Breech And Twin Delivery

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Malpresentation And Mal Position

Near term or during labor, the fetus normally assumes a vertical orientation, or lie, and a cephalic presentation, with the flexed fetalvertex presenting to the pelvis

The word malpresentation suggests the possibility of adverse consequences, and malpresentation is often associated with increased risk to both the mother and the fetus.

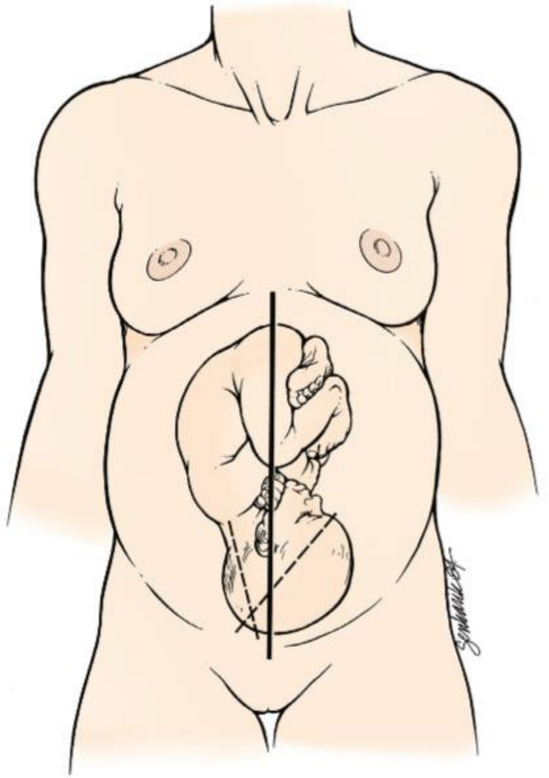


Fig. 19.1 Frontal View of a Fetus in a Longitudinal Lie With Fetal Vertex Flexed on the Neck.

Clincal Circumstances Associated With Malpresentation

In general, factors associated with malpresentation include:
(1)diminished vertical capacity of the uterine cavity (may related to multiparity ; cause laxity of maternal Abdominal musculature so loss of vertical orientation of uterus)
(2) increased or decreased fetal mobility (↑w/ prematurity and polyhydramnios)
(3) obstructed pelvic inlet
(4) fetal mal-formation
(5) prematurity
(6) placintation low in the pelvis
(diminishes the likelihood of a fetus assuming a longitudinal axis)
(7) Uterine myomata, intrauterine synechiae, and müllerian duct fusion abnormalities
(8)preterm birth involves a fetus that is small relative to the maternal pelvis; therefore engagement and descent with labor or rupture of the membranes can occur despite a malpresentation.

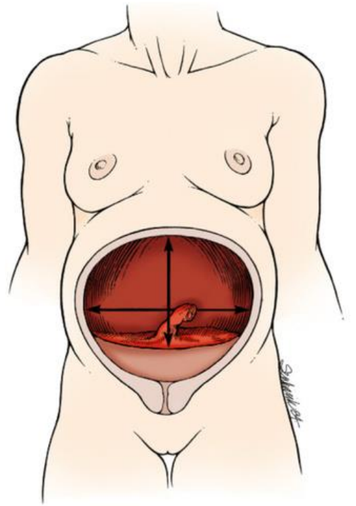


Fig. 19.2 Low Implantation of the Placenta. The placenta would normally be in the vertical orientation of the intrauterine cavity, but its low implantation, illustrated here, increases the probability of a malpresentation.

Clincal Circumstances Associated With Malpresentation

(9) chromosomal aneuploidies, congenital myotonic dystrophy, joint contractures from various etiologies, arthrogryposis, oligohydramnios, and fetal neurologic dysfunction that result in decreased fetal muscle tone, strength, or activity

(10)cephalopelvic disproportion (CPD) associated with severe fetal hydrocephalus or with a contracted maternal pelvis

Abnormal Axial Lie

- The fetal lie indicates the orientation of the fetal spine relative to the spine of the mother.
- The normal fetal lie is longitudinal and by itself does not indicate whether the presentation is cephalic or breech

- If the fetal spine or long axis crosses that of the mother, the fetus may be said to occupy a transverse or oblique lie which may cause an arm, foot, or shoulder to be the presenting part

- The lie may be termed **unstable** if the fetal membranes are intact and fetal mobility is increased, which results in frequent changes of lie and/or presentation.

- Persistence of a transverse, oblique, or unstable lie beyond 37 weeks' gestation requires a systematic clinical assessment and a plan for management; this is because rupture of the membranes without a fetal part filling the inlet of the pelvis poses an increased risk of cord prolapse, fetal compromise, and maternal morbidity if neglected.

- any condition that alters the normal vertical capacity of the intrauterine cavity will predispose to abnormal lie.

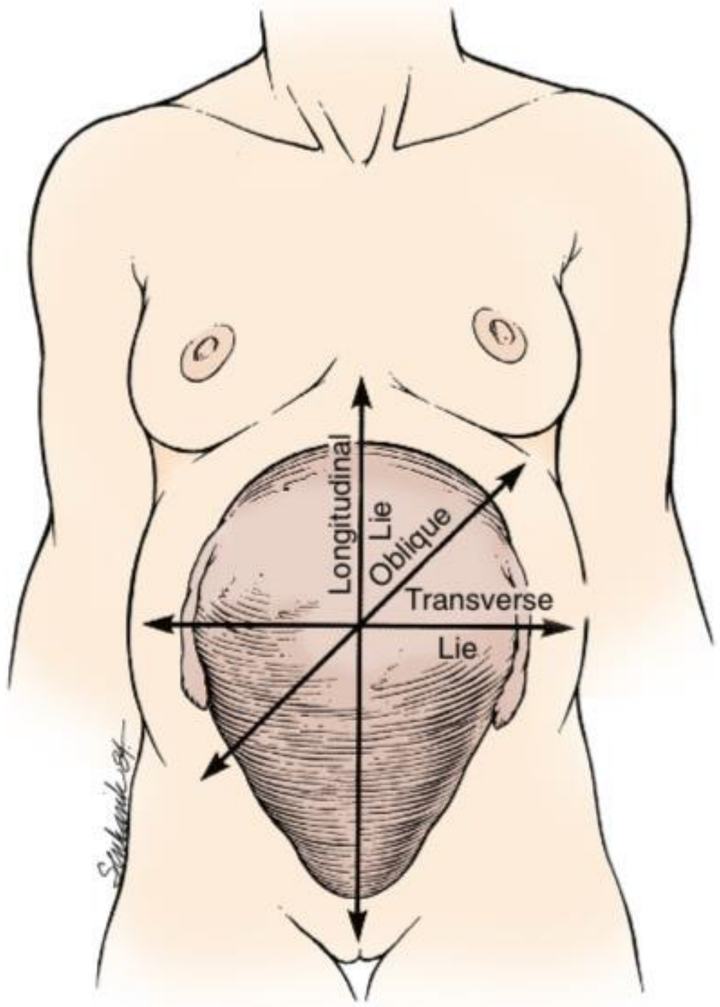


Fig. 19.3 A Fetus May Lie on a Longitudinal, Oblique, or Transverse Axis. The lie does not indicate whether the vertex or the breech fetus is closest to the cervix.

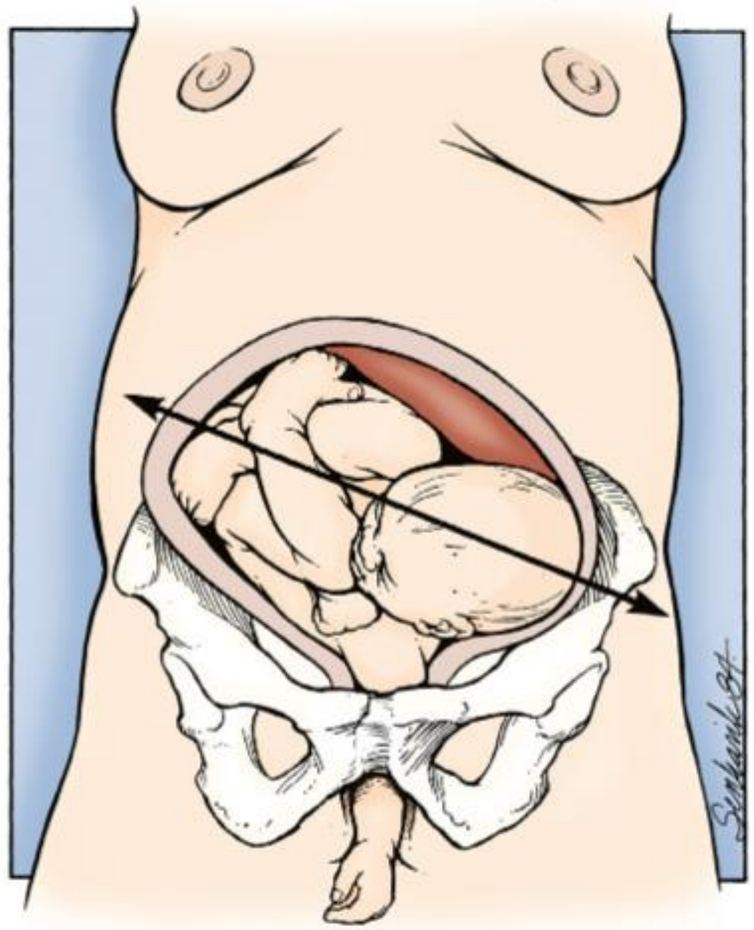


Fig. 19.4 Fetus Lying in an Oblique Axis With an Arm Prolapsing.

• Diagnosis of the abnormal lie may be made by palpation using Leopold maneuvers or by vaginal examination verified by ultrasound.

•Maternal deaths are usually related to infection after premature rupture of membranes, hemorrhage secondary to abnormal placentation, complications of operative intervention for CPD or traumatic delivery. Fetal loss of phenotypically and chromosomally normal gestations at ages considered to be viable is primarily associated with delayed interventions, prolapsed cord, or traumatic delivery. Cord prolapse occurs 20 times as often with abnormal lie as it does with a cephalic presentation.

• External cephalic vers ion (ECV) is recommended at 36 to 37 weeks to help diminish the risk of adverse outcome, and failing this particularly if accompanied by ruptured membranes, cesarean is recommended at 38 weeks ،usually low transverse hysterotomy

• In some cases a vertical incision (low vertical or classical) may be a reasonable alternative , why ?
(1)Because up to 25% of transverse incisions may require vertical extension for delivery of an infant from an abnormal lie (A “J” or “T” extension of the low transverse incision results in a uterine scar that is more susceptible to subsequent rupture due to poor vascularization.)
(2) the lower uterine segment is often poorly developed
(3)insufficiently broad such that atraumatic delivery of the presenting part is made more difficult
• A vertical uterine incision is also preferred tofacilitate extraction of the fetus in the setting of a “back down” transverse lie as determined bypreoperative US

Deflection Attitude

- Attitude refers to the position of the fetal head in relation t o the neck. The normal attitude **Is full flexion** with the fetal chin against the upper chest.
- Deflexed attitudes include various degrees of deflection or even extension leading to face or brow presentations. Spontaneous conversion to a more normal, flexed attitude or further extension of an intermediate deflection to a fully extended position commonly occurs as labor progresses, owing to resistance exerted by the bony pelvis and soft tissues.

