

Mater No-fetal Outcome of Term Singleton Breech Deliveries in a Tertiary Hospital in Nigeria: An Eight Year Appraisal

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Abstract: Breech delivery is associated with increased perinatal morbidity and mortality. The optimal management remains generally contentious. This study evaluated term singleton breech delivery in order to highlight its contribution to adverse perinatal and maternal outcome in order to audit the practice and suggest changes to improve materno-foetal outcome. This was a retrospective study involving 345 term singleton breech deliveries at the University of Benin Teaching Hospital between January 2000 to December 2007. The relevant information was extracted from obstetric data sheets, labour ward and labour ward theatre records and patients' case notes. The incidence of term singleton breech deliveries was 2.6% with a caesarean section rate of 69.9%. The leading indication was nullipara breech. Perinatal mortality rate was 118.8 per 1000 with cord prolapse as the leading cause. There is high perinatal mortality and morbidity among term breech deliveries. Caesarean section offers better perinatal outcome than assisted breech delivery though an with increased maternal morbidity.

Keywords: Breech materno-fetal outcome

INTRODUCTION

Breech presentation represents the commonest malpresentation and has 3 to 4 fold adverse perinatal and maternal morbidity and mortality when compared to cephalic presentation (Ritchie, 1995). Generally an incidence of 3-4% at term is reported. The incidence decreases towards term (Thorpe-Beeston, 1998; Campbell and Lee, 2000). In other parts of Nigeria the reported incidence ranged 1.2 to 2.44%, with a perinatal mortality rate of 195.41-233 per 1000 (Omu and Akingba, 1982; Adetoro and Fakeye, 1990).

The breech presentation is a sign of potential handicap and its optimal management at term remains contentious. Adverse perinatal outcome has been reported mostly in vaginal delivery than in caesarean section (Thorpe-Beeston, 1998; Singh and Paterson-Brown, 2003). With strict selection criteria, elective caesarean section was found to have significantly reduced perinatal mortality and morbidity when compared with planned vaginal breech delivery (1.6 vs 5.0%) (Mukhapadhyay and Arulkumaran, 2002; Hannah, 1994). The effectiveness of External Cephalic Version (ECV) in the centres that practise it has been highlighted (Mukhapadhyay and Arulkumaran, 2002).

Vaginal breech delivery is inevitable despite its higher risk for the foetus in situations where the woman elects for vaginal delivery, or caesarean section is

planned but labour and delivery occur at a site where facilities for caesarean section are not readily available and in cases of undiagnosed breech that is as high as 25-30% of breech presentation at term diagnosed in labour (Thorpe-Beeston, 1998). In this situation the Zatchni-Andros' criteria is relevant in prognosticating a successful vaginal delivery.

Where there is a previous caesarean section scar and breech presentation, some obstetricians advocate vaginal delivery provided the scar integrity is assured and the indication for the caesarean section was non-recurrent, foetus is of average size and the pelvis is adjudged to be adequate (Ritchie, 1995). All the same, the conditions for trial of vaginal birth after caesarean birth and a conscious obstetric team must be in place. The manoeuvres involved in vaginal breech delivery may compromise the integrity of the uterine scar. This has prompted the decision by others for an elective caesarean section. The latter is the practice in this centre.

Clinical and X-ray pelvimetry have low sensitivity and predictive values in the outcome of breech delivery. X-ray pelvimetry may be of value in excluding congenital malformations and in determining the attitude of the foetal head (Hannah, 1994). Other advance imaging techniques such as Magnetic Resonance Imaging and Computed Tomography have been used for pelvimetry to improve on predictive value

and are also important for medico-legal reasons in other to objectively document pelvic adequacy.

Planned caesarean section has the best perinatal outcome while the worst outcome is associated with planned vaginal birth (Hannah *et al.*, 2000; Fasuba *et al.*, 2003).

This study was designed to evaluate breech presentation at term and its management at the University of Benin Teaching Hospital Benin City Nigeria and to highlight its contribution to adverse maternal and foetal outcome. This will serve as an audit of our practice and suggest changes where necessary to improve materno-fetal outcome.

METHODOLOGY

This was a retrospective study conducted at the department of obstetrics and gynaecology University of Benin Teaching Hospital (UBTH), Benin City, Nigeria, involving deliveries between January 2000 and December 2007. The booked patients were those who received antenatal care and delivered in UBTH while unbooked did not receive antenatal care in this centre. This study definition of term pregnancy was 37 completed weeks and above.

