

Singleton Breech Vaginal Delivery

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BACKGROUND

The Term Breech Trial (TBT) was the largest randomized clinical trial ever undertaken on term breech mode of delivery. In countries with a low perinatal mortality rate, the trial showed no difference in perinatal mortality between a planned cesarean delivery (CD) and a trial of breech labor (TOBL) but a difference in “serious” short-term neonatal morbidity: 0.4% versus 5.1%.

On the other hand, one half of the TBT sample was followed beyond two years of age, at which time there was no difference in the combined perinatal death and abnormal neurological outcome: 3.1% in the planned CD group, and 2.8% in the TOBL group. Ironically, at two years of age, the only significant difference in infant outcome was fewer “medical problems in the past several months” in the TOBL group (15% vs. 21%; $P = 0.02$).

In the PREMODA study, a multicenter prospective descriptive study four times larger than the TBT, cesarean delivery was planned in 69% and TOBL undertaken in 31%, consistent with non-randomization. Of 2526 women having a TOBL, 1796 (71%) delivered vaginally for an overall vaginal birth rate of 22.5%.

Annually in North America, over 100,000 women have pregnancies that remain breech at term. With a success rate estimated to be that of the PREMODA study, some 25,000 could safely avoid a CD.

Breech presentation is increased with fetal prematurity. Vaginal breech delivery may be associated with increased risk in these preterm infants. The fetal head circumference to abdominal circumference ratio is larger than that of a mature fetus thus increasing risk of possible complications such as head entrapment and cord prolapse. Cesarean delivery may be preferred in these cases.

Multiple gestations also are at risk of fetal breech malpresentation. Delivery options of gestations of cephalic-breech, cephalic-breech, and cephalic-transverse pregnancies include: vaginal delivery, cesarean delivery, or vaginal delivery of twin A with external version of twin B to cephalic presentation for vaginal delivery, breech extraction of twin B, internal podalic version of twin B with breech extraction, or cesarean delivery. There is no recent data to support the recommendation of cesarean delivery to patients whose second twin is in non-cephalic presentation. If twin A, the presenting twin, is not cephalic, cesarean delivery should be performed as there is risk for fetal head interlocking syndrome with breech delivery of twin A if twin B is cephalic and external cephalic versions of twin A have not been studied or encouraged. However, the decision for management of delivery may be related to both provider experience and patient selection criteria. Ultrasound and adequate regional anesthesia should be utilized.

BENCHMARK STUDIES

CANADA

In June 2009 the Society of Obstetricians and Gynaecologists of Canada issued Clinical Practice Guideline No. 226, which noted:

- Long-term neurological infant outcomes do not differ by planned mode of delivery even in the presence of serious short-term neonatal morbidity.
- Careful case selection and labor management in a modern obstetrical setting may achieve a level of safety similar to that of an elective cesarean delivery.
- Planned vaginal delivery is reasonable in selected women with a term singleton breech fetus.
- With careful case selection and labor management, perinatal mortality occurs in approximately 0.2% (2 per 1000 births) and serious short-term neonatal morbidity in

approximately 2% of breech infants. Many recent retrospective and prospective reports of vaginal breech delivery that follow specific protocols have noted excellent neonatal outcomes.

UNITED STATES

In 2010 the American College of Obstetricians and Gynecologists' (ACOG) Committee on Obstetric Practice reaffirmed the following recommendation in ACOG Committee Opinion No. 340:

- Planned vaginal delivery of a term singleton breech fetus may be reasonable under hospital-specific protocol guidelines for both eligibility and labor management. (See below)

Criteria:

1. No contraindication to vaginal birth (see below)
2. Estimated fetal weight ≥ 2500 g and < 4000 g
3. Gestational ≥ 36 0/7 weeks of gestation
4. No hyperextension of the fetal head (i. e., an extension angle of greater than 90 degrees)
5. Frank or complete breech presentation
6. Adequate maternal pelvis
7. Absence of fetal anomaly that may cause dystocia
8. Staff skilled in breech delivery and immediate availability of facilities for safe emergency cesarean delivery (e. g., anesthesia, obstetric, and pediatric personnel, surgical facilities and personnel)

Contraindications:

1. Cord presentation
2. Fetal growth restriction
3. Fetus measuring large for gestational age
4. Any presentation other than a frank or complete breech with a flexed or neutral head attitude including incomplete breech presentation
5. Clinically inadequate maternal pelvis
6. Fetal anomaly incompatible with vaginal delivery
7. Other conditions that would preclude vaginal delivery (e.g. placenta previa or accreta, active genital herpes outbreak, etc)

LABOR MANAGEMENT TIPS

Epidural analgesia is useful because it relieves pain, prevents the mother from pushing involuntarily before full cervical dilatation, and provides anesthesia if obstetrical maneuvers are needed to facilitate delivery. However, it is important that the mother be able to push effectively when the breech fetus descends to the pelvic floor.

