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MODE OF TERM SINGLETON BREECH DELIVERY

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CHAPTER ONE

Introduction.................................................................................................................. 1

Literature review............................................................................................................. 3

Objectives....................................................................................................................... 36

CHAPTER TWO

METHODS AND MATERIALS..................................................................................... 37
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>Diabetes Mellitus</td>
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<tr>
<td>END</td>
<td>Early Neonatal Death</td>
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<tr>
<td>FHR</td>
<td>Fetal Heart Rate</td>
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<td>GA</td>
<td>Gestational Age</td>
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<td>KTH</td>
<td>Khartoum teaching Hospital</td>
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<td>OMH</td>
<td>Omdurman Maternity Hospital</td>
</tr>
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<td>FBT</td>
<td>Fetal Birth Trauma</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>USA</td>
<td>United states of America</td>
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<td>VD</td>
<td>Vaginal delivery</td>
</tr>
<tr>
<td>PG</td>
<td>Primigravida</td>
</tr>
<tr>
<td>U/S</td>
<td>Ultrasound</td>
</tr>
<tr>
<td>VS</td>
<td>Versus</td>
</tr>
<tr>
<td>Gynaecol</td>
<td>Gynaecol</td>
</tr>
</tbody>
</table>
Dedication

To

My parents,
teachers
&
Friends
I would like to express my deepest gratitude to my supervisor Prof. Abdel Salam Gerais, for his timely correction and critical suggestion as well as his continuous support, unlimited encouragement and tireless supervision of this work.

May I seize this opportunity to thank Dr. Nada Gafer who helped me so much in making this work a success.

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Gratitude and appreciation are extended to miss Asia Ahmedyousif for typing manuscript.

Finally, my gratitude are forwarded to my parents, brothers and sisters for their patience, support and encouragement.
ملخص الأطروحة

التقييم الكلي

وضع الفصل

يأتي الذي

الجنين وولدته

طريقة حول الآراء


الاختيار 05 وقد بـ التقارن المهبلي طريقة على الولدته لهما خطط حالية 05 كاملاً.

الأماثل والإجمالية وفائدة معدل على الولدته طريقة التقييم إلى الدراسة هدفت معا تدابير تقييم إلى الهدف كما، بمشتغلي أطفال الصلد وضع في الجنين الأمة.

بأأن أوضحت ولكن المجتمع، في الأماثل وفائدة حالية أي الدراسة تسجل للهداية الطبيعية الولدته في منهاء القيصرية الولدته في أكثر تكون الأماثل الإجمالية، وخاصة، وعندما الثراء تقييم إلى الدراسة هدفت معا، بمشتغلي أطفال الصلد.

الولادة وحوادة ومشتغالية وفائدة معدل على الولدته طريقة حاد للدراسة، لكن القيصرية، الولدته حنيثاً بمقارنة الطبيعية الولدته أكبر.

فلا تسجل بالنسبة حالات في أعلى الأماثل الإجمالية، بمعنى القيصرية، الولدته مع بعض الدراسة حسب، توزيع الأطفال على الولدته 1 في %، حالات في إحداً وفائدة حالة واعدة، وراءية عامة، كم (5%) بمقارنة الخصصية، في وسط 4 حالة في القيصرية، الولدته.

الدراسة تسجل قد الأطفال، وفائدة الحالات، من الولدتك وافتاء الحالات مع الدراسة توزيع في، الأطفال.

الولدته في توزيع الأطفال في الحالة (6%) الولدته واحدة وفائدة حالة بمقارنة القيصرية، الولدته بعدما.

الولدته في توزيع الأطفال في الحالة (8%)، وفائدة الحالات مع الدراسة توزيع في، الأطفال.

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الولدته في توزيع الأطفال في الحالة (8%)، وفائدة الحالات مع الدراسة توزيع في، الأطفال.
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Abstract

Mode of term singleton breech delivery is an area of intense controversy. This is a prospective comparative study conducted in tow major hospitals Khartoum Teaching Hospital and Omdurman maternity hospital in the period between 1st of September 2002 and 30th of November 2002.

In this study tow group were selected, 50 cases planned for vaginal delivery and 50 cases planned for cesarean section and the two groups were compared in terms of maternal and fetal outcome.

Special selection criteria was considered (Term, Singleton and Viable fetus).

The objectives of this study were to evaluate the impact of mode of

term singleton breech livery in the maternal and fetal outcome, and to

\evaluate management of breech presentation in our hospitals.

Regarding maternal mortality and morbidity, no maternal death is reported in either of the two groups, however, maternal morbidity is found to be more in C/S group, and moreover the complication reported in C/S group is more serious.
Concerning fetal mortality and morbidity, the study reported more fetal morbidity in VD group. Fetal birth trauma (5%) in VD group, while (1%) in C/S group, Apgar score after 1 minute < 7 is found in 8% of cases in vaginal delivery, while 4% in cesarean section, and regarding fetal mortality there were 3 death in VD group (6%) compared with one death in C/S group (2%). Fetal mortality after exclusion of lethal congenital anomalies was (4%).

The study concluded that in appropriately selected and managed cases, and with informed consent, both planned C/S and vaginal breech delivery remain appropriate and reasonable management options.

This study recommended careful selection of the cases regarding the mode of delivery, to minimize maternal and perinatal morbidity and mortality. The study also recommended providing baby care unit in all maternity hospitals, training programs for adequate dealing with breech delivery, and establishment of recording system and auditing in our hospitals for future studies in this issue.
Introduction

Obstetrics is art and science combined and its practitioners must be concerned with the lives of at least two patients: the mother and her fetus. In a broader sense, obstetrics is concerned with the reproduction of a society.

Breech presentation is when the buttocks of the fetus enter the pelvis first. The term breech probably derives from the same word as britches, which described a cloth covering the loins and thighs britches, which described a
cloth covering the loins and thighs.\textsuperscript{(2)}

Breech presentation is an area of intense controversy. A variety of committed opinions have been expressed on every aspect of management from the mode of delivery (‘Once a breech always a caesarean section’) to the place of external cephalic version in modern management of the\textsuperscript{(8)} breech (‘there are those who express . . . a rather elegant distaste for it’). However, the most fundamental shift in opinion over the last 10-15 years has been the realization that breech
presentation may well be a bad prognostic variable of itself. Any studies, clinical trials or proposed\(^{(9)}\)

clinical management must take account of this.

Breech presentation has been recognized for centuries. At one time, it was regarded as advantageous, probably because the midwife could pull on the legs to expedite delivery. Mauriceau described a maneuver for the gentle delivery of the after coming head in the sixteenth century and the mode of delivery of the breech remained essentially unchanged until
the 1950s, when cesarean section was first recommended on a routine basis. It was thought that this might minimize the perinatal morbidity and mortality of the breech presenting fetus.

This study is conducted to review the situation in two major Hospital, Khartoum Teaching Hospital & Omdurman Maternal Hospital. Regarding mode of term singleton breech delivery and to evaluate maternal & fetal outcome.
Literature Review

Incidence: The incidence of breech presentation overall is said to be of the order of 3-4 %, and in those of birth weight greater than 2.5 kg the incidence is 2.6-3 %. The incidence of breech presentation in the preterm pregnancy is higher and at 29-32 weeks gestation the incidence is 14.%

Etiology:

Breech presentation may be a benign error of orientation, or it may be associated with maternal or fetal abnormality. One of the most common causes of breech presentation is
permaturity. In this case, it is usually the chance lie of a highly mobile fetus in relatively copious amniotic fluid.

However, there is a well-recognized association with fetal abnormality for both the term and the preterm fetus. Lamont et al., in a series of preterm breech infants, found that 18% were congenitally abnormal.

Colleague et al. quoted a 5% incidence of congenital abnormality in term breech fetuses, two to three times higher than in their vertex counterparts (2.1.% Approximately 50% of all
cases of hydrocephalus, myelomeningocele, prader-willi syndrome and trisomy are born in breech presentation. It has also been noted that 90% of all abnormalities in breeches occurred in fetuses weighting greater than 2000g.

