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Original Research Article

## Fetomaternal outcome in breech delivery

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### ABSTRACT

**Background:** Breech Presentation is the commonest of all malpresentations. Vaginal delivery of the breech presentations at term is associated with a much higher perinatal mortality and morbidity than that of vertex presentation. The objectives of the present study are to know the common causes leading to breech presentation. Further, to compare the different management protocols and outcome in different types of breech presentation. Also, to know the perinatal morbidity and mortality associated with different types of breech presentation and comparison of perinatal morbidity and mortality with vaginal delivery against cesarean section.

**Methods:** This is a retrospective study of randomized 100 cases of pregnant women in labour with breech presentations after 28 weeks or more attending C U Shah Medical College, Surendranagar, over a period of May 2012 to April 2014.

**Results:** Out of 100 patients breech presentation was more common in booked patients and multigravida. In primi and multigravidae patients, caesarean delivery was more compared to assisted breech delivery. Perinatal outcome was good in majority of the patients in both extended and complete breech with an incidence of 94% and 88% respectively. perinatal outcome was good in caesarean section with 100% compared to assisted breech delivery 93%.

**Conclusions:** The balanced decision about the mode of delivery on a case by case basis as well as conduct, training and regular drills of assisted breech delivery will go a long way to optimize the outcome of breech presentation like ours. Delivery of breech fetus when labor and delivery is supervised and or conducted by experienced obstetrician lowers maternal morbidity, neonatal morbidity and mortality.

**Keywords:** Breech presentation, Caesarean section Fetomaternal outcome, Maternal morbidity

### INTRODUCTION

Breech Presentation is the commonest of all malpresentations. Vaginal delivery of the breech presentations at term is associated with a much higher perinatal mortality and morbidity than that of vertex presentation. An attempt to reduce the fetal hazards inherent in a vaginal breech delivery has resulted in a high caesarean section rate which has approached 90-95% in some centers. Breech presentation is the 3<sup>rd</sup> important indication which has led to higher caesarean section rates in recent times all over the world<sup>1</sup>. Although

CS drastically reduces the perinatal mortality associated with breech delivery, it has not eliminated the associated fetal and maternal morbidity; in fact, it has been quoted that the competency of any obstetric unit is inversely proportional to the perinatal mortality of breech deliveries conducted in that unit. Therefore, any change or improvement in the mode or technique of breech delivery should aim at improving the perinatal outcome and also at keeping the maternal morbidity and mortality rates low. It is the fetus who suffers the most rather than the mother. So, the fetal outcome decides the merit of the particular method for the management of labour in breech

presentation. So, this study was conducted with the aim of proving that vaginal breech delivery is definitely a choice for many patients having favorable factors avoiding unnecessary operative interventions.

Unfortunately, the number of obstetricians able to conduct the vaginal breech delivery is declining quite fast. If the trend continues, what will happen when a woman with breech presentation at term gets admitted in advanced labor at a center where cesarean section cannot be performed urgently and the obstetrician present has never conducted a vaginal breech delivery? It will indeed be a very sad day for our specialty.

As the controversy continues, repeated evaluations and reviews of management in this subset of women are needed. The present study was conducted with an objective to optimize the perinatal outcome, while keeping the art of conducting and training vaginal breech deliveries alive.

## **METHODS**

This is a retrospective study of randomized 100 cases of pregnant women in labour with breech presentations after 28 weeks or more attended Department of Obstetrics and Gynaecology, C U Shah Medical College, Surendranagar, during the period from May 2012 to April 2014.

Maternal and perinatal outcome were studied in 100 cases of pregnant women in labour with breech presentation including those who delivered vaginally, those who delivered abdominally, and data is presented here, which were analyzed, and conclusion drawn, presented in tabular form with explanatory notes below each table.

A detailed study of all cases was done. Each patient was asked a detailed history on admission along with obstetric history, history regarding antenatal care, number of visits, etc. was elicited. History of previous breech delivery and previous abdominal delivery with its indications were also enquired. A careful general examination and systemic examination were carried out in all patients including height and weight. Per abdominal examination included measurement of fundal height, abdominal girth, presentation, position, engagement of presenting part, location of fetal heart sound and uterine contractions. Per vaginal examination was done to determine position, effacement and dilatation of cervix, presence of bag of membranes, presenting part and its station and adequacy of the pelvis. Routine investigations like Haemoglobin and Urine for albumin, sugar and microscopy were done in all patients. Ultrasound examination was done. Patient underwent ultra-sound examination to confirm single foetus, presentation, type of breech, amniotic fluid volume, location of placenta, estimated foetal weight, any obvious congenital anomaly and position of the foetal spine. The USG examination was considered abnormal if there was Oligohyramnios, placenta praevia, suspected foetal anomaly or an estimated foetal weight less than

tenth percentile for gestational age. Then, according to patient's condition and associated complications other investigations were carried out as indicated. The decision of vaginal or cesarean section was made according to protocol.