Judicious use of labor induction is warranted and could be considered in specific cases. However, breech vaginal birth success rate is higher with spontaneous onset of labor. The best indication of adequate fetopelvic proportions is a normal labor curve. Indications of an unsuccessful trial of vaginal breech are different from cephalic presentation as it is recommended not to use artificial rupture of membranes in the stimulation process. Oxytocin infusion may be used to induce or augment in the latent phase of labor or after epidural anesthesia. Poor progress in the active phase may be an indicator of fetopelvic disproportion and the decision to initiate oxytocin augmentation should be done with close observation of progression once active labor has commenced. Additionally, oxytocin augmentation may be considered during second stage for the purpose of assistance to maternal expulsive efforts.

A fetal scalp ECG electrode may be inserted onto the buttock after spontaneous rupture of membranes (SROM) occurs. SROM is an indication for immediate evaluation of fetal heart tones, cervical dilatation,

and presentation.

Assessing for complete cervical dilation with a breech fetus is more difficult than in cephalic presentation because the fully dilated cervix does not disappear behind the fetal head. Instead, the cervix remains palpable as the fetal trunk descends through it.

Descent is regarded as adequate if the breech reaches the level of the ischial spines when the cervix is 6 cm dilated and reaches the pelvic floor at full dilatation.

The primary expulsive force for a breech fetus is through maternal expulsive efforts. A passive second stage (delayed pushing) for up to 90 minutes is acceptable.

Unsuccessful breech vaginal delivery can be diagnosed after 4 hours of no cervical change in active labor or one hour of active second stage of labor without descent. Breech extraction is not appropriate for a singleton vaginal breech. A cesarean delivery should occur after arrest of dilatation or descent.

MANAGEMENT

1. If there are no contraindications to external cephalic version (ECV) or labor, ECV is recommended:
 - a. ECV lowers the likelihood of CD (likelihood of emergency CD <1%).
 - b. ECV is acceptable with a history of a prior CD or in early labor with intact membranes.
 - c. Ensure operating room is available; IV in place; ultrasound guidance.
 - d. Give RhoGam anti-D immune globulin if mother is Rh negative.
2. If an ECV is unsuccessful or declined, then options are trial of breech labor or cesarean delivery.
3. For a trial of breech labor, selection criteria are:
 - a. Informed consent to be completed by an OBGYN physician:
 - i. Small risk to fetus with careful TOBL or pre-emptive CD: approximately 0.2% of perinatal mortality or hypoxic ischemic encephalopathy and 2% short-term morbidity. Long-term outcomes equivalent.
 - ii. Possibility of small increased risk to fetus of TOBL (1/500).
 - ii. Approximate 40-71% chance success with TOBL.
 - iii. Successful vaginal birth has overall less maternal risk (bleeding, infection, hysterectomy, blood transfusion, death) and less risk in future pregnancies of abnormal placentation, stillbirth, and uterine rupture.
 - b. Pre-labor TAUS:
 - i. Frank or complete breech. If foot/feet leading but hips flexed = complete breech. "Footling" diagnosis requires an extended hip and is very unusual in normally grown fetus at term with a closed cervix and intact membranes, but may occur during labor.
 - ii. CD recommended for footling breech unless delivery is imminent.
 - iii. No fetal growth restriction (FGR).
 - iv. Head attitude neutral or flexed.
 - v. No presenting umbilical cord evident on US or pelvic exam.
 - c. Estimated Fetal Weight between 2500 – 4000g
 - ii. Under 2800g - beware fetal growth restriction (FGR) in larger woman at term.
 - iii. Over 4000g, may be acceptable in larger woman or with proven pelvis.
 - iv. Best indicator of adequate fetal-pelvic proportion is good progress in labor.
 - v. Obstetrician who is comfortable with plan must be available: more experienced

obstetricians can back up those less experienced.

vi. Document on-call plan in the electronic medical records prior to labor.

