 59 patients (84.28%) had term pregnancy.

Table 1: Characteristics of the women with breech presentation.

Variable	Frequency	Percent
Age of client (years)		
<20	8	11.42
20-30	42	60.00
>30	20	28.57
Mean age ?????		
Residence of client		
Urban	27	38.56
Rural	43	61.44
Occupation		
Employed	21	30.00
Unemployed	49	70.00
Educational status		
Can't read and write	27	38.5
Primary/Secondary	25	35.7
Post-secondary	18	25.7
Parity		
1 primi	51	72.28
2-4	19	27.72
ANC follow up		
Yes	62	88.57
No	8	11.43
Breech diagnosed		
During ANC	62	88.57
In labor	8	11.43
Previous breech delivery (n=12)		
Yes	11	15.72
Gestational age		
Term	59	84.28
Post term	11	15.72

During the time of arrival to the hospital, most women 40 (57.14%) were in the latent first stage of labor. Frank breech was the most common type of presentation seen in 42 (60%) of the cases.

Ultrasound scanning was done in 63 (90%) of the cases prior to the admission in labor ward.

Elective caesarean section was the most common form of delivery done in 42 (60%) cases followed by assisted vaginal delivery 15 (21.42%) and emergency caesarean section 13 (18.57%) cases.

The most common indication for emergency caesarean section was footling presentation (Table 3).

Table 2: Perinatal and maternal outcomes in breech delivery.

Fetal outcome	Frequency	Percent
Alive at birth	66	94.2
Still birth	04	5.8
1st minute Apgar score		
<5	20	28
5-7	40	57.5
>7	10	14.2
Sex of new-born		
Male	40	57.5
Female	30	42.5
Birth weight of baby (kg)		
<2.5	15	21.9
2.5-3.5	45	64.72
>3.5	10	14.28
Admission to the NICU		
Yes	15	21.9
No	55	78.1
Discharge from NICU		
Alive	12	17
Dead	03	3.9
Diagnosis from NICU		
Perinatal asphyxia	14	20
Birth injury	02	2.8
Neonatal sepsis	02	2.8
Perinatal outcome after day 7		
Discharged alive	63	90
Still birth	04	5.8
Intrapartum fetal death	00	00
Early neonatal death	03	3.9
Maternal complications		
No complications	60	85.7
Postpartum haemorrhage	07	10
Endometritis	01	1.4
Wound infection	02	2.8
Maternal death	00	00

The first minute Apgar score for the majority of the neonates 40 (57.5%) was between 5 and 7 and the fifth minute Apgar score was >7 in 63 (90.0%) of the neonates.

Forty (57.4%) neonates were male, 45 (64.72%) weighed between 2.5 and 3.5 kg with a mean weight of 2.75±0.5 kg. 15 (21.9%) neonates required admission in neonatal intensive care unit (Table 2).

Two (2.8%) mothers developed wound infection and 7 (10%) had a diagnoses of post-partum haemorrhage (Table 2).

Table 3: Obstetric findings among the study participants.

Stage of labor on admission	Frequency	Percent
Not in labor	8	11.42
Latent phase	40	57.14
Active phase	18	25.71
Second phase	4	5.71
Type of breech		
Frank	42	60.00
Complete	12	17.14
Footling	6	8.57
Ultrasound scan done at admission		
Yes	63	90.00
No	7	10.00
Mode of delivery		
Assisted vaginal breech	15	21.42
Emergency C/S	13	18.57
Elective C/S	42	60
Indication of emergency C/S (n=20)		
Prolonged latent phase	5	7.14
Footling breech	6	8.57
Cord prolapsed	4	5.71
NRFHR	5	7.14
Big baby	2	2.85
Prolonged ROM	2	2.85
Arrest of cervical dilatation	2	2.85
Previous C/S scar	10	14.28

DISCUSSION

The incidence of singleton breech delivery was 7.86%. This was higher than other previous studies where incidences were reported in the range of 2.4-4.7%.[6-9] However Assefa et al reported 5.3% as the incidence of breech delivery in their study.[5] The high incidence of breech delivery in our study might be because the hospital is a tertiary care centre where the abnormal presentation cases are referred.

The incidence of vaginal delivery was 13 (18.57%). This was lower than studies done in other countries like Pakistan (55.8%), Cameroon (54.61%), India (42.6%), eastern Nigeria (72.1%), and Southwest Ethiopia (42%).[6,7,9-11] The lower incidence of vaginal delivery in our case might be due to the selection of cases as only term pregnancies were selected in our study. The second reason might be 51 (72%) of our cases were primigravidae where the chances of failure of vaginal delivery were higher than multigravidae.

The debate on the best method of delivery for singleton term breech presentation had continued for more than half a century. Meta-analyses of different studies had highlighted the practice of individualized decision making for mode of birth in term breech.[12]

The results of this meta-analysis show that in developing country like Nepal, where majority of pregnant women are poor, uneducated, with poor or no antenatal care and from under privileged areas arrive in emergency during labour and might be found to have breech presentation.[12] However in our study, majority 62 (88.57%) of the patients did antenatal check-up.

The incidence of frank breech was highest among all breech presentation in our study. This finding is similar to other studies.[11,13,14] the most probable explanation for this is a favourable engaging diameter in extended breech (bistrochanteric) and less space occupied by the narrow lower pole.

Fifteen (21.92%) neonates required admission in neonatal intensive care unit (NICU). The most common cause was perinatal asphyxia. 7 (10%) mothers developed postpartum haemorrhage and 2 (2.8%) post-operative wound infection.

External cephalic version can be attempted to reduce frequency of breech presentation at term. It had decreased the rate of breech presentation at delivery by 39% and breech as indication for caesarean section by 47.1% in Spain.[15] However in our institution, external cephalic version was not practiced.

There are few limitations of this study. The population size of breech delivery was very small. So, it is difficult to draw conclusions from a small population size.

The study was conducted in a tertiary care hospital which deals with complicated and high-risk cases. So, the result may not be a reflective of the situation in the general population.

CONCLUSION

Proper guidance, education and strict adherent to principles and steps of breech delivery, like monitoring taking up call for emergency c-sections, having proper NICU setup, trained doctors will help in reduction of complications.

The rate of vaginal breech delivery was lower than other reported studies. A protocol for the management of breech delivery and a regular training facility for junior health professionals to conduct assisted vaginal breech delivery are highly recommended.

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