

UPDATED

BREECH DELIVERY

Ina S. Irabon, MD, FPOGS, FPSRM, FPSGE

Obstetrics and Gynecology

Reproductive Endocrinology and Infertility

Laparoscopy and Hysteroscopy

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REFERENCES

- Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY (eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery
- ACOG/SMFM OBSTETRIC CARE CONSENSUS. Periviable birth: Interim update. Obstet Gynecol 2016;127:e157e69.
- ACOG COMMITTEE OPINION SUMMARY No. 745. Mode of Term Singleton Breech Delivery. Obstetrics and Gynecology. VOL. 132, NO. 2, AUGUST 2018
- Hofmeyr GJ. Delivery of the singleton fetus in breech presentation. www.uptodate.com

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LECTURE OUTLINE

1. CLASSIFICATION OF BREECH PRESENTATIONS
2. DIAGNOSIS
3. ROUTE OF DELIVERY
4. TERM AND PRETERM BREECH FETUS
5. DELIVERY COMPLICATIONS
6. MANAGEMENT OF LABOR AND DELIVERY
7. PARTIAL BREECH EXTRACTION
8. TOTAL BREECH EXTRACTION
9. EXTERNAL CEPHALIC VERSION
10. INTERNAL PODALIC VERSION

CLASSIFICATION



Frank breech presentation.



Complete breech presentation.



Incomplete breech presentation.

STARGAZING FETUS



- Of term breech fetuses, the neck may be extremely hyperextended : “stargazing fetus”
 - fetal or uterine anomalies may be more prevalent and are sought if not previously identified
 - With this hyperextension, vaginal delivery can result in injury to the cervical spinal cord.
 - Thus, if identified at term, this is an indication for cesarean delivery
- With transverse lie and similar hyperextension of the fetal neck, the term flying fetus is applied.

photo credit: www.babycenter.com.au

Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY (eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

RISK FACTORS

- early gestational age
- Abnormal amniotic fluid volume
- multifetal gestation
- Hydrocephaly
- anencephaly
- structural uterine abnormalities
- placenta previa
- pelvic tumors
- prior breech delivery
 - following one breech delivery, the recurrence rate for a second breech presentation is 10 percent, and for a subsequent third breech is 28 percent

DIAGNOSIS

Leopolds Maneuver

LM1 : head (fundic grip)

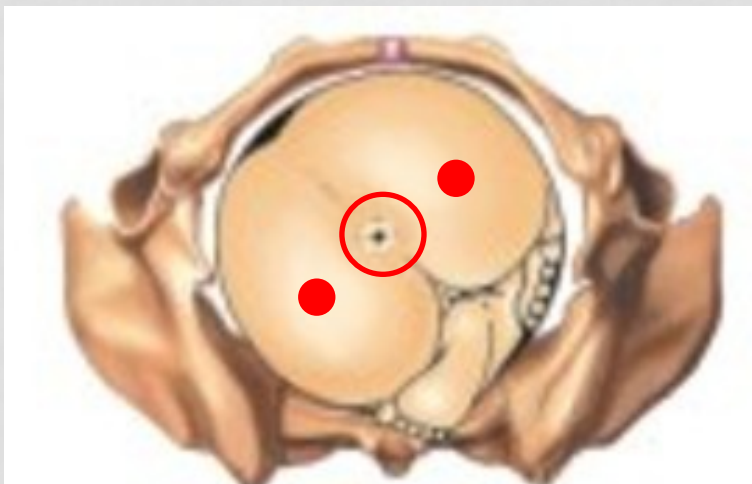
LM2 : fetal back (L or R) (umbilical grip)

LM3: if not engaged, the breech is movable above the pelvic inlet. (pawlic grip)

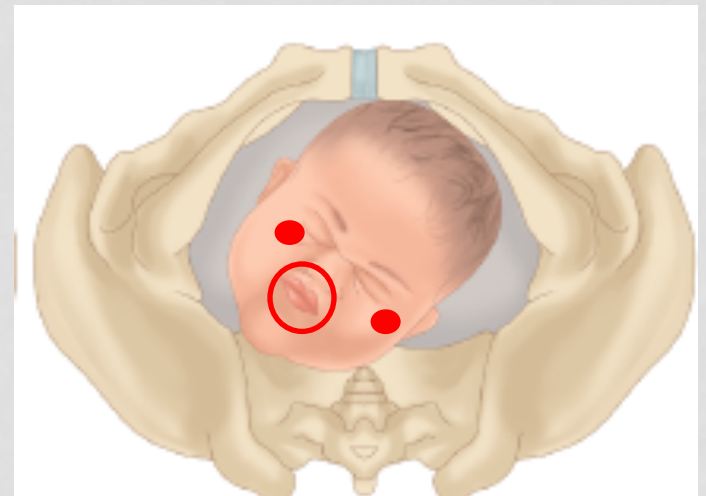
LM4: After engagement, the fourth maneuver shows the firm breech to be beneath the symphysis. (pelvic grip)

INTERNAL EXAM FINDINGS OF FRANK BREECH VERSUS CEPHALIC FACE PRESENTATION

Frank Breech



Face presentation



ROUTE OF DELIVERY:

VAGINAL VS CEASAREAN SECTION

Factors to consider:

- fetal characteristics
- Maternal pelvic dimensions
- coexistent pregnancy complications
- operator experience
- patient preference
- hospital capabilities
- gestational age

PRETERM BREECH FETUS

- **At 32-36 weeks:** depends on fetal weight;
 - The Maternal Fetal Medicine Committee of the Society of Obstetricians and Gynaecologists of Canada (SOGC) recommend that *vaginal breech delivery is reasonable when the estimated fetal weight is > 2500 g*
- For preterm fetuses—23 to 28 weeks—studies describe no improved survival rate with planned cesarean delivery

PRETERM BREECH FETUS



ACOG/SMFM Consensus

smfm.org

ACOG/SMFM OBSTETRIC CARE CONSENSUS

Periviable birth: Interim update



TABLE 3

General guidance regarding obstetric interventions for threatened and imminent periviable birth by best estimate of gestational age^a

