

Factors affecting relationship of breech delivery to perinatal outcome.

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Summary: Nowrosjee Wadia Maternity Hospital is a leading Teaching Hospital in the city of Mumbai catering to 10,000 deliveries per year. 1004 Breech deliveries out of a total of 30,671 births (3.27%) were studied over a study period of 3 years. (April '93 to March '96). The relationship and effect of gestational age, birth weight, type of breech and route of delivery on the perinatal outcome was analysed and studied. The perinatal mortality rate per 1000 total births was 132.4 for breech deliveries and 34.67 for vertex births. Amongst breech births, frank breech had a perinatal mortality rate of 128.23 as opposed to 243 for non-frank breeches. 48.5% of the breech births were delivered vaginally and 51.5% by caesarean section; the take-home baby rate being 96.5% for caesarean breech and 76.4% for vaginal breech births. Breech presentations weighing <1.5 kg. and of <34 wks. gestation fared poorly compared to those weighing >1.5 kg and of >34 wks. gestation.

Introduction

Breech births contribute a fair amount to perinatal mortality and morbidity by way of their association with prematurity, multiparity, multiple gestation, polyhydramnios, oligohydramnios, placenta praevia, congenital malformations, pelvic disproportion and cord accidents. In addition to these factors, the birth weight, gestational age, type of breech and route of delivery also contribute to the perinatal outcome.

3-4% of fetuses present as breech at term. The incidence of breech presentation increases with decreasing gestational age and birth weight at the time of labour.

The art of conducting a vaginal delivery of a breech presentation is slowly becoming a lost entity. This can be attributed to 2 main factors :-

1. The prolific use of caesarean section for breech - an elective approach as opposed to a selective policy.
2. Use of external cephalic version seems to further lower the number of breech presentations remaining so at the time of labour.

Material and Methods :

This is a retrospective analysis of 1004 cases of breech

deliveries conducted at the Nowrosjee Wadia Maternity Hospital during a 3 year period. April, 1993 to March, 1996. All these 1004 cases were studied with respect to their associated antenatal high risk factor, gestational age, birth weight, type of breech, mode of delivery and perinatal outcome. Various factors in breech presentation which affect perinatal outcome were studied and the results were tabulated and analysed as below :

Table and Results :

1. Study period - April, 1993 to March, 1996 (3 years), Total Births during this period - 30,671: Breech Births 1,004 (3.27%)
 1. Of the 1004 breech births, 96.3% (967) were frank breech and the remaining 3.6% (37) presented as non frank breech.
 2. 82% (823) cases were singleton breech as opposed to 18% (181) who were subsets of a multiple gestation.
 3. 13.9% (140) cases were primiparas and multiparas comprised 86.1% (864) cases.
 4. The two most common antenatal high risk factors were Anaemia in 40% (402) cases and PIH in (7.8%) (78) cases.
 5. Tables II to XI.

Table II
Breech - Gestational age at Delivery

Wks	No.	%
22-26	14	1.39
26-30	47	4.68
30-34	87	8.66
34-36	139	13.84
37-40	710	70.71
>40	7	0.69
1004		

Thus 28.58% (287) were preterm; 70.71% (710) were term and 0.69% (7) were post term breech births.

Table III
Breech - Birth Weight Distribution

Wt. (Kg.)	No.	%
0.5 - 1.0	50	5.0
1.01-1.5	109	10.8
1.51-2.0	153	15.2
2.01-2.5	306	30.5
2.51-3.0	286	28.5
3.-01-3.5	90	8.96
3.51-4.0	10	0.99
1004		

Table IV
Breech - Mode of Delivery

Total Cases	1004
Vaginal Breech	487 (48.5%)
Abdominal Breech	517 (51.5%)
i. Emergency C.S.	415 (41.3%)
ii. Elective C.S.	102 (10.2%)

During the study period, there were 3604 (11.75%) caesarean births out of a total of 30,671 births. Of these 3604 caesarean births, 517 were done for breech presentation meaning that 14.35% of caesareans were for breech as the primary indication.

Discussion

Most studies on Breech are concerned with the route of delivery affecting the perinatal outcome. Only a handful have addressed the more fundamental question of why the baby is Breech in the first place. (Hyttén E.E. 1982).

