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VAGINAL DELIVERY VERSUS CAESAREAN SECTION IN PRETERM BREECH DELIVERY- A RETROSPECTIVE STUDY

Obstetrics & Gynaecology

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ABSTRACT

This study correlates the mode of breech delivery to the immediate neonatal outcome in preterm breeches. We had selected 102 deliveries in the period between 1st January 2018 to 30th November 2019. As overall perinatal outcome is better with caesarean section, this study favours caesarean section for pre term breech delivery.

KEYWORDS

INTRODUCTION:

Breech presentation occurs in 3-4% of all deliveries [1]. The occurrence of breech delivery decreases with advancing gestational age from 25% of births before 28 weeks gestation to 16% of births at 32 weeks, and 1-3% of births at term[2].Predisposing factors for breech presentation include prematurity, uterine abnormalities (e.g., malformations, fibroids, poly hydramnios, placenta previa), fetal abnormalities (e.g., CNS malformations, neck masses, aneuploidy), and multiple gestations. Fetal abnormalities are observed in 17% of preterm breech deliveries compared with 9% of deliveries at term [3].

With the increase in the safety of caesarean sections, and the recent advances in neonatal care, obstetricians all over the world find themselves in a dilemma regarding the management of the preterm breech in labour. Following the study by Hannah et al[5], many obstetricians have come to view pre term breech delivery as a high-risk situation, dealt with by primary caesarean section.

There is a wide range of views on this, so the literature consists of conflicting reports. On the one hand Mattern et al[13] reported no increase in perinatal morbidity and mortality in preterm breech babies delivered vaginally; whereas Demol et al found that caesarean section had a protective effect on neonatal mortality rates[1].

The risks of pre term breech delivery include an increased risk of intra partum asphyxia, cord prolapse, and entrapment of after coming head, besides other complications of prematurity.

Although majority of obstetrician deliver pre term breeches by caesarean section, there is in sufficient evidence at present to recommend routine caesarean section for pre term breech deliveries. In contrast to term breech fetus, there are no randomized trials regarding delivery of the pre term breech fetus. moreover, study comparisons are often made difficult by lumping, splitting or overlapping of pre term gestational age groups. All that said, it would appear that for the pre term breech fetus, planned caesarean delivery confers a survival advantage compared with vaginal delivery. Reddy and associates (2012) reported data from deliveries between 24 and 32 weeks gestation. For breech foetuses within these gestational ages attempting vaginal delivery yielded a low success rate, and those completed were associated with higher neonatal mortality rate compared with planned caesarean delivery. Other investigations have reported similar findings (bergenhenegouwen, 2014; demirci, 2012 muhuri, 2006)[Williams obs and gynec edition 25th][4]

For pre-term foetuses in younger subgroups- 23 to 28 weeks – the data are more conflicting, and some studies describe no improved survival rate with planned caesarean delivery (bergenhenegouwen, 2015; kayem, 2015; Thomas, 2016)[4]

For more mature pre term breech foetuses, that is between 32 to 37 weeks, again there are sparse data to guide delivery route selection. Bregenhenegouwen and co-workers (2015) studied more than 6800 breech deliveries in a subgroup between 32 and 37 weeks. With planned caesarean delivery, they found similar perinatal mortality rate but less composite mortality and severe morbidity. It appears in this subgroup that fetal weight rather than gestational age is likely more important. The maternal-fetal medicine committee of society of obstetricians and gynaecologists of Canada(SOGC) states that vaginal breech delivery is reasonable when the estimated fetal weight is >2500 g (kotaska, 2009). There are especial concerns for delivery of second non-cephalic presenting twin fetus[4].

This contradiction between results reported in the literature prompted us to evaluate the outcomes of delivery in singleton preterm breech foetuses in our institution and assess the advantage, if any, of caesarean section over vaginal delivery. This was possible because breech presentation does not necessarily indicate an abdominal delivery to all physicians in our hospital.

MATERIALS AND METHODS:

A retrospective analysis of the medical records was carried out on the patients who had singleton pre term breech deliveries (between 24 and 36 weeks gestation) at Civil Hospital, Ahmedabad, between 1st January 2018 to 31st November 2019. All the breech presentations with intrauterine fetal death and lethal congenital fetal malformation were excluded from the study. Beta methasone, 12 mg intramuscular injection, every 24 hours for two doses had been administered to the mother when indicated. All the newborns were examined by a neonatologist for birth defects, Apgar scores and evidence of birth trauma immediately after delivery.

The babies born were divided into six categories according to their gestational age and birth weight.

Statistical analyses were performed using the chi-square test. The differences were considered statistically significant when $p < 0.05$.