4. Labor management:

- a. Notify the obstetrician upon diagnosis of breech presentation by transabdominal ultrasound.
- b. IV saline lock, type and screen in addition to routine prenatal labs on admission in labor.
- c. Clear fluids in labor.
- d. Avoid artificial rupture of membranes.
- e. Immediately perform a vaginal exam with SROM to exclude a prolapsed umbilical cord.
- f. In first stage, continuous EFM. Intermittent auscultation acceptable for deeply engaged frank breech, if the prior monitoring was Category I.
- g. Expect minimum 0.75 cm/h progress after cervix 4 cm dilated and fully effaced.
- h. Perform continuous electronic fetal monitoring in second stage.
- i. Progressive descent is expected in second stage. Passive second stage can be allowed for a maximum 90 minutes, active pushing for a maximum 60 minutes. A CD should be performed if vaginal delivery is not imminent after 2.5 hours.
- j. Plan to deliver in the operating room. Operating room staff, anesthetist, & pediatrician in hospital for double set-up during active second stage. (Appendix 1)
- k. Piper's forceps, pudendal block set, #10 scalpel blade and #3 scalpel handle in delivery room, step stools, and ultrasound at bedside in addition to routine vaginal delivery and cesarean delivery equipment.
- l. An extra attendant should be present for maneuvers and/or ultrasound, if needed.
- m. Consider placement of a Foley catheter or emptying the bladder via straight catheterization in the second stage.
- n. Umbilical arterial and venous cord gases should be collected for all vaginal breech deliveries.

VIDEO REFERENCES

WHO RHL VAGINAL BREECH:

<https://www.youtube.com/watch?v=G5c4GAxmEgE&list=PL68EE6D503647EA2F&index=11>

VAGINAL BREECH EDUCATION:

<https://www.youtube.com/watch?v=LajPSMTJLt4&list=UUvBMITTuK6M1xROuYv4VydA&index=7>

PIPER'S FORCEPS:

https://www.uptodate.com/contents/image?imageKey=OBGYN%2F78716~OBGYN%2F56439&topicKey=OBGYN%2F5384&search=breech&rank=2~90&source=see_link

APPENDIX 1 DELIVERY TIPS

DISCLAIMER: Breech delivery, like any birth, is a dynamic process. The following approach is one option for breech management and should not replace individual provider judgment or training.

Adequate exposure is recommended and includes a completely broken-down bed.

FETAL TRUNK AND LEGS

Maternal expulsive efforts alone should be adequate to deliver the fetus' buttocks and lower limbs. The mother is encouraged to bear down until the feet, legs, and trunk to the scapulae are visible. Fetal traction should be avoided, and fetal manipulation should not be applied until after spontaneous delivery of the fetus to the level of the umbilicus.

If the legs are extended after the umbilicus has delivered, the operator may use his/her fingers to exert pressure on the back of the knee (Pinard maneuver) and guide the thigh away from the trunk as the trunk is rotated in the opposite direction. This causes the knee to flex and allows extraction of the foot and the leg. The same procedure can be repeated, if needed, to deliver the other leg and foot. This Pinard procedure has no proven benefits. The body will deliver without doing this procedure, but it gives some room for the Mauriceau-Smellie-Veit (MSV) Maneuver (see below).

Cord pulsation is checked and a small loop pulled down to prevent traction on the cord before the trunk delivers. When the umbilicus delivers, a loop of several inches of cord should be gently pulled down. This prevents tension on the cord as the body delivers and allows easy monitoring of the fetal pulse by palpation.

Meconium passage is not uncommon.

The fetus may be grasped by the operator's fingers on the fetal pelvis, with thumbs on the sacroiliac regions. This avoids placing the hands too high on the fetus and injuring abdominal organs such as the kidneys, spleen, adrenal glands, or liver.

FETAL ARMS

After delivery of the trunk and legs, the mother is asked to push again and the shoulders should present in the anterior-posterior plane and deliver spontaneously, one at a time, along with the arms, which are usually crossed in front of the chest.

Shoulder dystocia with breech presentation is usually due to extension of the arms or nuchal arms. This is typically caused by traction on the baby early in the delivery. If the trunk is pulled down, the arms can drag behind, whereas uterine contractions and maternal expulsive efforts tend to push the entire fetus in its normal flexed attitude into the birth canal.

If the arms do not deliver spontaneously, intervention may be required. The baby is held by the hips or bony pelvis, never by the abdomen, as injury to the kidneys or adrenal glands is possible. The legs and pelvis should be wrapped in a towel to provide a good grip and keep the spine towards the pubic symphysis/upwards/anterior. The baby is then rotated 180 degrees to deliver the anterior shoulder and arm, then in the opposite direction so the other shoulder and arm becomes anterior and delivers under the symphysis pubis. This maneuver carries an eponym in Great Britain, where it is called the Lovsett Maneuver. The second rotation may be assisted by gentle traction on the delivered arm in the direction of the rotation.