Term breech presentations are associated with relatively short cords, reduced fetal growth and abnormalities in amniotic fluid volume (either oligo- or hydramnios). Breech fetuses tend to have reduced fetoplacental ratios, to be small for dates and have an increased head circumference.
regardless of the mode of delivery. This difference in weight remains until 18 months of age, but disappears after the age of years \(^{11}\) years.

Uterine size or shape may also influence presentation. It seems that the narrower cephalic pole of the fetus will normally occupy the narrower lower segment, especially if the legs of the fetus are flexed at the knee. This configuration of uterus and fetus will produce the usual cephalic presentation. But if the knees are extended, the hips flexed and uterine space is limited, the head and feet may lie alongside each other, making the cephalic pole of the fetus
larger and encouraging a breech presentation. Uterine space is often limited in the nullipara and breech presentation is reported to be more common in nulliparous women.

Other less benign conditions may alter the uterine capacity or the intrauterine shape. Uterine anomaly, such as bicomuate uterus, is associated with breech presentation. Placenta previa is well recognized in association with breech presentation as this changes the intrauterine shape.
Women who have had a previous breech presentation at term are significantly more likely to have one in a subsequent pregnancy. This is usually associated with extended fetal legs. Multiple pregnancy is strongly associated with breech presentation.\(^{(10)}\)

**Diagnosis:**

The varying relations between the lower extremities and buttocks of breech presentations form the categories of frank, complete, and incomplete breech presentations.\(^{(1)}\)

Chasen and D’Angelo (2000) reported a positive
predictive value of 80 percent and a negative predictive value of 98.5 percent for abdominal and vaginal examination to diagnose breech presentation at 35 to 37 weeks. With a frank breech presentation, the lower extremities are flexed at the hips and extended at the knees, and thus the feet lie in close proximity to the head. A complete breech presentation differs in that one or both knees are flexed. With incomplete breech presentation, one or both hips are not flexed and one or both feet or knees lie below the breech, that is, a foot or knee is lowermost in the birth canal. The frank breech appears most
commonly when the diagnosis is established radiologically near term.

**Abdominal Examination:**

Typically, with the first leopold maneuver, the hard, round, readily ballotable fetal head is found to occupy the fundus. The second maneuver indicates the back to be on one side of the abdomen and the small parts on the other.

On the third maneuver, if engagement has not occurred-the intertrochanteric diameter of the fetal pelvis has not passed through the pelvic inlet the breech is movable above the pelvic
inlet. After engagement, the fourth maneuver shows the firm breech to be beneath the symphysis. Fetal heart sounds are usually heard loudest slightly above the umbilicus, whereas with engagement of the fetal head the heart sounds are loudest below the umbilicus.

**Vaginal Examination:**

With the frank breech presentation, both ischial tuberosities, the sacrum, and the anus are usually palpable, and after further descent, the external genitalia may be distinguished. Especially when labor is prolonged, the buttocks may become markedly swollen, rendering differentiation of
face and breech very difficult; the anus may be mistaken for the mouth, and the ischial tuberosities for the malar eminences. Careful examination, however, should prevent this error, because the finger encounters muscular resistance with the anus, whereas the firmer, less yielding jaws are felt through the mouth. Furthermore, the finger, upon removal from the anus, is sometimes stained with meconium. The mouth and malar eminences from a triangular shape, while the ischial tuberosities and anus are in a straight line. Accurate information, however, is based on the location of the sacrum and its
spinous processes, which establishes the diagnosis of position and variety.

In complete breech presentations, the feet may be felt alongside the buttocks, and in footling presentations, one or both feet are inferior to the buttocks. In footling presentations the foot can readily be identified as right or left on the basis of the relation to the great toe. When the breech has descended farther into the pelvic cavity, the genitalia may be felt.
Imaging Techniques:

Ultrasound ideally should be used to confirm a clinically suspected breech presentation and to identify, if possible, any fetal anomalies. Bruck and Sherer (1997)\(^3\) used intrapartum ultrasound to detect large lower uterine segment leiomyomas. If cesarean delivery is planned, x-rays are not indicated. If, however, vaginal delivery is considered, the type of breech presentation is of considerable importance.

Radiation exposure may be reduced
considerably by using computed tomographic pelvimetry (Kopeiman and associates, 1986\(^4\)). These imaging techniques can be used to provide information regarding the type of breech presentation, presence or absence of a flexed fetal head, and pelvic measurements.

The role of x-ray pelvimetry in deciding mode of delivery for breech presentation is controversial (Morrison and co-authors, 1995. Cheng and Hannah (\(^3\)) comprehensively surveyed the literature on breech delivery at term and reviewed 15 studies in which x-ray pelvimetry was used and two studies in which
CT pelvimetry was used as one of the criteria for allowing vaginal delivery. They concluded that the role of x-ray pelvimetry was complicated because pelvic dimensions for allowing labor varied among studies.

Most authors, however, found no correlation between radiological pelvic measurements and the outcome of labor. Only one study demonstrated that the incidence of complicated labor rose with decreasing pelvic capacity (Ohisen, 1975). *(1)*

Magnetic resonance imaging for pelvimetry is
considered more accurate than other methods. As emphasized by Van Loon and colleagues, this has no value if the results have no clinical benefits. They performed a randomized controlled trial in 235 women with breech presentation at term. The use of magnetic resonance pelvimetry did not decrease the overall cesarean delivery (42 percent) compared with controls not undergoing pelvimetry (50 percent).

**Vaginal breech delivery:**

It would appear that in the case of a healthy mother with a healthy baby of normal size in a
breech presentation, vaginal delivery at full term ought to be an option to be given serious consideration ‘Informed choice’ is very much the ‘in’ thing at present, but how often does this happen with a woman whose baby is in a breech presentation.

It is rarely acknowledged, for instance, that there are two very different ‘types’ of vaginal delivery. Generally speaking ‘vaginal breech extraction’ would better describe what the majority of British hospitals have to offer as a ‘vaginal breech delivery’ option. This often involves some or all of the following:
• Getting to the hospital early in labour (in case of cord prolapse.

• Continuous fetal monitoring.

• Epidural (to avoid the mother pushing too early and of course it can be topped up if a cesarean becomes necessary.

• Mother in lithotomy position (flat on back, legs in stirrups so the doctor has ‘good’ access.

• Large episiotomy (to accommodate the forceps).\(^{(sv)}\)

• Complex manipulation with forceps.
Natural, active’ breech birth is rarely the norm, although there are some midwives and the occasional obstetrician who consider breech as simply a variation of normal.

Methods Of Vaginal Delivery:

There are three general methods of breech delivery through the vagina:

Spontaneous breech delivery. The infant is expelled entirely spontaneous without any traction or manipulation other than support of the infant.

Assisted vaginal breech delivery. The infant is
delivered spontaneously as far as the umbilicus, but the remainder of the body is extracted! delivered with operator traction and assisted maneuvers with or without maternal expulsive efforts.

**Breech extraction.** The entire body of the infant is extracted by the obstetrician. It is recommended in two situations.

1. The second twin.

2. Dead fetus (IUFD)

**Management Of Labor:**

With a breech presentation, both mother and
fetus are at considerably increased risk compared with a woman with a cephalic presentation (Kunzel, 1994). A rapid assessment should be made to establish the status of the fetal membranes, labor, and condition of the fetus. Close surveillance of fetal heart rate and uterine contractions should begin. An immediate recruitment of the necessary nursing and medical personnel to accomplish a vaginal or abdominal delivery should also be done. Included are nursery and anesthesia personnel.

An intravenous infusion through a venous
catheter is begun as soon as the woman arrives in the labor suite. Possible emergency induction of anesthesia, or hemorrhage from lacerations or from uterine atony, are but two of many reasons that may require immediate intravenous access that can be used to administer medications or fluids, including blood.