	20 0/7 weeks to 21 6/7 weeks	22 0/7 weeks to 22 6/7 weeks	23 0/7 weeks to 23 6/7 weeks	24 0/7 weeks to 24 6/7 weeks	25 0/7 weeks to 25 6/7 weeks
Neonatal assessment for resuscitation ^a	Not recommended 1A	Consider 2B	Consider 2B	Recommended 1B	Recommended 1B
Antenatal corticosteroids	Not recommended 1A	Not recommended 1A	Consider 2B	Recommended 1B	Recommended 1B
Tocolysis for preterm labor to allow for antenatal corticosteroid administration	Not recommended 1A	Not recommended 1A	Consider 2B	Recommended 1B	Recommended 1B
Magnesium sulfate for neuroprotection	Not recommended 1A	Not recommended 1A	Consider 2B	Recommended 1B	Recommended 1B
Antibiotics to prolong latency during expectant management of preterm PROM if delivery is not considered imminent	Consider 2C	Consider 2C	Consider 2B	Recommended 1B	Recommended 1B
Intrapartum antibiotics for group B streptococci prophylaxis	Not recommended 1A	Not recommended 1A	Consider 2B	Recommended 1B	Recommended 1B
Cesarean delivery for fetal indication ^c	Not recommended 1A	Not recommended 1A	Consider 2B	Consider 1B	Recommended 1B

PROM, premature rupture of membranes.

^a Survival of infants born in the periviable period is dependent on resuscitation and support. Between 22 weeks and 25 weeks of gestation, there may be factors in addition to gestational age that will affect the potential for survival and the determination of viability. Importantly, some families, concordant with their values and preferences, may choose to forgo such resuscitation and support. Many of the other decisions on this table will be linked to decisions regarding resuscitation and support and should be considered in that context; ^b Group B streptococci carrier, or carrier status unknown; ^c For example, persistently abnormal fetal heart rate patterns or biophysical testing, malpresentation.

ACOG. Periviable birth. *Am J Obstet Gynecol* 2016.

TERM BREECH FETUS

- Current obstetrical thinking regarding vaginal delivery of the term breech fetus has been influenced by results of the Term Breech Trial (Hannah, 2000).
 - Planned cesarean delivery was associated with a lower risk of perinatal mortality compared with planned vaginal delivery.
 - Cesarean delivery was also associated with a lower risk of “serious” neonatal morbidity.
- Since that trial, additional data favoring cesarean delivery has come from the World Health Organization
 - they reported improved perinatal outcomes for the term breech fetus with planned cesarean compared with planned vaginal delivery.
- In contrast, other studies support vaginal delivery as a suitable option at term: The Presentation et Mode d'Accouchement—PREMODA study—which translates as presentation and mode of delivery—showed no differences in corrected neonatal mortality rates and neonatal outcomes according to delivery mode
- data from the Lille Breech Study Group in France showed no excessive morbidity in term breech singletons delivered vaginally provided strict fetal biometric and maternal pelvimetry parameters were applied

TERM BREECH FETUS

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations:

- The decision regarding the mode of delivery should consider patient wishes and the experience of the health care provider.
- Planned vaginal delivery of a term singleton breech fetus may be reasonable under hospital-specific protocol guidelines for eligibility and labor management.

TERM BREECH FETUS

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations:

- If a vaginal breech delivery is planned, a detailed informed consent should be documented—including risks that perinatal or neonatal mortality or short-term serious neonatal morbidity may be higher than if a cesarean delivery is planned

TERM BREECH FETUS

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations:

- Obstetrician–gynecologists and other obstetric care providers should offer external cephalic version as an alternative to planned cesarean for a woman who has a term singleton breech fetus, desires a planned vaginal delivery of a vertex-presenting fetus, and has no contraindications. External cephalic version should be attempted only in settings in which cesarean delivery services are readily available.

DELIVERY COMPLICATIONS

- With vaginal delivery, especially with a thinned lower uterine segment, delivery of the aftercoming head through an incompletely dilated cervix or application of forceps may cause vaginal wall or cervical lacerations, and even uterine rupture.
- Manipulations may also extend an episiotomy, create deep perineal tears, and increase infection risks.
- Anesthesia sufficient to induce appreciable uterine relaxation during vaginal delivery may cause uterine atony and in turn postpartum hemorrhage.
- Compared with cephalic presentation, umbilical cord prolapse is more frequent with breech fetuses
- Birth trauma can include fractures of the humerus, clavicle, and femur
 - In some cases, traction may separate scapular, humeral, or femoral epiphyses
- Rare traumatic injuries may include brachial plexus injury and paralysis, spinal cord injury, or vertebral fracture, especially if great force is employed

IMAGING TECHNIQUES

- In many fetuses—especially those that are preterm—the breech is smaller than the aftercoming head.
- Moreover, unlike cephalic presentations, the head of a breech- presenting fetus does not undergo appreciable molding during labor.
 - Thus, if vaginal delivery is considered, fetal size, type of breech, and degree of neck flexion or extension are evaluated. In addition, pelvic dimensions are assessed to avoid head entrapment from cephalopelvic disproportion.
 - Sonography and fetal pelvimetry are options.
- Sonographic fetal evaluation can identify gross fetal abnormalities, such as hydrocephaly or anencephaly
 - This will identify many fetuses not suitable for vaginal delivery.
 - It will also help to ensure that a cesarean delivery is not performed under emergency conditions for an anomalous fetus with no chance of survival.

IMAGING TECHNIQUES

- Head flexion can usually also be determined sonographically, and for vaginal delivery, the fetal head should not be extended
- Sonographic identification of a nuchal arm may warrant cesarean delivery to avoid neonatal harm
- many protocols use fetal weights >2500 g and <3800 to 4000 g or evidence of growth restriction as exclusion criteria for planned vaginal delivery
- a biparietal diameter (BPD) >90 to 100 mm is often considered a contraindication for vagina delivery.

