### **Vaginal Breech Delivery**

Three types of vaginal breech deliveries are described, as follows:

* Spontaneous breech delivery: No traction or manipulation of the infant is used. This occurs predominantly in very preterm, often previable, deliveries.
* Assisted breech delivery: This is the most common type of vaginal breech delivery. The infant is allowed to spontaneously deliver up to the umbilicus, and then maneuvers are initiated to assist in the delivery of the remainder of the body, arms, and head.
* Total breech extraction: The fetal feet are grasped, and the entire fetus is extracted. Total breech extraction should be used only for a noncephalic second twin; it should not be used for a singleton fetus because the cervix may not be adequately dilated to allow passage of the fetal head. Total breech extraction for the singleton breech is associated with a birth injury rate of 25% and a mortality rate of approximately 10%. Total breech extractions are sometimes performed by less experienced accoucheurs when a foot unexpectedly prolapses through the vagina. As long as the fetal heart rate is stable in this situation, it is permissible to manage expectantly to allow the cervix to completely dilate around the breech.

### **Technique and tips for assisted vaginal breech delivery**

The fetal membranes should be left intact as long as possible to act as a dilating wedge and to prevent overt cord prolapse. A pediatrician is needed because of the higher prevalence of neonatal depression and the increased risk for unrecognized fetal anomalies. An anesthesiologist may be needed if intrapartum complications develop and the patient requires general anesthesia.

The Pinard maneuver may be needed with a frank breech to facilitate delivery of the legs but only after the fetal umbilicus has been reached. Pressure is exerted in the popliteal space of the knee. Flexion of the knee follows, and the lower leg is swept medially and out of the vagina.

No traction should be exerted on the infant until the fetal umbilicus is past the perineum, after which time maternal expulsive efforts should be used along with gentle downward and outward traction of the infant until the scapula and axilla are visible (see the image below).

Use a dry towel to wrap around the hips (not the abdomen) to help with gentle traction of the infant.

An assistant should exert transfundal pressure from above to keep the fetal head flexed.

Once the scapula is visible, rotate the infant 90° and gently sweep the anterior arm out of the vagina by pressing on the inner aspect of the arm or elbow.

Rotate the infant 180° in the reverse direction and sweep the other arm out of the vagina. Once the arms are delivered, rotate the infant back 90° so that the back is anterior.

The fetal head should be maintained in a flexed position during delivery to allow passage of the smallest diameter of the head. The flexed position can be accomplished by using the Mauriceau Smellie Veit maneuver, in which the operator's index and middle fingers lift up on the fetal maxillary prominences, while the assistant applies suprapubic pressure.

During delivery of the head, avoid extreme elevation of the body, which may result in hyperextension of the cervical spine and potential neurologic injury.

### **Risks**

* Lower Apgar scores, especially at 1 minute, are more common with vaginal breech deliveries.
* Fetal head entrapment may result from an incompletely dilated cervix and a head that lacks time to mold to the maternal pelvis. This occurs in 0-8.5% of vaginal breech deliveries.[3]This percentage is higher with preterm fetuses (< 32 wk), when the head is larger than the body. Dührssen incisions (ie, 1-3 cervical incisions made to facilitate delivery of the head) may be necessary to relieve cervical entrapment. However, extension of the incision can occur into the lower segment of the uterus, and the operator must be equipped to deal with this complication. The Zavanelli maneuver has been described, which involves replacement of the fetus into the abdominal cavity followed by cesarean delivery. While success has been reported with this maneuver, fetal injury and even fetal death have occurred.
* Nuchal arms, in which one or both arms are wrapped around the back of the neck, are present in 0-5% of vaginal breech deliveries and in 9% of breech extractions.[3]Nuchal arms may result in neonatal trauma (including brachial plexus injuries) in 25% of cases. Risks may be reduced by avoiding rapid extraction of the infant during delivery of the body. To relieve nuchal arms when it is encountered, rotate the infant so that the fetal face turns toward the maternal symphysis pubis (in the direction of the impacted arm); this reduces the tension holding the arm around the back of the fetal head, allowing for delivery of the arm.
* Cervical spine injury is predominantly observed when the fetus has a hyperextended head prior to delivery. Defined as an angle of extension greater than 90° ("star-gazing). [4]Of the 11 fetuses delivered vaginally, 8 (73%) sustained complete cervical spinal cord lesions, defined as either transection or nonfunction.
* Cord prolapse may occur in 7.4% of all breech labors. This incidence varies with the type of breech: 0-2% with frank breech, 5-10% with complete breech, and 10-25% with footling breech.[3]Cord prolapse occurs twice as often in multiparas (6%) than in primigravidas (3%). Cord prolapse may not always result in severe fetal heart rate decelerations because of the lack of presenting parts to compress the umbilical cord (ie, that which predisposes also protects).

### **Candidates**

For pregnancies prior to 26 weeks' gestation, prematurity, not mode of delivery, is the greatest risk factor. Unfortunately, no randomized clinical trials to help guide clinical management have been reported. Vaginal delivery can be considered, but a detailed discussion of the risks from prematurity and the lack of data regarding the ideal mode of delivery should take place with the parent(s). For example, intraventricular hemorrhage, which can occur in an infant of extremely low birth weight, should not be misinterpreted as proof of a traumatic vaginal breech delivery.

For pregnancies between 26 and 32 weeks, retrospective studies suggest an improved outcome with cesarean delivery, although these reports are subject to selection bias.

In contrast, between 32- and 36-weeks’ gestation, vaginal breech delivery may be considered after a discussion of risks and benefits with the parent(s).

After 37 weeks' gestation, parents should be informed of the results of a recent multicenter randomized clinical trial that demonstrated significantly increased perinatal mortality and short-term neonatal morbidity associated with vaginal breech delivery (see Comparative Studies). For those attempting vaginal delivery, if estimated fetal weight (EFW) is more than 4000 g, some recommend cesarean delivery because of concern for entrapment of the unmolded head in the maternal pelvis, although data to support this practice are limited. A frank breech presentation is preferred when vaginal delivery is attempted. Complete breeches and footling breeches are still candidates, if the presenting part is well applied to the cervix and both obstetrical and anesthesia services are readily available in the event of a cord prolapse.

The fetus should show no neck hyperextension on antepartum ultrasound imaging (see the image below). Flexed or military position is acceptable.



Ultrasound demonstrating a fetus in breech presentation with a hyperextended head (ie, "star gazing").

Regarding prior cesarean delivery, a retrospective study by Ophir et al of 71 women with one prior low transverse cesarean delivery who subsequently delivered a breech fetus found that 24 women had an elective repeat cesarean and 47 women had a trial of labor.[5]In the 47 women with a trial of labor, 37 (78.7%) resulted in a vaginal delivery. Two infants in the trial of labor group had nuchal arms (1 with a transient brachial plexus injury) and 1 woman required a hysterectomy for hemorrhage due to a uterine dehiscence discovered after vaginal delivery. Vaginal breech delivery after one prior cesarean delivery is not contraindicated, though larger studies are needed.

### **Primigravida versus multiparous**

It had been commonly believed that primigravidas with a breech presentation should have a cesarean delivery, although no data (prospective or retrospective) support this view. The only documented risk related to parity is cord prolapse, which is 2-fold higher in parous women than in primigravid women.