**Stage Of Labor:**

Assessment of cervical dilatation and effacement and the station of the presenting part are essential in planning the route of delivery. If labor is too far advanced, there may not be
sufficient time to obtain pelvimetry. This alone should not force the decision for cesarean delivery. Biswas and Johnstone (1993) found that among 267 term breech presentations, fewer cesarean deliveries were done without adversely affecting neonatal outcome when x-ray pelvimetry was not used to select the mode of delivery. Satisfactory progress in labor was the best indicator of pelvic adequacy.

**Fetal Monitoring:**

Guidelines for monitoring the high-risk fetus are applied as discussed. Thus, the fetal heart rate is
recorded at least every 15 minutes. Most authorities prefer continuous electronic monitoring of fetal heart rate and uterine contractions.

The FIGO committee on perinatal health has endorsed this (Kunzel, 1994). When membranes are ruptured, the risk of umbilical cord prolapse is appreciably increased. Therefore, a vaginal examination should be done following rupture of the membranes to check for cord prolapse. Special attention should be directed to the fetal
heart rate for the first 5 to 10 minutes following membrane rupture, to ensure that there has not been an occult cord prolapse.

**Timing of Delivery:**

In general, the ability to proceed with immediate breech extraction should exist when the buttocks or feet appear at the vulva. This is important because persistent fetal bradycardia is prone to develop from cord compression with further descent through the birth canal. It is essential that the delivery team include:
1. An obstetrician skilled in the art of breech extraction.

2. An associate to assist with the delivery.

3. An anesthesiologist who can assure adequate anesthesia.

4. An individual trained to resuscitate the infant, including tracheal intubation.

Delivery is easier, and in turn, morbidity and mortality are probably lower, when the breech is allowed to deliver spontaneously to the umbilicus. If a non-reassuring fetal heart rate pattern develops before this time, however, a decision must be made whether to perform
manual breech extraction or cesarean delivery.\textsuperscript{(2)}
Nuchal Arm:

One or both fetal arms occasionally is found around the back of the neck (nuchal arm) and impacted at the inlet. In this situation, delivery is more difficult. If the nuchal arm cannot be freed in the manner described, extraction may be facilitated, especially with a single nuchal arm, by rotating the fetus through half a circle in such a direction that the friction exerted by the birth canal will serve to draw the elbow toward the face. Should rotation of the fetus fail to free the nuchal arm(s), it may be necessary to push the
fetus upward in an attempt to release it. If the rotation is still unsuccessful, the nuchal arm is often extracted by hooking a finger(s) over it and forcing the arm over the shoulder, and down the ventral surface for delivery of the arm. In this event, fracture of the humerus or clavicle is very common.

The fetal head may then be extracted with forceps or by one of the following maneuvers.

**Mauriceau Maneuver:**

This was first practiced by Mauriceau in 1721, but for some reason fell into disfavor. Much
later Smellie (1876) described a similar procedure. Veit (1907) redirected attention to the Mauriceau maneuver, and in Germany the procedure frequently is named after Veit. The most accurate designation, however, is the Mauriceau-Smellie-Veit maneuver.

The index and middle finger of one hand are applied over the maxilla, to flex the head, while the fetal body rests upon the palm of the hand and forearm. The forearm is straddled by the fetal legs. Two fingers of the other hand then are hooked over the fetal neck, and grasping the shoulders, downward traction is applied until the
suboccipital region appears under the symphysis. Gentle suprapubic pressure simultaneously applied by an assistant helps keep the head flexed. The body of the fetus is then elevated toward the maternal abdomen, and the mouth, nose, brow, and eventually the occiput emerge successively over the perineum. It is emphasized that with this maneuver the operator uses both hands simultaneously and in tandem to exert continuous downward gentle traction bilaterally on the fetal neck and on the maxilla. At the same time, appropriate suprapubic pressure applied by an assistant is
helpful in delivery of the head. ($^\ddagger$)

**Prague Maneuver:**

Rarely, the back of the fetus fails to rotate to the anterior. When this occurs, rotation of the back to the anterior may be achieved by using stronger traction on the fetal legs or bony pelvis. If the back still remains posteriorly, extraction may be accomplished using the mauriceau maneuver and delivering the fetus back down. If this is impossible, the fetus still may be delivered using the modified Prague maneuver.

This maneuver was recommended by Kiwisch
(1846), who practiced in Prague. It had been described in London as early as 1754 by Pugh. The modified maneuver as practiced today consists of two fingers of one hand grasping the shoulders of the back-down fetus, from below, while the other hand draws the feet up over the maternal abdomen.

**Bracht Maneuver:**

With this maneuver, the breech is allowed to deliver spontaneously to the umbilicus. The fetal body then is held, but not pressed, against the maternal symphysis. This force is meant to be
the equivalent of gravity (Bracht, 1936). The suspension of the fetus in this position, coupled with the effects of uterine contractions and moderate suprapubic pressure by an assistant, often results in a spontaneous delivery.

**Forceps to Aflercoming Head:**

Specialized forceps can be used to deliver the aftercoming head of the breech-presenting fetus. Piper forceps, or divergent laufe forceps may be applied electively or when the mauriceau maneuver cannot be accomplished easily. The
blades of the forceps should not be applied to the aftercoming head until it has been brought into the pelvis by gentle traction, combined with suprapubic pressure, and is engaged. Suspension of the body of the fetus in a towel helps keep the arms out of the way.

**Entrapment of The After-coming Head:**

Occasionally, especially with small preterm fetuses, the incompletely dilated cervix will not allow delivery of the after-coming head. With gentle traction on the fetal body, the cervix, at times, may be manually slipped over the occiput,
or the Bracht maneuver may be tried. If these actions are not rapidly successful, Dührssen incisions can be made in the cervix.

Some advocate the use of intravenous nitroglycerin in doses of 50 to 100 j.ig to effect rapid uterine relaxation. Its efficacy for fetal head entrapment has not been substantiated.

Replacement of the fetus higher into the vagina and uterus, followed by cesarean delivery, can be used successfully to rescue an entrapped breech that cannot be delivered vaginally.

Iffy and colleagues (1986) described
abdominal rescue by cesarean
delivery for a 2050-g first twin whose fully
deflexed head was entrapped after the arms had
been delivered.

Analgesia and Anesthesia For Labor and
Delivery:

Continuous epidural analgesia has been
advocated by some as ideal for women in labor
with a breech presentation (Kunzel, 1994; Mokriski، ١٩٩٤) \(^{(٧٩)}\).

Confino and colleagues (1985) \(^{(٨٤)}\) reviewed the
outcomes of 371 singleton breech fetuses
delivered vaginally. About 25 percent of nonanomalous these women had been given continuous epidural analgesia, and oxytocin augmentation was necessary to effect delivery in half of them. Although first-stage labor was not longer than in a control group not given epidural analgesia, the second stage was prolonged significantly in women whose fetuses weighed more than 2500g. It was doubled if the fetus weighed more than 3500g.

Chadha and associates (1992) observed similar outcomes but also reported an increased incidence of cesarean delivery.
These potential disadvantages must be weighed against the advantage of better pelvic relaxation should extensive manipulation be required to effect delivery.

Analgesia for episiotomy and intravaginal manipulations that are needed for breech extraction can usually be accomplished with pudendal block and local infiltration of the perineum.

Nitrous oxide plus oxygen inhalation provides further relief from pain. If general anesthesia is required, it can be induced quickly with
thiopental plus a muscle relaxant and maintained with nitrous oxide Anesthesia for decomposition and extraction must provide sufficient relaxation to allow intrauterine manipulations.

Complications With Vaginal Delivery:

Delivery of the breech draws the umbilicus and attached cord into the pelvis, which compresses the cord. Therefore, once the breech has passed beyond the vaginal introitus, the abdomen, thorax, arms, and head must be delivered promptly. This involves delivery of successively less readily compressible parts.
With a term fetus, some degree of head molding may be essential for it to negotiate the birth canal successfully. In this unfortunate circumstance, the alternatives with vaginal delivery are both unsatisfactory:

1. Delivery may be delayed many minutes while the aftercoming head accommodates to the maternal pelvis, but hypoxia and acidemia become severe; or

2. Delivery may be forced, causing trauma from compression, traction, or both.

The frequency of cord prolapse is increased when the fetus is small or when the breech is not
frank. In the report by Collea and colleagues (1987), the incidence with frank breech presentation was about 0.5 percent, which is similar to 0.4 percent reported for cephalic presentations (Barrett, 1991). In contrast, the incidence of cord prolapse with ootling presentation was 15 percent, and it was 5 percent with complete breech presentation.

