Original Article

A review of abnormal birth positions and complications in Uyo, Akwa Ibom State

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Abstract

Introduction: Abnormal birth positions persisting to term have been associated with serious complications such as uterine rupture, umbilical cord prolapse, cervical spine injury, nuchal arms, and fetal head entrapment. **Aim:** The purpose of this study was to find out the most common abnormal birth position, mode of delivery, and associated complications at birth. **Materials and Methods:** This study covered the period of 5 years from 2005 to 2009 in three major hospitals in Uyo Local Government Area of Akwa Ibom State. The hospitals are St. Luke Hospital established in 1937, Mainland Hospital (a private hospital) established in 1975, and University of Uyo Teaching hospital established 1996. Totally, 1100 term singleton fetuses in abnormal birth positions were considered in this study. **Results:** Six different types of abnormal birth positions were recorded viz.: Breech 70.00% (the most common fetal malposition), transverse lie 14.73%, occiput posterior 8.45%, face presentation 3.27%, shoulder 1.91%, and compound 1.64%. Associated complications observed were umbilical cord prolapse (the most common complication) 6.27%, ruptured uterus 1.64%, and shoulder dislocation 0.54%. The rate of cesarean delivery for these fetuses was high (68.36%) compared to vaginal delivery (31.64%). Conclusion: Pregnant women are hereby encouraged to make childbirth a medically-centered hospital event to avoid unnecessary loss of their lives and/or that of their babies to complications of pregnancy and childbirth.

Key words: Abnormal birth positions, cesarean and vaginal delivery, complications

INTRODUCTION

In the last weeks of most pregnancies, babies usually are in vertex position in the uterus, but some babies do assume different positions, some of which make vaginal delivery risky and require urgent medical intervention. Abnormal birth positions persisting to term have been associated with serious complications such as uterine rupture, cord prolapse, cervical spine injury, nuchal arms, and fetal head entrapment (Ballas and Toaff, 1978; Phelan *et al*., 1986; Gemer *et al.,* 1993; and Cheng and Hannah, 1993). This birth position can be defined as the presentation of the fetal part at the cervix other than the head first presentation during birth. Such abnormal presentations include breech presentation, transverse

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lie, occiput posterior, compound presentation (in which a hand or foot emerges from the birth canal with the head or buttocks), shoulder presentation, and face first presentation.

Breech presentation is the most common alternate delivery position, in which the fetus enters the birth canal with the buttocks or feet first as opposed the normal head first presentation. The four main categories of breech birth are frank breech (the most common), complete breech, footling breech, and kneeling breech. The percentage of breech deliveries decreases with advancing gestational age from 22% of births prior to 28 weeks gestation to 7% of births at 32 weeks gestation to 1–3% of birth at term (Hickok *et al.,* 1992). Predisposing factors for breech presentation include uterine malformations, fibroids, polyhydraminions, placenta previa, prematurity, fetal abnormalities (e.g., central nervous system malformation), and multiple gestations (Phelan *et al.,* 1993).

Transverse lie at term is another abnormal birth position that has been associated with serious complications such as uterine rupture and umbilical cord prolapse during labor (Phelan *et al.,* 1986; Gemer *et al.,* 1993). The incidence of transverse lie detected in early pregnancy persisting to term gestation has been reported to vary between 6% and 22% (Fox and Chapman, 2006). The chances of transverse lie persisting increase as term approaches (Olalekan and Alexander, 2010). Associated factors such as placenta previa, lower uterine segment masses, multiparity congenital uterine anomalies, and ectopic kidneys can potentially increase the risk of persistent transverse lie (Phelan *et al.,* 1986; Lau *et al.,* 1997; Cunningham *et al.,* 2005).

Ultrasonography has been established as a clearly superior means of determining noncephalic presentation during pregnancy than routine manual palpation (Natasha *et al.,* 2006). Therefore, when abnormal presentation is detected during routine ultrasonography, follow-up of such pregnancy to term is necessary to determine persistence of such lie and associated predisposing factors. This will enable the mode of delivery to be determined and forestall complications to both the infant and mother.

Most women do not have access to the health care and sexual health education services that they need. In many developing countries, complication of pregnancy is the leading cause of death among women of reproduction age. It is obvious in our society that many pregnant women have labor complications resulting in a very lengthy labor but give birth to an infant that is relatively small compared to other pregnant women that experience relatively short labor period but give birth to a relatively bigger infant. Some of these women cannot deliver vaginally due to these complications and need medical assistance (cesarean section) to save the life of the mother and/or infant. It is with this background that this research seeks to review the "Abnormal Birth Positions and Complications in Uyo, Akwa Ibom State." This will help researchers to ask and address questions such as:

- How many abnormal birth positions were identified in Uyo?
- Which of the birth positions was the most prevalent?
- What were the associated complications?
- What was the percentage of vaginal delivery?
- Was the infant full term or premature?

