Research Article

A study of maternal and perinatal outcome of breech presentation in vaginal and operative deliveries in a university hospital

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Abstract

Introduction: Most newborns are born with cephalic presentation, but at the end of pregnancy, around 3-4% is found to be breech. Caesarean section for breech presentation has been suggested as a way of reducing the associated perinatal problems in many countries. **Aims and Objectives**: The present study was contemplated to study various aspects of delivery in breech presentation and to compare perinatal outcome. **Methodology**: This cross sectional study was conducted in department of Obstetrics and Gynecology and Associated G.M. Hospital, Rewa (M.P) studying breech from the aspect of incidence, etiology, types along with assessment of various factors acting on maternal and perinatal outcome and mode of delivery using General, systemic and Ultrasound examination. **Ethical issue**: Written informed consent from the participating subjects. **Result and Conclusion**: The present study confirms association of breech with multiparity, the increased incidence of primary complications in breech and the increased perinatal mortality and morbidity of breech presentation.

Keyword: Breech presentation, Cesarean section, perinatal mortality, maternal mortality

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INTRODUCTION

Most newborns are born with cephalic presentation, but at the end of pregnancy, around 3-4% are found to be breech. Before the end of pregnancy, breech presentation is much more common - about 20% of babies at 28 weeks are breech, and 15% at 32 weeks. Before the end of pregnancy it doesn't matter if the baby is breech, as there is always a good chance that he will turn spontaneously. 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. This appears to be an active process whereby a normally formed and active baby adopts the position of 'best fit' in a normal intrauterine space. Persistent breech presentation may be associated with abnormalities of the baby, the amniotic fluid volume, the placental localization or the uterus. It may be due to an otherwise insignificant factor such as cornual placental position or it may apparently be due to chance. There is higher perinatal mortality and morbidity with breech than cephalic presentation, due principally to prematurity, congenital malformations and birth asphyxia or trauma.[1,2] Caesarean section for breech presentation has been suggested as a way of reducing the associated perinatal problems and in many countries in Northern Europe and North America caesarean section has become the normal mode of breech delivery.[2,3] It has long been thought that vaginal delivery of breech infants is associated with increased neonatal morbidity and mortality compared with elective caesarean delivery[4]. This observation has been a topic of considerable debate over the past few years, and retrospective studies of the subject have

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yielded conflicting data.[5-9] The present study was contemplated to study various aspects of delivery in breech presentation and to compare perinatal outcome in groups of planned vaginal breech delivery, and elective caesarean section with the fetus in breech presentation in a university hospital.

MATERIALS AND METHOD

The present clinical study group consists of 200 cases of breech presentation. This cross sectional study was conducted in department of Obstetrics and Gynecology and Associated G.M. Hospital, Rewa (M.P) from July 2002 to August 2003. The term babies in this series has been defined as completed 37 weeks of gestational age or babies weighing 2.5 kg or more in cases when menstrual history is not available. Breech presentation was studied from the aspect of incidence, etiology, types along with assessment of various factors acting on maternal and perinatal outcome and mode of delivery. After history taking in details and clinical (General and systemic) examination in each patient, assessment of size of fetus as well as pelvis were done clinically. Decision about mode of delivery was taken considering various factors like size of the baby, pelvic assessment, previous obstetric history of the patient, associated obstetrical risk factors and condition of the fetus. Ultrasound examination was done in cases admitted before labor as a routine and in a few cases of patients in labor where it was possible. Primigravidae and multigravidae with high risk factors were delivered by caesarean section at term. Caesarean section was done in preterm babies only in presence of some compelling reasons. Multigravidae without risk factors and also primigravidae with average size baby and adequate pelvis without any associated adverse factors were allowed vaginal delivery with keen monitoring. Special emphasis was given in primigravidae patients. In cases of caesarean deliveries location of placenta and uterine malformations were searched for as a routine procedure. Evaluation of babies at birth was done by gestational age, Apgar score at 1 minute and 5 minute, congenital malformations and birth injuries. Maternal outcome was evaluated by the presence of postpartum hemorrhage (Atonic or traumatic) , cervical and vaginal tear, any febrile morbidity, septicemia, calf muscle pain and need for blood transfusion. Mother and babies were followed till discharge from hospital and neonatal mortality and morbidity as well as maternal morbidity was noted. Maternal outcome was accessed and cause for perinatal death was noted.