Soernes and Bakke (1986) confirmed earlier observations that umbilical cord length is significantly shorter in breech compared with
cephalic presentations. Moreover, multiple coils of cord entangling the fetus are more common with breech presentations (Spellacy and associates, 1966).

Apgar scores, especially at 1 minute, of vaginally delivered breech infants are generally lower than when elective cesarean delivery is performed (Flanagan and co-workers, 1987). Similarly, cord blood acid-base values are significantly different for vaginally delivered breech infants.

Christian and Brady (1991) reported that
umbilical artery blood pH was lower, Pco higher, and HCO lower compared with cephalic deliveries. Socol and colleagues (1988)\(^{(25)}\), however, concluded that cesarean delivery improved Apgar scores but not acid-base status.

Flanagan and co-workers (1987)\(^{(25)}\) emphasized that ultimate infant outcome for breech birth was not worsened by these significant differences in Apgar scores or acid-base status at birth.

Koo and associates (1998)\(^{(25)}\) observed increased perinatal morbidity and mortality in singleton
term vaginal breech deliveries despite application of strict selection criteria.

**Unfavorable Pelvis:**

Because there is no time for molding of the aftercoming head, a moderately contracted pelvis that had not previously caused problems in delivery of an average-size cephalic fetus might prove dangerous with a breech. Rovinsky and colleagues (1973) urged not only accurate measurements of the pelvic dimensions but also precise evaluation of the pelvic architecture rather than reliance on pelvic indexes. Gynecoid
(round) and anthropoid (elliptical) pelvis are favorable configurations, but platypelloid (anteroposteriorly flat) and android (heart-shaped) pelvis are not.

**Hyperextension Of Fetal Head:**

In perhaps 5 percent of term breech presentations, the fetal head may be in extreme hyperextension. These presentations have been referred to as “the stargazer fetus,” and in Britain as “the flying foetus.” With such hyperextension, vaginal delivery may result in injury to the cervical spinal cord, in general,
marked hyperextension after labor has begun is considered an indication for cesarean delivery (Svenningsen and associates, 1985).  

**Labor Induction Or Augmentation:**

Induction of labor in women with a breech presentation is defended by some and condemned by others. Brenner and associates (1974) found no significant differences in perinatal mortality and Apgar scores between infants with induced versus spontaneous labor. In oxytocin-augmented labor, however, infant mortality rates
were higher, and Apgar scores were lower.

Fait and colleagues (1998)\(^{(\text{r})}\) reported that 12 of 23 women with a breech presentation and an unripe cervix who underwent induction had a successful vaginal delivery with no neonatal complications.

At Jackson Memorial Hospital in Miami (Diro and associates, (1999)\(^{(\text{r})}\)) oxytocin is used in a manner similar to that for vertex presentations. By contrast, at Parkland Hospital, labor induction may be attempted by amniotomy, but cesarean delivery is preferred to oxytocin
induction or augmentation of labor with a viable fetus.

**External Cephalic Version:**

“There are those who enthusiastically recommend it and those who violently oppose it, and still others who express a rather elegant distaste for it” (15)

Version is a procedure in which the presentation of the fetus is altered artificially, either substituting one pole of a longitudinal presentation for the other, or converting an oblique or transverse lie into a longitudinal
presentation. According to whether the head or breech is made the presenting part, the operation is designated cephalic or podalic version, respectively. In external version, the manipulations are performed exclusively through the abdominal wall.\(^{(2)}\)

In recent years, a spate of randomized controlled trials on the use of ECV with tocolysis after 37 weeks has increased its use. The advantages of the use of ECV at term are that it allows time for spontaneous version to occur, and the clarification of conditions which may require delivery by cesarean section of themselves, e.g.
antepartum hemorrhage and growth deficiency. This results in fewer unnecessary attempts being made. Also, any complications of ECV itself may be managed by prompt cesarean delivery of a mature infant. It is also clear that ECV performed after 36 weeks gestation has a lower incidence of complication.\(^{(16)}\)

Trials were performed in Africa on Black African women. The success rates quoted in these trials are higher than in the European and North America trials. This is probably due to the
tendency for late engagement of the presenting part in the pelvis in the Black African women.\(^{(17)}\)

**Indications! Contraindication**

The contraindications for the performance of ECV are outlined below.

**Indications:**

- Any breech presentation after 36-37 weeks gestation.

- Suspected feto-pelvic disproportion.

- Unengaged breech.

**Contraindications to ECV:**
**Absolute.**

- Multiple pregnancy.
- Antepartum hemorrhage.
- Placenta previa.
- Ruptured membranes.
- Significant fetal abnormality.
- Need for cesarean section for other indications.

**Relative**

- Previous cesarean section.
- Intra-uterine growth deficiency.
- Severe proteinuric hypertension.
• Obesity.

• Red cell iso-immunization.

• Evidence of macrosomia.

(Grand multiparity)

(Anterior placenta)

(Previous baby)

(Previous APH)

Any suspected fetal compromise: unreactive cardiotocogram. If tocolysis is to be used, exclude women with congenital or acquired heart disease, diabetes or thyroid disease
because of possible adverse reactions.

**Benefits to the Fetus of ECV:**

It is clear that ECV reduces the incidence of breech presentation at term and of breech delivery, whether vaginal or by cesarean section. It should be remembered, however, that although cesarean section is often seen as eliminating the risks of fetal trauma attendant upon vaginal delivery, this is not always the case.\(^{10}\)
Risks of ECV to the Fetus:

Risks of external version include placental abruption, uterine rupture, amniotic fluid embolism, fetomaternal hemorrhage, isoimmunization, preterm labor, fetal distress, and fetal demise.

According to Zhang and colleagues (1993), there have been no reported fetal deaths in the United States resulting directly from external version since 1980. Reported nonfetal complications include fetal heart rate decelerations in almost 40 percent of fetuses.
(Phelan and co-workers, 47) (and fetomaternal hemorrhage in 4 percent (Stine and colleagues, 49).

Petrikovsky and colleagues (1987) reported fetal brachial plexus injury after a successful external version. Stine and co-workers (1985) reported a death due to amnionic fluid embolus.

**Prerequisites for the Performance of ECV:**

These are:

1. Recent ultrasound to confirm a normal fetus and an adequate volume of amniotic fluid.

2. Reactive CTG.
3. Informed consent: the mother should be specifically advised of the risks of premature labor, ruptured membranes, and cord and placental accidents.


Cesarean Section for breech:

Many hospitals have a policy of elective cesarean section at 38 weeks gestation for all breech presentations. For many mothers, particularly those who have made great efforts to maximize the chances of as natural a birth as
possible, such a position is extremely confidence-shattering and desperately upsetting-loss of control of, or involvement in, the delivery of her baby is often total.

In fact, a mother in such a position does have three main choices although these are unlikely to be made known to her:

- Elective cesarean section.
- Vaginal breech delivery or vaginal breech extraction using forceps.
- Natural, active breech birth.
Recommendations For Delivery:

A diligent search for any other complication, actual or anticipated, that might justify cesarean delivery has become a feature of most philosophies for managing breech delivery. Cesarean delivery is commonly but not exclusively used in the following circumstances.

1. A large fetus.
2. Any degree of contraction or unfavorable shape of the pelvis.
3. A hyperextended head.
4. No labor, with maternal or fetal indications for delivery such as pregnancy-induced
hypertension or ruptured membranes for 12 hours or more.

5. Uterine dysfunction.

6. Footling presentation.

7. An apparently healthy but preterm fetus of 25 to 26 weeks or more, with the mother in either active labor or in need of delivery.