IMAGING TECHNIQUES

- Pelvimetry assesses the maternal bony pelvis before vaginal delivery, and one- view computed tomography (CT), magnetic resonance (MR) imaging, or plain film radiography is suitable.
 - CT is favored due to its accuracy, low radiation dose, and widespread availability
 - specific measurements to permit a planned vaginal delivery:
 - inlet anteroposterior diameter ≥ 10.5 cm;
 - inlet transverse diameter ≥ 12.0 cm;
 - midpelvic interspinous distance ≥ 10.0 cm (
 - Some have recommended maternal-fetal biometry correlation to permit a planned vaginal delivery:
 - sum of the inlet obstetrical conjugate minus the fetal BPD is ≥ 15 mm
 - inlet transverse diameter minus the BPD is ≥ 25 mm
 - midpelvis interspinous distance minus the BPD is ≥ 0 mm
 - With MR imaging, vaginal delivery is most successful if the interspinous distance exceeded 11 cm.

FACTORS FAVORING CESAREAN DELIVERY OF THE BREECH FETUS

- Lack of operator experience
- Patient request for cesarean delivery
- Large fetus: > 3800 to 4000 g
- Apparently healthy and viable preterm fetus either with active labor or with indicated delivery
- Severe fetal-growth restriction
- Fetal anomaly incompatible with vaginal delivery
- Prior perinatal death or neonatal birth trauma
- Incomplete or footling breech presentation
- Hyperextended head
- Pelvic contraction or unfavorable pelvic shape determined clinically or with pelvimetry
- Prior cesarean delivery

LABOR AND DELIVERY MANAGEMENT



METHODS OF VAGINAL DELIVERY

- There are three general methods of breech delivery through the vagina:
- 1. **Spontaneous breech delivery.** The fetus is expelled entirely spontaneously without any traction or manipulation other than support of the newborn.
- 2. **Partial breech extraction.** The fetus is delivered spontaneously as far as the umbilicus, but the remainder of the body is extracted or delivered with operator traction and assisted maneuvers, with or without maternal expulsive efforts.
- 3. **Total breech extraction.** The entire body of the fetus is extracted by the obstetrician.

SPONTANEOUS BREECH DELIVERY

- Similar to vertex delivery, spontaneous expulsion of a breech fetus entails sequential cardinal movements:
 - First, engagement and descent of the breech usually take place with the bitrochanteric diameter in one of the oblique pelvic diameters.
 - when the resistance of the pelvic floor is met, internal rotation of 45 degrees usually follows, bringing the anterior hip toward the pubic arch and allowing the bitrochanteric diameter to occupy the anteroposterior diameter of the pelvic outlet.
 - After rotation, descent continues until the perineum is distended by the advancing breech, and the anterior hip appears at the vulva.
 - By lateral flexion of the fetal body, the posterior hip then is forced over the perineum, which retracts over the fetal buttocks, thus allowing the fetus to straighten out when the anterior hip is delivered.
 - The legs and feet follow the breech and may be born spontaneously or require aid.

SPONTANEOUS BREECH DELIVERY

- Similar to vertex delivery, spontaneous expulsion of a breech fetus entails sequential cardinal movements:
 - After the birth of the breech, there is slight external rotation, with the back turning anteriorly as the shoulders are brought into relation with one of the oblique diameters of the pelvis.
 - The shoulders then descend rapidly and undergo internal rotation, with the bisacromial diameter occupying the anteroposterior plane.
 - Immediately following the shoulders, the head, which is normally sharply flexed on the thorax, enters the pelvis in one of the oblique diameters and then rotates to bring the posterior portion of the neck under the symphysis pubis. The head is then born in flexion.

PARTIAL BREECH EXTRACTION



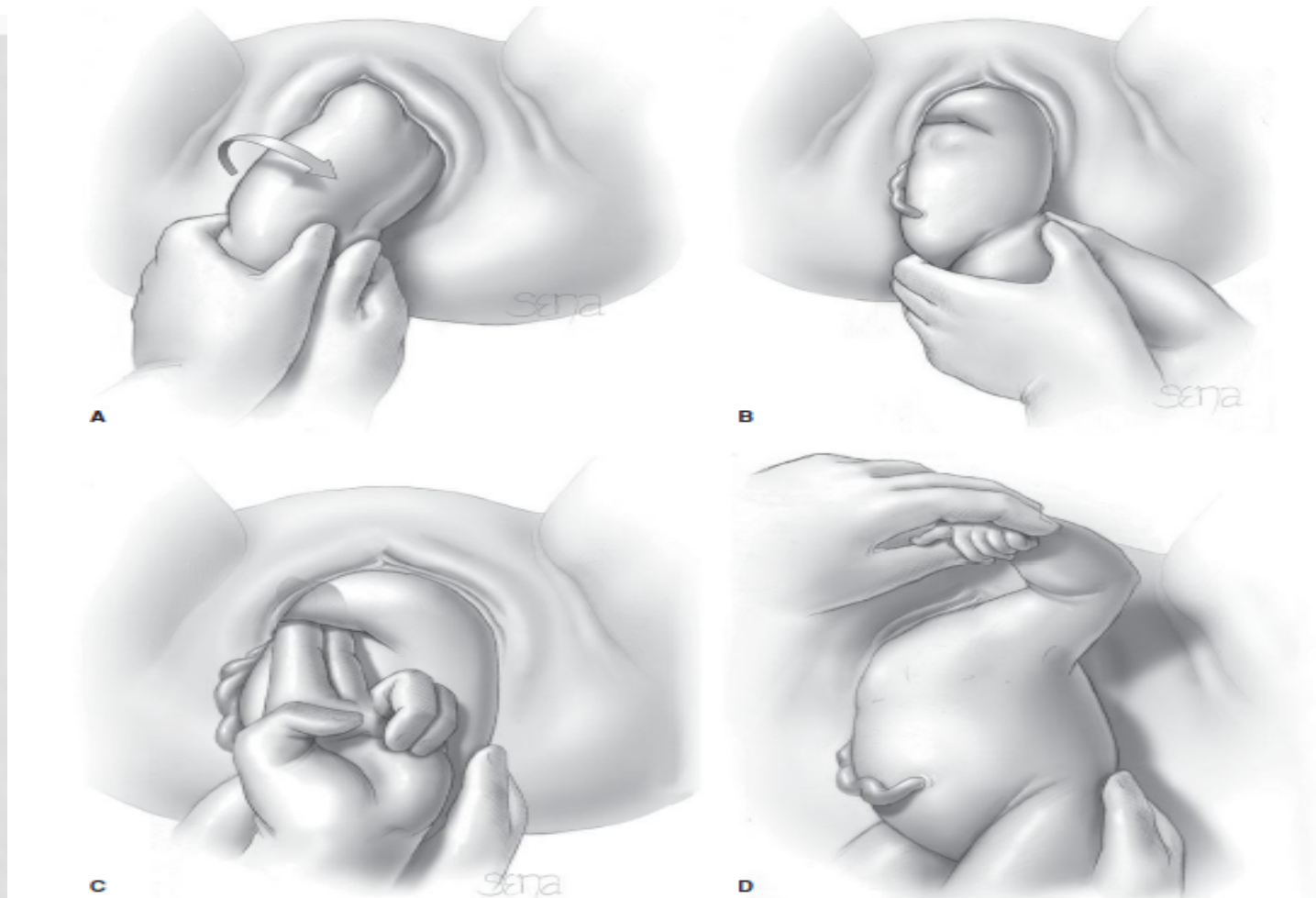
Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY(eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