Ethical issue: Written informed consent from the participating subjects.

OBSERVATIONS

After analyzing the data following observations were made.

Table 1: Incidence of Breech Delivery

S.no	No.of breech delivery	Total No. of Deliveries	Percentage
1.	Total Breech (n-200)		2.59%
2.	Total Breech (n-142)	7715	1.80%
3.	Preterm Breech (n-58)		0.75%

Total number of deliveries conducted during study period were 7715. Out of which 2.59 % of breech delivery occurred. Incidence of term breech was 1.8% and that of preterm breech was 0.75%.

Incidence of Breech Delivery

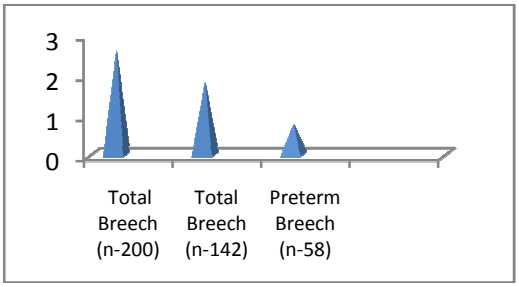


Table 2: Incidence of Breech Presentation in Relation to Parity

S.No.	Parity	No.Of Cases	Percentage
1.	Primipara	94	47.0%
2.	Multipara	106	53.0%
Total		200	100.0%

Above table shows that breech presentation was more common in multipara 53% and in primipara 47%.

Table 3: Analysis of Breech Presentation in Relation to Age

S.No.	Age Group (In yrs)	No. of Cases	Percentage
1.	16-20	42	21.0%
2.	21-25	97	48.5%
3.	26-30	49	24.5%
4.	>31	12	6.0%
	Total	200	100.0%

Above table shows that breech presentation is most common in 21-25 years age group that is 48.5% followed by 26-30 years age group 24.5%.

TYPE OF BREECH AND PARITY

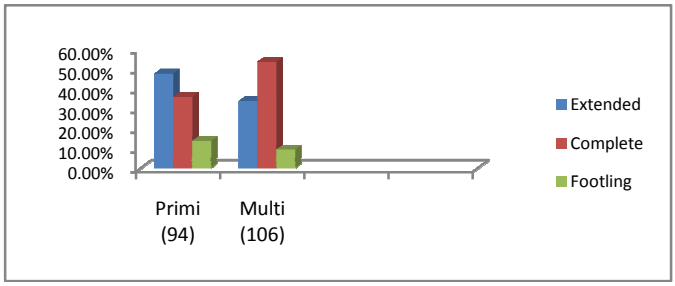


Table 4: Antenatal complications in Breech Presentation

S.No.	Antenatal Complications	No.of Cases	Percentage
1.	Pregnancy induced hypertension	17	8.5%
2.	Post C.S pregnancy	16	8.0%
3.	Bad obstetric history	15	7.5%
4.	Abruptio placentae	1	0.5%
5.	Anaemia	6	3.0%
6.	Polyhydraminos	15	7.5%
7.	Oligohydraminos	6	3.0%
8.	Placeta previa	8	4.0%

Above table shows that most commonly encountered antenatal complications with breech presentation were pregnancy induced hypertension and bad obstetrics history constituting for 8.5% and 7.5% respectively.

Table 5: Primary Complications of Breech Presentation during Labor

Complication	Term (n-142)		Preterm (n-58)		Total (n-200)	
	No.	%	No.	%	No.	%
PROM	12	8.4	-	-	12	6.0
Cord prolapse	3	2.1	3	5.1	6	3.0
After coming head arrest	3	2.1	2	3.4	5	2.5

Incidence of PROM was higher in term breech. Arrest of after head occurred in 5 cases, all were referred from outside.