8. Severe fetal growth restriction.

9. Previous perinatal death or children suffering from birth trauma.

10. A request for sterilization.

Practical considerations in the performance of cesarean section for the delivery of the term
breech:

Elective and even emergency cesarean section for the term breech should present few technical problems. It should be remembered that the performance of a cesarean section does not prevent the possibility of birth injury and many of the above considerations about the careful delivery of the aftercoming head and the dangers of traction on the fetal spine still apply. The lower segment will be the site of choice for the incision with a term breech presentation. \(^{(1, \cdot)}\)
Schutterman and Grimes\(^{(\text{IV})}\) reviewed 416 breeches of all gestations allocated randomly to transverse or low vertical incisions in the uterus and found no advantages for low vertical incisions. An elective cesarean section when adequate amniotic fluid is still present and the uterus is less likely to contract rapidly before completion of delivery of the breech will present less of a problem to the operator. Forceps may be employed for delivery of the after-coming head. Delivery at full dilatation in the absence of amniotic fluid may be difficult, as an ann may prolapse through the uterine incision and should
be immediately pushed back. Instead, a leg should be grasped and brought through the incision. Traction will then effect the rest of the delivery. The head can be trapped in a well-contracted lower segment and the incision will then need to be enlarged in a J-shaped fashion to increase the access. In general, the mode of effecting delivery through the uterine incision is the same as for the vaginal breech delivery and many of the same complications may arise.

There are widespread fears surrounding vaginal delivery of the breech presentation and a lack of information generally available on safe vaginal
delivery of a breech. There is also a lack of honesty about the risks of cesarean section and sparse knowledge of the post-cesarean difficulties many mothers encounter. These factors, together with the prevailing myths and beliefs that cesareans guarantee healthy babies, more often than not leave the woman with no option but to blindly accept the decisions made for her by her obstetrician. (e')

Despite the widespread acceptance that breech babies should be delivered by cesarean section, it has not been proven to be safer for the baby than natural active breech birth. An international
multi-centre Term Breech Trial is currently being undertaken to look at the question of which is the better approach for management of the breech baby at term: planned cesarean section or planned vaginal birth.

Estimates of the perinatal mortality attributable to vaginal delivery of breech presentation have varied but it is generally accepted to be four times that for cephalic presentation when corrected for abnormalities. However, in a review of over 10,000 breech births in eighty-six hospitals
world-wide, Fortney et al (1986) found that the neonatal mortality rate in breech births was about twice the overall neonatal mortality rate.

Cesarean operations do not guarantee delivery of healthy babies, breech or otherwise. Neither are all the ‘hazards’ of vaginal delivery always avoided. Breech presenting babies are still born bottom first even when delivered operatively.

*It is incorrect to assume that cesarean breech delivery is never traumatic for the fetus. Several retrospective studies have shown that brachial*
plexus injury, damage to soft tissues, fractures, lacerations, and entrapment of the fetal head behind the uterine incision followed by intracranial hemorrhage occur in cesarean breech deliveries as well." 

Some obstetricians prefer to use a low vertical, rather than a transverse, uterine incision when delivering a breech baby by cesarean since vertical incisions can be extended with less risk to the mother should the need arise. This, of course, has implications for future deliveries since it is widely believed that vertical scars are at slightly higher risk of rupture.
However, Collea et al (1978)\textsuperscript{(54)} point out that “excessively slow delivery of the head may result in fetal asphyxia, although found no direct relationship between umbilicus-to-mouth delivery time and Apgar score”.

As the rate of cesarean delivery of breech babies rises, fewer and fewer midwives and doctors are learning the skills of vaginal breech delivery. In cases where the baby’s head does get trapped the birth attendants may act inappropriately by forcefully extracting the baby which may cause severe brain and spinal cord injuries, bruising sufficient to cause hyperbilirubinemia, trauma to
the liver, kidneys, spleen and adrenals.

In the ICEA review Delivery Alternatives in the Term Breech Pregnancy the views of Irwin Kaiser, an American ob/gyn are noted:

“I have never in my life had trouble with a breech. And I rarely section for a breech. Now, of course there are some skills involved in delivering breeches. And, many doctors trained today aren’t learning them.

However, if doctors don’t have the skills, may be they ought to be doing
something else—perhaps administrative medicine.\(^{(58)}\)

Although in theory breech babies are not benefiting from cesarean delivery, they may well be doing so in practice, because the skills of vaginal breech delivery are being lost.

To those who express the doubt that the high rate of cesarean section for breech presentations has improved outcome statistics, quickly comes the response “but they don’t do follow-up studies!” . In fact, there have been two widely quoted studies which found no difference
between breech infants delivered vaginally and breech infants delivered by cesarean.

Whether to opt for a cesarean, a trial of labour ending in a vaginal breech extraction, or a natural active breech birth is a very difficult decision for an individual mother, particularly if she is a first time mother.

Even if she has full information she has to weigh the risks of cesarean section to herself and her baby against the possible risks to the baby of vaginal delivery. The mortality rates for breech babies are at least two-to four times higher than
that for cephalic presentations. High rates of cesarean section for breech presenting babies have not been proved to improve outcome statistics, but the risks involved in operative delivery remain largely unacknowledged, summarily dismissed and are presented on the whole as being generally more acceptable.\(^{(58)}\)

Cheng and Hannah (1993)\(^{(5)}\) conducted a systematic search of the world literature regarding term breech delivery and found 82 reports published in English between 1966 and
1992. A total of 24 studies were selected for analysis because these compared planned vaginal delivery with planned cesarean section for the term, singleton breech fetus. The effects of planned delivery on perinatal mortality, corrected for lethal congenital anomalies and antepartum fetal death. The corrected perinatal mortality rate ranged from 0 to 48 per 1000 births and was higher among infants in the planned vaginal delivery groups.

All but two deaths were in the groups of women allowed to labor and deliver vaginally. The main causes of death were head entrapment.
cerebral injury and hemorrhage, cord prolapse, and severe asphyxia.

Cheng and Hannah (1993)\(^{(5)}\) observed that the overall neonatal mortality and morbidity resulting from trauma were increased significantly in the planned vaginal delivery groups, with a typical odds ratio of \(\text{\$8.3}\). They suggested that until a well-designed randomized trial with sufficient statistical power is performed, planned cesarean delivery should be strongly considered for persistent breech presentation at term.
Gifford and co-workers (1995b)\(^{(32)}\) performed a meta-analysis of outcomes after term breech delivery and observed that, given many methodological limitations of published studies, their analysis suggested an increased risk of injury or death after a trial of labor.

Collea and colleagues (1980)\(^{(19)}\) reported the results of 208 women with frank breech fetuses at term. Almost half of these women were excluded from further consideration because of possible fetopelvic disproportion based on x-ray
pelvimetry. A total of 60 infants were eventually delivered vaginally, and all survived, although two sustained brachial plexus injuries. There were no perinatal deaths, but half of the 148 women who had cesarean deliveries experienced significant morbidity compared with only 7 percent of 60 women who were delivered vaginally. Gimovsky and colleagues (1983) later evaluated 105 non-frank breech fetuses and reported similar findings. Although these two trials concluded that vaginal breech delivery was relatively safe, only 110 fetuses were actually allowed a trial of labor.
As emphasized by Eller and Van Dorsten (1995)\(^{(34)}\), this small number would not provide sufficient statistical power to demonstrate differences in uncommon adverse outcomes such as perinatal death and birth injury. Lindqvist and associates (1997)\(^{(35)}\), in a register-based nationwide study in Sweden from 1991 and 1992, found similar mortality with vaginal compared with cesarean delivery.

Collea JV writes: “It should be understood, however, that infants with breech presentation
who are delivered incorrectly may be injured at cesarean section. Every obstetrician should be thoroughly familiar with the manual art of breech extraction before attempting to perform an abdominal breech delivery from the uterus at cesarean section involve the same dexterity that is essential for a safe vaginal delivery”.