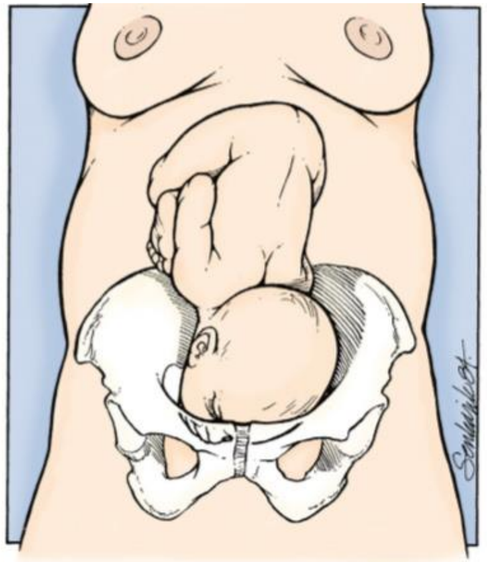


Fig. 19.6 This Fetus With the Vertex Completely Extended on the Neck Enters the Maternal Pelvis in a Face Presentation. The cephalic prominence would be palpable on the same side of the maternal abdomen as the fetal spine.

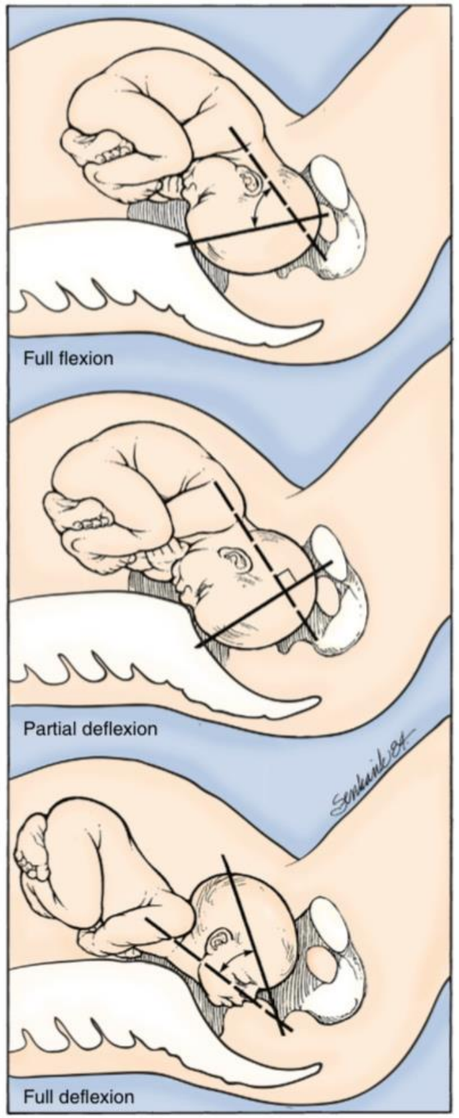


Fig. 19.5 Normal "Attitude." *Top,* Full flexion shows fetal vertex flexed on the neck. Partial deflexion *(middle)* shows the fetal vertex intermediate between flexion and extension. Full deflexion *(lower)* shows the fetal vertex completely extended with the face presenting.

Face Presentation

- **Definition**: A face presentation occurs when the fetus is in a longitudinal lie with the neck and head fully extended, so the occiput touches the upper back and the face leads the way during birth.
- **Designation:**The chin (mentum) is used to describe the position. For example, if the chin is in the right posterior part of the mother's pelvis, it's called right mentum posterior.
- It is rare (1 in 500 live births).
- Factors that increase general malpresentation also increase face presentation as Anencephaly , fetal goiter, or head/neck tumors, Contracted pelvis or CPD
- **Diagnosis**:

Often suspected if abdominal exam finds the cephalic prominence on the same side as the fetal back, Usually dignosed by vaginal exam,(Many cases remain undiagnosed until late labor or even delivery)

- Vaginal Delivery can occur when mentum is anterior other than will Rotate to Ant. Then deliver vaginally if fail to rotate CS is required
- Abnormal FHR is common so continuous electronic monitoring is mandatory. (chin is the safest site for placement electrode to avoid eye damage)

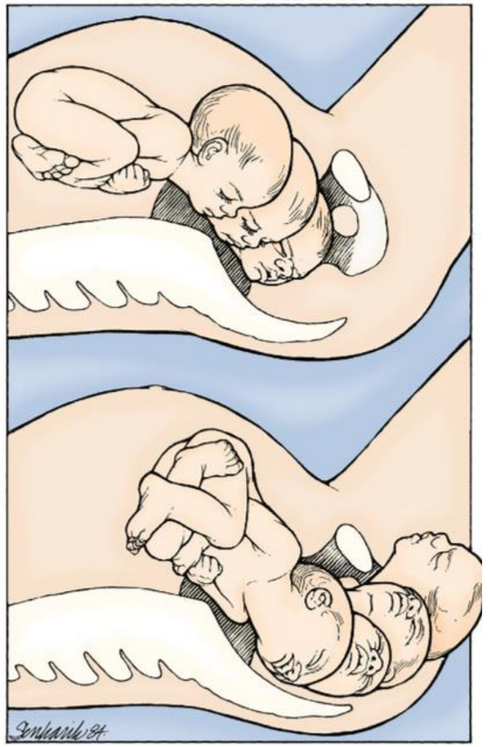
Face Presentation

When Vaginal Delivery is Contraindicated:

- Macrosomia (large baby)
- Non-reassuring FHR
- Inadequate pelvis
- High-risk factors → Cesarean indicated (up to 60% in some reports).
- During C-section: gentle head flexion is needed to avoid cervical nerve injury — forced flexion is dangerous, especially with neck masses.

Possible Complications:

- Airway issues: Laryngeal/tracheal swelling can need emergency intubation.
- Neck tumors or goiter may require special delivery planning



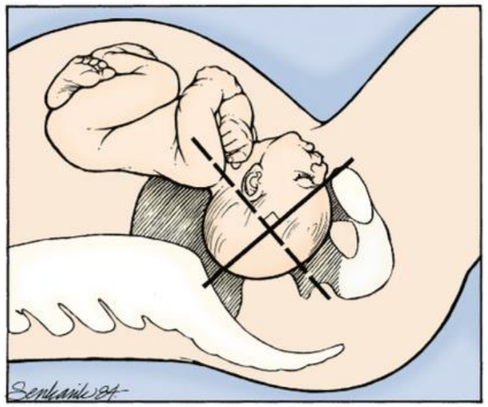


Fig. 19.10 This Fetus Is in a Brow Presentation in a Frontum Anterior Position. The head is in an intermediate deflexion attitude.

Brow Presentation

- Brow presentation occurs when the fetal head is partially deflexed, midway between full flexion (vertex) and full extension (face).
- The frontal bones are the point of designation.
  - Example: Left frontum transverse → anterior fontanelle on the mother's left side, sagittal suture transverse.
- I**ncidence**: Very rare (about 1 in 1500).
- **Causes**: Any factor that delays engagement: CPD ,Prematurity ,Polyhydramnios ,High parity
- **Diagnosis**: by abdominal palpation (Rarely) Mostly diagnosed by vaginal exam in labor.

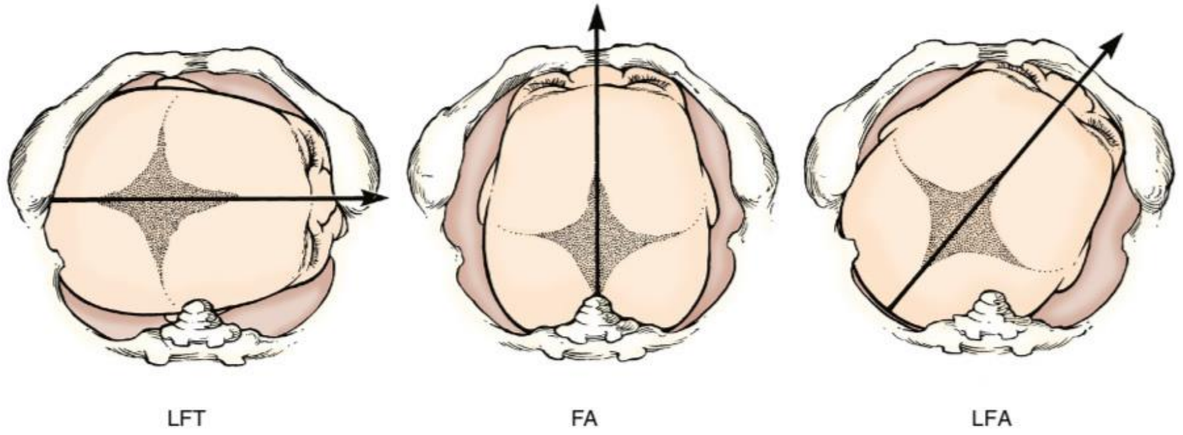


Fig. 19.11 In Brow Presentation, the Anterior Fontanel *(Frontum)* Relative to the Maternal Pelvis Is the Point of Designation. *Left,* Left frontum transverse *(LFT)*; *middle,* frontum anterior *(FA)*; *right,* left frontum anterior *(LFA)*.

- **Labor Mechanism & Outcomes:**

-Brow presentation requires the largest fetal head diameter (occipitomental) to pass → only possible if pelvis is large or fetus is small.
- Most convert spontaneously to vertex (flexion) or face (extension).
- Persistent brow with large baby → C-section usually safest.
- Oxytocin may help if hypotonic labor, but no progress → Cesarean.

- Rarely, an open fetal mouth may splint the head and prevent conversion — watch for anomalies like epignathus.

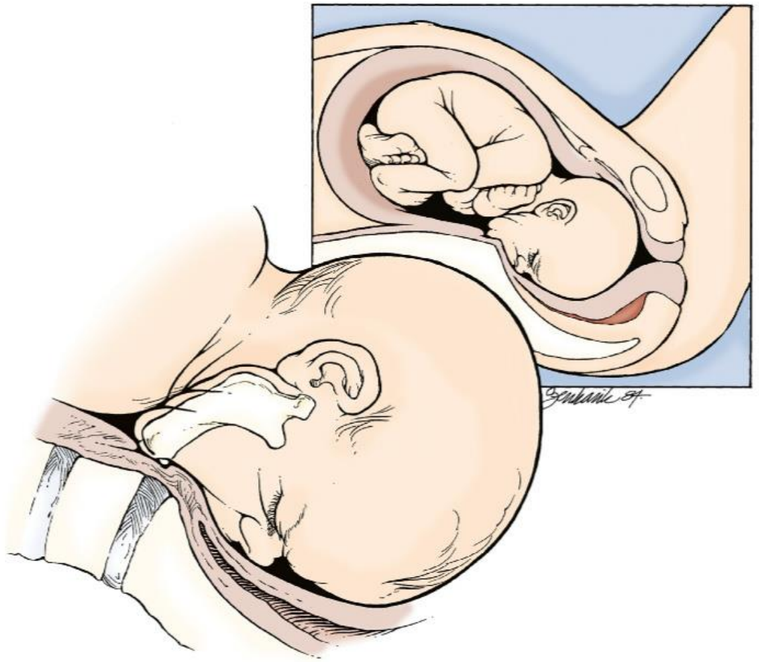


Fig. 19.12 The Open Fetal Mouth Against the Vaginal Sidewall May Brace the Head in the Intermediate Deflexion Attitude.