ANTENATAL COMPLICATION IN BREECH PRESENTATION

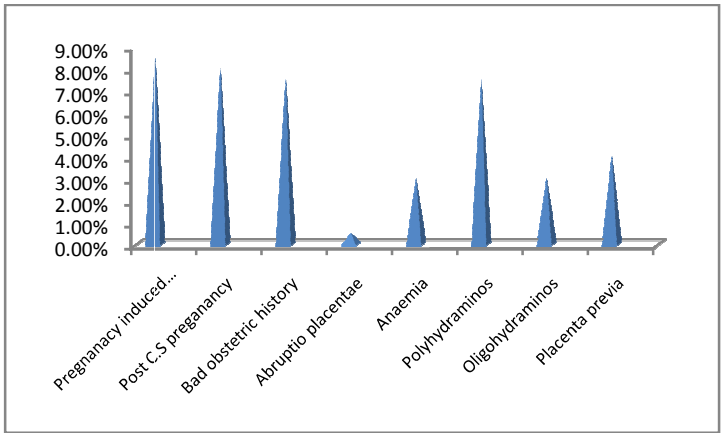


Table 6: Etiological Factors in Breech Presentation

S.No.	Factors Associated	No. of Cases	Percentage
1.	Prematurity	58	29.0%
2.	Extended legs	81	40.5%
3.	Oligohydramnios	6	3.0%
4.	Polyhydramnios	15	7.5%
5.	Placenta Previa	8	4.0%
6.	Fetopelvic Disproportion	1	0.5%
7.	No evident cause	31	15.5%

The commonest causes of breech presentation was prematurity 29% and extended legs 40.5%

ETIOLOGICAL FACTORS OF BREECH PRESENTATION

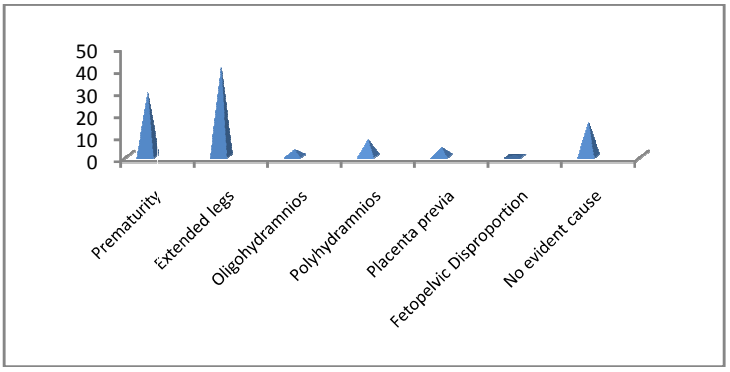


Table 7: Route of Delivery

S.No.	Route of Delivery	No. of Cases	Percentage
1.	Vaginal	127	63.5
2.	Abdominal	73	36.5

Above table shows that vaginal delivery took place in 63.5% of cases while abdominal route was used in 36.5% cases.

Table 8: Indication of Caesarean Section in Breech Presentation (n-73)

S.No.	Indications	No.of Cases	Percentage
1.	Primi with breech	15	20.5
2.	Post caesarean section breech	11	15.06
3.	Bad obstetric history	6	8.2
4.	Fetopelvic disproportion	1	1.36
5.	Fetal distress	4	5.07
6.	Pregnancy induced hypertension	3	4.1
7.	Placenta previa	7	9.5
8.	IUGR	1	1.36

Above table shows that primi breech is the commonest indication for caesarean section (20.5%) followed by post caesarean section breech (15.06%) and bad obstetric history (8.2%).

Table 9: Indication in Relation to Elective and Emergency Caesarean Section

S.No.	Indications	Elective	Emergency
1.	Bad obstetric history	2	4
2.	Post caesarean section breech	3	8
3.	Fetopelvic disproportion	1	-
4.	Primi with breech	1	14
5.	Pregnancy induced hypertension	2	1
6.	Placenta previa	-	7
7.	Fetal distress	-	4
8.	IUGR	1	-

Elective caesarean section was most commonly done for post caesarean section breech followed by bad obstetric history and pregnancy induced hypertension. Emergency caesarean section was done for various indications as depicted in above table.