Graves W writes\(^{(60)}\): ‘It was once said that to judge an obstetrician, one should observe his management of a breech presentation. Perhaps this adage is becoming passe, so I wonder how
the next generation of obstetricians will perform when they have an emergency situation requiring delivery. I understand that many residents in training are not being taught how to deliver breech babies.” JO McCall, MD\(^{(50)}\), writes: “I submit to you that you will see some very awkward and difficult breech deliveries at the time of cesarean section. I encourage all of you who are preceptors with resident training programs to urge every resident to read Potter’s classic description of how to handle a breech”.

Green J et al. studied whether increased cesarean section rate for term breech delivery reduced
the incidence of birth asphyxia, trauma, and death? “The results of this study show that an increase in the rate of cesarean section for term breech deliveries from 22 % to 94 % has not reduced unfavorable outcome significantly, although a trend toward decreased trauma and death may exist.’

Elective cesarean section (CS) has become the preferred method of delivery for breech presentation. particularly in nulliparous women.

Add Abu-Heija, MD; Abdelhai Mohammed Ali, MD studied the perinatal outcome of singleton
breech presentation in nulliparous women who delivered after 37 weeks, either vaginally or by cesarean section, and whether by elective surgery or emergency, and to identify the indications for cesarean sections.

They concluded that with proper selection of nulliparous women with breech presentation for vaginal delivery, cesarean section can be avoided in the majority of cases without compromising the perinatal outcome.

Croughan Minihane and associates (1990) reported that vaginally born infants were not
at increased risk for adverse outcomes related to head trauma, neonatal seizures, cerebral palsy, mental retardation, or spasticity.

Christian and colleagues (19) reported no differences in Apgar scores, hospital stay, neonatal complications, and cord blood gases between vaginally delivered frank breeches and those delivered by cesarean section.

Fracture of the humerus and clavicle cannot always be avoided, and fracture of the femur may be sustained during difficult breech extractions.
Such fractures are associated with both vaginal and cesarean deliveries (Awwad and colleagues, 1993; Vasa and IKim, 1990)\(^{(65)}\).

There is no evidence that the incidence of congenital hip dislocations is increased by vaginal delivery of a breech (Clausen and Nielsen, 1988)\(^{(73)}\).

Despite the potential fetal hazards of vaginal breech delivery, maternal morbidity associated with cesarean section must also be considered when planning delivery of the term frank or complete breech fetus (Gifford and colleagues,
In appropriately selected and managed cases, and with informed consent, both planned cesarean section and vaginal breech delivery remain appropriate and reasonable management options.
Objectives

1. To determine the impact of mode of term singleton breech delivery on maternal and fetal mortality and morbidity.

2. To evaluate management of breech presentation in our hospitals.
Methodology

This is a prospective comparative hospital based study conducted at Omdurman Maternity Hospital and Khartoum Teaching Hospital in the period between 1st of September 2002 and 30th of November 2002.

The methodology applied in this study involves direct questioning using questionnaires to women with breech presentation at term 37 term singleton and planned for either vaginal delivery or cesarean section.
cases planned for vaginal delivery and 50 cases planned for cesarean section were studied and compared. Of the total 32 cases from KTH and 68 cases from OMH. All the cases studied have had good antenatal care.

Selection criteria:

Patients were eligible to be admitted to the study if confirmed as breech at term singleton viable.

Exclusion criteria:

Preterm, second twin and dead fetus are excluded. Patients who were planned for a particular mode of delivery (vaginal or CIS) and
for any reason delivered with other mode or ended by emergency cesarean section are also excluded.

Patients planned for vaginal delivery getting to hospital in labor are followed throughout first stage of labor, fetus also monitored thoroughly.

The delivery is conducted by midwife, registrar or obstetrician. An individual trained to resuscitate the infant available, Apgar score is assessed in 1 minute time and after 5 minutes and if the baby needs further management will be sent to baby care unit for close surveillance.
Mother is followed by vital signs and any complication detected is treated immediately. Stay in hospital for two hours after delivery is the normal but patient may stay for longer period if there is any complication.

Patients planned for elective cesarean section are checked preoperatively and both mothers and fetal condition are monitored. The type of anesthesia whether general or spinal is not considered, but if any complication arise particularly delayed recovery from general anesthesia is considered.
Most of the operations are carried out by the most experienced person in delivering breech. The baby is handled by individual experienced in neonatal resuscitation, Apgar score is assessed in 1 minute and after 5 minutes, babies who were critically ill or need more neonatal care will be sent to the nursery to be seen by specialist.

Patient is followed post operatively with close contact to the vital signs. Any complication in the postpartum period will be considered till discharge, stay in hospital for less than 7 days is the norm, if it is more than that, this will be
counted as more stay in hospital reflecting maternal morbidity. On discharge the patient would be given a card and appointment for postnatal visit after 6 weeks.
Result

No maternal mortality is reported in the studied cases.

Table (1) shows distribution of studied population according to age. In 26 % of studied population the age (25-29)

Table (2) shows distribution of studied population according to parity .In 32 % primigravida 31 % delivered with C/S and 1 % delivered vaginally, this reflects the trend of delivery of primigravida with breech presentation.
Table (3) shows distribution of studied population according to gestational age. 59% of the cases delivered at 38 weeks.

Table (4) shows the incidence of past history of breech presentation in the studied population. Among the total there is 6% having a past history of breech presentation.

Table (5) shows distribution of associated disease among the studied population. Hypertensive disorders account for 5% and diabetes mellitus 5% also.

Table (6) shows the relation between amount of
liqueur and associated maternal disease. Oligohydramnios reported in 2 cases 1 with hypertension while polyhydramnios reported in 5 cases 2 of them having DM.

Table (7) shows the relation between external cephalic version & estimated fetal weight. Only one patient had tried ECV, the estimated fetal weight in this trial was average size.

Table (8) shows the incidence of congenital anomalies among patients delivered virginally. 3 cases of congenital anomalies account for 6 % were reported in the cases of TD.
Table (9) shows the incidence of congenital anomalies among patients delivered with cesarean section. 2 cases of congenital anomalies account for 4% were reported in the cases of C/S.

Table (10) shows the type of congenital anomalies & outcome in V/D. death is reported in only 1 case of the total cases delivered vaginally (an encephaly).

Table (11) shows the type of congenital anomalies & outcome in C/S. One of the 2 cases of congenital anomalies reported in C/S
deliveries died (hydrocephalus).

Table (12) and (13) shows the incidence of maternal complications in V/D and C/S. The short term complication in the two groups are similar in number (4 cases in each group) however, the complications following C/S are more serious.

Table (14) and (15) shows the incidence of fetal birth trauma in V/D and C/S. Fetal birth trauma is reported in .5 cases of 41 vaginal delivery while only I case is affected during cesarean section.
Table (16) shows distribution of neonatal losses according to mode of delivery. Fetal mortality rate in studied population is 8%

- Lethal congenital anomalies found in 4.%
- Fetal mortality with exclusion of lethal congenital anomalies is 4%

Table (17) shows distribution of planned C/S according to indication. In 62% the indication was primigravida with breech presentation, 16% for complicated breech (HT-DM), feto pelvic disproportion in 10% and 12% for large size baby.
Table (18) show distribution comparing fetal birth trauma in VD and C/S, fetal birth trauma is reported in 5 cases of vaginal delivery while only 1 case is affected during cesarean section.