This study seeks to provoke pregnant women into seeking health care from medically skilled birth attendant. It tells local community that complications resulting in the death of the mother and/or infant during delivery in the hands of relatives or traditional midwives can be handled successfully by medically skilled birth attendants.

This study covered the period of 5 years from 2005 to 2009 in three major hospitals in Uyo, the capital of Akwa IbomState. The hospitals were St. Luke hospital established in 1937, Mainland Hospital (a private hospital) established in 1975, and University of Uyo Teaching Hospital established 1996. These hospitals were selected because of their high patronage by pregnant women and other patients, and they are strategically located within the state capital.

MATERIALS AND METHODS

Research Centers

Three hospitals in Uyo, Akwa Ibom Statewere chosen as research centers viz.: St. Luke Hospital, Mainland Hospital, and University of Uyo Teaching Hospital. This study was approved by the medical committee of these hospitals.

Research Design

A retrospective study was conducted from 2005 to 2009 (5 years). Information needed for this study was obtained directly from the maternal register in these hospitals. These registers were rich in content and were able to give information on the age of the mother, mode of delivery, condition of the baby/mother, and the age of the baby (full term or premature).

Data Collection

Data were obtained from the maternal register in these hospitals that provided all necessary information for this study.

Method of Data Analysis

Data were analyzed using simple percentage and frequency ratio. Frequency count of respective parameter

of interest was determined directly from the broadsheet. The ratio of the observed frequency to the total frequency multiplied by 100 gave the percentage. Mathematically:

$$\%=\frac{x}{\sum f}\times\frac{100}{1}$$

Where:

% = percentage of x^{th} observation.

$\sum f$ = total frequency (number of birth studied).

RESULTS

This study involved 1100 term singleton fetuses in abnormal birth position at three major hospitals in Uyo urban. These hospitals had several hundreds of delivery within the 5-year period considered in this study, but singleton fetuses with complete documentation were considered in this study. These fetuses are classified in Tables 1-4.

Table 1: Distribution of fetuses according to birth position

Birth position	Number of fetus (%)
Breech	770 (70.00)
Transverse lie	162 (14.73)
Occiput posterior	93 (8.45)
Compound	18 (1.64)
Shoulder	21 (1.91)
Face	36 (3.27)
Total	1100 (100)

Table 2: Distribution of abnormal birth positions according to mode of delivery

Birth positions	Mode of delivery (%)		Total (%)
	Vaginal delivery	Cesarean delivery	
Breech	264 (24.00)	506 (46.00)	770 (70.00)
Transverse lie	-	162 (14.73)	162 (14.73)
Occiput posterior	51 (4.64)	42 (3.81)	93 (8.45)
Compound	12 (1.09)	6 (0.55)	18 (1.64)
Shoulder	12 (1.09)	9 (0.82)	21 (1.91)
Face	9 (0.82)	27 (2.45)	36 (3.27)
Total	348 (31.64)	752 (68.36)	1100 (100)

Table 3: Distribution of abnormal birth positions according to complications

Birth positions	Complications (%)				Total (%)
	Cord prolapse	Ruptured uterus	Shoulder dislocation	None	
Breech	57 (5.18)	6 (0.54)	-	707 (64.27)	770 (70.00)
Transverse lie	3 (0.27)	12 (1.09)	-	147 (14.45)	162 (14.73)
Occiput posterior	-	-	-	93 (8.45)	93 (8.45)
Compound	-	-	-	18 (1.64)	18 (1.64)
Shoulder	-	-	3 (0.27)	18 (1.64)	21 (1.91)
Face	9 (0.82)	-	3 (0.27)	24 (2.18)	36 (3.27)
Total	69 (6.27)	18 (1.64)	6 (0.54)	1007 (91.55)	1100 (100)

Table 4: Distribution of breech birth according to types and mode of delivery

Types of breech	Mode of delivery (%)		Total (%)
	Vaginal delivery	Cesarean delivery	
Frank breech	245 (31.82)	399 (51.82)	644 (83.64)
Complete breech	-	72 (9.35)	72 (9.35)
Footling breech	19 (2.47)	35 (4.54)	54 (7.01)
Total	264 (34.29)	506 (65.71)	770 (100)