It was Dunn (1976) who first proposed that oligohydramnios and deformities or paralysis of the lower limbs may prevent normal free movement of the fetus from breech to a cephalic presentation.

Braun et al (1975) suggested that fetuses with a wide range of morphological and functional damage more commonly present as Breech. He also showed that 43% of fetuses with trisomy 18 and 40% of babies of fetal alcohol syndrome present as breech.

A study by Van Eyk et al (1983) conducted Elective Caesarean for the preterm breech as this group was associated with a 4.5% incidence of cord prolapse and 7.3% incidence of entrapment of fetal head in vaginal deliveries giving a high perinatal mortality and morbidity in the vaginal - breech group. Westgren et al (1985) also studied the effect of route of delivery on perinatal outcome in the preterm breech (<1.5kg.). Although perinatal mortality was higher in the vaginally delivered infant than in those born by caesarean, statistical significance was not reached.

Most studies imply a caesarean for breech babies 1 to 1.5 kg. While for weights >1.5kg, the perinatal outcome is the same irrespective of the route of delivery. Though Cox et al (1982) have questioned the value of caesarean in the absence of other obstetric problems for low birth weight breeches because this attitude has decreased neonatal mortality but at the cost of survival of handicapped infants. Effer et al (1983) found no evidence to state that caesarean is good for breech babies <1.5 kg. or <28 wks. or <1kg. as neither the route of delivery nor the presentation is a significant determinant of outcome. The prematurity itself, with all its accompanying pathophysiology, is so overwhelming that maneuvers involving method of delivery do not alter the outcome. Studies that suggest that preterm breech survival is improved by caesarean fail to emphasize that only fetuses with the best chance of survival are delivered abdominally.

Tatum et al (1985) concluded that with careful patient selection and fetal and labour monitoring, vaginal delivery of the term or near term breech remains a real

Table V
Perinatal Outcome - Breech V/S Vertex

	Breech		Vertex	
	No.	%	No.	%
Fresh Still Births	39	3.88	312	1.06
Macerated Still Births	43	4.28	332	1.13
Neonatal Deaths	51	5.08	377	1.28
Alive, Went Home	871	86.75	28,481	96.53
	1004		29,504	

Perinatal Mortality Rate per 1000 total Births was
132.4 for breech and 34.67 for vertex births (uncorrected for prematurity and malformations)
(p.0.05, significant)

Table VI
Perinatal Outcome Depending on Type of Breech

	Frank Breech		Non-Frank	
	No.	%	No.	%
Fresh Still Births	36	3.72	3	8.1
Macerated Still Births	41	4.24	2	5.4
Neonatal Deaths	47	4.86	4	10.8
Alive, Went Home	843	87.2	28	75.7
	1004		37	

Perinatal Mortality Rate per 1000 Total Births was 128.23 for frank breech and 243.00 for non-frank breech births
(p.0.05, significant)

Table VII
Gestational age affecting perinatal outcome in Breech

GA (wks)	FSB		MSB		NND		Alive, Went Home	
	No.	%	No.	%	No.	%	No.	%
<30	15	24.6	12	19.7	21	34.4	13	21.3
30-34	10	11.5	15	17.2	11	12.6	51	58.6
34-36	9	6.5	7	5.0	7	5.0	116	83.4
37-40	5	0.7	9	1.3	12	1.7	684	96.3
>40	-	-	-	-	-	-	7	-
	39		43		51		871	

Perinatal Mortality Rate per 1000 total births was
786.9 for < 30 wks.
413.8 for 30-34 wks.
165.5 for 34-36 wks. and 36.6 for 37-40 wks.

GA	Take home babies	Perinatal deaths	Total
<34 wks.	64 -7.35%	84 -63.12%	148 -14.74%
>34 wks.	807-92.65%	49 -36.84%	256 -85.26%
Total	871	133	1004

PNMR for <34 wks breech was 567.6, significantly high compared to that for >34 wks breech which was 57.24
(nearly 10 times)

Table VIII
Route of Delivery Affecting Perinatal Outcome

Route	FSB		MSB		NND		Alive, Went Home	
	No.	%	No.	%	No.	%		
Vaginal	37	7.6	35	7.2	43	8.8	372	76.4
Abdominal	2	0.4	8	1.6	8	1.5	499	96.5
	39		43		51		871	

Perinatal Mortality Rate per 1000 Total Births was

236.1 for vaginal breech births and

34.82 for abdominal breech births (uncorrected for gestational age and birth weight) p 0.05 significant.

