

Breech Presentation and Maternal and Perinatal Outcome in a Tertiary Care Teaching Hospital of Central Nepal

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ABSTRACT

Background: Breech is the commonest malpresentation. The objective of this study is to find out the prevalence of breech presentation at term. It also aims to present the mode of delivery conducted and to highlight the maternal and fetal complications associated with it.

Methods: This was a descriptive cross-sectional study conducted in Department of Obstetrics and Gynaecology department of College of Medical Sciences done over a period of 2 years. All term pregnant women (≥ 37 weeks) aged 16 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.

Results: The incidence of breech presentation at term was 5.03%. Out of these, only 7 (18.92%) patients underwent breech vaginal delivery. Mean maternal age was 28.07 (± 11.56) years and majority were primigravidae. The mean birth weight of newborn was 2.8 ± 0.5 kg.

Conclusions: Breech presentation can result in both maternal and fetal complications. Skills related to conducting delivery in breech presentation must be learned by all those who manage pregnant women.

Keywords: breech vaginal delivery; singleton; term delivery.

INTRODUCTION

When the fetus is in longitudinal lie with the buttocks or lower extremity entering the pelvis first, it is called breech presentation. 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

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 caesarian section. Such probability varies from 17.4 to 51%.⁴

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

METHODS

This was a descriptive cross-sectional study

conducted in Department of Obstetrics and Gynaecology department of College of Medical Sciences from 1st April, 2018 to 31st March 2020. Ethical approval was taken from the Institutional Review Committee. All term pregnant women (≥ 37 weeks) aged 16 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. Convenient sampling was done and the sample size was calculated using the formula,

$$N = Z^2 pq / d^2 = \frac{(1.96 \times 1.96 \times 0.053 \times 0.947)}{(0.02 \times 0.02)} = 482.03 = 482$$

Where,

N= required sample size

p= prevalence of breech delivery (5.3%) (Assefa et al⁵)

q= 1-p

d= margin of error, 2%

Z= 1.96 at 95 % CI

Taking a non-response rate of 10%, the sample size

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was 530; however, the total sample size taken was 735. Selection and information bias was minimized as much as possible by collecting data in the appropriately predesigned proforma.

After explaining the purpose, importance, and procedure in detail a written informed consent was obtained from all the participants. 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. 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. Incase of any fetal distress or maternal complications, emergency caesarian 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. 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. Then the review of patient records, and labor ward and operation room logbooks were done to extract data on maternal and neonatal outcomes.

RESULTS

During the study period, 735 deliveries were conducted in this hospital. Among them, 37 (5.03%) 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 28.07 (± 11.56) years. Among them 72.97% of the patients were from plains (Terai) areas, 78.37% were housewives and 45.95% can't even read and write. 25 (67.56%) of women were primigravidae. Most of the women (83.78%) had a regular ANC check up and in

89.19% of cases the breech presentation was diagnosed in last ANC visit. 13.51% of the cases had a past history of breech delivery. 32 patients (86.49%) had term pregnancy (Table 1).

Table 1. Characteristics of the women with breech presentation.		
Variable	Frequency	Percent (%)
Age of client (years)		
<20	6	16.22
20-30	19	51.35
>30	12	32.43
Mean age		
Address of client		
Hilly area	10	27.03
Plains (Terai)	27	72.97
Occupation		
Employed	8	21.63
Unemployed	29	78.37
Educational status		
Can't read and write	17	45.95
Primary/Secondary	13	35.13
Post-secondary	7	18.92
Parity		
1	25	67.56
2-4	11	29.74
≥5	1	2.70
ANC follow up		
Yes	31	83.78
No	6	16.22
Breech diagnosed		
During ANC	33	89.19
In labor	4	10.81
Previous breech delivery (n=12)		
Yes	5	13.51
No	7	18.92
Gestational age		
Term	32	86.49
Post term	5	13.51

ANC: Antenatal check up

During the time of arrival to the hospital, most women (56.76%) were in the latent first stage of labor. Frank breech was the most common type of presentation seen in 59.46% of the cases. Ultrasound scanning was done in 89.19% of the cases prior to the admission in labor ward. Emergency caesarian section was the most common form of delivery done in 20 (54.05%) cases followed by assisted vaginal delivery (27.03%) and elective caesarian section (18.92%) cases. The most common indication for emergency caesarian section was footling breech seen in 7 (18.92%) cases (Table 2).