DISCUSSION

Table 1 shows the distribution of fetuses according to birth position. Table 1 revealed that breech presentation was the most common form of fetal malposition at term. Seven-hundred seventy fetuses were in breech presentation representing 70.00% of the fetal population. Predisposing factors for breech presentation in this study included uterine malformations (such as when there is septum in the uterus, making it more difficult for the fetus to settle in a head down position), fibroid, multiple pregnancy, placenta previa (a condition where the placenta is positioned in the lower portion of the uterus, thereby blocking the cervix partially or completely), fetal malformation, unusual shape of the woman's pelvis, or weak or very tight abdominal muscles. However, a breech healthy baby was also observed in a healthy woman. In this case, the baby simply is in this position (breech). One hundred sixty-two fetuses were in transverse lie position representing 14.73% of the sample population. This percentage frequency was next to breech presentation; it was followed by occiput posterior position with 93 (8.45%) fetuses, face presentation with 356 (3.27%) fetuses, shoulder presentation with 21 (1.91%) fetuses, and compound presentation with 18 fetuses representing 1.64% of the sample population. One or more predisposing factors for breech presentation could have been responsible for these abnormal birth positions.

Table 2 distribution of abnormal birth position according to mode of delivery showed that 752 fetuses representing 68.36% of the study population were delivered by cesarean section while 348 fetuses representing 31.64% were delivered vaginally. This revealed that the number of fetus delivered by cesarean section was more than 2 times higher than those delivered vaginally. Cesarean delivery was absolutely necessary for fetuses that were distressed, fetuses in "star gazing" position (which stands a high risk of spinal cord trauma and death if delivered vaginally), maternal exhaustion, and other complications which may lead to maternal and/or neonatal death. However, the rise in cesarean delivery for the fetal malposition has not equated the improvement of perinatal outcome (delivery success). The majority of fetus delivered vaginally were assisted (assisted vaginal delivery), and most of these

babies were delivered by either vacuum extraction or forceps while others were assisted in one-way or the other. The table also revealed that no fetus in transverse lie was delivered vaginally. Reason being that the diameter of the fetal presenting part (the whole body) cannot descend through the birth canal since the fetus crosses the cervix from left to right; and if labor is allowed to continue for enough time, the uterus will be ruptured.

Table 3 distribution of abnormal birth positions according to complications showed that 69 fetuses representing 6.27% had umbilical cord prolapse. This occurs mostly with breech fetuses accounting for 57 (5.18%) of the population. This happened because the lowermost parts of the baby did not completely fill the space of the dilated cervix making it possible for the umbilical cord to drop down and become compressed. This complication severely diminishes oxygen flow to the baby and the baby must be delivered immediately (usually by cesarean section) so that he or she can breathe. Any delay in delivery can lead to brain damage. There were 18 cases of ruptured uterus accounting for 1.64% of the population. Rupture uterus was caused mostly by fetuses in transverse lie when labor was allowed to continue for a long time. According to Phenal *et al.,* 1986 and Gemer *et al.,* 1993, before the rupture of the uterus, there is an increased risk in transverse lie for prolapsed umbilical cord. Six fetuses had shoulder dislocation and this might have occurred in assisted vaginal delivery.

Table 4 distribution of breech birth according to types and mode of delivery revealed that frank breech was the most common form of breech presentation accounting for 83.64% of the breech population. Complete breech fetuses were 72 in number representing 9.35% of the breech population. Footling breech fetuses were 35 in number representing 4.54% of the breech population. The distribution of breech fetuses according to mode of delivery has it that 65.71% of fetuses in breech position were delivered by cesarean section while 34.29% fetuses were delivered vaginally. This implies that cesarean delivery was more common than vaginal delivery for breech fetuses. The high rate of cesarean delivery for breech may be attributed to the decreasing number or lack of experienced physicians practicing vaginal breech deliveries.

CONCLUSION

This research has the conclusion that in Uyo, the Capital of Akwa IbomState, the most common form of fetal malposition is breech. Umbilical cord prolapse was found to be the most common complication associated with abnormal birth positions while the rate of cesarean delivery for fetuses in abnormal birth positions was higher than vaginal delivery.

RECOMMENDATION

Base on the above findings, it is hereby recommended that:

- Pregnant women should register in hospitals and deliver there to avoid unnecessary loss of lives of mothers or that of babies or even both during delivery as a result of complications of pregnancy and childbirth
- Experienced physicians who can handle vaginal breech deliveries should teach the younger practitioners as this will reduce the number of cesarean deliveries
- Hospitals should procure pelvic models for those physicians willing to learn the art of vaginal breech deliveries and other abnormal deliveries.

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Conflicts of Interest
There are no conflicts of interest.

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