Table IX
Gestational Age Affecting Mode of Delivery in Breech

Mode of Delivery	22-26	26-30	30-34	34-36	37-40	>40
Vaginal Breech	14	45	60	75	293	-
	100%	95.7%	69%	54%	41.3%	-
Elective C.S.	-	-	5	7	89	1
			5.7%	5%	12.5%	14.3%
Emergency C.S.	-	2	22	57	328	6
		4.3%	25.3%	41%	46.2%	85.7%
	14	47	87	139	710	7

Table X
Birth Weight Affecting Mode of Delivery in Breech

Mode of Delivery	0.5-1	1.01-1.5	1.51-2.0	2.01-2.5	2.51-3.0	3.01-3.5	3.51-4.0
Vaginal Breech	45	90	92	130	105	20	5
	90%	82.6%	60.1%	42.5%	36.7%	22.2%	50%
Elective C.S.	1	6	10	24	35	24	2
	2%	5.5%	6.5%	7.8%	12.2%	26.7%	20%
Emergency C.S.	4	13	51	152	146	46	3
	8%	11.9%	33.3%	49.7%	51%	51.1%	30%
Total	50	109	153	306	286	90	10

alternative to routine caesarean of all breech fetuses. They found caesarean to be associated with a 38-fold increase in significant maternal morbidity.

Gifford et al (1995) presented a meta-analysis of infant outcomes after breech delivery. The pooled risk for any injury was 1% after a trial of labour and 0.09% after elective caesarean. For any injury or death, the risk was 1.23% after a trial of labour and 0.09% after elective caesarean signifying a significant risk of injury and / or

death after a vaginal trial. It was concluded that when management decisions are made, the potential increase in neonatal morbidity after a trial of labour should be considered along with increased maternal risk from caesarean.

Conclusion:

Vaginal delivery of a breech fetus with careful maternal and fetal assessment, selection and monitoring and under

Table XI
Birth Weight affecting perinatal outcome in Breech

Wt. (Kg.)	FSB	MSB	NND	Alive, Went Home
0.5 - 1	15 30%	16 32%	16 32%	3 6%
1.01-1.5	17 15.6%	17 15.6%	21 19.3%	54 49.5%
1.51-2.0	5 3.3%	6 3.9%	2 1.3%	140 91.5%
2.01-2.5	1 0.3%	3 0.98%	6 1.96%	296 96.7%
2.51-3.0	1 0.3%	1 0.3%	5 1.7%	279 97.5%
3.01-3.5	-	-	-	90 100%
3.51-4.0	-	-	1 10%	9 90%

B. Weight	Take home babies	Perinatal deaths	Total
<1.5 kg.	57 - 6.54%	102 -76.69%	159 - 15.84%
>1.5 kg.	814 - 93.45%	31 -23.31%	845 - 84.16%
	871	133	1004

Thus PNMR per 1000 total births was 641.5% for <1.5 kg. breech and 36.7% for >1.5 kg. breech births.

PNMR per 1000 total births was 940 for 0.5 - 1 kg. weight group

504.6 for 1.01 - 1.5 kg.

85 for 1.51 - 2.0 kg.

32.7 for 2.01 - 2.5 kg.

24.5 for 2.51 - 3.0 kg.

Nil for 3.01 - 3.5 kg and

100 for 3.51 - 4.0 kg.

the supervision of an experienced obstetrician provides comparable fetal outcome to delivery by caesarean. (spellacy, 1995)

Danielian et al (1996) found no significant difference in the incidence of severe handicap or any other adverse outcome between infants born by elective caesarean or by planned vaginal delivery in term breech babies. The corrected perinatal morbidity and mortality of fetuses weighing more than 2 kg is the same for those born vaginally or abdominally.

With proper selection of cases for vaginal delivery of breech, there can be acceptably low neonatal mortality and morbidity for term breech. Carefully weighing the hazards of caesarean for the mother as against the potential dangers of vaginal delivery of the breech baby is a problem that every obstetrician must face.

What is required for a safe vaginal breech delivery is good judgement, gentle hands and a cool head.

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