RESULTS:

Of the 102 pre term breech deliveries (meeting selection criteria) during the study period, 62 (60.78%) delivered vaginally and the remaining 40 (39.21%) by caesarean section.

Table 1 : parity wise distribution and mode of delivery

Birth order	Mode of delivery		Total
	Vaginal delivery	Caesarean section	
1	16	19	35
2	20	9	29
>2	26	12	38
total	62(60.7%)	40(39.3%)	102

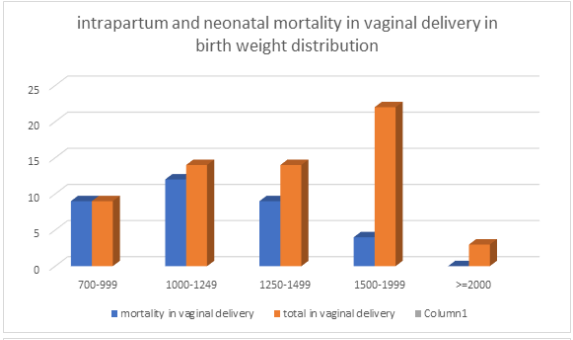
The caesarean group had a larger share of younger primi gravid as. The vaginal group had more multi gravid as and women with poor obstetric history.

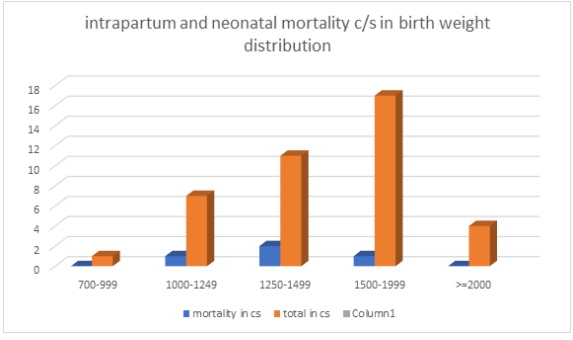
Table 2 distribution according to gestational age

Gestational age(weeks)	Mode of delivery		Total
	Vaginal delivery	Caesarean section	
26-27^{+6}	10	0	10
28-29^{+6}	15	4	19
30-31^{+6}	10	9	19
32-33^{+6}	18	18	36
34-35^{+6}	9	9	18
Total	62	10	102

Table 3: birth weight and mortality

Birth weight (gm)	Mode of delivery				Total mortality	Total	P value
	Vaginal delivery		Caesarean section				
	mortality	total	mortality	total			
700-999	9	9	0	1	9	10	0
1000-1249	12	14	1	7	13	21	0.0003
1250-1499	9	14	2	11	11	25	
1500-1999	4	22	1	17	5	39	0.4567
>=2000	0	3	0	4	0	7	
Total	34	62	4	40	38	102	
Mean birth weight	1360.77	1511.95			0.0498		





More babies in the vaginal group weighed below 2000 g and were < 34 weeks gestational age. The mean birthweight in the vaginal delivery group (1360 g) was significantly less than that in caesarean delivery group (1512 g, P < 0.05).

There were 10 newborns who weighed below 1000 g, of which 9 were delivered vaginally and 1 by caesarean section. A 100% mortality occurred in those infants delivered vaginally while there was no mortality in 1 caesarean section.

46 newborns weighed between 1000 and 1499 g. Of these, 28 (60.86%) were delivered vaginally and 18 (39.13%) by caesarean section. Both the groups were similar in terms of antenatal complications, neonatal complications and Apgar scores. total 24 cases of neonatal mortality were there out of which only 3 mortality were from caesarean section group. Which is significantly higher than vaginal delivery. The chi-square statistic is 14.9413. The *p*-value is .000111. This result is significant at $p < .05$.The chi-square statistic with Yates correction is 12.695. The *p*-value is .000367. Significant at $p < .05$.

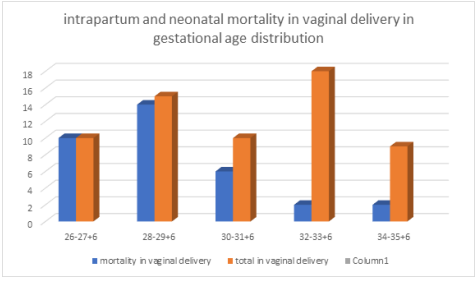
Of the 46 newborns weighing more than 1500 g, 25 were delivered vaginally and 21 by caesarean section. The combined intrapartum and neonatal mortality was not significantly higher for the vaginal group (16%) as compared with the caesarean group (4.76%; P = 0.4567).The chi-square statistic is 1.4878. The *p*-value is .222556. This result is *not* significant at $p < .05$.The chi-square statistic with Yates correction is 0.5539. The *p*-value is .456719. *Not* significant at $p < .05$.