Failure of the shoulders and arms to deliver with simple rotation of the trunk is managed by sliding an index finger along the baby's scapula, over the shoulder, and into the antecubital fossa. The elbow is then swept in front of the baby's face and downward to the chest, at which point the arm can be delivered. This procedure is repeated for the other side. Gentle rotation of the fetal trunk at the same time, keeping the back anterior, will assist this maneuver.

If the arms remain trapped behind the neck, the fetus can be rotated so the chest is facing the symphysis pubis/anterior. This helps to dislodge the nuchal arm(s) and allows the elbow to be swept down and extracted, as described above. Arm extraction can cause shoulder dislocation or broken bones, but these complications are less morbid than prolonged dystocia resulting in asphyxia. After the arms are delivered, rotate the fetus back to sacrum anterior.

FETAL HEAD

At this stage, the fetal head may start to appear without any further effort on the operator's part. If the hairline is not visible after the shoulders have delivered, while holding the fetus with sacrum anterior, suprapubic pressure can be applied by an assistant to flex the head and push it down into the pelvis (Bracht Maneuver).

Once the hairline is visible, the head is delivered. We prefer to use forceps for delivery of the aftercoming head. If forceps delivery is not possible or desired, the fetus' legs are swung upwards, keeping the vulva completely covered with the operator's other hand to keep the head from "popping." This hand is then opened slowly to allow first the baby's face and then the remainder of the head to deliver with maternal expulsive efforts.

The Mauriceau-Smellie-Veit (MSV) maneuver is helpful for delivery of the head. The baby is placed on the operator's dominant forearm and the dominant hand reaches into the vagina towards the fetal face. Pressure is placed with fingers on the fetal zygomatic arch/maxilla bilaterally to promote flexion and descent while counter-pressure is applied to the occiput with the tips of the fingers from the non-dominant hand.

With either forceps or spontaneous delivery, it is essential that the baby's legs be kept vertically in the air, but the trunk should be no more than 45 degrees above horizontal; this avoids traction on the cervical spine during delivery of the head. If the body is bent backwards too far (over the mother's abdomen), hyperextension of the neck can occlude the vertebral arteries and can lead to necrosis of the cervical cord. Excess weight on the cervical spine from downward traction can have the same effect or dislocate the baby's neck.

If there is any limitation in the vaginal space for manual manipulation of the fetal head, then an episiotomy can be considered. While episiotomy will not create more room in the bony pelvis, it will enable the operator to perform various manipulations more easily, including emergency procedures such as Piper's forceps application.

USE OF FORCEPS

Piper's forceps can be helpful for the delivery of the aftercoming head. *The following is an example of how the forceps can be applied and used during a breech vaginal birth.*

The baby's body is held by an assistant in a towel sling (blue towels work well) slightly higher than horizontal. The operator then applies Piper's forceps from below the fetal body.

The assistant moves the infant's body to the maternal right so the operator, in a kneeling position, can apply the maternal left blade. Initially the handle of the forceps is held below the mother's thigh, almost at right angles to her body and to her right. Using two fingers of the right hand as a guide, the toe of the blade is eased into the vagina and directed upwards at an angle about 45 degrees below the horizontal plane and over the infant's right ear. The left hand gradually moves the handle along a curve, downward and toward midline, while the fingers of the right hand guide the toe and protect the vaginal wall and side of the infant's head.

Unlike a cephalic delivery, a breech delivery means that the smallest part of the baby's skull appears at the vulva first with the large parietal area at the back of the pelvis. Thus, if the forceps handle is brought to midline too soon after insertion of the blade, the distal part of the blade will dig into the side of the baby's head and it will not be possible to lock the handles. The tip must be kept directed at the maternal sacrum for as long as possible, which means that the guiding hand must be inserted well into the vagina until the tip has passed around the occiput.

The assistant then moves the infant to the maternal left and a similar procedure is performed for insertion of the maternal right blade. The handles are locked when both handles reach midline, and the infant's body (still wrapped in the towel sling) is right above the shank.

Elevating the handles of the forceps and mild traction results in flexion and extraction of the head. Since the shanks of the forceps have a large axis traction curve built in, no special are required to ensure traction is in the correct vector. The primary motion of the forceps is to raise the handles in a large arc, starting about horizontal and ending at or past vertical. This arc will flex the head through the pelvis with the same geometry as the MSV maneuver, but with greatly increased leverage due to the length of the forceps. None of the flexing maneuvers of the MSV maneuver are required when the Piper's forceps are used.