Compound Presentation

- **Definition**: Occurs when an extremity (usually an arm) prolapses alongside the main presenting fetal part (commonly the head).
- **Diagnosis**: is made by vaginal exam finding a mobile tissue mass next to the presenting part.
- **Risk Factors**: Most strongly linked to prematurity, (ECV) of breech fetuses also increases risk.
- **Complications**: Main fetal risk is cord prolapse(it happens because the extremity prevents complete filling of the pelvic inlet) and possible injury to the extremity. maternal risks include soft tissue injury and lacerations.

- The prolapsed extremity should not be manually repositioned; it often retracts spontaneously as labor progresses.

-CS is indicated for persistent Compound presentation,cord prolapse, non-reassuring fetal heart rate, or arrest of labor.

Fig. 19.13 The compound presentation of an upper extremity and the vertex illustrated here most often spontaneously resolves with further labor and descent.

Breech Presentation

- **Definition**: The fetus lies in a longitudinal axis with the head in the uterine fundus and the buttocks or feet presenting first.
- **Types of Breech:**
  - Frank Breech: Hips flexed, knees extended (pike position).
  - Complete Breech: Hips and knees both flexed (tuck position).
  - Footling/Incomplete Breech: One or both hips partially or fully extended.
- **Ultrasound Findings:**
  - Breech fetuses often have a dolichocephalic (elongated) head shape — “breech head.”This makes the biparietal diameter (BPD) appear smaller, but head circumference stays normal.

TABLE 19.1 Breech Categories

Type	Overall % of Breeches	Risk of Cord Prolapse (%)	Premature (%)
Frank	48–73[a–c]	0.5	38
Complete	4.6–11.5[b,c]	4–6	12
Footling	12–38[c]	15–18	50

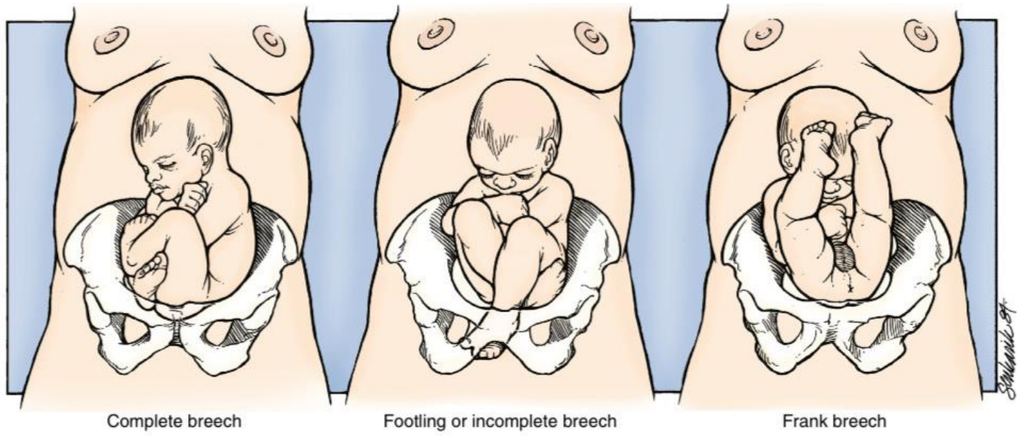


Fig. 19.14 Three Types of Breech Presentation. The *complete breech* is flexed at the hips and flexed at the knees. The *footling or incomplete breech* shows incomplete deflexion of one or both knees or hips. The *frank breech* is flexed at the hips and extended at the knees.

Mechanism and Conduct of Labor and Vaginal Delivery

• For a safe vaginal breech delivery, two key elements are essential:

1. Continuous electronic fetal heart rate (FHR) monitoring
2. Noninterference until the baby delivers spontaneously up to the umbilicus.

• Before labor progresses, the team should be fully prepared for an immediate cesarean if needed, including:

- Available anesthesia
- Ready operating room
- Informed consent
- Two obstetricians and a pediatric team present

• Successful outcomes during vaginal breech delivery depend on adequate training and experience. The instrument table should be prepared in the customary manner, with the addition of Piper forceps and extra towels. No contraindication exists to epidural analgesia in labor

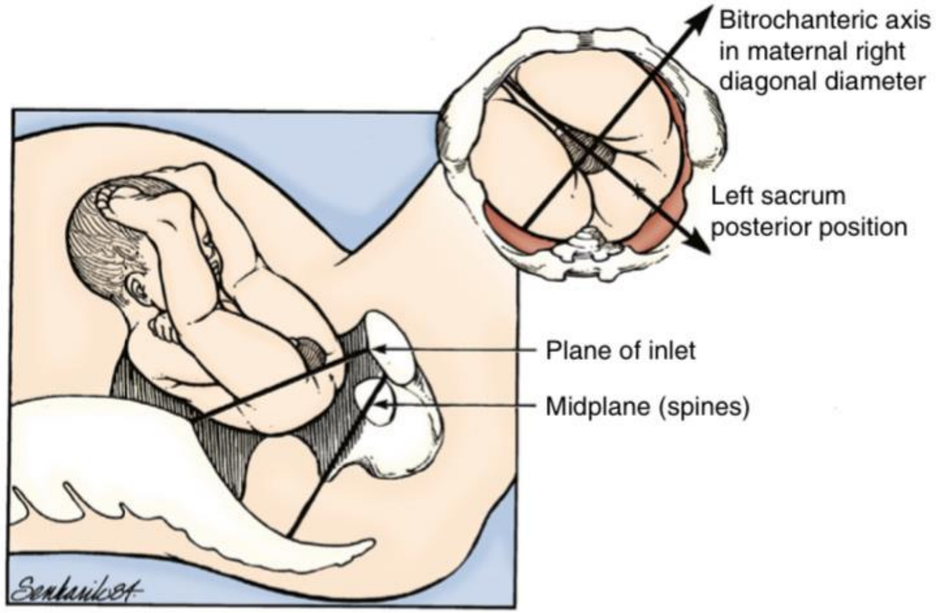
Mechanism and Conduct of Labor and Vaginal Delivery

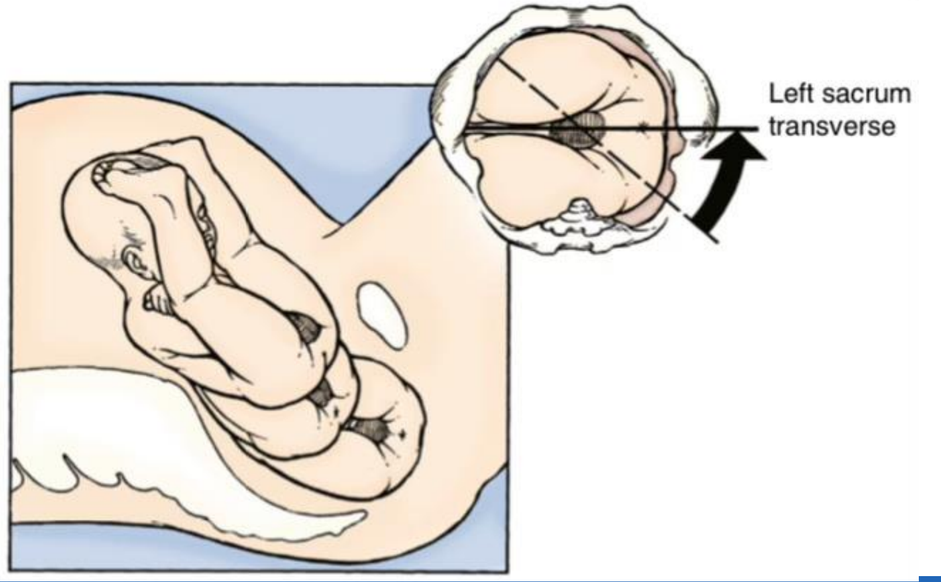
• The infant presenting in the frank breech position usually enters the pelvic inlet in one of the diagonal pelvic diameters

• Engagement is confirmed when the bitrochanteric diameter (distance between the baby's hips) passes the pelvic inlet, even if vaginal exam shows a station of -2 to -4.

• As the fetus descends and meets the levator ani muscles, it typically rotates internally to align the bitrochanteric diameter with the anteroposterior (AP) diameter of the pelvis.

• In breech labor, the reference point is the fetal sacrum. therefore when the bitrochanteric diameter is in the AP axis of the pelvis, the fetal sacrum will lie in the transverse pelvic diameter





Mechanism and Conduct of Labor and Vaginal Delivery

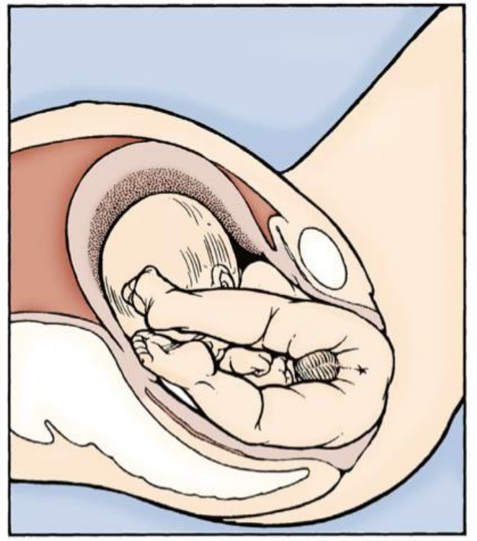
- During normal descent in breech delivery, the fetus first appears at the outlet with the sacrum in a transverse position, then rotates to sacrum anterior. This rotation likely helps accommodate the fetal chest in the wider posterior pelvis.

- Crowning occurs when the bitrochanteric diameter passes under the pubic symphysis.

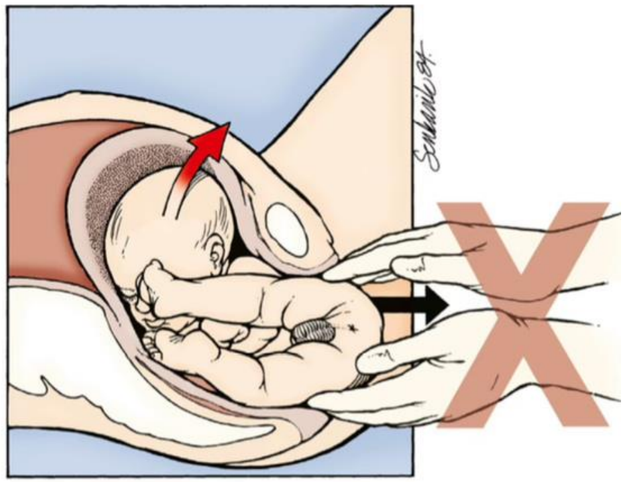
- No active intervention is needed at this stage, except possibly performing an episiotomy if necessary and encouraging the mother to push effectively.

