

■ Original Research Article

Audit of Singleton Breech delivery in a Secondary Healthcare Facility in Abuja, Northcentral Nigeria.

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Abstract

Background: The management of singleton breech presentation and delivery at term has remained a subject of controversy in obstetric practice. The Term Breech Trial (TBT) seemed to have resolved the controversy with its findings in favour of planned Caesarean section (CS) for breech delivery for favourable perinatal outcome. However, studies conducted after the TBT were in favour of planned vaginal breech delivery in selected cases. **Aim:** The aim of this audit was to determine the incidence, mode of delivery and outcome of breech delivery in Maitama District Hospital Abuja, Northcentral Nigeria. **Materials and Method:** This was a retrospective audit of all singleton breech deliveries conducted at the Maitama District Hospital (MDH) Abuja, over a 4-year period, between 1st January 2019 to 31st December 2022. Data were extracted from the electronic database of the hospital's Electronic Medical Records system, as well as the labour ward and theatre registers, and analysed using Statistical Product and Services Solution (SPSS) version 26. The results were presented in tables as frequencies and simple percentages. **Results:** During the study period, there were 6,438 deliveries. Out of these, 111 were breech deliveries, giving an incidence of 1.7%. Majority, (83.6%), were booked. Multiparous women accounted for 59.1% and primigravidae 40.9%. Term breech deliveries accounted for 90.9%, while 9.1% were preterm deliveries. Caesarean section was the commonest mode of delivery, (70.9%), especially, among the primigravidae. There was a total of 106 live births and 4 perinatal deaths, giving a perinatal mortality rate of 38/1000 live births. Perinatal and maternal outcomes were generally good. There was no maternal death. **Conclusion:** The incidence of breech presentation is low in this study with a preponderance in multiparous women. The high CS rate, especially among primigravidae, can be reduced through appropriate case selection, training on skills for conduct of assisted vaginal breech delivery, and institution of protocols for management of breech presentation, including the practice of external cephalic version (ECV).

Keywords: Breech delivery, singleton breech, perinatal outcome, maternal complication

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INTRODUCTION

Breech presentation refers to the fetus in longitudinal lie with the buttocks or lower extremity at the lower uterine segment at or near term. It occurs in 3-4% of term deliveries and is more common preterm.¹ Breech presentation may occur due to some maternal and fetal

risk factors including prematurity, fetal congenital anomaly, polyhydramnios, oligohydramnios, uterine abnormalities, multiple pregnancies, placenta previa, and prior breech delivery. High parity predisposes to fetal breech presentation due to laxity of the abdominal wall muscles.^{1,2} The options in the management of breech presentation and delivery include external cephalic version (ECV) with cephalic delivery at term, assisted

vaginal breech delivery, breech extraction in cases of severe fetal distress, and elective caesarean section.^{1,2,3}

The best mode of delivery in breech presentation has remained controversial with many studies including the Term Breech Trial (TBT) concluding that elective Caesarean section (CS) was the preferred mode of delivery.^{4,5} The outcome of the TBT showed that perinatal mortality and serious neonatal morbidity were less with planned CS for breech delivery than with planned vaginal breech delivery (3% vs 13% and 1.4% vs 3.8%, respectively).⁴ The increasing trend towards CS has made vaginal breech delivery less common, with this contributing to the disproportionately high CS rates worldwide.^{1,6} Later studies after the TBT have, however, recommended vaginal breech delivery in selected cases. These studies reported that most of the neonatal morbidity and mortality in the TBT could not be attributed to the mode of delivery. In addition, the outcome after 2 years follow-up in the TBT did not show any significant difference between the two modes of delivery for breech babies.⁶⁻¹¹

The high perinatal morbidity and mortality associated with breech presentation and delivery result from prematurity, birth asphyxia, birth trauma, and congenital anomalies.¹² Term breech babies are reported to have worse outcomes than cephalic ones, irrespective of mode of delivery.¹³ Vaginal breech delivery is associated with complications such as birth asphyxia, brachial plexus injury, maternal genital tract injuries, postpartum haemorrhage, and operative vaginal delivery for the after coming head.¹⁴⁻¹⁶ CS, on the other hand, is associated with more maternal complications than vaginal breech delivery, including compromising the obstetric career of the woman due to repeat CS in future pregnancies.^{6,10}

The aim of this study was to audit the practice and management outcome of singleton breech delivery in MDH Abuja, Northcentral Nigeria.