The sources of information were obstetric data sheets, labour ward and labour ward theatre records and patients case notes. The records of all singleton breech deliveries at term within the reviewed period were retrieved. Information on the maternal age, parity, booking status and mode of delivery were extracted. The outcome measures were caesarean section rate, maternal genital traumas, estimated blood loss, blood transfusion, long hospital stay and maternal mortality. Others are perinatal mortality, birth weight, Apgar score at 5 min and arrest of after coming head.

Clinical palpation and ultrasound scan were used for diagnosis of breech presentation. Vaginal examination to confirm breech presentation and exclude cord presentation and footling breech was done for each parturient. Caesarean section was offered to footling breech and viable foetus, cord presentation or prolapse and viable foetus, placenta praevia, fetal macrosomia, failure to progress in labour, nullipara breech and previous caesarean section.

Ethical approval was given by the Hospital Ethics Committee.

Statistical analysis was done using EPI INFO and INSTAT statistical packages. Chi-square and Fishers Exact testing was done where applicable. Test of significance was based on 95% confidence interval ($p < 0.05$).

RESULTS

There were 345 term singleton breech deliveries among 13,416 deliveries during the period under review (Table 1). Two hundred and thirty nine of the mothers

Table 1: Distribution of term singleton breech presentation by years

Year	Total number of mothers	Number with breech presentation n %
2000	1482	27 (1.8)
2001	1496	31 (2.1)
2002	1511	32 (2.1)
2003	1642	52 (3.2)
2004	1573	47 (3.0)
2005	1609	53 (3.3)
2006	1868	57 (3.1)
2007	2235	46 (2.1)
Total	13,416	345 (2.6)

Table 2: Parity distribution of mothers with term singleton breech delivery

Parity	Number of mothers	%
0	128	37.1
1	87	25.2
2	59	17.1
3	34	9.9
4	22	6.4
≥5	15	4.3
Total	345	100.0

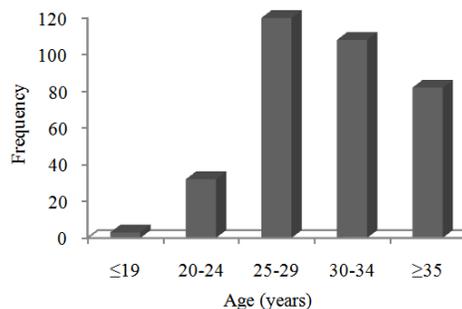


Fig. 1: Simple Bar chart showing age distribution of mothers with term singleton breech deliveries

who had term singleton breech delivery were booked while 106 were unbooked.

The age of the mothers ranged between 19 and 44 years with a mean of 29.7 ± 1.9 years (Fig. 1).

The modal age was 25-29 years, constituting 34.8% of the mothers. There were three teenage mothers with term singleton breech deliveries.

The parity of the mothers ranged between 0 and 8. One hundred and twenty eight (37.1%) of them were nulliparous (Table 2).

There was no identifiable risk factor to breech presentation in 86.4% of the cases. Coexisting uterine fibroids (4.9%) and placenta praevia (4.6%) featured most among the identifiable risk factors (Fig. 2).

Two hundred and forty-one of the term singleton breech deliveries were via caesarean section giving a caesarean section rate of 69.9%.

The leading indications were nulliparity (31.1%), footling breech (20.0%), previous caesarean section (15.8%) and failure to progress in labour (13.7%).

The birth weight of the babies ranged between 1.95 to 5.2 kg with the modal birth weight of 3.0-3.5 kg (38.0%). Two hundred and ninety eight babies (86.4%) were in the birth weight range of 2.5-3.99 kg while 22

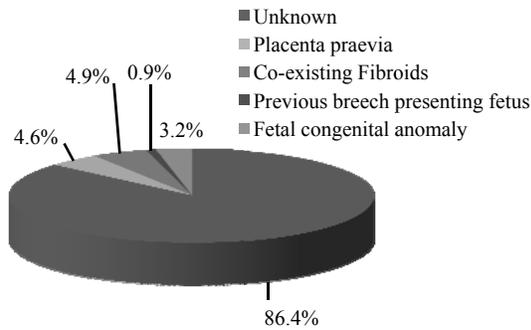


Fig. 2: Pie chart showing risk factors for breech presentation

Table 3: Apgar score at 5 minutes by mode of delivery

Mode of delivery	A/S <7	A/S >7	%
Assisted Breech Delivery (ABD)	32	72	12.2%
Emergency caesarean section	37	122	15.9
Elective caesarean section	3	79	3.7
Total	72	273	