PARTIAL BREECH EXTRACTION

- A cardinal rule:

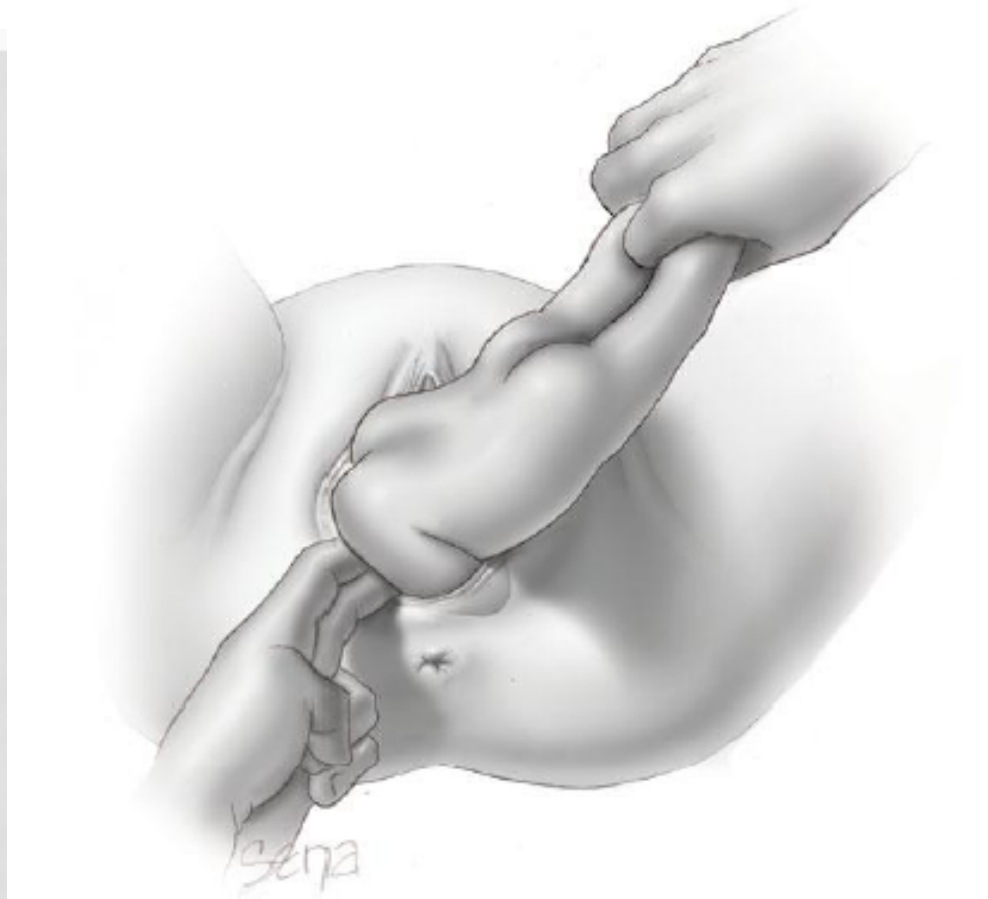
Steady, gentle, downward traction until the lower halves of the scapulas are delivered, making no attempt at delivery of the shoulders and arms until **one axilla becomes visible**