MATERIALS AND METHOD

This was a retrospective audit of all singleton breech deliveries at the Maitama District Hospital (MDH) Abuja, over a 4-year period, between 1st January 2019 to 31st December 2022. MDH is a public secondary healthcare facility in Abuja. It is located in the Abuja Municipal Area Council of the Federal Capital Territory. The Hospital provides specialized obstetric care, and serves as a referral centre for patients from both public and private health institutions within and around the Federal Capital Territory. The Hospital operates an Electronic Medical Records system with a secured database.

For the study, data were extracted from the patients' records on the electronic medical records

database and also from the labour ward, postnatal ward and theatre records. The relevant data obtained included the age of the women, booking status, parity, gestational age at delivery, mode of delivery, and maternal and perinatal outcomes. The data extracted were entered into a personal computer and analysed using Statistical Product and Service Solutions (SPSS) version 26 (IBM, Chicago IL, USA). The results were presented in tables as frequencies and simple percentages. Ethical approval was obtained from the Institution's Research Ethics Committee.

As a protocol, elective CS is routinely and liberally offered to primigravidae with breech presentation in our facility, unless the parturient presents in late second stage of labour when a decision has to be taken on the best route of completing the delivery. Caesarean section is also employed where there is breech presentation with other obstetric indications such as previous CS and where induction or augmentation of labour would be required. The audit excluded multiple pregnancies with breech presentation. In this review, low Apgar score was defined as scores of less than 7, while maternal complications were considered as those directly related to the mode of delivery. Both term and preterm singleton breech deliveries were considered. Delivery occurring at 37 weeks or more gestation was considered term, while delivery occurring before 37 weeks was considered preterm.

RESULTS

During the study period, there was a total of 6,438 deliveries comprising of 3,638 vaginal deliveries and 2,800 Caesarean sections (CS). Of these, 111 were breech deliveries, giving an incidence of 1.7%. Data on one case of breech with intrauterine fetal death (IUFD) in an unbooked women was insufficient for detailed analysis, hence only 110 cases were considered for analysis. CS was performed in 78 of the women accounting for 2.8% of all CS performed in our centre within the study period.

Table 1 shows the sociodemographic characteristics of the women. The majority, 59(53.6%), were in the 31-40 year age range, and 92(83.6%) were booked. Multipara (Para 1-4) and grandmultipara (Para ≥ 5) accounted for 65(59.1%) while 45(40.9%) were primigravidae (nullipara). Majority, 100(91.0%), presented at term and only 10(9.1%) presented as preterm. Of the preterm deliveries, two were at 32 weeks gestation, one at 34 weeks, and seven at 36 weeks gestation.

Table 2 shows the mode of delivery for the breech fetuses, and the indications for CS. Caesarean section was the commonest mode of delivery, accounting for 78(70.9%) of cases, with 47(60.3%) as elective and

31(39.7%) as emergency. Vaginal breech delivery (VBD) accounted for 32(29.1%).

Breech in primigravida was the commonest indication for CS, accounting for 27(34.6%) of the 78 CS cases, followed by breech plus previous CS, 11(14.1%), footling breech 8(10.2%), and prolonged labour 8(10.2%). Breech in association with other obstetric indications accounted for 8(10.2%) of CS cases.

Table 1: Sociodemographic characteristics of study participants

Variable	Frequency (n=110)	Percentage (%)
Age (years)		
≤20	0	0
21-30	47	42.7
31-40	59	53.6
>40	4	3.6
Booking status		
Booked	92	83.6
Unbooked	18	16.4
Parity		
0	45	40.9
1-4	63	57.3
≥5	2	1.8
Gestational age (weeks)		
≤36	10	9.1
37-40	94	85.5
>40	6	5.5

Table 2: Mode of delivery and indications for Caesarean section

Variable	Frequency (n=110)	Percentage (%)
Mode of delivery		
Vaginal delivery	32	29.1
Caesarean section (CS)	78	70.9
Indication for CS	Frequency (n=78)	Percentage (%)
Breech in Primigravida	27	34.6
Breech + 1 Previous CS	11	14.1
Footling breech	8	10.3
Breech + Prolonged labour	8	10.3
Breech + Big baby	7	9.0
Breech + Fetal distress	6	7.7
Breech + Cord prolapse	3	3.8
Breech + other obstetric indications*	8	10.3

*Premature rupture of fetal membranes [PROM] (3);

severe preeclampsia (2); bad obstetric history (1); postdate (2). CS= Caesarean section

These included cases of breech plus premature rupture of fetal membranes (PROM), severe preeclampsia, postdate pregnancy, and bad obstetric history.