ABD vs EMCS: P = 0.1981, OR = 1.465, CI = 0.8406-2.55 Not significant; ABD vs ELCS: P = <0.0001, OR = 11.704, CI = 3.434-39.88 Extremely significant; EMCS vs ELCS: P = <0.0001, OR = 7.986, CI = 2.380-26.79 Extremely significant; ABD vs C/S: P = 0.004, OR = 2.233, CI = 1.305-3.822 Very significant

Table 4: Clinical causes of perinatal death by mode of delivery table

Clinical cause	Vaginal	EMCLS	ELCLS	Total
Unknown	7	-	-	7
Cord prolapsed	8	7	-	15
Difficulty delivery of after coming head	5	2	-	7
Congenital anomaly	1	1	-	2
APH (p/praevia,p/ abruption)	1	3	-	4
Prolonged obstructed labour/ruptured uterus	-	6	0	6
Total	22	19	0	41

Table 5: Maternal outcome of term singleton breech deliveries by mode of delivery

Morbidity	No of Vag.Del.	No by C/S	Total
Post-partum haemorrhage	2	16	18
Perineal tear	5	-	5
Prolonged hospital stay (>2 and >7 days)	34	65	99
Blood transfusion	0	21	21
Puerperal sepsis	-	8	8
Total	41/104	110/241	151
	39.4%	45.6%	

(6.4%) of the babies weighed 4.0 kg or greater. The birth weight of babies delivered vaginally ranged between 2.1 and 4.25 kg with majority (67.3%) within birth weight range of 2.5 to 3.5 kg.

Fourteen of the seventeen babies with birth weight 4 kg or greater delivered by caesarean section were alive but 5 of them suffered mild birth asphyxia and the remaining 3 were fresh stillbirths. Two of the 5 such babies delivered by Assisted Breech Delivery (ABD) were fresh stillbirths two others had favourable outcome and one was macerated stillbirth about 5 times higher risk of fresh stillbirths (OR = 4.67, 95% CI = 0.46-47.66, p = 0.2281).

A total of 72 (20.9%) neonates had Apgar score of less than 7 at 5 min, a birth asphyxia rate of 20.9%. Thirty two (30.8%) of these followed assisted breech delivery while 37 (23.3%) were delivered by emergency caesarean section and 3(3.7%) by elective caesarean section (Table 3). There was about 50% increased risk of birth asphyxia among neonates delivered by assisted breech delivery compared with those delivered by EMCS though this was not statistically significant (p = 0.1981,OR = 1.465,CI = 0.8406-2.555) Neonates delivered by ELCS have 8-12 times reduced risk of birth asphyxia when compared with those delivered by EMCS (p<0.0001,OR = 7.986,CI = 2.380-26.794) and ABD (p<0.0001,OR = 11.704,CI = 3.434-39.884) These were extremely statistically significant. In general, neonates delivered by ABD were more than twice more likely to suffer birth asphyxia than those delivered by caesarean section (p = 0.004, OR = 2.233, CI = 1.305-3.822) and this was statistically very significant.

Difficult delivery 14 (38.9%) and cord prolapse 7 (19.4%) were the leading clinical causes of low Apgar score. Nineteen of these were recorded in booked mothers while 17 were recorded in unbooked mothers. Seventy seven among the 93 (32.0%) of the live neonates admitted into the Special Care Baby Unit (SCBU) were delivered via caesarean operation (p<0.01, OR = 2.6, CI = 1.4-4.7). This was about twice increased risk relative to vaginally delivered neonates which was very statistically significant. Two early neonatal deaths occurred each among babies delivered by assisted breech delivery and caesarean section respectively (p = 0.2873, OR = 2.8, CI = 0.39-20.31) There was thrice the risk of early neonatal death among vaginally delivered babies though not statistically significant.

There were 41 perinatal deaths among 345 term singleton breech deliveries with a perinatal mortality rate of 118.8 per 1000. Amongst 9857 term singleton cephalic deliveries that took place within the reviewed period, there were 268 perinatal deaths, a perinatal mortality rate of 27.2 per 1000. This was about 5 times higher among term singleton breech deliveries ($\chi^2 = 95.333, p<0.0001, OR = 4.8, 95\% CI = 3.4-6.8$). This is extremely significant.

