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Early Neonatal Outcome of Vaginal Breech Delivery at El Sheikh FadulMaternity Hospital, Khartoum State

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Abstract: The early neonatal outcome of vaginal breech delivery is an important to determine which way the breech presentation should be dealt with. This will help counseling the pregnant women with breech about the possible early adverse outcome that associated with vaginal breech delivery. This study was done to determine the Early Neonatal Outcome. of breech presentation delivered vaginally at El Sheikh Fadul maternity. This was a descriptive cross sectional hospital based study of vaginal breech deliveries, done from February to August 2015, using a time frame of vaginal breech births of babies alive. Data collection was by a well-designed questionnaire. There were 2812 deliveries during the study period with only 90 patients with vaginal breech deliveries representing 3.2%. Eighty-three women with breech presentation (92.2%) had attended antenatal clinic. Only 58% (52 women) of women had emergency intrapartum ultrasound scans. Thirty-seven babies (41.1%) had respiratory distress, neonatal encephalopathy was present in 19 babies (21.3%), three babies (3.3%) had significant physical injuries. Two babies had lacerations on anus secondary to vaginal examinations and one baby had a fractured clavicle. Neonates discharged from nursery were 91, and there were 8 perinatal deaths. The median birth weight of the newborns was 2370 g with a range of 800 g to 3920 g. There were 8 newborns with a birth weight less than 1000 g. The calculated incidence of perinatal death of the study period was 0.3%. A small percentage (2%) of poor neonatal outcomes occurred subsequent to vaginal breech delivery, with small risk of perinatal morbidity and mortality. low 5-min, Apgar scores, and admission to the neonatal care unit found to be higher in patients who have no antenatal care. However, the majority of undiagnosed breech was delivered vaginally without significant morbidity or mortality.

Keywords: breech presentation, neonatal outcome, vaginal beech delivery, cesarean section, fetal hypoxia.

INTRODUCTION

Breech presentation is defined as a fetus in a longitudinal lie with the buttocks or feet closest to the cervix. This occurs in 3-4% of all deliveries. 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 births at term [1].

Persistent breech presentation may be associated with abnormalities of the baby, the amniotic fluid volume, the placental localization or the uterus. There is higher perinatal mortality and morbidity with breech than cephalic presentation, principally due to prematurity, congenital malformations and birth asphyxia or trauma [3].

Perinatal mortality is increased 2-4 fold with breech presentation, regardless of the mode of delivery. Deaths are most often associated with malformations, prematurity, and intrauterine fetal demise [1].

In developed countries (USA, and European countries) attention to high-risk deliveries such as breech presentations became more and more relevant. Around 1950 several studies appeared, advocating that external cephalic version in case of breech would be beneficial and that a Caesarean Section (CS) on the fetus in breech presentation would reduce perinatal risks of mortality and morbidity. Since then obstetric policies in general and in relation to breech presentation in particular have gradually changed towards more interventions and a less conservative attitude. This has resulted in an increase of CS's over the years [4]. The objective of this study was to determine the Early Neonatal Outcome- neonatal morbidity and mortality- of breech presentation delivered vaginally at El Sheikh Fadul Maternity hospital.

METHODOLOGY

Study design

This is a descriptive cross-sectional hospital based study of vaginal breech deliveries at El Sheikh Fadul maternity Hospital, from February to August 2015.

Study area

El Sheikh Fadul maternity Hospital: It is a well-equipped referral hospital that provides obstetrical and gynecological services over 24 hours for both emergency and elective cases.

Study population

The study carried on all patients attended to labor ward in El Shiekh Fadul Maternity hospital from February to August 2015.

Inclusion criteria

- All women with breech presentation fulfilling the criteria for vaginal breech delivery.
- All women counseled for vaginal breech delivery and accepted to enter the study.

Exclusion criteria

- All patients not fulfilling the criteria.

Sampling and sample size

This was a period sample of all eligible vaginal breech deliveries, as described above; from February to August 2015.The sample size is a time frame.

Data collection

Data was collected by labour ward registrar, medical officers and house officers using a well-designed and organized questionnaire that includes many statements to gather relevant socio-demographic characteristics of all babies born vaginally by breech at El Sheikh Fadul Maternity Hospital. Explanatory variables recorded include maternal age and parity, demographics, gestational age, antenatal care details including external cephalic version attempts, and obstetric details and note-taking on admission in labour and at delivery. **Outcome variables:** were neonatal outcome, such as birth weight, Apgar scores, injuries, hypoxia, and other complications. A complete list of variables collected appears in the data sheet.

