Clinical audit on mode of delivery of breech at term

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Background and objective
Persistent breech presentation may be associated with abnormalities of the baby, the amniotic fluid volume, the placental localization, or the uterus. This work was done to assess the quality of breech delivery at term at Women Health Hospital.

Patients and methods
A total of 334 women from those with breech presentation were enrolled in the study. General, abdominal, and obstetric examination was performed to all women with confirmation of viability by auscultation of fetal heart sound. If the woman was in labor, we did vaginal examination.

Results
Age range was between 18 and 47 years, and 59 cases complained of infertility. Normal vaginal delivery occurred in 73 (21.9%) women and cesarean section (CS) was done in 261 (78.1%) enrolled women, where urgent CS was done in 239 cases of such cases. Only two cases were counseled for external cephalic version.

Conclusion
In conclusion, C.S in such cases could reduce the short term perinatal and neonatal morbidity and mortality but it still has major events in future pregnancies as consequences of scared uterus and placenta accreta. So, C.S is savior for fetus than mother and this is difficult to be role in developing country, in which the rate of deliveries is high.

Keywords:
audit, breech presentation, cesarean section

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Introduction

Breech presentation is a frequent abnormal fetal presentation. It represents 20% of pregnancies at 28 weeks of gestation, but only a small percentage persists till full term (3–4%) [1].

Persistence of it is attributed to abnormalities of the baby, volume of amniotic, and site of placenta. Breech presentation usually has high perinatal mortality and morbidity secondary to prematurity, malformations, and asphyxia [1].

There is a worldwide increase in frequency of cesarean delivery in the past decade. Moreover, there is an urgency to decrease this rise [2,3].

The breech presentation may be decreased at delivery to 1% by external cephalic version (ECV). Moreover, ECV has many advantages such as decreased risk of prematurity and its complications and allows term deliveries in 20–30% of obstetric patients with breech presentation [4].

Vaginal breech birth may be allowed in breech delivery. It has two to five times greater relative risk of short-term morbidity and mortality than cesarean section (CS), but long-term outcomes do not differ [4,5].

Clinical audit is a tool to assess whether the best standard practice is being done, as it compares the current circumstances with the guidelines. It detects difference between what is done and what should be done. It also allows detecting any limitations and difficulties in the processes of care [6]. This work was deigned to assess the quality of breech delivery at term at Women Health Hospital, Assiut University Hospitals.

Patients and methods

After obtaining approval by the Ethical Committee of Faculty of Medicine, Assiut University, the current audit was conducted in period from April 15, 2015 to April 15, 2016, where pregnant women with breech presentation admitted at Assiut Women Health Hospital were enrolled.

The following criteria must be fulfilled in candidates: singleton pregnancy breech presentation, at term

greater than or equal to 37 week, living, and complete or frank breech. Any women with one or more of the following criteria were excluded: previous CS, multiple pregnancy, preterm, footling, and any contraindication for vaginal breech delivery.

Data were collected by either reviewing women's records or by clinical evaluation of woman. Baseline demographic data (name, age, and address), obstetric history (parity, previous abortion, gestational age, etc.), and medical history were recorded.

General, abdominal, and obstetric examination was performed for all women with confirmation of viability by auscultation of fetal heart sound. If woman was in labor, we did vaginal examination to assess the following: dilatation, station, effacement, membrane, presenting part, and any abnormalities in pelvis.

Abdominal ultrasound was done to confirm diagnosis, assess attitude of fetal head, fetal weight, other findings such as anomalies, and placental location. Computed tomography was performed for fetal heart monitoring for those who were given a chance for vaginal breech delivery.

Moreover, the following data were collected: mode of delivery whether assisted breech delivery or CS, either elective or emergent, indication of CS, and decision maker of CS and who performed the delivery. Maternal and neonatal outcome till discharge was recorded. Moreover, any counseling information offered to the women was recorded.

Statistical analysis

The data were collected and entered into a Microsoft Access database and were analyzed using the Statistical Package for Social Sciences (version 21; SPSS Inc., Chicago, Illinois, USA).

Results

Of 17 045 pregnant women at Women Health Hospital, breech presentation was detected only in 688 (4.03%) women. A total of 334 women from those with breech presentation were enrolled in the study. The other cases were excluded owing to previous CS, preterm, multiple pregnancies, and footling presentation.

This audit study recruited an age group ranging between 18 and 47 years. Overall, 59 cases complained of infertility, and the period of infertility ranged between 2 and 5 years, and of 46 cases of second infertility, the period of infertility ranged between 5 and 7 years. Normal vaginal delivery occurred in 73 (21.9%) women and CS was done in 261 (78.1%) of the enrolled women, where urgent CS was done in 239 cases of such cases. Other criteria of labor and pregnancy are summarized in Table 1.