Table 10: Mean Apgar Score at 1 Min and 5 Min.

S.No.	Route of delivery		Apgar score	
			At 1 Minute	At 5 Minute
1.	Vaginal	Term	5.43	7.32
		Preterm	4.67	6.97
2.	Abdominal	Term	6.58	8.39
		Preterm	5.44	7.22

The mean Apgar score was higher in babies delivered by abdominal route. The term babies had higher mean Apgar score than preterm babies.

MEAN APGAR SCORE AT 1 MIN AND 5 MIN

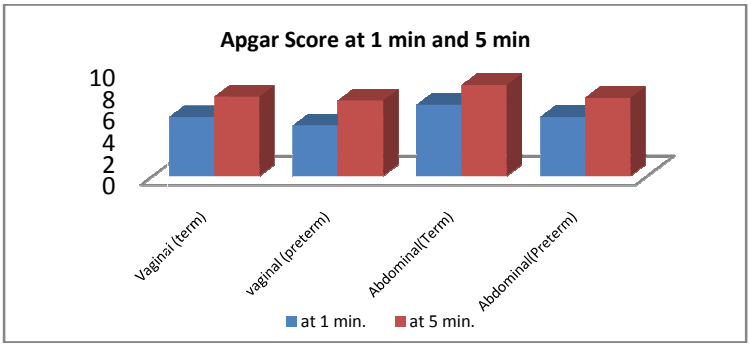
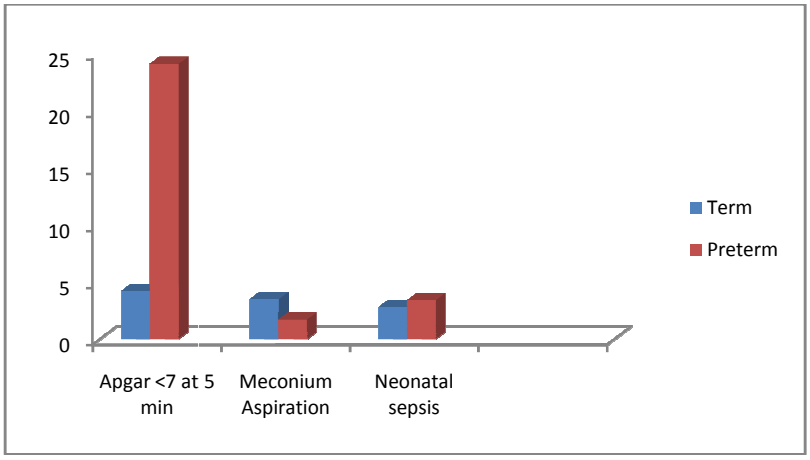


Table 11: Type of neonatal morbidity in breech delivery

S.No.	Type of Morbidity	No. of cases	Percentage
Term			
1.	Apgar <7 at 5 min	6	4.2
2.	Meconium Aspiration	5	3.5
3.	Neonatal Sepsis	4	2.8
Preterm			
1.	Apgar <7 at 5 min	14	24.1
2.	Meconium aspiration	1	1.7
3.	Neonatal sepsis	2	3.4

Above table shows that neonatal morbidity more commonly encountered in poor Apgar Score that too in more common among preterm babies.

TYPE OF NEONATAL MORBIDITY IN BREECH DELIVERY



DISCUSSION

The study was conducted in the Department of Obstetrics and Gynecology, S.S. Medical College and Associated G.M. Hospital, Rewa (M.P.) during the period of July 2002 to August 2003. During this period there were 7715 deliveries. The study consisted of 200 cases of breech delivery out of them term were 142 and preterm constituted 58 cases. Most of the patients belong to 21-25