PARTIAL BREECH EXTRACTION



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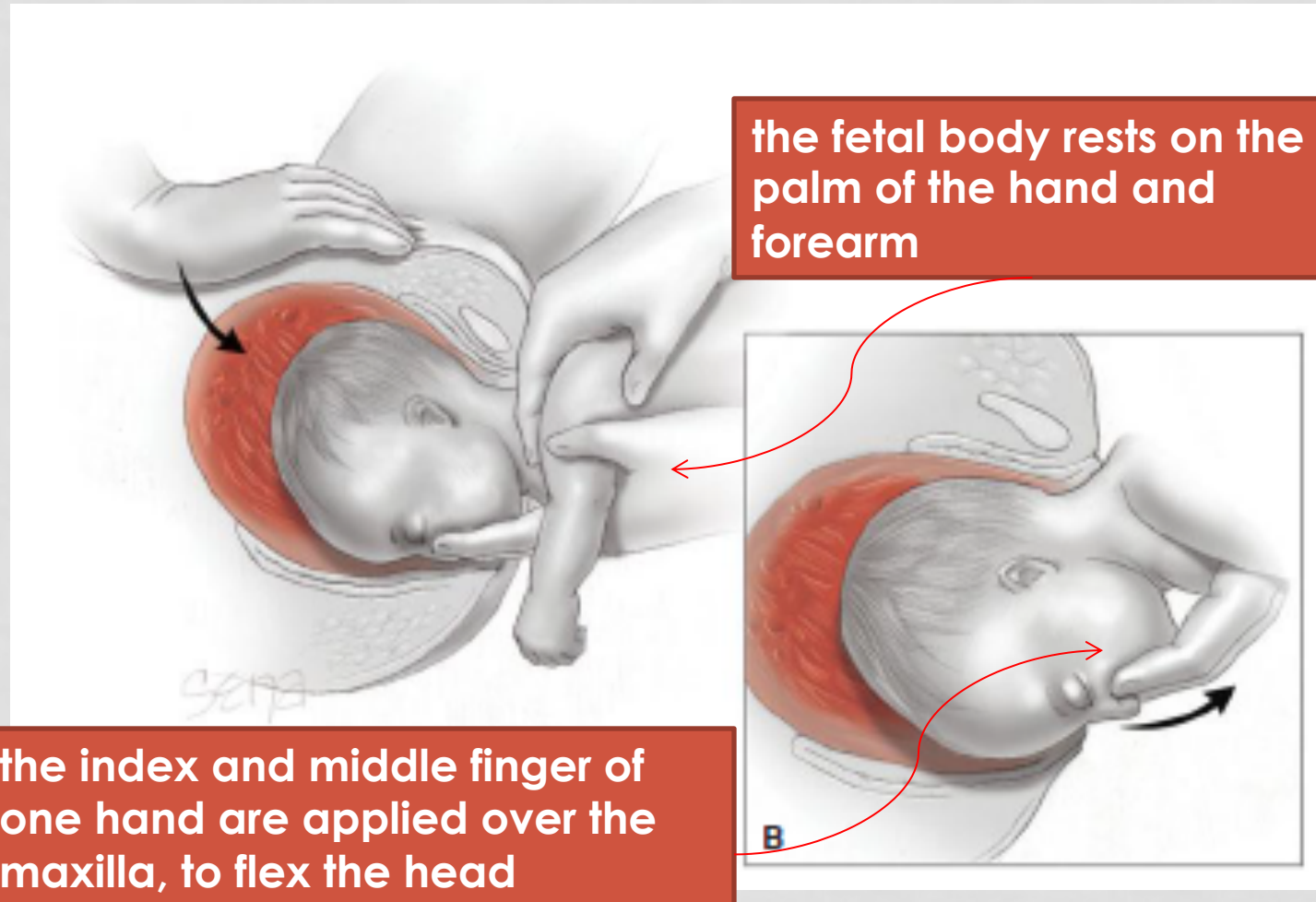
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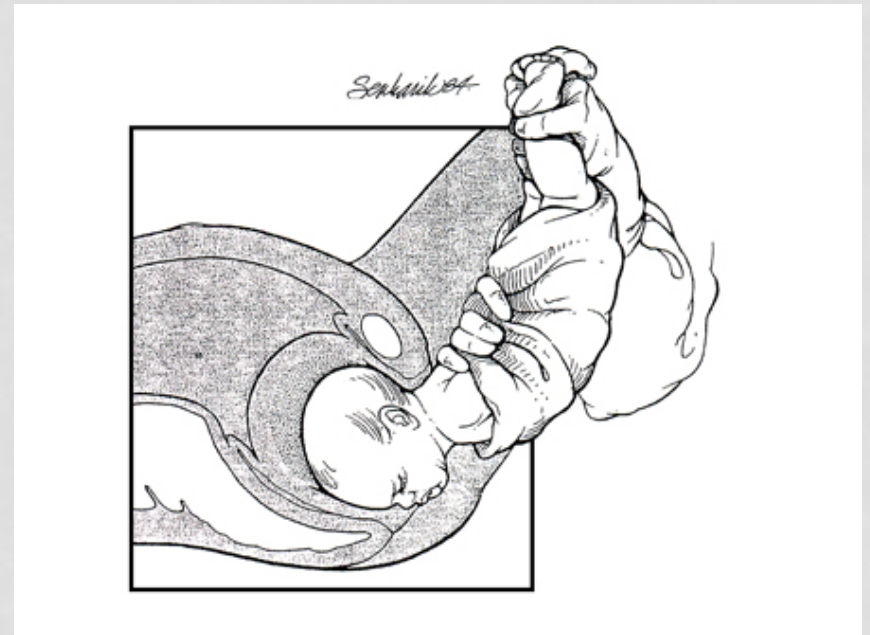
DELIVERY OF THE AFTERCOMING HEAD