### ***Selection criteria for breech vaginal delivery***

- estimated baby weight 2.5 to 3.5 kg
- frank and complete breech
- normal progress of labour
- absence of fetal distress
- absence of hyperextension of head
- clinical evidence of normal pelvis.

### ***Selection criteria for cesarean section***

- footling presentation
- fetopelvic disproportion
- fetal distress
- uterine anomaly
- primi gravida
- estimated baby weight more than 3.5 kg.

All babies were immediately resuscitated by pediatrician. The babies were examined for any marks of injury or congenital anomalies. The APGAR score at 1 minute and 5 minutes were determined. In case of neonatal death, the cause of death was determined. Both mother and baby were followed up daily in the ward till discharge. Maternal and neonatal morbidity were noted. Any specific treatment given to newborn recorded. On discharge, all patients were called for follow up in the postnatal clinic till one month when the mother and baby were examined and appropriate advice regarding contraception was given.

## **RESULTS**

In this study total numbers of 100 cases with breech presentation in labour were selected on randomized basis. Maternal and Perinatal outcome was studied either delivered vaginally or abdominally. In present study, incidence of registered cases 55, was more than that of emergency cases, which was 45. Most of the booked cases had attended antenatal OPD regularly and had undergone required investigations. Out of 100 cases studied 47 were primigravidae with breech presentation giving an incidence of 47% and 32 were Para 2 giving an incidence of 32%, 14 were Para3 with an incidence of 14%. Most of the patients fall in the group of 21-25 years with an incidence of 51%, this age group represents an in general reproductive age group of our country. In this study, only 1 patient had recurrence of breech presentation. majority of the patients were more than 37 weeks in both, primigravidae with an incidence of 92% and Multigravida with an incidence of 98%. incidence of extended breech was more (68%) than that of complete breech (32%) which favors early engagement and less

chance of cord prolapse. Among the primigravidae, extended breech was more common with an overall incidence of 66%, whereas among the Multigravida patients complete breech was more common with an overall incidence of 63%. Among the 47 cases of primigravidae, majority of the cases had caesarean section with an incidence of 73%, compared to Hannah et al which had 71.6% and Kimbrey et al which had 79% and Min su et al which had 70.02%.<sup>5,7,9</sup> And 12 cases had assisted breech delivery with an incidence of 27%, compared to Hannah et al which had 28.4% and Kimbrey et al which had 21%.<sup>5,7</sup> Among the Multigravida majority had assisted breech delivery with an incidence of 64% and caesarean section an incidence of 36%. In frank breech, 47.06% required caesarean section, while 52.94% delivered vaginally. In complete breech, 68.75% required caesarean section, while 31.25% delivered vaginally. most common indication for LSCS among the primigravidae was breech presentation with CPD (29 cases with an incidence of 83%). CPD was diagnosed on the basis of clinical pelvimetry. 5 cases had fetal distress with an incidence of 13.5%. Fetal distress was diagnosed based on fetal bradycardia and irregular FHS. One case was of elderly primigravidae, who had taken treatment for infertility, with breech presentation with an incidence of 3.5%. Previous LSCS and fetal distress were most common indications for caesarean section among the Multigravida with 6 cases and 4 cases giving an incidence of 32% and 21.5% respectively. 3 cases had previous two LSCS with an incidence of 16%. Other indications were complete breech, large baby and placenta previa with 2 cases each. In this study, out of 100 cases, 9 patients had history of previous caesarean section. All of them were delivered by caesarean section, 7 patients electively and 2 patients in emergency. No patient with history of previous CS delivered vaginally. Thus, trial of scar was not given amongst women with breech presentation, irrespective of cervical dilatation. perinatal outcome was good in majority of the patients in both extended and complete breech with an incidence of 94% and 88% respectively. Unsatisfactory outcome was more common in complete breech with an incidence of 6% because of low APGAR, LBW and IUGR babies. All such babies were shifted to NICU. Two perinatal deaths were as a result of intrapartum asphyxia due to difficulty in delivery of the after coming head, one in complete breech and one in extended breech, both cases came in second stage due to late referral and undiagnosed breech at the peripheral health centers. One baby died of RDS due to prematurity with birth weight of 1.7 kg., while the perinatal outcome was good in LSCS with an incidence of 100%. Three cases in assisted breech delivery and three cases in caesarean section had low APGAR at the end of five minutes. All the six babies were shifted to NICU. Out of which 3 babies died, 2 because of birth asphyxia and 1 because of prematurity. Rest 3 babies on recovery were shifted to mother's bedside. It was observed that the perinatal outcome was more unsatisfactory when the birth weight was 1.5-2 kgs with an incidence of 42% (35+8).