The leading clinical cause of perinatal death was cord prolapse (36.1%) (Table 4). 20 (48.8%) of these were fresh stillbirths while 17 (41.5%) were macerated stillbirths and 4 (9.7%) suffered early neonatal death. There were 9 stillbirths among the booked mothers a stillbirth rate of 37.7 per 1000 while 12 of the macerated stillbirths and 16 of the fresh stillbirths were recorded in unbooked mothers a stillbirth rate of 264.2 per 1000 (p<0.0001, OR = 9.2, CI = 4.1-20.3). This is 9 times higher among the unbooked mothers and extremely significant. Delivery of the macerated stillbirths was mostly influenced by maternal

conditions. Fresh stillbirths were mostly as a result of intrapartum events and mode of delivery.

The rate of maternal morbidity comprising postpartum haemorrhage, blood transfusion, puerperal sepsis, prolonged hospital stay and perineal tear was 45.6% and 39.4% following caesarean birth and vaginal breech deliveries, respectively (OR = 1.3, CI = 0.8-2.1, $p = 0.2905$) (Table 5). OR = 1.3, CI = 0.8-2.1, $p = 0.2905$.

There was 30% increased risk among mothers delivered surgically but this is not statistically significant.

There was no recorded maternal death within the reviewed period.

DISCUSSION

The incidence of term singleton breech delivery in this study was 2.6%. This is similar to reports from other studies in Nigeria (Adeleye, 1985) and comparable to 3-4% incidence reported from elsewhere (Sibong *et al.*, 2003). Though the risk factors were not clear in vast majority of parturients in this study as in another report (Mukhapadhyay and Arulkumaran, 2002), nulliparity remains a leading identifiable factor corroborating previous work (Omu and Akingba, 1982; Hofmeyr and Kulier, 2002).

The study suggests that planned caesarean section has the best perinatal outcome. There was no perinatal death in all the deliveries by elective caesarean section while there was a 3 fold increased risk of perinatal death with assisted breech delivery compared to caesarean delivery. The foetus presenting by the breech is at an increased risk of perinatal and neonatal morbidity and mortality principally due to higher incidence of trauma, asphyxia and occasional foetal congenital anomalies (Fasuba *et al.*, 2003). The route and mode of delivery has been implicated in many instances informing advocacy for routine caesarean section in such cases (Adeleye, 1985; Adetoro and Fakeye, 1990).

In an attempt to find the optimal management options for breech presentation at term previous randomized trials (Gimosvsky *et al.*, 1983) found a worse maternal outcome and a better perinatal outcome in planned Caesarean Section compared to planned vaginal breech delivery. However recent term breech trial provided unequivocal evidence that women with breech presentation at term who plan caesarean section will have babies less likely to die or have serious outcome in the neonatal period than those who plan vaginal delivery. The results showed a 1 and a 2.4% increased risk of perinatal death and neonatal morbidity respectively in planned vaginal births.

The high perinatal mortality and morbidity in this study as earlier reported, (Johanson, 1999; Fasuba *et al.*, 2003) can obviously be ameliorated by planned abdominal delivery or at the worst timely emergency

caesarean delivery (Collea *et al.*, 1980). Cord prolapse was the leading cause of adverse perinatal outcome in this study. The study also revealed a greater need for immediate neonatal intensive care unit admission among the neonates delivered via Caesarean Section than their vaginal counterparts. The caesarean section rate was high as reported in other studies (Thorpe-Beeston, 1998). This was at increased risk of maternal morbidity in caesarean section group compared to vaginally delivered patients (Fasuba *et al.*, 2003).

The main limitation of this study is that it only reflects the practice of a centre, however regular self auditing is proffered to allow an obstetrics unit to determine the breech delivery practice most suitable to them. The number in this study is small and lacks randomization. Our centre is largely a referral centre hence most of the findings in this study may not be the true reflection of what obtains in this environment. Nevertheless, planned caesarean section for all singleton breech at term may not be the best option in Nigeria as a good number of our women lack antenatal care and only present in hospital when home, church or traditional birth attendants trial fails. Again aversion to operative delivery is high and it is ignorantly considered reproductive failure in this environment. Quality antenatal care, timely presentation, early diagnosis and specialist care will reduce the increased maternal and perinatal morbidity and mortality associated with breech delivery as planned delivery of breech reduces adverse perinatal outcome and rate of emergency caesarean section (Fasuba *et al.*, 2003). ECV to reduce the number of non-cephalic delivery and its attendant adverse outcome has been advocated but it is yet to gain wide popularity and to be introduced in this centre. Clinical pelvimetry can be difficult especially in terms of its transverse dimension therefore the need for radiological pelvic measurement and verification of the good flexion of the foetal head (Adeleye, 1985).