All women except two were not offered or counseled for ECV to reduce incidence of breech presentation as guidelines. Such cases of breech presentation were admitted and counseled for ECV; unfortunately, they went to continuously in labor.

In majority (81.3%) of the women, management decision was decided by assistant lecturer, whereas the management decision was performed by resident in 309 (92.5%) women (Table 2). Regarding fetal outcome, the birth weight ranged between 1200 and 5000 g. Only four babies were admitted to the NICU, and 11 babies were IUFD, and four babies have congenital anomalies (Tables 3 and 4).

There were 40 cases of G2P1 and only nine cases were managed by assisted breech delivery; they were active in labor (6 cm fully dilated). There were 12 cases

Table 1 Criteria of pregnancy and labor

	n=334
Total	287 (85.9)
Gestation age at delivery	38.14±1.2
Fundal level	36.4±0.65
Audible fetal heart sound	323 (96.7)
Vaginal examination	
Cervical dilated (1-3 cm)	53 (18.1)
Cervical dilated (4 cm-fully dilated	232 (69.3)
Closed	42 (10.1)
Not done	7 (2.4)
Detection of breech by	
US	66 (19.8)
Delivery	193 (57.8)
US delivery	75 (22.4)
Type of breech	
Frank	170 (50.9)
Complete	164 (49.1)
Mode of delivery	
Assisted breech	73 (21.9)
CS	261 (78.1)

Data was expressed in form of frequency (percentage), mean (SD). CS, cesarean section; US, ultrasound.

Table 2 Personnel involved in management of studied women

	n=334
Decision by whom	
Consultant or specialist	63 (18.7)
Assist lecture	271 (81.3)
Done by whom	
Consultant or specialist	22 (6.6)
Assist lecture	3 (0.9)
Resident	309 (92.5)

Data was expressed in form of frequency (percentage).

in active labor (4–6 cm) without any medical disorder, and average fetal weight was 2700–3000 g, but they did not take a chance to assisted breech delivery and were managed as emergent CS.

The rest of cases that were managed by CS were not in labor or associated with medical disorder. Overall, 44 cases were grand-multipara (GmP5–GmP10); 10 case managed by assisted breech delivery. A total of 126 cases were Gp2–Gp4; of them, 43 cases were managed by assisted breech delivery, where all were active in labor (4 cm fully dilated), with no medical disorders and average baby weight of 2000–3700 g, except three cases that were active in labor with gestational hypertension and took the chance.

There were 83 cases managed by CS; 34 cases of them at Women Health Hospital were active in labor (4 cm fully dilated) and not associated with any medical disorder and average fetal weight of 2000–3700 g and did take the chance to assisted breech delivery and were managed as emergent CS.

Regarding primigravida who were managed by assisted breech delivery, there were 11 cases in active labor (8 cm fully dilated) without any medical disorder, with average fetal weight. A total of 12 case from 61 cases that were managed by CS were active in labor and had the same criteria as those managed by assisted breech delivery, as they are active in labor but did not had a chance for assisted breech delivery and were managed as emergent CS (Table 5).

Table 3 The fetal and maternal outcomes

	n=334	
Birth weight (g)	3016.7±655.8	
Apgar score 1 min	9.3±2.6	
Apgar score 5 min	9.5±2.3	
At fetus discharge		
Alive	269	93.7
NICU	4	1.4
Perinatal mortality or morbidity	14	4.9
At maternal discharge		
Alive	287	100.0
NICU	0	0.0
Perinatal mortality or morbidity	0	0.0

Data was expressed in form of mean (SD), frequency (percentage). NICU, neonatal intensive care unit.

Table 4 Multiparity in relation to mode of delivery

	Mode of delivery	
	CS (*n*=148)	Assisted breech delivery (*n*=62)
P1	31 (21)	9 (14.5)
P2-4	83 (56)	43 (69.3)
P5-10	34 (23)	10 (16.2)

Data was expressed in form frequency (percentage). CS, cesarean section.

Table 5 Primigravida in relation to mode of delivery

	Mode of delivery	
	CS (*n*=113)	Assisted breech delivery (*n*=11)
Not active in labor	52 (46)	0
Active in labor	61 (54)	11 (100.0)

Data were expressed in frequency (percentage). CS, cesarean section.

Discussion

Based on Term Breech Trial, there is a significant decrease in perinatal mortality and morbidity in CS in case of breech presentation. This allowed more advantage to routine CS for breech presentations [7].

The American College of Obstetricians and Gynecologists (ACOG) and the Royal College of Obstetricians and Gynecologists (RCOG, UK) 2001 guidelines also advised CS for all term breech [1].