Data analysis

Data analysis was done using statistical package for the social sciences software. Standard descriptive statistics were used, with means ± standard deviations, medians with ranges and interquartile ranges, and frequencies expressed in numbers with corresponding percentages. Comparisons of frequencies, where necessary, were made using the Chi-square test and Fisher's exact test. Comparisons of continuous variables were made using Student's t-test. A P value <0.05 was considered as statistically significant. The results were demonstrated using figures and tables.

Ethical Considerations

- Approved by the ethical committee of the Sudanese Medical Specialization Board.
- Permission from hospital administration was taken and no interference with management protocols.
- Consent of participants was taken.

RESULTS

This research aimed to study the early neonatal outcome of vaginal breech deliveries at El Sheikh Fadul maternity Hospital. There were 2812 deliveries during the study period with only 90 patients with vaginal breech deliveries representing 3.2% (Figure1).

The mean age of mothers was 28.4±7.5 years, and the median parity was 1. One woman had a previous breech delivery (1.1%). Eighty-three women with breech presentation (92.2%) had attended antenatal clinic (figure 2).

Twenty six patients with breech presentations (29%) were missed on first intra-partum examination by the admitting clinicians (figure 3) and only detected later in labour.

The median cervical dilatation on admission was 6.5 cm. Twenty-nine women had a fully dilated cervix (10 cm) and another 11 had a cervical dilatation of 8 cm or 9 cm, (figure 4).

Regarding the median gestational age on admission at term, it was noticed that 6% of women presented to casualty were 40-42 weeks gestation, 44% were 36-40 weeks gestational age, 15% was less than 34 weeks and 35% was between 34 – 36 weeks (table 1).

The breech presentation was delivered by a consultant obstetrician in one case (1.1%), a registrar in 55 (61.1%), a medical officer in 10 (11.1%), a house officer in 2 (2.2%), and midwives in 22 (24.4%), (figure 5).

Of these, 29 (71.5%) were assisted breech deliveries, and 11 (28.5%) were spontaneous breech births, (figure 6).

Nineteen (21.1%) had Apgar scores of less than 7 at 5 minutes (figure 7).

Forty-seven (52.2%) babies required admission to the neonatal unit, (figure 8).

Thirty-seven babies (41.1%) had respiratory distress, neonatal encephalopathy was present in 19 babies (21.3%), three babies (3.3%) had significant

physical injuries (table 2). Neonates discharged from nursery were 81 babies representing 91%, and there were 8 perinatal deaths (table 5). The median birth weight of the newborns was 2370 g with a range of 800 g to 3920 g and an interquartile range of 1730 g to 3000 g.

The calculated incidence of perinatal death of the study period was 0.3%.

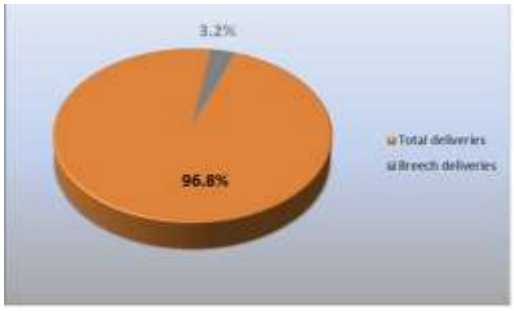

Fig-1: Figure showing the percentage of women who had a vaginal breech delivery (from February to August) to the total number of deliveries in 2015 at El Sheikh Fadul maternity Hospital

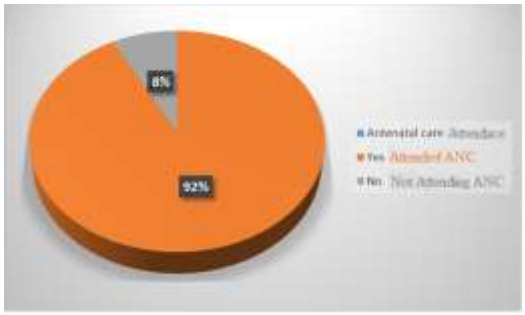

Fig-2: figure showing the percentage of women with a diagnosed breech presentation who attended the antenatal care clinic in El Sheikh Fadul maternity Hospital

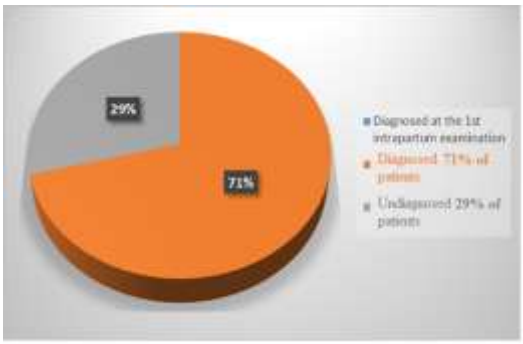

Fig-3: figure showing the percentage of women at El Sheikh Fadul maternity Hospital who diagnosed as breech presentation during intra-partum examination