HEAD ENTRAPMENT MANAGEMENT

The preterm fetus is at risk for head entrapment because the fetal head-to-abdominal circumference ratio is larger than that of a mature fetus. Therefore, the premature breech head may be caught in a partially dilated cervix, resulting in acute asphyxia from compression of the umbilical cord.

This can also happen with a larger baby, especially if the mother begins to push before full cervical dilatation occurs. In both premature and mature babies in breech presentation, the skull may not have sufficient time to mold when passing through the bony pelvis. This may also play a role in head entrapment and can result in damage to the occipital bone during delivery.

Head entrapment, if encountered, may result in a poor neonatal outcome. Attempted efforts to facilitate the delivery of the fetal head include uterine relaxation with nitroglycerin or terbutaline, Dührssen's cervical incisions, and more advanced measures. If the head is entrapped, the preferred option is to administer a uterine relaxant, either nitroglycerin lingual aerosol (1.2%): 2-3 squirts (0.4 mg per one squirt) or a beta adrenergic agonist (eg, terbutaline 0.25 mg subcutaneously). Dührssen's incisions may allow increased space within the cervix to allow fetal head delivery. One, two, or three incisions may be made. They are recommended at the 2, 6, and 10 o'clock positions of the cervix due to robust blood supply through the uterine arteries at the 3 and 9 o'clock positions.

Incisions on the cervix may lead to urinary tract or rectal injury (thus avoiding the 12 and 6 o'clock positions, respectively, is recommended) and can lead to significant risk of hemorrhage (from laceration of the cervical branches of the uterine arteries). The ability to perform these incisions on a term fetus

may be significantly limited due to vaginal space. Other more advanced measures, including symphysiotomy or Zavenelli maneuver for the replacement of the fetus, are associated with significant maternal and fetal morbidity and mortality, and that risk and may be of little utility after prolonged head entrapment.

REFERENCES

1. Mode of term singleton breech delivery. ACOG Committee Opinion No. 745. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2018;132:e60–3.
2. Kotaska A, Menticoglou S. No. 384-Management of Breech Presentation at Term. *J Obstet Gynaecol Can.* 2019 Aug;41(8):1193-1205.
3. The management of breech presentation. Guideline No. 20b, June 2017. Royal College of Obstetricians and Gynaecologists. *BJOG* 2017: 124(7), 151-177.
4. Hofmeyr GJ, Hannah M, Lawrie TA. Planned caesarean section for term breech delivery. *Cochrane Database of Systematic Reviews* 2015, Issue 7. Art. No.: CD000166. DOI: 10.1002/14651858.CD000166.pub2.
5. Eisinger, SH. Malpresentations, Malpositions, and Multiple Gestation Chapter G. Advanced Life Support in Obstetrics Provider Course Syllabus. American Academy of Family Practice, Leawood, Kansas.
6. Goffinet F, Carayol M, Foidart JM, Alexander S, Uzan S, Subtil D, et al.; PREMOMA Study Group. Is planned vaginal delivery for breech presentation at term still an option? Results of an observational prospective survey in France and Belgium. *Am J Obstet Gynecol* 2006;194:1002–11.
7. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomized multicentre trial. *Lancet* 2000;356:1375–83.
8. Reddy UM et al Neonatal mortality by attempted route of delivery in early preterm birth. *Am J Obstet Gynecol.* 2012 Aug;207(2):117.e1-8. doi: 10.1016/j.ajog.2012.06.023. Epub 2012 Jun 19.
9. Toivonen E, et al Selective vaginal breech delivery at term - still an option. *Acta Obstet Gynecol Scand.* 2012 Oct;91(10):1177-83. doi: 10.1111/j.1600-0412.2012.01488.x. Epub 2012 Aug 13.
10. Whyte H, Hannah ME, Saigal S, Hannah W, Hewson S, Amankwah K, et al. Outcomes of children at 2 years after planned cesarean birth versus planned vaginal birth for breech presentation at term: The International Randomized Term Breech Trial. *Am J Obstet Gynecol* 2004;191:864–71.
11. Sun W, Liu F, Liu S, Gratton SM, El-Chaar D, Wen SW, Chen D. Comparison of outcomes between induction of labor and spontaneous labor for term breech - A systemic review and meta analysis. *Eur J Obstet Gynecol Reprod Biol.* 2018 Mar;222:155-160.

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