## DISCUSSION

In this study, randomly selected 100 cases of pregnant women with breech presentation who attended the labour room of C U Shah medical college, Surendranagar have been studied during the period of May 2012 to April 2014. Detailed analysis has been done and results have been compared with the statistics available from Indian authors and other authors around the world (Table 1).<sup>2-5</sup>

**Table 1: Incidence and parity of breech.**

Authors	Year	Primi-gravidae (%)	Multi-gravidae (%)
Nahid et al	2000	34	66
Bushra Rauf et al	2001	24.1	75.9
Igwegbe et al	2010	38.5	61.5
Singh Abha et al	2012	40.4	59.6
Present study	2012-2014	47	53

Present study correlated well with other studies which too showed higher incidence of breech presentation in Multigravida than in primigravidae. This is probably because of relative low tone of uterine musculature in multigravida favouring malrotation and subsequent breech presentation.

**Table 2: Incidence of breech according to the age of patient.**

Age in years	Singh A et al	Igwegbe et al	Present study
<20	15.2%	19.6%	20%
21-25	47.4%	46.2%	51%
26-30	16.6%	27.3%	26%
>31	20.8%	6.9%	3%

**Table 3: Incidence of type of breech**

Authors	Year	Complete	Extended	Footling
Rani U et al	1993	27%	49%	24%
Shalini G	1999	48%	46%	6%
Razak AH	2007	32%	67%	1%
Singh A et al	2012	34.7 %	55.5%	9.8%
Present study	2012-2014	32%	68%	0%

Present study correlates with the study done by other authors; incidence of breech is higher among the age group of 21-25 years, as in India the age group of women who conceive fall in this group; this is a bit early than the trends observed amongst Western nations. The only difference observed between our study and the African study conducted by Igwegbe and colleges is in the age group of >31 years in which the incidence was a bit

higher (6.9%) as compared to present study (3%). This is possibly because of the fact that in Indian women generally family life is completed by this age group due to early marriage and early age at first pregnancy (Table 2).<sup>4,6</sup>

As evident from Table 3, present study correlates with previous studies by other authors, it favors incidence of extended (frank) breech more than complete breech with a rate of 68% and 32% respectively.<sup>6-9</sup> This is most probably because of a favorable engaging diameter in extended breech (bistrochanteric) and less space occupied by the narrow lower pole.

**Table 4: Incidence of mode of delivery.**

Authors	Year of study	Vaginal delivery (%)	CS (%)
Hannah et al	2000	33.2	66.7
Gilbert et al	2003	4.91	95.1
Jukka et al	2003	46.1	53.9
Bassaw et al	2004	54.3	45.7
Bushra et al	2004	55.8	44.2
Abasiatai et al	2004	69.3	30.7
Goffinet et al	2006	22.2	77.8
Singh A et al	2012	42.6	57.3
Present study	2012-2014	46	54

A positive correlation was observed with previous studies by other authors, that in majority of the studies, caesarean section was more common as a mode of delivery than vaginal route, in breech presentation; but the incidence should not be that low as observed in a few studies depicted in Table 4.<sup>6,10-15</sup>

**Table 5: Incidence of mode of delivery and perinatal outcome.**

Authors	Year	Assisted breech delivery %	PNM %	LSCS %	PNM %
Patwardhan M et al	1990	75	27	25	1
Shalini G	1999	62	26	38	2.6
Singh A et al	2012	43	3	57	1
Jukka et al	2003	46	1.2	54	0.5
Present study	2012-2014	46	11.54	54	0

Present study correlates with the study done by other authors, as it shows perinatal mortality is high in assisted breech delivery as compared to caesarean section; but the rate of perinatal morbidity and mortality can be reduced by proper use of various maneuvers and development of the “art” of proficient breech delivery (Table 5).<sup>6,8,17,18</sup>

According to the Table 6, compared to other series, present study has low perinatal mortality with breech presentation. This was attributed to the availability of qualified and proficient obstetricians round the clock to manage patients with malpresentations, as well as, the facility of intensive neonatal care available at our centre in the form of incubator, warmer, NICU and the presence of competent paediatricians in the labour room at the time of breech delivery.<sup>4,6,9,17-19</sup>

**Table 6: Incidence of overall perinatal mortality breech.**

Authors	Year	PNM %
Susanne et al	1998	4.3
Fawole et al	2001	6.25
Giuliani et al	2002	2.8
Orji et al	2003	3.2
Igwegbe et al	2010	5
Singh Abha et al	2012	19.2
Present study	2012-2014	3

**Table 7: Statistical correlation with type of breech delivery and its outcome.**

Type of breech	Vaginal delivery (46)	Cesarean section (54)	Statistical Values
Frank (68)	36	32	xx <sup>2</sup> = 4.122 df = 1 p < 0.05 (0.0423)
Complete (32)	10	22	

Chi-square value determined by epi-info software.