It is of fundamental importance and good clinical practice to discuss the route of delivery of term singleton breech as it allows elective caesarean section in cases of pelvic inadequacy or anomalies or in case of other co-existing obstetric problems. Here again proper counselling is recommended especially to well motivated mothers who will not defect only to return late in labour with its attendant complications. For those highly averse to caesarean delivery this study reveals that conscious effort and patience is needed to allow them present early enough even in unplanned labour for better supervision and timely intervention to reduced the adverse outcome especially abdominal delivery of diagnosed breech intrauterine foetal deaths.

CONCLUSION

There is high perinatal mortality and morbidity among term singleton breech deliveries. Caesarean

section offers better perinatal outcome than vaginal breech delivery though at increased maternal morbidity.

REFERENCES

- Adeleye, J.A., 1985. A two year assessment of some aspects of breech presentation and perinatal mortality at the university college hospital Ibadan, Nigeria. *Trop. J. Obstet. Gynaecol.*, 5: 31-34.
- Adetoro, O.O. and O. Fakeye, 1990. Breech presentation: A 3 year review. *Trop. J. Obstet. Gynaecol.*, 8: 10-12.
- Campbell, S. and C. Lee, 2000. (A) Labour (B) Antenatal Obstetric Complications. In: Campbell, S. and C. Lees (Eds.), *Obstetrics by Ten Teachers*. 17th Edn., ELST with Arnold, pp: 101-218.
- Collea, J.V., C. Chein and E.J. Quilligan, 1980. The randomized management of term breech presentation: A study of 208 cases. *Am. J. Obstet. Gynaecol.*, 137: 235-244.
- Fasuba, O.B., E.O. Orji, O. Ogunlola, O. Kuti and S.A. Shittu, 2003. Outcome of singleton breech delivery in wesley guild hospital Ilesa, Nigeria. *Trop. J. Obstet. Gynaecol.*, 20: 59-62.
- Gimosvsky, M.L., R.L. Wallace, B.S. Schifrin and B.H. Paul, 1983. Randomized management of the non-frank breech presentation at term: A preliminary report. *Am. J. Obstet. Gynaecol.*, 146: 34-40.
- Hannah, W., 1994. The canadian consensus on breech management at term. *J. Soc. Obstet. Gynaecol. Can.*, 16: 1839-58.
- Hannah, M.E., W.J. Hannah, S.H. Hewson, E.D. Hodnett, S. Saigal and A.R. Willan, 2000. Planned caesarean section versus planned vaginal birth for breech presentation at term: A randomized multicentre trial. Term breech trial collaborative group. *Lancet*, 356: 1375-1383.
- Hofmeyr, G.J. and R. Kulier, 2002. External Cephalic Version for Breech Presentation at Term (*Cochrane review*). In: The Cochrane Library. Issue 1, Wiley Publishers, Oxford Update Software.
- Johanson, R., 1999. Malposition, Malpresentation and Cephalo Pelvic Disproportion. In: Edmonds, D.K. and S. Dewhurst (Eds.), *Textbook of Obstetrics and Gynaecology for Postgraduates*. 6th Edn., Blackwell Science, pp: 280-283.
- Mukhapadhyay, S. and S. Arulkumaran, 2002. Best practice and research clinical obstetrics and gynaecology. *Breech Deliver.*, 16(1): 31-42.
- Omu, A.E. and J.B. Akingba, 1982. Epidemiology of risk factors associated with the management of breech presentation. *Asia-Oceania J. Obstet. Gynaecol.*, 8(4): 357-362.
- Ritchie, J.W., 1995. Malpositions of the Occiput and Malpresentation. In: Whitfield, C.R. (Ed.), *Dewhurst's Textbook of Obstetrics and Gynaecology for Post Graduates*. 5th Edn., Blackwell Science, Oxford, pp: 346-367.
- Sibong, O., D. Luton, J. Qury and P. Blot, 2003. Six hundred and ten breech versus 12,405 cephalic deliveries at term: Is there any difference in the neonatal outcome? *Eur. J. Obstet. Gyn. R. B.*, 107(2): 140-144.
- Singh, S. and S. Paterson-Brown, 2003. Malpresentation in labour. *Curr. Obstet. Gynaecol.*, 13(5): 300-306.
- Thorpe-Beeston, J.G., 1998. Management of Breech Presentation at Term. In: John Studd (Ed.), *Progress of Obstetrics and Gynaecology*. Churchill Livingstone, 13: 87-100.