DELIVERY OF THE AFTERCOMING HEAD: MAURICEAU MANEUVER

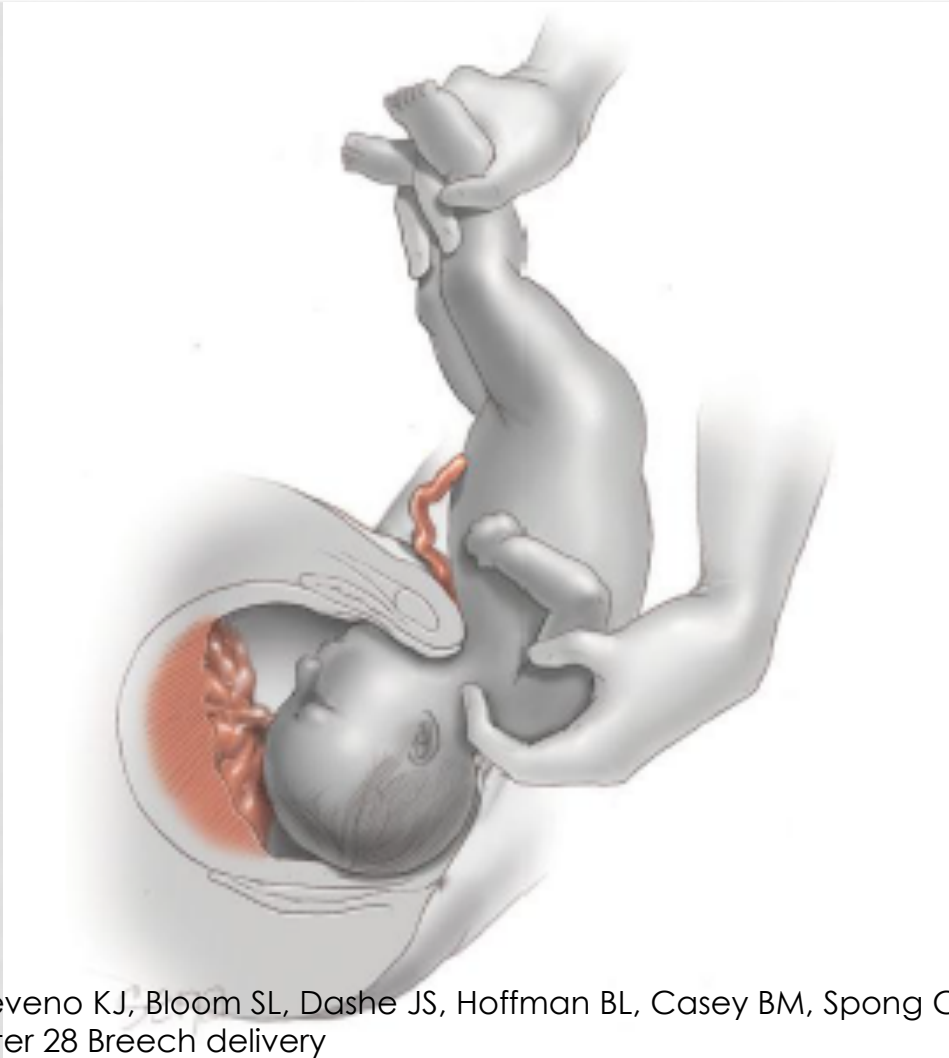


MAURICEAU MANEUVER

- downward traction is concurrently applied until the suboccipital region appears under the symphysis.
- The body then is elevated toward the maternal abdomen, and the mouth, nose, brow, and eventually the occiput emerge successively over the perineum.



DELIVERY OF THE AFTERCOMING HEAD: **MODIFIED PRAGUE MANEUVER**



Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY(eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

DELIVERY OF THE AFTERCOMING HEAD: **FORCEPS**

- Pipers forceps

Piper forceps have a downward arch in the shank to accommodate the fetal body and lack a pelvic curve.

This shape permits a direct application of the cephalic curve of the blade along the length of the maternal vagina and fetal parietal bone.

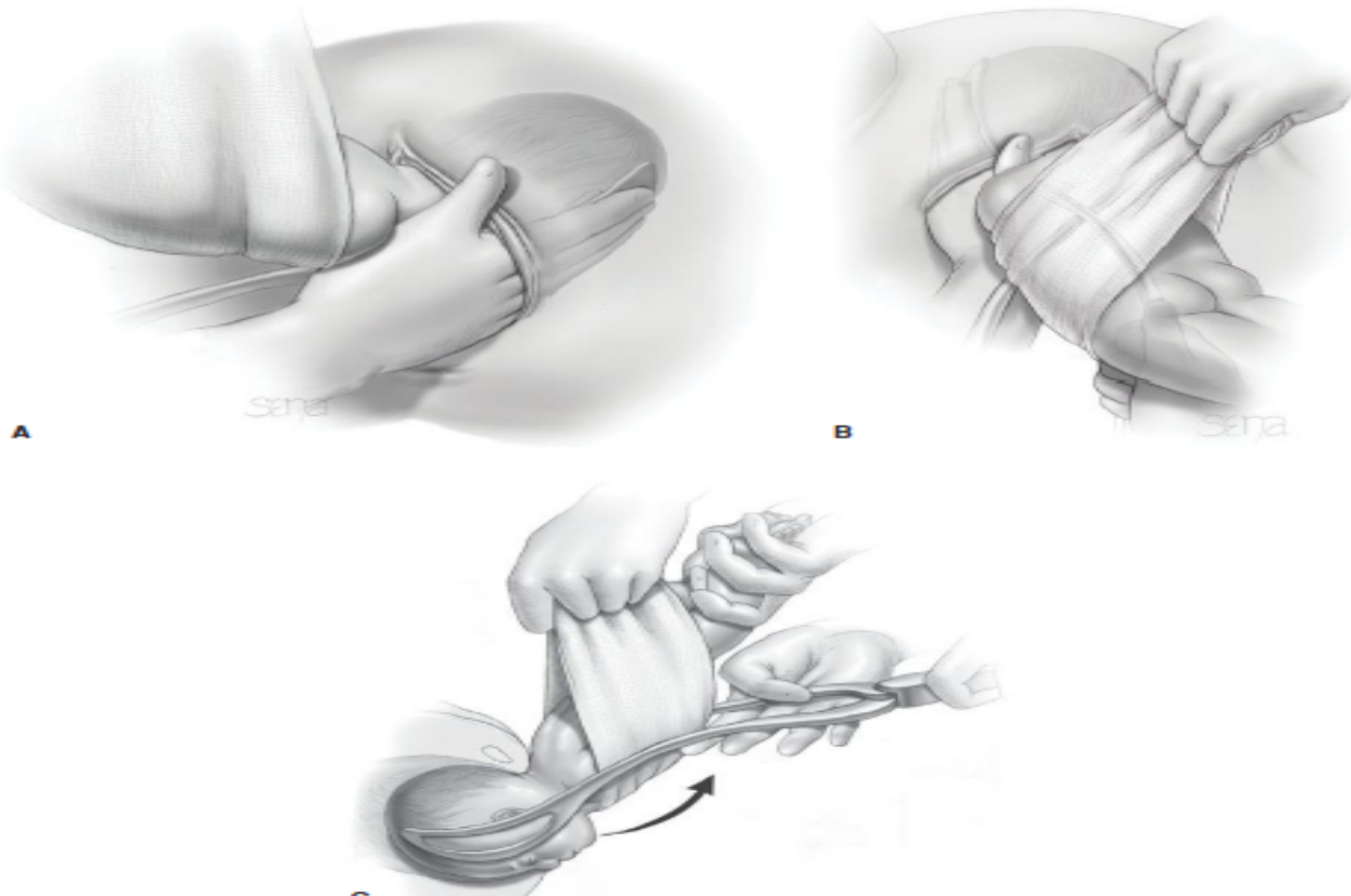


DELIVERY OF THE AFTERCOMING HEAD: FORCEPS

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 effectively holds the fetus up and helps keep the arms and cord out of the way as the forceps blades are applied.