Table (19) and (2) show distribution of Apgar score after 1 minute in VD & C/S consecutively, Apgar score after 1 minute < 7 score is reported in 8% of cases delivered vaginal, while only 4% in C/S deliveries.
Table (1): Distribution of studied population according to age

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>9</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>20-24</td>
<td>22</td>
<td>22%</td>
<td>31%</td>
</tr>
<tr>
<td>25-29</td>
<td>26</td>
<td>26%</td>
<td>57%</td>
</tr>
<tr>
<td>30-34</td>
<td>24</td>
<td>24%</td>
<td>81%</td>
</tr>
<tr>
<td>≥35</td>
<td>19</td>
<td>19%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
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<td>100</td>
<td></td>
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</table>
Table (2): Distribution of studied population according to parity

<table>
<thead>
<tr>
<th>Parity</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
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<tr>
<td>PG</td>
<td>32</td>
<td>32%</td>
<td>32%</td>
</tr>
<tr>
<td>Multipras</td>
<td>54</td>
<td>54%</td>
<td>86%</td>
</tr>
<tr>
<td>Grandmultipras</td>
<td>14</td>
<td>14%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
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Table (3): Distribution of studied population according to gestational age

<table>
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<th>G. age (wks.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
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<tr>
<td>37</td>
<td>1</td>
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</tr>
<tr>
<td>38</td>
<td>59</td>
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<td>60%</td>
</tr>
<tr>
<td>39</td>
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<td>9%</td>
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<td>40</td>
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<tr>
<td>41</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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**Table (4):** Past history of breech

<table>
<thead>
<tr>
<th>Ph of breech</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not affected</td>
<td>94</td>
<td>94%</td>
<td>94%</td>
</tr>
<tr>
<td>Affected</td>
<td>6</td>
<td>6%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
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Table (5): Distribution of studied population according to associated disease

<table>
<thead>
<tr>
<th>A. disease</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
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<tr>
<td>None</td>
<td>90</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>HT</td>
<td>5</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>MD</td>
<td>5</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Table (6): Associated maternal disease & amount of Liquour

<table>
<thead>
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<th>Associated maternal disease</th>
<th>Amount of liquor</th>
<th></th>
<th></th>
<th>Total</th>
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<tr>
<td></td>
<td>Oligo</td>
<td>Average</td>
<td>Poly</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>86</td>
<td>3</td>
<td>90</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>-</td>
<td>3</td>
<td>2</td>
<td>5</td>
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<td>Total</td>
<td>2</td>
<td>93</td>
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Table (7): Relation between external cephalic version and estimated fetal weight crosstabulation

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<thead>
<tr>
<th>External cephalic version</th>
<th>Estimated fetal weight</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
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<tr>
<td></td>
<td>Small</td>
<td>Average</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Not tried</td>
<td>10</td>
<td>83</td>
<td>6</td>
<td>99</td>
</tr>
<tr>
<td>Tried</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>84</td>
<td>6</td>
<td>100</td>
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Table (8): Congenital anomalies V/D

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not affected</td>
<td>47</td>
<td>94%</td>
<td>94</td>
</tr>
<tr>
<td>Affected</td>
<td>3</td>
<td>6%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
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Table (9): Congenital anomalies associated C/S

<table>
<thead>
<tr>
<th>Cong. Anomalies</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not affected</td>
<td>48</td>
<td>96%</td>
<td>94</td>
</tr>
<tr>
<td>Affected</td>
<td>2</td>
<td>4%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Table (10): Congenital anomalies V/D

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocephalus</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Anencephaly</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Spina bifida</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>
Table (11): Types of congenital anomalies and outcome in C/S

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocephalus</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Anencephaly</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Table (12): Types of congenital anomalies & outcome in C/S

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No comp</td>
<td>46</td>
<td>92%</td>
<td>92</td>
</tr>
<tr>
<td>Complications</td>
<td>4</td>
<td>8%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Table (13): Short term maternal complications in C/S

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No comp</td>
<td>46</td>
<td>92%</td>
<td>92</td>
</tr>
<tr>
<td>Complications</td>
<td>4</td>
<td>8%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
Table (14): Fetal birth trauma in VD

<table>
<thead>
<tr>
<th>Age group (yrs.)</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affected</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Not affected</td>
<td>45</td>
<td>90%</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table (15): Fetal birth trauma in C/S

<table>
<thead>
<tr>
<th>FBT</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>49</td>
<td>98%</td>
<td>98</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>2%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Test statistics

<table>
<thead>
<tr>
<th></th>
<th>FBT1</th>
<th>FBT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>df</td>
<td>Asymp. Sig.</td>
</tr>
<tr>
<td>------------</td>
<td>----</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>32.000</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>46.080</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Table (16): Distribution of perinatal losses according to mode of delivery

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum. percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>V/D</td>
<td>3</td>
<td>6%</td>
<td>3</td>
</tr>
<tr>
<td>C/S</td>
<td>1</td>
<td>2%</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>
Table (17): Distribution of planned C/S according to indication

<table>
<thead>
<tr>
<th>No.</th>
<th>Indication for C/S</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Primigravida</td>
<td>31</td>
<td>62%</td>
</tr>
<tr>
<td>2</td>
<td>Complicated breech (HT-DM)</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Feto-pelvic disproportion</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td>---</td>
<td>-----</td>
</tr>
<tr>
<td>4</td>
<td>Large size baby</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table (17): Distribution of planned C/S according to indication

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBT 1</td>
<td>50</td>
<td>0.1000</td>
<td>0.3030</td>
<td>4.286E-02</td>
</tr>
<tr>
<td>FBT 2</td>
<td>50</td>
<td>2.000E-02</td>
<td>0.1414</td>
<td>2.000E-02</td>
</tr>
</tbody>
</table>

One-Sample Test
<table>
<thead>
<tr>
<th>Item</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean difference</th>
<th>95% Confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBT 1= Fetal birth trauma in VD.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FBT 2= Fetal birth trauma in C/S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (19): Apgar score after 1 minute for newborn in VD

<table>
<thead>
<tr>
<th>Apgar score</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>3</td>
<td>8.3</td>
<td>-5.3</td>
</tr>
<tr>
<td>6.00</td>
<td>1</td>
<td>8.3</td>
<td>-7.3</td>
</tr>
<tr>
<td>7.00</td>
<td>17</td>
<td>8.3</td>
<td>8.7</td>
</tr>
<tr>
<td>8.00</td>
<td>3</td>
<td>8.3</td>
<td>-5.3</td>
</tr>
<tr>
<td>9.00</td>
<td>20</td>
<td>8.3</td>
<td>11.7</td>
</tr>
<tr>
<td>10.00</td>
<td>6</td>
<td>8.3</td>
<td>-2.3</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (20): Apgar score after 1 minute for newborn in C/S

<table>
<thead>
<tr>
<th>Apgar score</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>1</td>
<td>8.3</td>
<td>-7.3</td>
</tr>
<tr>
<td>6.00</td>
<td>1</td>
<td>8.3</td>
<td>-7.3</td>
</tr>
<tr>
<td>7.00</td>
<td>8</td>
<td>8.3</td>
<td>-0.3</td>
</tr>
<tr>
<td>8.00</td>
<td>3</td>
<td>8.3</td>
<td>-5.3</td>
</tr>
<tr>
<td>9.00</td>
<td>23</td>
<td>8.3</td>
<td>14.7</td>
</tr>
<tr>
<td>10.00</td>
<td>14</td>
<td>8.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Test statistics

<table>
<thead>
<tr>
<th></th>
<th>APCCS1</th>
<th>APgar Score E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square df</td>
<td>46.000</td>
<td>39.280</td>
</tr>
<tr>
<td>df</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>
F9
Mode of term singleton breech delivery is an area of controversy. A lot of studies had been carried out in this issue to determine better mode of delivery for breech. In fact there is wide range in the acceptance and argument of the results of these studies.

This study of planned VD Vs planned C/S delivery has been conducted in two major hospital to reflect the situation and to compare two groups in term of maternal and fetal outcome.
In this study 6 % have had previous breech presentation, and in the literature women who have had a previous breech presentation at term are significantly more likely to have one in a subsequent pregnancy\(^{(1)}\).

This is usually associated with extended fetal legs.

Congenital anomalies are reported in 5 % of studied cases and this\(^{(1,3)}\) is equal to what is reviewed in the literature as Collie et al. quoted a 5% incidence of congenital abnormality in term breech fetuses, two to three times higher.
than in their vertex counterparts (2.1%).