Mechanism and Conduct of Labor and Vaginal Delivery

• Premature or aggressive intervention may adversely affect the delivery in at least two ways. First, complete cervical dilation must be sustained for sufficient duration to retard retraction of the cervix and entrapment of the aftercoming fetal head. Rushing the delivery of the trunk may result in cervical retraction. Second, the safe descent and delivery of the breech infant must be the result of uterine and maternal expulsive forces only to maintain neck flexion. Any traction by the provider in an effort to speed delivery would encourage deflexion of the neck and result in the presentation of the larger occipitofrontal fetal cranial profile to the pelvic inlet. Such an event could be catastrophic. Rushed delivery also increases the risk of a nuchal arm, with one or both arms trapped behind the head above the pelvic inlet. Entrapment of a nuchal arm makes safe vaginal delivery much more difficult because it dramatically increases the aggregate size of delivering fetal parts that must egress vaginally. Therefore safe breech delivery of an average sized infant depends predominantly on maternal expulsive forces and , not traction, from the provider.



A Spontaneous expulsion

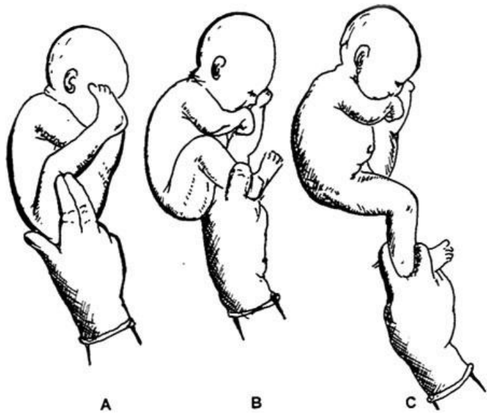


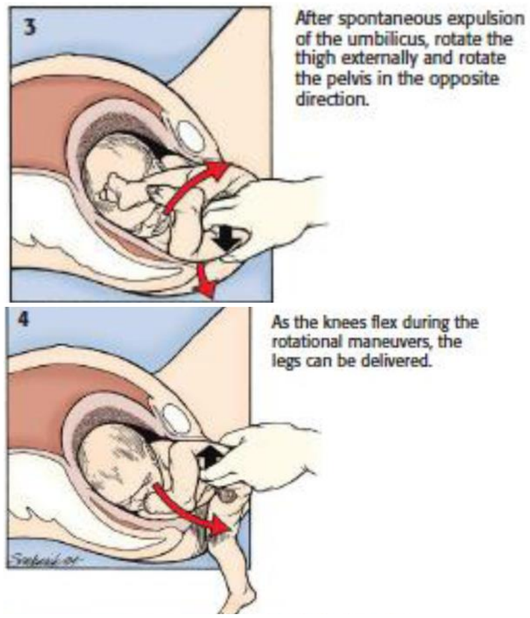
B Undesired deflexion

Mechanism and Conduct of Labor and Vaginal Delivery

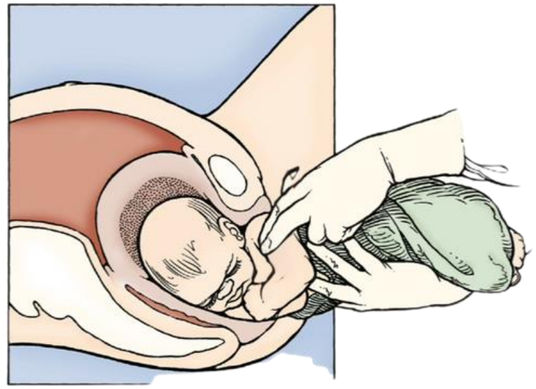
As the frank breech emerges further, the fetal thighs are typically flexed firmly against the fetal abdomen, often splinting and protecting the umbilicus and cord. The **Pinard maneuver** may be needed to facilitate delivery of the legs in a frank breech presentation. After delivery to the umbilicus has occurred, pressure is applied to the medial aspect of the knee, which causes flexion and subsequent delivery of the lower leg. Simultaneous to this, the fetal pelvis is rotated away from that side. This results in external rotation of the thigh at the hip, flexion of the knee, and delivery of one leg at a time. The dual movement of counterclockwise rotation of the fetal pelvis as the operator externally rotates the fetal right thigh and clockwise rotation of the fetal pelvis as the operator externally rotates the fetal left thigh is most effective in facilitating delivery.

Pinard maneuver



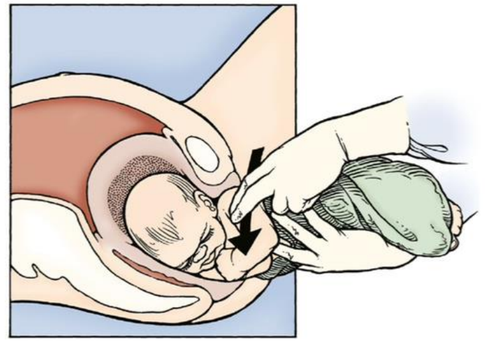


Mechanism and Conduct of Labor and Vaginal Delivery



• after deliver the fetal legs wrappe the trunk with a towel to provide secure support of the body.

• The operator supports and guides the fetal body through the birth canal (introitus) without applying excessive outward traction.This approach minimizes the risk of complications like deflexion of the fetal head or nuchal arm (arm trapped behind the head).



• When the scapulae appear at the vaginal opening, the operator can assist the delivery of each arm by sweeping it gently across the baby's chest.
• Right arm: Rotate the trunk counterclockwise.
• Left arm: Rotate the trunk clockwise.

Mechanism and Conduct of Labor and Vaginal Delivery

• Once both arms have been delivered, if the vertex has remained flexed on the neck, the chin and face will appear at the outlet.

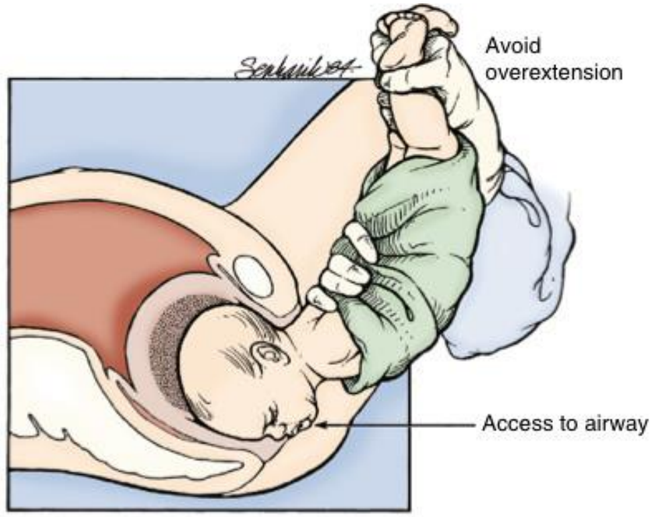
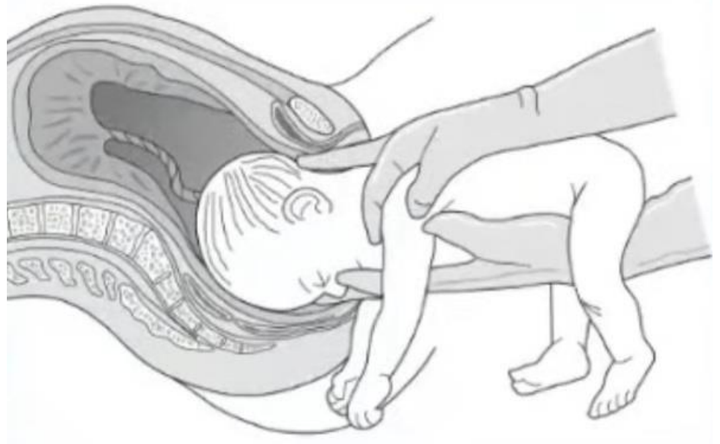


Fig. 19.21 Following Delivery of the Arms, the Fetus is Wrapped in a Towel for Control and Is Slightly Elevated. The fetal face and airway may be visible over the perineum. Excessive elevation of the trunk is avoided.

• Spontaneous delivery of the fetal head often occurs with maternal pushing. If not, apply the Mauriceau-Smellie-Veit maneuver using gentle maxillary pressure (not on the mandible) to promote flexion, combined with suprapubic pressure and gentle downward traction. Maternal effort remains the primary force for delivery.

Mauriceau-Smellie-Veit



Mechanism and Conduct of Labor and Vaginal Delivery

• Alternatively, the operator may apply Piper forceps to the aftercoming head.

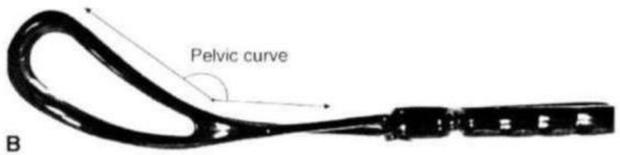
Fig. 19.23 Demonstration of Assistance During the Application of Piper Forceps. The assistant maintains the fetus in a neutral position to avoid the risk associated with hyperextension and possible neurologic injury.

• Hyperextension of the fetal neck from excessive elevation of the fetal trunk should be avoided because of the potential for spinal cord injury.

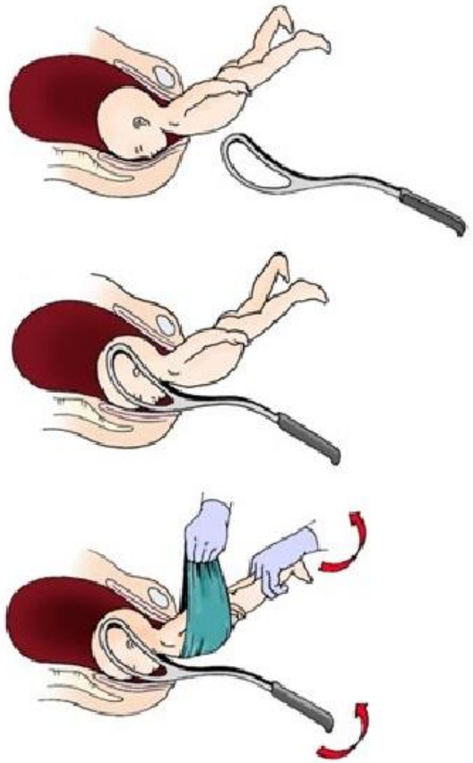
Mechanism and Conduct of Labor and Vaginal Delivery

Piper forceps.

No pelvic curvature



How to insert Piper forceps ?



The primary purpose of Piper forceps is to provide flexion of the fetal head on the neck, not outward traction.