DELIVERY OF THE AFTERCOMING HEAD: **FORCEPS**



Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY(eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

DELIVERY OF THE AFTERCOMING HEAD: **TRAPPED HEAD**

Duhrssen incision:



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DELIVERY OF THE AFTERCOMING HEAD: **TRAPPED HEAD**

Other alternatives:

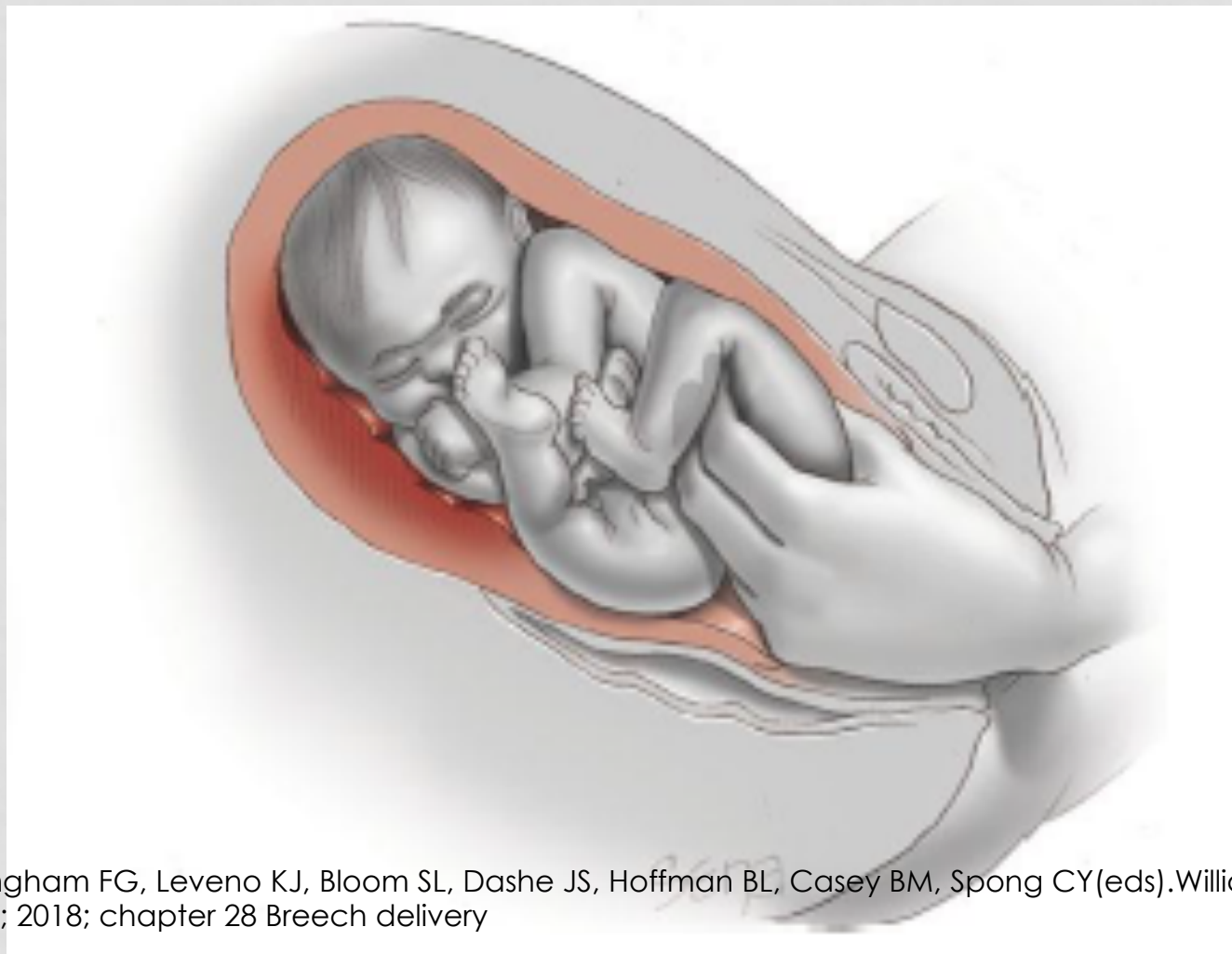
1. **Intravenous nitroglycerin** — typically 100 µg—to provide cervical relaxation
2. **General anesthesia**
3. **Zavanelli maneuver** - replacement of the fetus higher into the vagina and uterus, followed by cesarean delivery
4. **Symphysiotomy** - surgically divides the intervening symphyseal cartilage and much of its ligamentous support to widen the symphysis pubis up to 2.5 cm

TOTAL BREECH EXTRACTION: COMPLETE BREECH EXTRACTION



Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY(eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

TOTAL BREECH EXTRACTION: FRANK BREECH EXTRACTION (PINARD MANEUVER)