There was 1 (2.70%) intrapartum fetal death. The first minute Apgar score for the majority of the neonates (56.76%) was between 5 and 7 and the fifth minute Apgar score was >7 in 94.60% of the neonates. 20 (54.05%) neonates were male, 19 (51.35%) weighed between 2.5 and 3.5kg with a

Table 2. Obstetric findings among the study participants.

Stage of labor on admission	Frequency	Percent (%)
Not in labor	5	13.51
Latent phase	21	56.76
Active phase	9	24.33
Second phase	2	5.40
Type of breech		
Frank	22	59.46
Complete	8	21.62
Footling	7	18.92
Ultrasound scan done at admission		
Yes	33	89.19
No	4	10.81
Mode of delivery		
Assisted vaginal breech	7	18.92
Emergency C/S	20	54.05
Elective C/S	10	27.03
Indication of emergency C/S (n=20)		
Prolonged latent phase	3	8.10
Footling breech	7	18.92
Cord prolapsed	2	5.40
NRFHR	2	5.40
Big baby	1	2.70
Prolonged ROM	2	5.40
Arrest of cervical dilatation	1	2.70
Previous C/S scar	2	5.40
Indication for elective scar (n=10)		
Previous C/S scar	6	16.22
Post term	3	8.10
Big baby	1	2.70

NRFHR: Non reassuring fetal heart rate; ROM: rupture of membrane; C/S: Caesarian section

mean weight of 2.8±0.5 kg. 7 (18.92%) neonates required admission in neonatal intensive care unit (NICU). (Table 3) 2 (5.40%) mothers developed wound infection and 2 (5.40%) had a diagnoses of post-partum hemorrhage (Table 3).

DISCUSSION

The incidence of singleton breech delivery was 5.03%. 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 center where the abnormal presentation cases are referred and also there is no practice of external cephalic version in our center.

The incidence of vaginal delivery was 27.03%. 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. In the study done in India, even preterm deliveries were included in the study.¹¹ The second reason might be 67.56% of our

Table 3. Perinatal and maternal outcomes in breech delivery.

Fetal outcome	Frequency	Percent (%)
Alive at birth	36	97.30
Still birth	1	2.70
1 st minute Apgar score		
<5	5	13.51
5-7	21	56.76
>7	11	29.73
Sex		
Male	20	54.05
Female	17	45.95
Weight (in kg)		
<2.5 kg	7	18.92
2.5-3.5	19	51.35
>3.5	11	29.73
Admission to NICU		
Yes	7	18.92
No	30	81.08
Discharge from NICU		
Alive	6	16.22
Dead	1	2.70
Diagnosis from NICU		
Perinatal Asphyxia	5	13.51
Birth injury	1	2.70
Neonatal sepsis	1	2.70
Perinatal outcome after day 7		
Discharged alive	35	94.60
Still birth	1	2.70
Intrapartum fetal death	0	0
Early neonatal death	1	2.70
Maternal complications		
No complications	32	86.49
Postpartum haemorrhage	2	5.40
Endometritis	1	2.70
Wound infection	2	5.40
Maternal death	0	0

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 33 (89.19%) of the patients did antenatal checkup.

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 favorable engaging diameter in extended breech (bistrochanteric) and less space occupied by the narrow lower pole.

Seven (18.92%) neonates required admission in neonatal intensive care unit (NICU). The most

common cause was perinatal asphyxia. Two mothers developed postpartum haemorrhage and post-operative wound infection.

External cephalic version can be attempted to reduce frequency of breech presentation at term. It had decrease 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.

CONCLUSIONS

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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