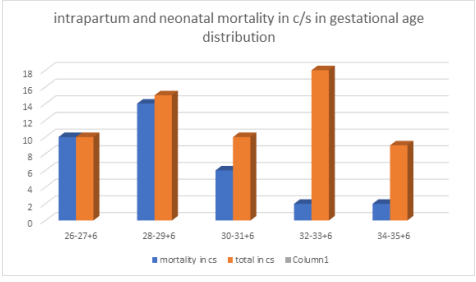
Table 4 : Combined intrapartum and neonatal mortality in gestational age group distribution

Gestational age(weeks)	Mode of delivery				P value
	Vaginal delivery		Caesarean section		
	mortality	total	mortality	total	
26-27^{+6}	10	10	0	0	0.000136
28-29^{+6}	14	15	3	4	
30-31^{+6}	6	10	2	9	
32-33^{+6}	2	18	1	18	
34-35^{+6}	2	9	0	9	
Total	34(54.83%)	62	6(15%)	40	

The combined intrapartum and neonatal mortality was 39.88%. The mortality was significantly higher for vaginally delivered infants (54.83%) than for infants born by caesarean section (15%)

The chi-square statistic is 16.1887. The p-value is .000057. This result is significant at $p < .05$.The chi-square statistic with Yates correction is 14.5605. The p-value is .000136. Significant at $p < .05$.





As the general policy at this institute is not for a routine caesarean section for extremely premature breech foetuses, it can be argued that smaller foetuses were not offered the superior mode of delivery.

So pre term breech was not an indication for caesarean section in this institute but caesarean sections are taken for maternal adverse indications and not for the sake of fetus in majority of cases. And in such cases caesarean sections were beneficial for foetus as well and survival rate is higher in infants delivered by caesarean section.

Thus, For all the gestational age group there is significantly less

mortality in caesarean sections then vaginal delivery (p value <0.005).

Table 5 : 5 min APGAR score

APGAR Score	Mode of delivery		P value
	Vaginal delivery	Caesarean section	
0-3	2	1	0.0789
4-6	17	8	
>7	17	30	
Mean APGAR	6.122	7.121	

The mode of delivery and Apgar scores did not vary between these two groups.

The chi-square statistic is 5.0786. The *p*-value is .078921. The result is *not* significant at $p < .05$.

DISCUSSION:

This study was carried out in a tertiary hospital. Various investigators have recommended caesarean section ,as a mode of delivery for a pre term breech fetus in various weight categories as below 1000 g [6], below 1300 g [9], below 1500 g [10], between 1000-2500 g [11] and for all pre term breech foetuses. The expected benefits are a reduction in neonatal morbidity or mortality.

Due to the small number in the group below 1000 g, it is difficult to draw any conclusions.

Considering that the best neonatal care possible in a developing country is available in this institute, the survival of babies below 1000 g is only 10%. Therefore, it would not be worthwhile to perform a caesarean section for this group of breech foetuses. Studies say The neonatal mortality of babies weighing below 1000 g was independent of the mode of delivery. In this study there is one fetus weighing 978 g has survived delivered by caesarean section.

The observations on outcome of infants weighing between 1000 and 1499 g at birth support the recommendation of routine caesarean delivery for this group either. The neonatal mortality was more with vaginal delivery. Gimovsky [9] has recommended caesarean for infants weighing below 1300 g to reduce the risk of head entrapment. In the present study, 1 case in whom intrapartum death, due to head entrapment occurred, weighed under 1500g. caesarean section would have been the better choice for that patient. Also, the survival of new borns weighing 1000- 1500 g in this institute is 47.82% as compared with 92% in western countries [9].

New borns weighing over 1500 g did not benefit from a caesarean section as per this study.

Myers and Gleicher [12] wrote that 'no author was ever able to demonstrate a benefit of caesarean section in birth weights above 1500 g', and pointed to deficiencies in studies which recommended the use of caesarean section for breech weighing less than 1500 g.

As NICU facilities are improving over years in tertiary centres of India, we can go for caesarean sections in such institution which now a days are not done.

In cases of delay in referrals for pre term breech, non-availability of skilled obstetrician who is familiar with delivering a tiny breech infant and is not familiar with the neonatal resuscitative techniques and where the family is not ready with uncertainty of survival of new born despite scarred uterus vaginal breech delivery is considered.

CONCLUSION:

Significantly higher neonatal mortality found in vaginal delivery, the present study favours caesarean section in pre term breech fetus.

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