Mechanism and Conduct of Labor and Vaginal Delivery

• oxytocin for induction or augmentation of labor not contraindicated with breech presentation

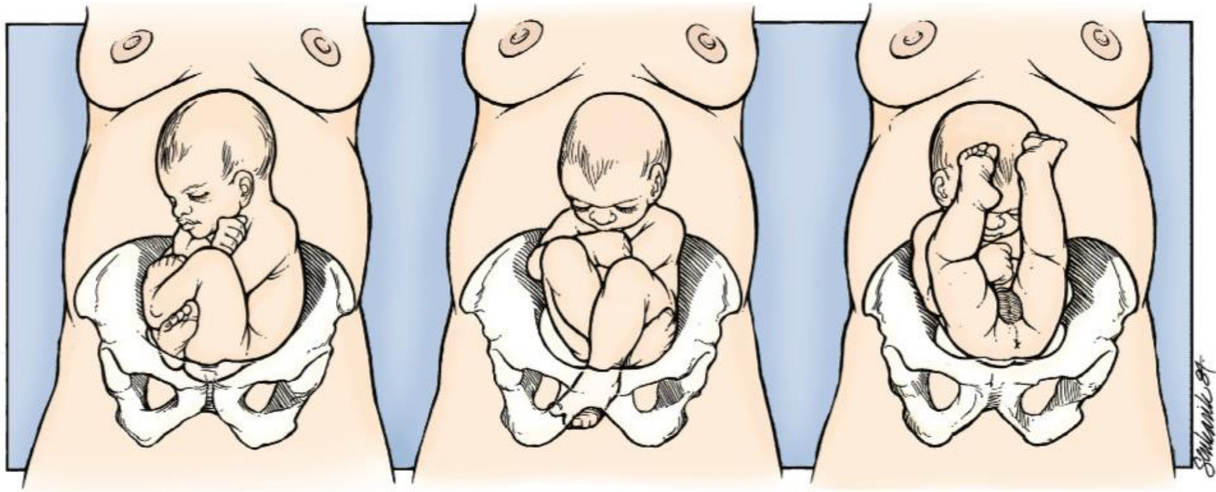
• **Indications for conversion from vaginal delivery to CS:**

1. arrest of spontaneous progress in labor with adequate uterine contractions
2. Any evidence of fetal compromise or sustained cord compression on the basis of continuous electronic FHR.

• **Vaginal interventions directed at facilitating delivery of the breech infant complicated by an arrest of spontaneous progress are discouraged because fetal and maternal morbidity and mortality are both greatly increased.**

Mechanism and Conduct of Labor and Vaginal Delivery

- **The risk of cord prolapse is greater in case of complete and incomplete breech, and hence the possibility of emergency cesarean delivery is increased.**



- **Increased risk of head entrapment in nonfrank breech presentations due to the lack of effective dilation of the cervix by the presenting part.**

TERM BREECH TRIAL

- **Breech infant was found to be at higher risk for birth trauma and asphyxia which caused by:**
  1. **Risk of head entrapment**
  2. **Use of instruments**
  3. **Umbilical cord compression**
- complications of vaginal breech delivery included:
  - NICU admissions
  - Hyperbilirubinemia
  - Bone fractures
  - Intracranial hemorrhage
  - Neonatal depression
  - Convulsions
  - Death
- **Emergency cesarean deliveries** also had **poor neonatal outcomes**.

TERM BREECH TRIAL RESULTS:

- The study conducted across **26 countries**, involving **2088 women with singleton term breech pregnancies.**
- Participants were randomly assigned to:
  - **Planned cesarean delivery** (1041 patients)
  - **Planned vaginal delivery** (1042 patients)
- **The results were:**
  - **Perinatal mortality and serious neonatal morbidity** were **significantly lower** in the **planned cesarean group.**
  - Operator experience and prolonged labor had **minimal impact** on risk reduction.
  - **No significant difference** in **maternal mortality or serious morbidity** between the two groups.

TERM BREECH TRIAL RESULTS:

- **Both birthweight and mode of delivery play a key role in determining the safety of breech delivery.**
- **Smaller infants (<2800 g)** are at **highest risk**
- **Larger infants (>3500 g)** show a trend toward more adverse outcomes, but the trend did not reach significance.

- **planned cesarean delivery** is associated with the **lowest risk** of complications.

TERM BREECH TRIAL RESULTS:

Maternal Outcomes

- At **3 months postpartum**, women who had **planned cesarean deliveries** had a **lower rate of urinary incontinence**.
- However, by **2 years postpartum**, there were **no significant differences** between cesarean and vaginal delivery groups in:
  - Urinary incontinence
  - Breastfeeding
  - Medical, sexual, social, pain, or reproductive issues

Neonatal Outcomes

- At **2 years of age**, babies born via **planned cesarean** or **planned vaginal delivery** showed:
  - **No difference in mortality rates**
  - **No difference in neurodevelopmental delay**

TERM BREECH TRIAL RESULTS:

Summary of the Term Breech Trial (TBT)

- Babies born by planned vaginal delivery still have a small but significant risk of:
  - Death
  - Short-term debilitating injury
- In contrast, planned cesarean delivery is associated with lower short-term risks.
- Long-term outcomes:
  - Among surviving infants, there is no difference in:
    - Mortality rates
    - Developmental delays

TERM BREECH TRIAL RESULTS:

• Recent large studies from countries where vaginal breech delivery is more common, all report this same finding increased risks of newborn morbidity and mortality with planned vaginal birth compared to planned cesarean but with small absolute differences

TABLE 19.2 Route of Delivery and Neonatal Outcomes From Reports Published After the Term Breech Trial

Study	Total Breech (*n*)	Prelabor CD	Breech With Labor	Labor CD	VBD	PERINATAL MORBIDITY		PERINATAL MORTALITY	
						VBD	CD	VBD	CD
Lashen, 2002	841	349 (42%)	492 (58%)	238 (48%)	254 (52%)	—	—	2	0
Krupitz, 2005	809	427 (53%)	382 (47%)	98 (26%)	284 (74%)	0.5%	0%	0	0
Pradhan, 2005	1433	552 (38%)	881 (62%)	465 (53%)	416 (47%)	5.9%	0.9%	3	1
Giuliani, 2002	699	218 (31%)	481 (69%)	129 (29%)	352 (71%)	2.3%	0.5%	0	0
Alarab, 2004	641	343 (54%)	298 (46%)	152 (51%)	146 (49%)	0.7%	0%	3	0
Goffinet, 2006	8105	5579 (69%)	2526 (31%)	730 (29%)	1796 (71%)	1.6%	1.4%	2	8
Hopkins, 2007	725	511 (70%)	214 (30%)	76 (36%)	138 (64%)	—	—	0	0
Michel, 2011	1133	711 (63%)	422 (37%)	68 (16%)	354 (84%)	0.5%	0.7%	0	1
Toivonen, 2012	751	497 (66%)	254 (34%)	80 (31%)	174 (69%)	1.2%	0.2%	0	0
Borbolla Foster, 2014	766	523 (68%)	243 (32%)	102 (42%)	141 (58%)	1.6%	0.4%	0	0
Lyons, 2015	52,671	46,313 (88%)	6358 (12%)	4765 (75%)	1593 (25%)	2.9%	0.7%	0	5
Bjelllmo, 2017	16,700	8783 (53%)	7917 (47%)	2356 (30%)	5561 (70%)	—	—	5	9
Eckeus, 2019	27,357	19,205 (70%)	8152 (30%)	6397 (78%)	1755 (22%)	—	—	8	14

Selection of Candidates for Vaginal Breech Delivery

• Guidelines to help select appropriate candidates for planned vaginal breech delivery:

1. Informed Consent: The patient must be fully informed of risks and benefits.

2. Intrapartum Fetal Monitoring: Electronic fetal heart rate (FHR) monitoring is essential.

3. Immediate Access to Cesarean Delivery and **anesthesia**: Surgical backup must be available.

4. Skilled Attendant: the delivery is attended by a pediatrician and two obstetricians, of whom at least one is experienced with vaginal breech birth.

5. Adequate Pelvimetry: Clinical or radiographic assessment of pelvic adequacy.

6. No Contraindications known to increase the risk of fetal injury or difficult delivery, such as:

- Hyperextended fetal neck
- Fetal macrosomia
- Non-frank breech presentation
- Low estimated fetal weight
- Certain fetal anomalies
- Antenatal fetal compromise

A trial of labor may be considered if the following conditions are met:

- EFW is between 2000 and 4000 g.
- Presentation is a frank or incomplete breech.
- Maternal pelvis is adequate.
- Fetal neck and head are flexed.
- Fetal monitoring is used.
- Rapid cesarean delivery is possible.
- Good progress is maintained in labor that is adequate.
- An attendant experienced in vaginal breech delivery is available.
- Informed consent is possible.

Cesarean delivery may be prudent if:

- EFW is <1500 g or >4000 g.
- Fetus is in a footling presentation.
- Parturient has a small pelvis.
- Fetal neck and head are hyperextended.
- Expertise in breech delivery is absent.
- A nonreassuring FHR pattern is present.
- Arrest of progress has occurred despite adequate contractions.

Pelvimetry in Breech Labor Decisions

- Purpose: Used to assess pelvic dimensions to predict the likelihood of a successful vaginal breech delivery.

- **Clinical Pelvimetry**:
  - A **non-radiographic method** to estimate pelvic dimensions.
  - Evaluates the **inlet**, **midpelvis**, and **outlet**.
  - Uses **surrogate measurements**, such as the **obstetric conjugate**.

Pelvimetry in Breech Labor Decisions

Radiographic Pelvimetry: Overview & Techniques

- **Common Techniques**:
  - **Plain-film radiography**: Up to three views.
  - **CT (Computed Tomography)**: Lateral, AP (anterior-posterior), and axial slices.
  - **MRI (Magnetic Resonance Imaging).**
  - **Digital fluorography**.
- **Radiation Considerations**:
  - **MRI** is safest (no radiation).
  - **CT with a single lateral view** has the **lowest radiation dose** among radiographic methods.

Pelvimetry in Breech Labor Decisions

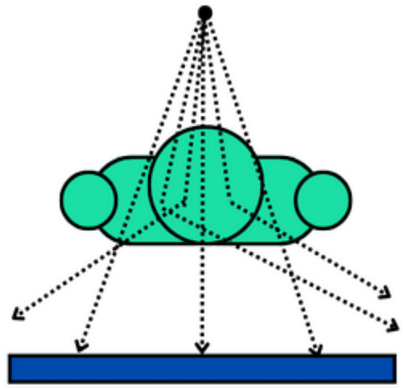
Radiographic Pelvimetry:

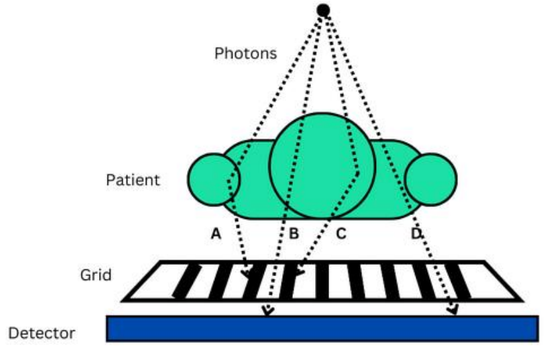
Radiation Dose Reduction:

- **air-gap technique**.
- There's a trend toward **low-dose CT** methods using up to **three images**

- minimum pelvic measurements for considering vaginal breech delivery:

Pelvic Dimension	
Minimum Size	
AP diameter of inlet	11 cm
Transverse diameter of inlet	11.5 cm
AP diameter of midpelvis	11.5 cm
Transverse (bispinous) diameter	10 cm





Selection of Candidates for Vaginal Breech Delivery

To offer a planned vaginal breech delivery, the clinician must possess the necessary training and experience in the procedure. Furthermore, the relationship between the patient and the clinician should be well established, and the discussions of risks and benefits must be objective and nondirective, with accurate documentation of the discussion. If any of these factors are lacking, cesarean delivery becomes the safer choice. However, even if a clinician has made the choice that they will never prospectively offer a patient with breech presentation a trial of labor, the burden of responsibility to know and understand the mechanism and management of a breech delivery is not relieved. No one active in obstetrics will avoid the occasional emergency breech delivery.Regular review of principles and practice with simulations using a mannequin and model pelvis with an experienced colleague can increase the skills and improve the performance of anyone facing such an emergency. With a cesarean delivery rate for term breech fetuses in the United States currently more than 90%, there is a vicious cycle of fewer providers providing the service and fewer willing to teach the procedure. One partial solution, and a critical element for any provider who might be faced with an unexpected vaginal breech delivery, is simulation.