Table 1: Table showing the gestational age in women who had vaginal breech deliveries, at El Sheikh Fadul maternity Hospital

Gestational age	Percentage
< 34 weeks	15%
34 - 36 weeks	35%
36-40 weeks	44%
40-42 weeks	6%

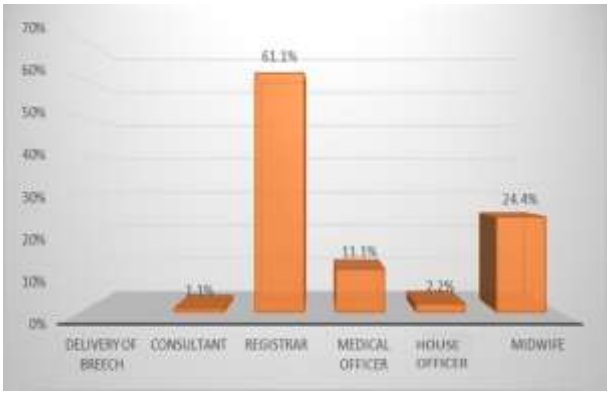

Fig-4: figure showing the health personnel who conducted the delivery of women with breech presentation at El Sheikh Fadul maternity Hospital

Fig-5: figure showing the method of breech delivery in women under study at El Sheikh Fadul maternity Hospital

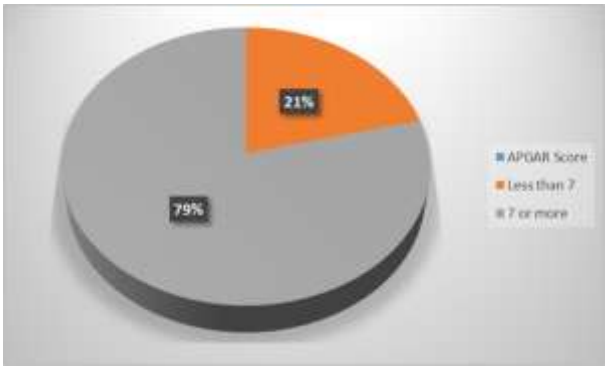

Fig-6: figure showing Apgar score at 5 minutes in neonates born after vaginal breech delivery at El Sheikh Fadul maternity Hospital

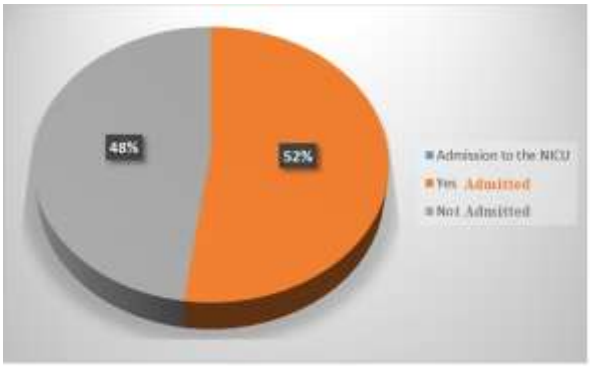

Fig-7: figure showing the need for admission to the neonatal unit in neonates born after vaginal breech delivery at El Sheikh Fadul maternity Hospital

Table 2: showing the main early neonatal complications in a 59 neonates born vaginally by breech at El Sheikh Fadul maternity Hospital

Complication	Percentage
Respiratory distress	41.1%
H.I.E	21.3%
Physical injuries	3.3%

Table 3: showing perentages of indication of admission to nursery of 47 neonates born vaginally by breech at El Sheikh Fadul maternity Hospital

Indication	Percentage
Apgar score <7 at 5 minutes	21.1%
H.I.E	21.3
Significant physical injuries	3.3%
Respiratory distress	6.5%

Table 4: showing percentage of neonates discharged from nursery and the percentage of perinatal death of vaginal breech delivery at El Sheikh Fadul maternity Hospital

Outcome of nursery admiited neonates	Percentage
Discharged from nursery	91%
Perinatal death	9%

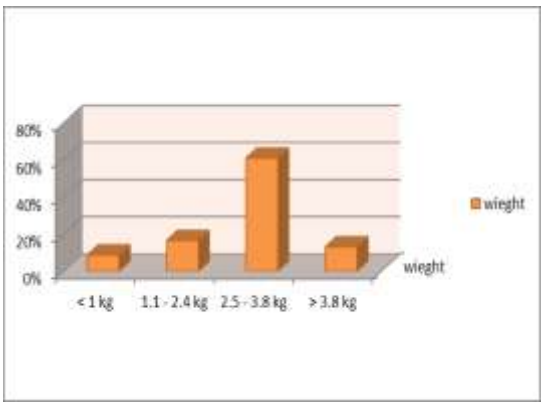

Fig-8: figure showing birth weight after vaginal birth with breech presentation at El Sheikh Fadul maternity Hospital