Of the 10 preterm deliveries, five had VBD while five had emergency CS for various indications. Two of the preterm deliveries occurred at 32 weeks gestation; both presented in the second stage of labour and both had VBD with one resulting in a fresh stillborn (FSB) male neonate of birthweight 1.6kg; the other resulted in an asphyxiated female neonate of birthweight 1.9kg, admitted in the special care baby unit, SCBU). Of the seven breech cases that presented at 36 weeks gestation, three had VBD of live neonates, while four had emergency CS for various indications. The parturient that presented in labour at 34 weeks gestation had emergency CS due to fetal distress.

Table 3: Perinatal outcome following breech delivery

Variable	Frequency (n=110)	Percentage (%)
Apgar score ≥7 at 1 minute	72	65.4
Apgar score <7 at 1 minute	34	30.9
Apgar score ≥7 at 5 minutes	98	89.1
Apgar score <7 at 5 minutes	8	7.3
Perinatal death	4	3.6
Birthweight (kg)	Frequency (n=110)	Percentage (%)
<2.5	6	5.5
2.5-4.0	101	91.8
>4.0kg	3	2.7
SCBU admission	8	7.3

Table 3 shows the perinatal outcome following breech delivery. There were 106 live births with four perinatal deaths (3 fresh stillborn, FSB + 1 early neonatal death, NND), giving a perinatal mortality rate of 38/1000 live births. Of the 34 babies that had Apgar scores <7 at 1 minute, 20(18.9%), and 14(13.2%) had VBD and CS, respectively. At 5 minutes, four neonates in the VBD group and four in the CS group, still had Apgar scores <7. All eight babies were admitted in the SCBU. A total of 98(89.1%) neonates (both VBD and CS) had Apgar scores ≥7 at 5 minutes. The early NND was in a neonate with Down's syndrome and multiple congenital anomalies. Two of the FSB followed VBD: one in an unbooked woman at 40 weeks gestation with fetal macrosomia (birthweight of 4.4kg); the other occurred in an unbooked woman at 32 weeks gestation (birthweight of 1.6kg). The third FSB (birthweight 3.8kg) followed emergency CS for post date, prolonged labour, and fetal distress in a booked woman. Maternal complications recorded in the study included four cases of perineal

laceration, two primary postpartum haemorrhage, and two post-operative (CS) wound infection. There was no maternal death.

DISCUSSION

Breech presentation is the most commonly encountered malpresentation. The incidence varies according to gestation, being more common preterm and falling to 3-4% by term. This study shows an overall incidence of breech presentation of 1.6%, and term breech of 1.7%. This is comparable to the 1.6% and 1.7% reported by Tunau et al in Sokoto and Jibrin et al in Bida respectively.^{14,15} It is, however, lower than the 2.8% and 3.4% reported by Isah et al in Abuja and Duke et al in Owerri, respectively.^{16,17} The observed differences in incidence may be due to differences in the study design, the population of study, and institutional protocols for the management of breech presentation. For instance, ECV is rarely practiced in our centre compared to other centres where it may be part of the management protocol for breech pregnancies at term.

There was a higher incidence of breech presentation in multiparous women in this study, similar to that reported in other studies.^{13,18-21} High parity has been reported as a predisposing factor to fetal breech presentation. This is thought to be due to laxity of the anterior abdominal wall muscles.^{1,2} In contrast to our finding, Tunau et al in Sokoto, and Fawole et al in Ibadan, reported higher incidences in primigravidae.^{14,22} The Authors attributed their findings to the tense nature of the anterior abdominal wall in primigravidae which tended to limit spontaneous version.