- **Special Clinical Circumstances and Risks** that have high rates of fetal morbidity or mortality:

1.Preterm Breech
2.Hyperextended Head
3.Footling Breech

Complications associated with incomplete dilation and cephalic entrapment may be more frequent. For these three breech situations, in general, **cesarean delivery** appears to optimize fetal outcome and is therefore recommended.

1.Preterm Breech

most deaths in those with a **very low birthweight** are due to prematurity or lethal anomalies cesarean delivery has been shown by most authors to improve outcomes and decrease corrected perinatal mortality in this weight group compared with results in similar-sized vertex presentations

- **cesarean versus vaginal delivery**

Impact of Delivery Mode on Perinatal Outcomes in Preterm Breech Births (26–36 Weeks)

study Overview

- **Population**: 8,300+ singleton breech deliveries
- **Gestational Age**: 26–36 weeks
- **no significant** difference in overall perinatal mortality with cesarean versus vaginal delivery

Between 28–32 weeks specifically:

Perinatal mortality was significantly lower with cesarean delivery

studies (including 2-year follow-up) found no clear long-term outcome improvements with cesarean compared to vaginal delivery.

Other authors suggest that improved survival in these studies relates to improved neonatal care of the premature infant when compared with the outcomes of historical controls.

However, when **vaginal delivery of the preterm breech fetus is chosen or is unavoidable**, older studies have demonstrated reduced fetal morbidity and mortality when conduction anesthesia and Piper or Laufe forceps are used for delivery of the aftercoming head

- **Preterm premature rupture of membranes and malpresentation**

PPROM (Preterm Premature Rupture of Membranes):

- Associated with **prematurity** and **chorioamnionitis**
- Both are **independent risk factors** for **Cerebral Palsy (CP)**

- Also leads to **malpresentation** due to:
  - Prematurity
  - Decreased amniotic fluid

chorioamnionitis associated with periventricular leukomalacia (PVL),
(PVL), a lesion found to precede development of CP in the premature neonate

In **breech preterm deliveries** with **chorioamnionitis**:

- **Planned Cesarean Delivery**→ **Significant decrease** in incidence of **PVL**

- **Hyperextended Head**

Hyperextension of the fetal head during vaginal breech delivery has been consistently associated with high risk of spinal cord injury

Injury rate: **~21%**

It is important to differentiate :

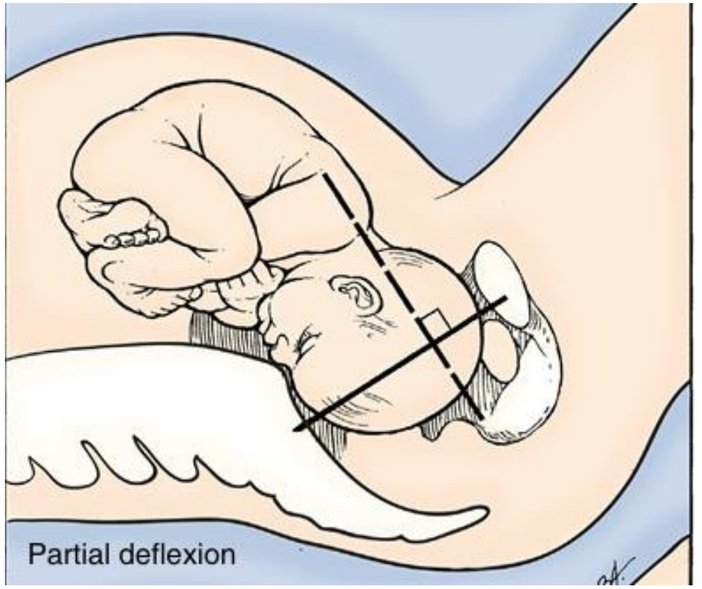
1.simple deflexion

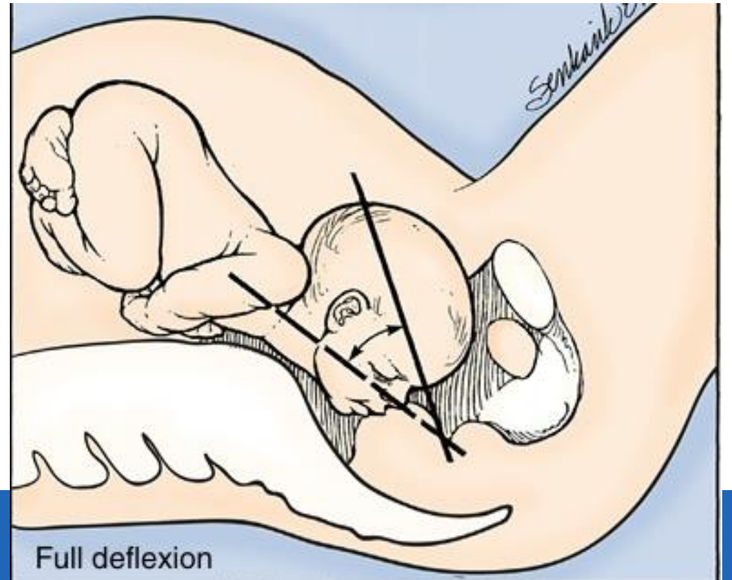
2. clear hyperextension

- simple deflexion carries **no excess risk**

Deflexion of the fetal vertex, as opposed to hyperextension is similar to the relationship between the occipitofrontal cranial plane and the axis of the fetal cervical spine illustrated in Fig

Often, as labor progresses, spontaneous flexion will occur in response to fundal forces





Risks with Footling Breech Presentation:

1. High Risk of Cord Prolapse

Incidence: **16–19%** during labor

- Cord prolapse may occur **late in labor**
  - **after commitment to vaginal delivery**
  - necessitates prompt cesarean delivery

2. Poor Cervical Dilation

- **Footling presentation** is a **poor dilator** of the cervix
  - Increases risk of **cephalic entrapment**

- **Breech Second Twin**

A **one-third** of all twin gestations present as cephalic/ breech

The management in the case of the cephalic/breech twin pregnancy include:
1.cesarean delivery
2. vaginal delivery of the first twin, and either attempted ECV or IPV and breech extraction of the second twin

studies

- Compared: **Vertex/Breech** vs. **Vertex/Vertex** twins
- Breech second twins had:
  - ↑ Low birthweight
  - ↑ Hospital stay

2.**Study of Cephalic/Noncephalic Twin Pairs (>1500 g)**

- **Breech extraction** of second twin **safe alternative** to cesarean

-

Danish Retrospective Study – Internal Podalic Version (IPV)

- IPV in noncephalic second twins showed:
  - **Fewer asphyxiated neonates**
  - **Higher cord pH**
  - **Higher Apgar scores**

  trend: High rate of **combined vaginal/cesarean delivery**

twin Birth Study (Multicenter RCT)

- Compared: **Cesarean vs. Vaginal delivery** of twins
- **Key Result**:
  - cesarean delivery of twins no effect in the rate of fetal or neonatal death or morbidity compared with vaginal delivery
- **Recommendation**:
  - Seek **experienced providers** for vaginal delivery of second twin

For clinicians **uncomfortable** with vaginal **singleton breech** delivery:

- Cesarean may be **safer** for **noncephalic second twin**

- **Internal Podalic Version (IPV) & Breech Extraction**

use ultrasound to assist
steps:
1.insert hand to uterus
2. Identify and grasp **both fetal feet** (with membranes intact)
3.Apply **gentle traction** to bring feet into the pelvis and out the introitus
4.**Membranes rupture** once both feet are at the introitus
5.Proceed with **footling breech delivery**

If difficulty identifying feet, **intrapartum ultrasound** can assist with orientation

during breech extraction fetal head can become entrapped in the cervix
management :operator's entire hand is placed in the uterus, the fetal head is cradled, and as the hand is withdrawn, the head is protected. Use in breech extraction at CS

may also occur because of increased uterine tone or contractions
management : uterine relaxing agent+ nitroglycerin

Terbutaline or inhalational anesthesia may also be used.

Absent a provider skilled and experienced in IPV and breech extraction
→ vaginal delivery 1st twin → external version 2nd twin
using ultrasound in the delivery room to directly visualize the fetus
transient decrease in uterine activity after 1st twin facilitate external version

- **External Cephalic Version**

ECV reduces the incidence of breech presentation in labor and is associated with few complications such as:
1.cord compression
2.placental abruption

- success with ECV (50% to 75%)

many infants in breech presentation before 34 weeks' gestation will convert spontaneously to a cephalic presentation (decreases toward term)

The optimal time for ECV is between 36 and 39 weeks.

Early ECV (34–35+6 weeks)
Higher chance of **cephalic presentation at delivery**
↑ **Late preterm birth** risk
Late ECV (≥37 weeks)
Lower risk of prematurity
no effect on CS

- Routine ECV offered at 36–38 week

Optimal balance between:

- **Success rate**
- Minimized prematurity risk

If ECV is **successful** and no other indications for delivery:

- Prefer to **await spontaneous labor (**improved the chances of vaginal delivery)

ECV prove that it is a safe and effective intervention.