Regarding parity 32% of studied population were primigravida and this suggests that primigravidity plays a role in the etiology of breech and this is supported by the literature. Uterine size or shape may also influence presentation. It seems that the narrower cephalic pole of the fetus will normally occupy the narrower lower segment, especially if the legs of the fetus are flexed at the knee. This configuration of uterus and fetus will produce the usual cephalic presentation. But if the knees are extended, the hips flexed and uterine space is limited, the head
and feet may lie alongside each other, making the cephalic pole of the fetus larger and encouraging a breech presentation. Uterine space is often limited in the nullipara and breech presentation is reported to be more common in nulliparous women.

Concerning amount of liqueur amnii 2 % were found to have oligo hydramnios, 93 % average liquiour and 5 % having poly hydramnios.

Term breech presentations are associated with relatively short cords, reduced fetal growth and abnormalities in amniotic fluid volume (either
oligo- or hydramnios).

Concerning the investigation ultrasound (UIS) has been done in 81 % and x-ray pelvimetry is in 2 % of studied cases, ultrasound ideally should be used to confirm a clinically suspected breech presentation and to identify, if possible, any fetal anomalies.

Bruck and Sherer(i 997) used intrapartum ultrasound to detect large lower uterine segment leiomyomas. If cesarean delivery is planned, x-rays are not indicated. If, however, vaginal delivery is considered, the type of breech
presentations of considerable importance.

Radiation exposure may be reduced considerably by using computed tomography pelvimetry (kopelman and associates, (1986)

These imaging techniques can be used to provide information regarding the type of breech presentation, presence or absence of a flexed fetal head, and pelvic measurements.

It is clear that ECV reduced the incidence of breech presentation at term, although it is not free of risks to the mother and fetus and prerequisites for performance if fulfilled this
would reduce the incidence of cesarean section. Unfortunately in this study only one patient tried ECV (1%), this result review that this art is not practiced in our hospitals although it is recommended as first option in management of breech.

Trials were performed in Africa on Black African women. The success rates quoted in these trials are higher than in the European and North America trials. This is probably due to the tendency for late engagement of the presenting part in the pelvis
in the Black African women. (iv)

The short term complications in the two groups are similar in number (4 cases in each group) however, the complications following C/S are more serious. Primary postpartum hemorrhage due to genital tract laceration is reported in 3 cases of VD. One case of extended episiotomy which required exploration and repair in the theatre

Regarding short term complication following C/S delayed recovery from anesthesia reported in one case, primary postpartum hemorrhage in
one case wound infection is reported in 2 cases.

Fetal birth trauma reported in 5 cases (10%) in VD while only 1 case (2%) exposed to trauma during CIS, this result reflects inadequate training of the staff in conducting breech delivery. (see table (16, 17)) and in literature Irwin Kaiser, an American ob/gyn are noted:

“I have never in my l had trouble with a breech. And I rarely section for a breech. Now, of course there are some skills involved in delivering breeches. And, many doctors trained today aren ‘t learning them. However, if doctors don ‘t have
the skills, may be they ought to be doing something else — perhaps administrative medecine. \(^{(53)}\)

Concerning fetal morbidity Apgar score after 1 minute < 7 in VD reported in 8 % of cases while 4 % in C/S

Prenatal mortality corrected for lethal congenital anomalies in all studied cases is 4 % and this is not far from the result of Cheng and Hannah (1993) in their systemic search of the world literature regarding prenatal mortality in term breech delivery, in which 4.8 % prenatal
mortality is reported.
Conclusion

• Mode of term singleton breech delivery is still an area of controversy.

• In this study regarding mode of delivery in primigravida with breech (only 1 patient delivered vaginally while 31 patients delivered with C/S.) almost C/S is the trend of delivering primigravida with breech presentation.

• Clinical sense is important to be preserved, however, ultrasound scan is mandatory in all cases particularly if vaginal delivery is planned.
• ECV tried in only 1 patient (1 %) and this is very minimum participation in term of reduction the overall C/S rate.

• Fetal weight assessment plays an important role in determining mode of breech delivery; in this study there is under estimation of clinically estimated fetal weight.

• Fetal birth trauma can occur in both VD or C/S if the individual who handles the delivery is not adequately trained, this study revealed more fetal birth trauma in VD group.
• Low Apgar scores, longer stay in hospital and fetal birth trauma indicate fetal morbidity. And this was reported more among VD group.

• Regarding prenatal losses 3 cases (6 %) were reported in VD, while only 1 case (2 %) reported in C/S however, these losses include lethal congenital anomalies.

• In appropriately selected and managed cases, and with informed consent, both planned C/S and vaginal breech delivery remain appropriate and reasonable management options.
Recommendations

• Regular ANC is of great value for accurate diagnosis, management and minimizing unforeseen complications.

• Application of strict selection criteria for vaginal breech delivery to minimize fetal morbidity and mortality.

• An individual trained in resuscitation of the infant should be available at time of delivery.

• Providing full set up (oxygen), (forceps for after coming head) in the labor room.
• Special training courses for midwives & doctors to learn the skills and art of breech delivery.

• Training program for learning the art of ECV, as it is considered as first option in the management of breech.

• Providing an ambulance to transport patients home, particularly those who have socioeconomic problems to reduce unnecessary stay in hospital.

• Providing baby care unit in maternity hospitals to avoid critical transport to remote center.
• Vaginal breech delivery should be recommended if the criteria for vaginal delivery is fulfilled as it is cost effective and associated with reduced maternal morbidity.

• Recording of information regarding mode of breech delivery in our hospitals or auditing for future researches.
References


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MODE OF TERM SINGLETON BREECH DELIVERY

Vaginal Vs C/S Maternal & Fetal Outcome

Case No. : ........................................

Name : .............................. Age : ...............

Residence: ..........................

Parity: .......................... G    P

+  

CURRENT PREGNANCY:

₁ - Gestational Age ................................. WK.

₂ - Is she good ANC attendant  No
Yes

- Diagnosis of Breech: During Antenatal follow in labor

4- If Diagnosed During ANC

   clinical investigation both

5- Investigation US/S X-ray CT

- Did she tried ECV No Yes result

- Amount of liquor

   oligo average poly

^ Associated Maternal Disease
Clinical estimated fetal Wt

small     average     large    size
baby

PAST HISTORY:

(1) Was there Past History of Breech delivery

No    Yes

(2) What was Mode Delivery     VaginalI    C/S
     I

(3) Was there Past History of obs. Or gyn.
Operation

No  Yes  mention

..................

If planned for VD:

-Conducted by:

Midwife    Registrar    Obstetrician

Others

-Apgar Score:

    after 1min    after 5min

    END

-Was there any fetal Birth Trauma  No
Yes Mention .........

-Was there any congenital anomaly No

Yes Mention .........

-Was there any Matenal complication No

Yes Mentio ........

-Stay in Hospital For: 2 Hours more

why.......... Wt I 1Kg

If planned for EL C/S:

—What was the indication

............................................................

-What was the type of Anaesthesia GA spinal
local

-Apgar Score:after 1min after 5min

END

-Was there any fetal Birth Trauma  No Yes
Mention .............

-Was there any congenital anomaly No Yes
Mention .............

-Was there any Matenal complication No Yes
Mention .............

-Stay in Hospital For:< 7days >7days I why

............. Wt jKg
If planned for VD:

- Conducted by:
  
  JVlidwife I I Registrar I I Obstetrician L I
  Others I I

- Apgar Score:
  
  after 1mm (after 5mm I I END I

- Was there any fetal Birth Trauma No I I Yes I

  I Mention

- Was there any congenital anomaly No

  _____ Yes _____ Mention

- Was there any Matenal complication No I I Yes
Mention

- Stay in Hospital For: 2 Hours I I more I I why

Wt I I Kg

If planned for EL C/S:

— V/hat was the indication

- What was the type of Anaesthesia GA I I spinal I I local I I

-Apgar Score: after mm ____ after 5mm I

END f

-Was there any fetal Birth Trauma No I I Yes I I

Mention
- Was there any congenital anomaly No I I Yes
  ____ Mention

- Was there any Maternal complication No Yes
  ____ Mention

- Stay in Hospital For: < 7days I I > 7days
  ____ why Wt ____