DISCUSSION

In this study the rate of vaginal breech delivery was 3.2%, which was similar to literature as RCOG guideline published in management of breech delivery stated that the incidence is 3 – 4% [5]. In our study (figure 2, 3) the patients who was diagnosed breech presentation atnantally was found to be 78% which similar done in Canada [6]. Which concluded that 8% of breech presentation not detected until labor. It was notable that antenatal care for most of these women played no role in their eventual delivery with breech presentation. Only four were referred for breech presentation and the ultrasound scans showing breech presentations were mostly done before term, at a time when breech presentations can still be expected to turn to cephalic presentations.

On admission in labour, 6% of women were 40-42 weeks gestation, 44% were 36-40 weeks pregnant, and 15% were less than 34week. When comparing this to literature it was found that 7% of births at 32 weeks are breech, which reveals a higher percentage in our study [1]. Another study done by Hannah *et.al* stated that 1.65% of breech deliveries were between 24 – 37 weeks gestational age [7].

A large number of women were in advanced labour (29% were fully dilated at the first presentation), the median cervical dilatation was 6.5 cm, and it was therefore understandable that almost 64% were allowed to labour with a view to vaginal birth; as its stated in the RCOG guideline that diagnosis of breech presentation for the first time during labour should not be a contraindication for vaginal breech birth [5].

The accoucheurs for these breech deliveries were mainly registrars and midwives delivering 61.1% and 24.4% respectively. This may not be surprising because those are the professionals that are available on the labour ward floor. Abenhaim *et al* compared obstetricians and family physicians in conducting vaginal delivery in low risk pregnancies. It was found

that neonatal outcomes were similar in both groups. Major maternal and neonatal morbidity did not differ whether women with low-risk pregnancies were delivered by an obstetrician or a family physician [8]. But this study was conducted in a low risk pregnancies, it shows that whoever conducted the delivery should be well trained. It makes sense that only one delivery conducted by a consultant, as the hospital regulation state that the first on call is the registrar.

Most of the women delivered by assisted breech delivery (57.5%), this was similar to literature [1]. Neonatal outcomes were poor in a number of cases. Apgar score at 5 minutes 21.1% , 52.2% of the neonate needed neonatal intensive care admission; most of these admissions (41.1%) were due to respiratory distress syndrome (6%) and 21.3% having some degree of H.I.E. A small number of them had physical injuries or laceration. This result disagree in study in Norwegian women [9] this due to fact that their intrapartum monitoring and setup are much better than ours.

Analysis of perinatal outcome according to the planned mode of delivery on admission in labour showed no significant differences. However, the sample size may have been too small to detect any associations in this respect. In December 2001, the American College of Obstetricians and Gynecologists revised their recommendations for breech delivery. These recommendations acknowledge that although a planned vaginal delivery may no longer be appropriate, there are instances in which vaginal breech delivery is inevitable. It was revised again in 2005, a retrospective review of all singleton breech deliveries from January 2002 through June 2003. There were a higher proportion of patients who underwent labor induction/augmentation in the vaginal group. They found no differences in the outcomes of 5-minute Apgar scores, neonatal intensive care unit admissions, deaths or maternal/fetal complications reported between the two groups. Vaginal breech delivery cannot always be avoided. Moreover, several patients continue to choose vaginal breech delivery.

They suggest that vaginal breech delivery remains a viable option in selected patients [11]. Our limitation was the inability to determine whether the accoucheur were supervised by consultants. Another limitation was the absence of a 'control' group of women who had optimal care such C\S for breech presentation. There may be a tendency to be over critical when confronted with data. Knowledge of the circumstances of such pregnancies might provide more reassuring data. The other limitation is the fact that we did not look at maternal outcome as well as the duration of hospital stay. Finally, a limitation on the neonatal outcome is the lack of long-term follow-up to determine which of the infants went on to develop neuro-developmental disability, a major factor in legal claims against obstetric care services.

CONCLUSION

The incidence of undiagnosed breech in this study was 28.9%, being equal to what has been reported by many authors. However, the majority of undiagnosed breech was delivered vaginally without significant morbidity or mortality. Based on good fetal and maternal outcome vaginal breech delivery was proved to be safe for carefully selected and supervised cases. It's cost effective especially in Sudan with limited facilities. It's also important to consider the long-term effect of having uterine scar.

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