Table 7 shows the probability of vaginal or caesarean delivery corresponding to the type of breech presentation. Here in this study chi-square and paired t-test was applied. And the results showed that with degree of freedom (df)=1 the results of chi square test were showing p value of <0.05 which means there is a significant statistical association between these two groups. So, in cases of frank breech presentation irrespective of gravidity, trial of vaginal delivery should be given.

**Table 8: Statistical study for correlation between parity and mode of delivery.**

Mode of delivery	Primi-gravidae	Multi-gravidae	Statistical analysis
Vaginal delivery	12	34	xx <sup>2</sup> = 13.442, df = 1, p < 0.05 (0.0002)
Caesarean	35	19	

Chi-square value determined by medical software.

As clearly mentioned in the Table 8, when chi square test was applied for the Table 8, it showed that the value of x<sup>2</sup> =13.442 with df = 1 and p value turned out to be < 0.05 (0.0002), thus signifying statistical difference between



two groups. So, multigravida is more commonly associated with vaginal delivery. So, patients with breech presentation in labour should be given trial especially if they are multigravida.

**Table 9: Statistical study for comparison between type of breech and perinatal outcome.**

Type of Breech	No of Cases	Perinatal outcome			Statistical study $\chi^2 = 1.725$ , df = 2, p > 0.05 (0.4221)
		Good	Low Apgar	Died	
Extended	68	63	4	1	
Complete	32	28	2	2	

Chi-square value determined by medical software.

As depicted in the Table 9, when chi-square test was applied to this table value of  $\chi^2 = 1.725$  with degree of freedom (df) is 2 and p value turned out to be > 0.05 (0.4221). So, this suggests that although visually seems that perinatal outcome is good in extended breech, statistically it is not significant. So, whatever may be the type of presentation in breech, perinatal prognosis is almost similar in all types irrespective of method of termination of pregnancy.

## CONCLUSION

In present study it was clearly observed that there was 0% perinatal mortality considering both elective and emergency caesarean section when compared to vaginal breech delivery; more specifically risk is lowest with caesarean during early labor.

Caesarean section decreases the risk of adverse perinatal outcome due to both problems of labour and problems of delivery for the singleton fetus in breech presentation at term compared with vaginal delivery; however, this difference is not much when confounding factors like prematurity and intrauterine fetal distress are adjusted. And caesarean is not always a safe, feasible and easy option for all patients, for all the institutions and every time when it comes to developing countries like of present study.

It was also noted that vaginal breech delivery in Multigravida women has good perinatal outcome than vaginal breech delivery in primigravidae women. So in multigravida patients without any associated obstetric complications except for the malpresentation with good uterine contractions and active labour, vaginal delivery surely merits high than caesarean. And in primigravidae also if pelvis is adequate, patient in active labour, favorable type of breech, reassuring fetal condition and good maternal bearing down, vaginal delivery surely should be tried if setup is ready for emergency operative procedure if required and qualified practitioner is there to conduct the delivery having technical skills necessary for

vaginal breech delivery and knowledge of various maneuvers required for it.

But there are suggestions that with active involvement of experienced obstetricians and applying appropriate management protocols, vaginal breech delivery can achieve comparable safety for the infant with caesarean section.

There is still a place for vaginal breech delivery in selected cases of breech presentations more so in Multigravida women.

When the results of present study were compared with appropriate statistical analysis it showed that frank breech was more commonly associated with vaginal delivery than complete breech for reasons which are obvious. Also, multigravida is more prone for vaginal delivery. And above all whatever may be the type of presentation or parity status of the patient, perinatal outcome was not statistically significant in this study irrespective of mode of termination either vaginal or caesarean.

In countries where the majority of caesarean sections for breech presentation are done in emergency, a trial of vaginal delivery yields comparable results especially for those patients who are having frank breech presentation and are multigravida. But here a special mention needs to be made that, whenever and wherever, a trial of vaginal breech delivery is offered, every arrangement should be made for an emergency cesarean section in cases of failure since in breech presentation, fetal weight estimation is not always accurate, and cord prolapse and fetal distress are not always predictable.

Therefore, it is concluded that the balanced decision about the mode of delivery on a case by case basis as well as conduct, training and regular drills of assisted breech delivery will go a long way to optimize the outcome of breech presentation like present study.

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