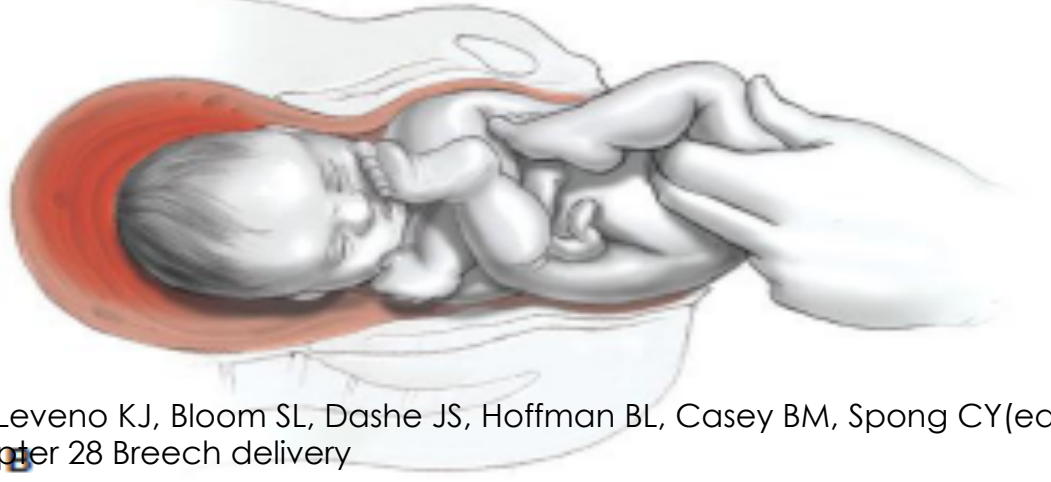


Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY(eds). William's Obstetrics 25th edition; 2018; chapter 28 Breech delivery

TOTAL BREECH EXTRACTION: **FRANK BREECH EXTRACTION**



Pinard maneuver - breech decomposition



VERSION

VERSION

- fetal presentation is altered by physical manipulation → either substituting one pole of a longitudinal presentation for the other, or converting an oblique or transverse lie into a longitudinal presentation
- Done before labor
- External cephalic version
- Internal podalic version

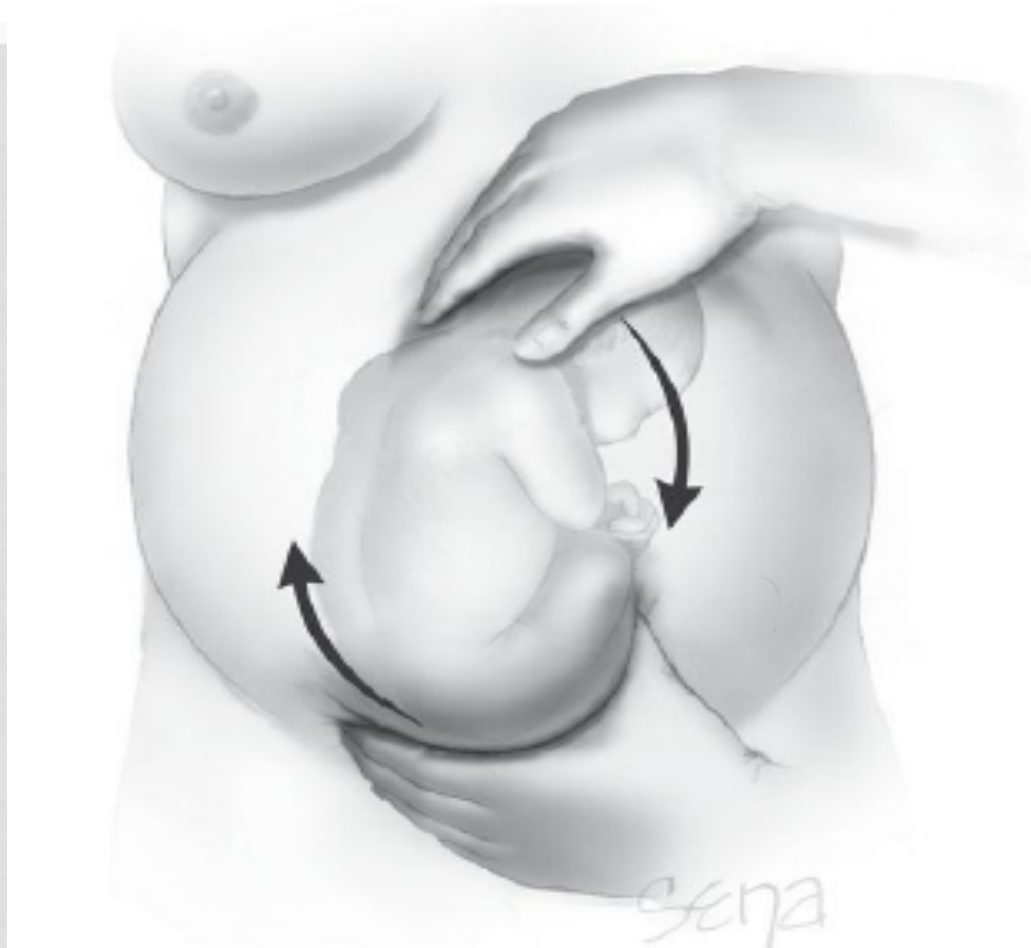
EXTERNAL CEPHALIC VERSION

- In general, ECV is attempted before labor in a woman who has reached 37 weeks' gestation.
 - Before this time, breech presentation still has a high likelihood of correcting spontaneously.
 - if ECV is performed too early, time may allow a reversion back to breech
- **Contraindications:**
 - if vaginal delivery is not an option (placenta previa or nonreassuring fetal status)
 - rupture of membranes
 - known uterine malformation
 - multifetal gestation,
 - Recent uterine bleeding
 - Prior uterine incision is a relative contraindication.

EXTERNAL CEPHALIC VERSION

- Several factors can improve the chances of a successful version attempt:
 - Multiparity
 - abundant amnionic fluid
 - unengaged presenting part
 - fetal size 2500 to 3000 g
 - posterior placenta
 - nonobese patient
- Risks include placental abruption, uterine rupture, fetomaternal hemorrhage

EXTERNAL CEPHALIC VERSION



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INTERNAL PODALIC VERSION

- used only for delivery of a second twin.
- hand is inserted into the uterine cavity to turn the fetus manually.
- The operator seizes one or both feet and draws them through the fully dilated cervix, while using the other hand transabdominally to push the upper portion of the fetal body in the opposite direction
- This is then followed by breech extraction.



SUMMARY

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RX PRESCRIPTION

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AGE _____

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