Fetal complications include :

1. abruption

3.rupture of the membranes,

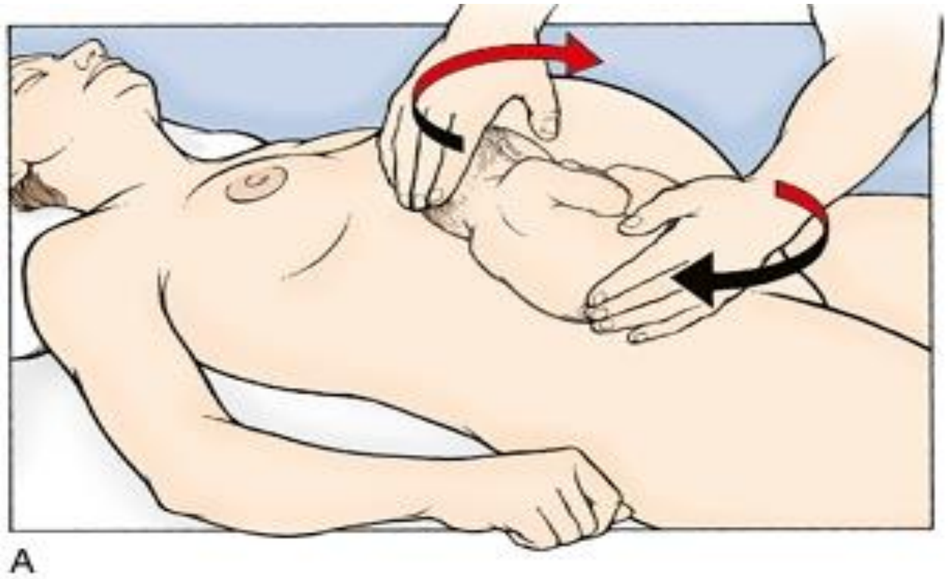
4.cord prolapse

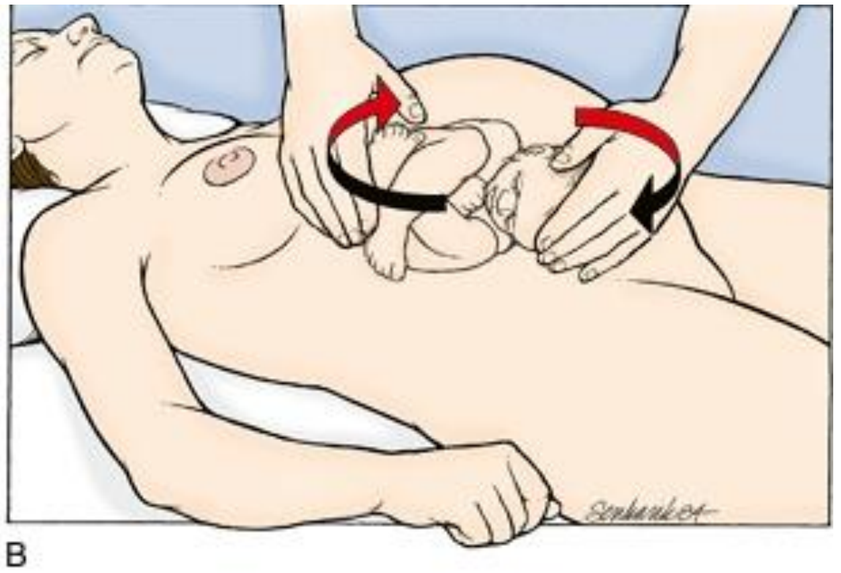
5.spontaneous conversion back to breech

6.fetomaternal hemorrhage

Maternal complications other than discomfort during the procedure are rare

- **Gentle, constant pressure applied in a relaxed patient, together with frequent FHR assessments, is the element of**
  ECV success stressed by all investigators.
  forward roll" is more widely supported than the "back flip"





External cephalic version is accomplished by gently "squeezing" the fetus out of one area of the uterus and into another. Illustrated here is the popular "forward roll."

The mechanical goal is to squeeze the fetal breech up and out of the pelvis, then the fetal vertex gently out of the fundal area to the transverse and finally the lower segment of the uterus.

- **factors predict success of ECV:**

1.parous women
2.attempts at 37 to 39 weeks' gestation than after 40 weeks
3.posterior placental location
4.double footling breech
5.Normal or abundant amniotic fluid volume(AFI > 7 cm)
6. easily palpable fetal head(on the day of the procedure)
7. Tocolysis, regional anesthesia, and ultrasound during ECV

Complete breech showed increased success

Tocolytics

include : ritodrine, hexoprenaline, salbutamol (albuterol), nitroglycerine, and terbutaline
⌂ no adverse maternal effects
⌂ b-mimetics, increased the rate of cephalic presentation
⌂ reduced the cesarean delivery rate

terbutaline (most commonly used) 0.25 mg subcutaneously 15 to 20 minutes before attempting an ECV

- **regional anesthesia for ECV**

Some believe that operators might apply excessive pressure to the maternal abdomen which might make fetal compromise (FHR decelerations and possibly related to placental abruption)

recent-meta analysis reported that use of neuraxial anesthesia for ECV is associated with

- success rate ↑
- cephalic presentation in labor ↑
- vaginal delivery ↑
- maternal discomfort ↓
- visual analog pain scales ↓

- **factors associated with failure of ECV included**:
  1.obesity
  2.deep pelvic engagement of the breech fetus
  3.oligohydramnios
  4.posterior positioning of the fetal back

  Fetomaternal transfusion (6% incidence) of patients undergoing external version.

  Rh-negative unsensitized women should receive **Rho(D) immune globulin**.

  detect the vials of rho(D) IG by doing kleihaer-betke assay or flow cytometry test

ECV After Prior Cesarean Delivery

Studies show :
to be **safe for both mother and fetus**
results in **higher rates of vaginal delivery**
Success rates 82%

Use of Tocolytics (e.g., IV Ritodrine)

No cases of **uterine dehiscence** during or after ECV

Study on ECV After Prior Cesarean Delivery

- **Singleton pregnancies** ≥36 weeks
  - **No fetal anomalies**
  - **Multiparas** with **one prior cesarean**

success rate(65.8% – 100%)
Higher success if prior **vaginal delivery**

outcomes

- **No increase** in:
  - Maternal or fetal **morbidity/mortality**
  - **Scar dehiscence**

a prior cesarean delivery is neither a relative nor absolute contraindication to an attempted ECV.

- **ABNORMALITIES OF POSITION:**

1.OCCIPUT POSTERIOR
2. OCCIPUT TRANSVERSE

Persistent OP: Occiput remains in the posterior quadrant **through second stage** to delivery

OP position prevalence:

Early labor & active phase: OP more common (**8**0% to 90% will rotate spontaneously)

- **Second stage**: Persists in **5%–10%** of cases(50% to 80% will rotate spontaneously)

Ultrasound-based studies show:
50% start labor in **transverse**
25% each in **OA (occiput anterior)** and **OP**

- **Factors predisposing to persistent OP include:**

1.nulliparity,
2. BMI greater than 30
3. macrosomia
4. the need for augmentation of labor
5.anterior placental location
6. race
7.pelvic architecture and epidural analgesia

Maternal outcomes associated with persistent OP include:

1.longer first and second stages of labor
2. increased risks of cesarean delivery and operative vaginal delivery
3. increased rates of third- and fourth-degree lacerations
4. anal sphincter injury(sevenfold increase)
5. significant extensions of the hysterotomy at the time of cesarean

- **Fetal and newborn morbidity associated with persistent OP includes**:

  modest increases in lower Apgar scores

  cord gas acidemia

  meconium

  birth trauma

  neonatal intensive care unit admission

when adjusting for other factors, the only fetal morbidity that remained significantly associated with persistent OP was a slight increase in birth trauma related to operative vaginal delivery

Diagnosis of Occiput Posterior

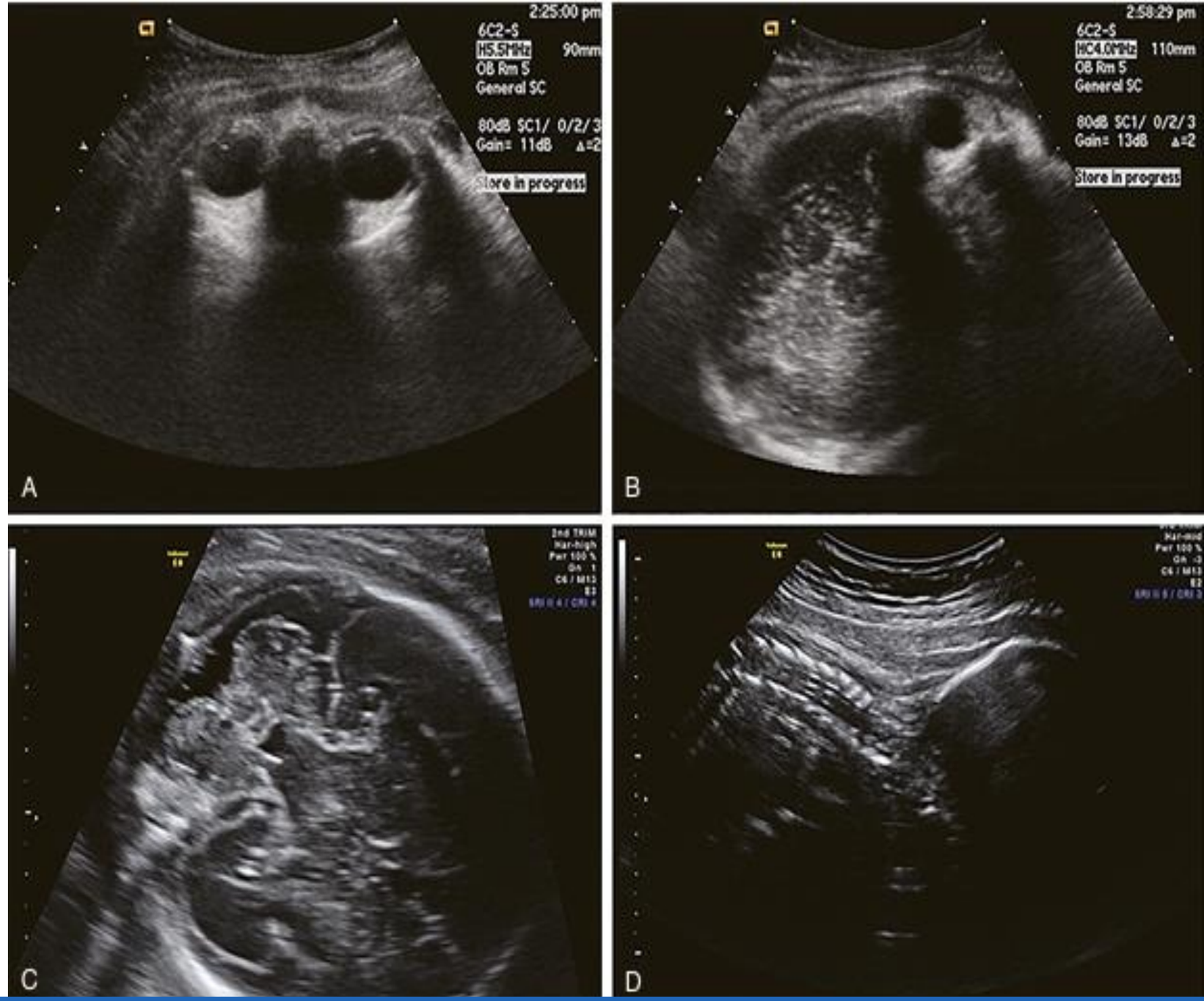
- The diagnosis of persistent OP by vaginal examination alone is challenging.

Large observational studies relying on ultrasound as the gold standard

confirm that physical exam for determination of the position of the occiput in the active phase is so inaccurate . (80%)

These studies and others suggest that bedside ultrasound for determination of the position of the occiput in the second stage is highly accurate and very reproducible (>99%)

Transabdominal Ultrasound Determination of the Fetal Occiput. A, Direct occiput posterior with both fetal orbits facing the transducer. B, Right occiput posterior with the fetal orbits facing anteriorly to the maternal left. C, Right occiput anterior with the fetal cerebellum seen anteriorly to the maternal right. D, Occiput anterior by localization of the fetal spine in the sagittal plane.