Caesarean section was the commonest mode of delivery in this study, (70.9%). This is comparable to the rates reported by Adegbola et al¹² in Lagos (87%), Datti et al¹⁸ in Kano (62%), and Adeniyi et al²³ in Ekiti (72.9%). Lower rates of CS for breech delivery were reported in other studies.¹⁵⁻¹⁷ Tunau et al reported a higher rate of vaginal breech delivery than for CS (69.1% vs 30.1%).¹⁴ Breech in primigravidae was the commonest indication for CS in this study, representing 34.6% of the CS cases. This was followed by breech with previous CS (14.1%). This is similar to the finding in the study by Kahansim et al.²⁰ In contrast, Isah et al, reported breech plus previous CS (28.8%) and breech in primigravidae (14.4%) as the commonest indications for CS for breech delivery in their study in a Tertiary Hospital in Abuja.¹⁶ CS due to breech presentation also contributed 2.8% to the overall Caesarean section rate in our centre.

There is a policy of routine and liberal use of elective CS for the delivery of primigravidae with breech presentation at term in our centre. This policy is due to concerns about the increased risk of birth asphyxia and perinatal death associated with vaginal breech delivery in

primigravidae who are most prone to dysfunctional labour.² In addition, induction and augmentation of labour (IOL/AOL) are not offered to women with breech presentation. These policies might have accounted for the high rate of CS recorded in our study. As a consequence, the skill for performing assisted vaginal breech delivery is gradually declining. Planned CS for breech delivery has been reported to cause a reduction in perinatal mortality compared with vaginal breech delivery, due to birth asphyxia.^{10,19-22} However, CS is associated with more maternal complications than vaginal breech delivery including a compromise in the obstetric career of the woman due to repeat CS in future pregnancies.^{6,10} Goffinet et al reported that in areas where planned VBD is a common practice, and where strict criteria are met before and during labour, planned vaginal delivery of singleton fetus in breech presentation at term remains a safe option that can be offered to women.⁸ This study did not address the outcomes of planned VBD versus planned CS for term breech delivery.

Generally, perinatal and maternal outcomes following breech delivery depend on a number of factors including the mode of delivery, the gestational age, the condition of the fetus and the mother at presentation, and the skills of the accoucheurs. Our study showed that perinatal outcome was generally good with 89.1% of the neonates having good Apgar scores at the 5th minute assessment. Again, this finding may be due to the policy of routine elective CS for primigravidae with breech, and the condition of the fetuses at presentation. However, there were four perinatal deaths, giving a perinatal mortality rate of 38/1000 live births. These perinatal deaths were related to congenital anomaly in one of the neonates delivered vaginally, prematurity and low birthweight in another delivered vaginally, fetal macrosomia and severe birth asphyxia which followed vaginal delivery, and prolonged labour with fetal distress with delivery by CS. This analysis shows that more perinatal deaths were recorded in deliveries by the vaginal route, than by CS, although the mortalities were more related to the fetal conditions. This is similar to the findings reported in other studies.^{4-6,9,16,20-22}

Overall, maternal complications were rare, with four cases of perineal laceration, and two of primary postpartum haemorrhage associated with VBD. These resulted from the various manoeuvres usually employed in VBD. Two cases of post-caesarean wound infection followed emergency CS for PROM and prolonged labour. This could have resulted from repeated vaginal examinations in the presence of ruptured fetal membranes in these patients. Studies have reported ~~that~~ operative risks such as anaesthetic complications, increased risk of maternal mortality, post-operative wound infection, as well as increased costs, and longer hospital stay, among others, as maternal complications associated with CS as a mode of delivery for breech

presentation.^{16-19,21-23} Our study did not record any maternal death.

CONCLUSION

This study shows that the incidence of breech presentation is low. It also reveals that CS contributes significantly to the overall CS rate in our centre. To stem this trend, planned VBD should be offered to women in carefully selected cases. In addition, training on the practice of ECV and skills for conduct of VBD, as well as the development of protocols for the management of breech presentation and delivery are critical to improving perinatal and maternal outcomes.

Limitation of the Study

This was a retrospective study fraught with its known drawbacks. This study also did not address the impact of planned vaginal breech delivery versus planned CS as modes of delivery for breech presentation on perinatal and maternal outcomes. Therefore, the observed adverse perinatal and maternal outcomes may not be a true reflection of the impact of the mode of delivery.

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