In 2006, however, both ACOG and RCOG advised use of trial of labor in some cases. It was known that most breech presentations in developed countries had CS. Since 1970s, the frequency of CS rate for term singleton breech in many centers has elevated up to seven-folds [1,7,8].

In many centers, mainly from the Netherlands, Sweden, Finland, Norway, and France, there is marked rise in CS rate for term singleton breech noticed after the Term Breech Trial. This is attributed to probably that planned CS is best practice of such cases [7].

This was supported by statements, such as 'vaginal breech delivery is no longer justified' and 'the end of vaginal breech delivery.' However, vaginal delivery may be used in such cases with special circumstances as reported by some authors [9].

The present work is a clinical audit performed in Women Health Hospital, Assiut University Hospital to evaluate the current practice on management of breech delivery in comparison with standard practices, as suggested by ACOG, 2006.

Daskalakis *et al.* [10] in 2006 noticed a significant difference between rates of low 5 min Apgar score, trauma at delivery, morbidity, and need to intensive care between those born by planned vaginal delivery and those born by elective CS. Only a decrease in admission to intermediate care unit was found between the first and second periods.

In our result, only four (11%) cases had low 5 min Apgar score and admitted to ICU, and all of them were managed by assisted breech delivery. This difference

may be owing to retrospective nature of their work with subsequent higher number of cases, but our study was prospective and limited by time.

Babović *et al.* [11] in 2010 considered CS is still a good option of labor in nulliparous women older than 35 years, but in case of multiparous women with ultrasonographically estimated birth weight of 2500–3500 g and younger age, the vaginal mode is recommended. Their study was retrospective and enrolled a large number of cases, and yet there is similarity in demographic data and their conclusion more or less similar to what we obtained.

Michel *et al.* [12] in 2011 studied the use of certain objective criteria that made it possible to perform vaginal deliveries of breech presentations without higher neonatal morbidity. In our result, there were no assessment of maternal pelvic measurement, and there is no evaluation whether percent vaginal delivery increases or not.

In their study, deliveries were done with an anesthetist and an obstetrician that had good experience in necessary maneuvers occur in the delivery room, which were absent in our study. This difference resulted because in their study they had definite protocol on management breech but in our study depend on physician decision making, and still had large time for study and large number of women included [12].

Borbolla Foster *et al.* [13] in 2014 reported that vaginal delivery for breech presentation is a choice in certain events under strict obstetric protocols. The difference between their study and ours results in the success rate for vaginal delivery in their study was 58%, and in our study, success rate was 21.86%, and this difference is owing to selection of specific cases for vaginal delivery. They excluded cases diagnosed at greater than 5 cm cervical dilatation or during elective CS and transmitted to senior obstetrician with more than 10 years of experience in such events.

In our study, all allowed vaginal breech delivery were either actively in labor or stuck breech, with an incidence of 22%. Although successes rate in their study was 58%, they did not record neonatal cord blood gas results. Moreover, they did not talk about frequency of ECV. Such data limitations highlight the need for prospective surveillance of breech deliveries to allow meaningful comparisons and confirm these morbidity rates.

Berhan and Haileamlak [14] stated that vaginal breech delivery had higher rate of morbidity and mortality than cesarean delivery. This study elucidated the individualized decision making to assess the best route for term breech presentation.

We lack follow-up for neonatal morbidity and mortality in the study, but there are immediate postpartum evaluation of health of neonate. This is explained secondary to relatively large sample size and large period interval and also excluded cases with congenital anomalies and intrauterine fetal deaths, which were included in our study.

Second, because of the large difference in the sample size of the included studies, studies with a small sample size have little weight on the overall RR. Third, as most included studies assessed the perinatal outcome with respect to planned vaginal versus planned CS delivery, we were not able to assess the perinatal outcome for this group by actual mode of delivery. Finally, all the included studies, with the exception of three, were from high-income countries, which may not be representative of the rest of the world.

Bin *et al.* [15] in 2016 reported that strict guidelines were used in all cases with subsequent no neonatal deaths. Only two babies had neonatal morbidity in vaginal group. Their study was a population linkage study, retrospective in nature. Successes rate for vaginal breech delivery was 51.3% in their study, but our study was 22%, but we had not birth trauma.

This presentation is associated with many risks such as oligohydramnios, growth restriction, gestational diabetes, and congenital anomalies. These risks may cause many morbidities and mortalities. A previous study enrolled a relatively large number of cases comparing between breech and vertex presentation. The incidence was similar; the result was more or less similar in breech, associated with risk factor similar to oligohydramnios, growth restriction, and diabetes mellitus [16].

As result of this noticed that CS is a savior for fetus than for the mother, and this is a difficult dilemma in developing countries, where the rate of deliveries is high.

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Conflicts of interest
There are no conflicts of interest.

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