years of age group. Prevalence of breech delivery in this study was 2.59% that split as incidence of term breech was 1.80% and preterm breech was 0.75% the findings being in line with the WHO technical findings.[10] Breech presentation was more common in multipara having an incidence of 53%, while primiparas found in 47 % cases. These findings were similar to Anderson *et al.*[11] Prevalence of associated antenatal complication was 40.12 % highest being pregnancy induced hypertension (8.5 %) followed by bad obstetrics history (7.5 %). These figures are similar to the ones found by Khwaja et. Al.[12] Primary complications of breech during labor occurred in 11.5 % cases of which PROM=6%, cord prolapse=3 % and after coming head arrest in 2.5 % cases were seen.[12,13,14,15] Extended legs were the commonest type and etiological factor in breech presentation 40.5 % to be followed by prematurity in 29 % cases. Other etiological factors were oligohydraminos 3% polyhydraminos 7.5%, placenta previa 4%, fetopelvic disproportion 1% and no evident cause in 15.5 %. Extended breech was the commonest in term breech while complete breech was common in preterm breech cases. Extended breech was common in primiparas while in multipara complete breech was more commonly encountered. Similar findings were found by Harper *et al* in his study.[13] Cord prolapse was most commonly associated with footling presentation 17.3% followed by 2.1% in complete breech cases. This has been observed prominently in many previous studies.[14,15] Vaginal delivery occurred in 63.5% cases while caesarean section was done in 36.5% cases. Caesarean section was done in 45.07% of term cases and 15.05%of preterm breech cases. Similarly term vaginal delivery constituted 61.4% of all cases and preterm vaginal breech delivery seen in 38.5% cases. Vaginal delivery was more common among multipara (58.2%) while abdominal route of delivery was commonly adopted in primipara (43.6%). Term vaginal deliveries were more common in multipara. Common indication for caesarean section breech 15.06%, bad obstetrics history 8.2%, FPD 1.36%, fetal distress 5.07%, PIH 4.1% and placenta previa 9.5%. These figures are reflected in many previous studies.[16] Elective caesarean section was done in 13.69% cases and rest was emergency sections. No maternal death occurred in this series, but maternal morbidity of 6.67% was associated with vaginal delivery while it was quite high in caesarean section cases where 21.92% of maternal morbidity seen. Increase in maternal morbidity of breech presentation was due to increased operative interference. Cervical tear was the most common cause of maternal morbidity in vaginal route while wound infection and RTI were seen only in cases of abdominal route. In maximum number of cases the birth weight of babies observed in 2.5-2.9 kg group. Mean Apgar score at 1 min and 5 min were significantly higher in abdominal delivery. The term babies had higher mean Apgar score than preterm babies. Neonatal morbidity seen in preterm breech delivery was 29.3% considerably higher than term breech where 10.5% neonatal morbidity seen. Neonatal morbidity commonly encountered was poor Apgar score (10%) that too more common among preterm babies followed by meconium aspiration 3% and neonatal sepsis 3% The neonatal morbidity was found higher 18.8% in vaginal route as compared to 10.9% in abdominal route. Incidence of perinatal mortality was found higher among those delivered by vaginal route than those by abdominal route. Incidence of perinatal mortality was higher among preterm babies. PNM rate in breech presentation was 130/1000. Intrapartum asphyxia was the most common cause of perinatal mortality seen in 38.4% cases while cord prolapse was responsible for 5 still births (14.2%). Neonatal sepsis and pneumonia accounted for 14.2% and 7.6% of perinatal loss respectively.

CONCLUSION

The present study confirms association of breech presentation with multiparity. Various etiological factors observed for breech presentation are – prematurity, oligohydraminos, polyhydraminos, placenta previa and fetopelvic disproportion. Various antenatal complications encountered with breech presentation were PIH, BOH, Post caesarean section pregnancy, placenta previa and abruptio placenta. The present study confirms the increased incidence of primary complications in breech presentation during labor namely- PROM, cord prolapse and after coming head arrest. The study confirms the increased perinatal mortality and morbidity of breech presentation. Perinatal morbidity and mortality was increased because of prolonged labour associated infections and other complications like prematurity. Vaginal breech delivery is associated with increased perinatal morbidity and mortality than abdominal delivery. To improve perinatal outcome caesarean section has been practised is increased number. However maternal morbidity is higher in caesarean section than vaginal delivery. Maternal morbidity was increased due to prolonged labour and increased operative interference. Thus to conclude one has to weigh between the maternal risk of caesarean section and fetal risk of vaginal delivery to arrive at final decision.

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