- **Prevention of Persistent Occiput Posterior**

the majority of RCTs have shown no effect of purposeful maternal positioning during labor for the prevention or treatment of persistent OP in the active phase or during the second stage

Traditional Approach to OP was
simple observation and conservative management without intervention
Based on :

- Most OP fetuses **rotate spontaneously**
- **Persistent OP < 5%**

now : active intervention and management of OP early in the second stage
Persistent OP now ~10%
decreasing cesarean delivery rates

- manual or digital rotation becomes more difficult in the late of 2nd stage

- **Prevention of Persistent Occiput Posterior**

prophylactic manual or digital rotation early in the second stage cause
decreasing persistent OP
decreasing CS delivery for persistent OP
decrease operative vaginal delivery

Attempt rotation after observation:

- **Nulliparas**: 1 hour into second stage
- **Multiparas**: 30 minutes

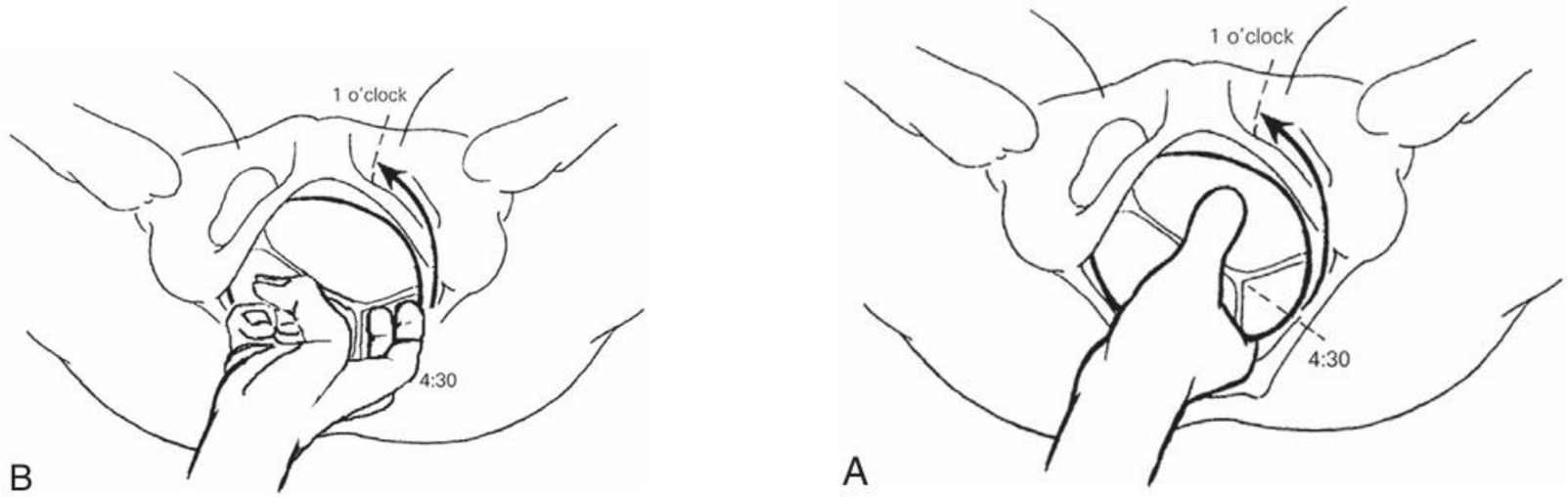
success rate when perform early in 2nd stage (80% to 90%)
< 30% if performed in the setting of an arrest of descent

Prophylactic Manual or Digital Rotation advocated **early** **in second stage**

-

- **The technique for manual or digital rotation**

it is best to position the patient almost as though readying for delivery
the foot of the bed dropped and the maternal legs supported
Rotation is attempted between maternal contractions
If resistance to rotation is encountered, slight flexion of the fetal head
Care should be exercised with the latter maneuver to avoid the rush of amniotic fluid and cord prolapse.



Rotation of Left Occiput Posterior to Left Occiput Anterior. (A) Manual rotation of left occiput posterior to left occiput anterior. With the right hand facing palm up, four fingers are placed inferiorly and spread across the left side of the fetal head with the thumb on the right side. While flexing the fetal head, the operator rotates the occiput counterclockwise into the anterior segment of the pelvis. (B) Digital rotation of left occiput posterior to left occiput anterior. The index and middle fingers are used to locate and apply counter clockwise pressure in a dialing motion on the posterior margin of the right parietal bone at the right lambdoidal suture

- **Indications for Delivery in OP Position**

Arrest of descent

Maternal or **fetal indications**

Contraindications to Operative Vaginal Delivery

1.Suspected **fetal macrosomia**

2.Fetal BPD palpated above pelvic inlet (via Leopold)

3.Android pelvis features:

-Crowded anterior segment

-Forward sacrum

-Prominent ischial spines

Cesarean delivery indicated if:

Any **contraindication to operative delivery** is present

Category III FHR tracing(faster and safer)

operative vaginal delivery may be considered if careful exam of the pelvis suggests:

❑anthropoid	more room in the posterior segment of the pelvis	Operative vaginal delivery without rotation
gynecoid features	ample room anteriorly, a hollow sacrum, and blunt or lateral spines	operative vaginal delivery with rotation manual or instrumental

↑↑

Rotational Forceps Delivery

Rotational forceps deliveries have **declined** due to

1. lack of experience among graduating residents
2. declining cadre of willing teachers.

large cohort studies suggest a continuing role for rotational forceps in contemporary practice:
(practice Kielland rotational deliveries)

success rates	**up to 90%**
Severe Perineal Lacerations	**Decreased** (3rd & 4th degree)
Failed Operative Delivery	Reduced rates
Neonatal Morbidity	No significant **differences** vs. vacuum, forceps, or cesarean

- **Rotational Forceps Delivery**

Historical concern: Fetal spinal cord injury with rotational forceps
Modern evidence : **0 cases** of spinal cord injuy

Kielland forceps

For rotations from OP, the forceps are applied with a **cephalic application** with the buttons on the handles toward the fetal face; rotation is gentle between contractions, moving the fetal head 180 degrees in the direction of the fetal spine(counterclockwise for left OP, clockwise for right OP)

If the rotation is successful, the Kielland forceps are removed and replaced with traditional forceps such as Simpson forceps for completion of the delivery.

Alternative Technique for Kielland Forceps Application

some prefer to apply the Kielland forceps inverted from below the perineum such that the pelvic curve of the blades aligns with the curvature of the pelvis on completion of rotation.

With this method the Kielland forceps are kept in place through traction and delivery with care not to raise the handles above the horizontal in order to minimize the risk of vaginal lacerations

- **second-stage cesarean delivery**

second-stage cesarean is associated with:
Higher maternal morbidity
Often due to **hysterotomy extensions**:

- Into **cervix**
- Into **uterine arteries**
- Risk is **doubled** when fetus is in **(OP)** position

_____

Deep engagement of the fetal head can make extraction difficult
2 approached

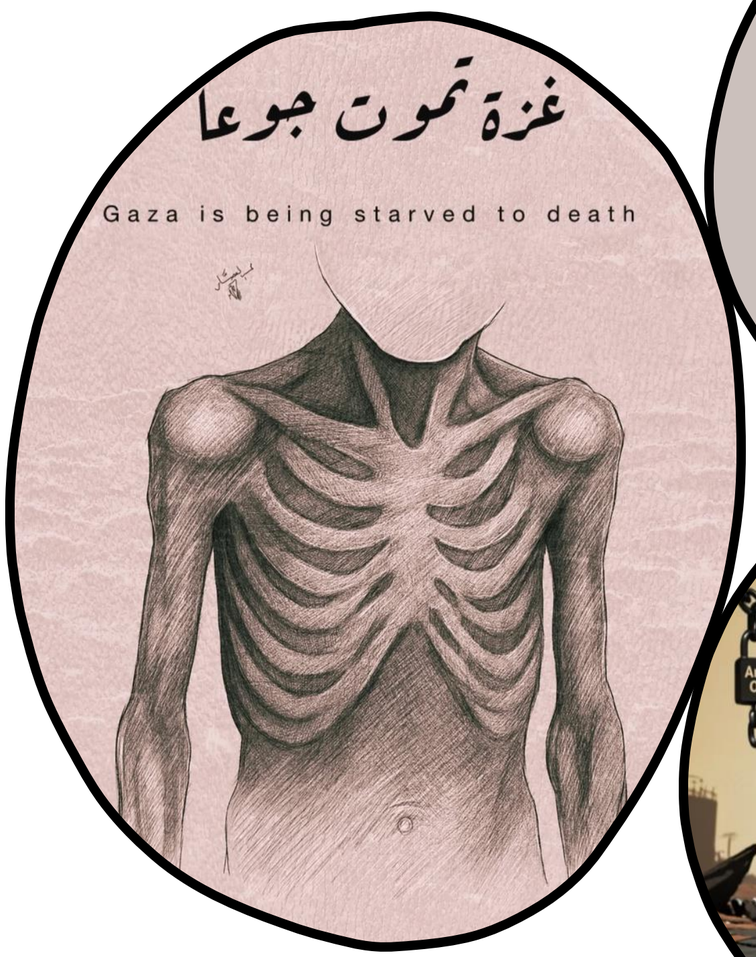
1.Push from below
2.Pull from above
Meta-analysis (6 prospective + 4 retrospective studies) shows:

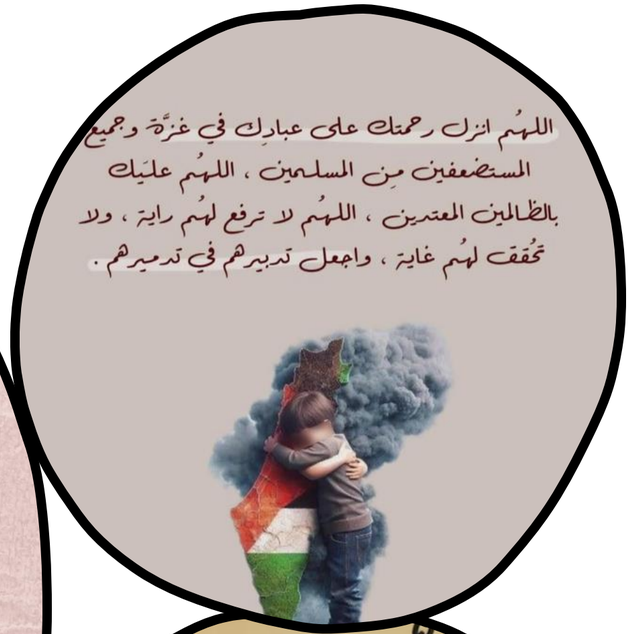
Technique	Maternal Risk	Fetal Risk
Push Method	↑ Hysterotomy extensions	lower
Pull/Reverse Breech	↓ Maternal trauma	↑ Fetal injury

- **Clinical Technique in OP with Arrest of Descent**

When cesarean delivery is needed for arrest of descent with a persistent OP

1. we place the patient in Allen stirrups(low lithotomy position)
to afford better access to gently destation the vertex prior to the cesarean section or intraoperatively if needed
and resort to a reverse breech delivery or pull technique only if this fails.


غزة تموت جوعا
Gaza is being starved to death


اللهُم انزل رحمتك على عبادِك في غزَّة وجميع
المستضعفين مِن المسلمين ، اللهُم عليك
بالظالمين المعتدين ، اللهُم لا ترفع لهُم راية ، ولا
تُحقق لهُم غاية ، واجعل تدبيرهم في تدميرهم .


Arab
OiL

THANKS!