Al-Mustaqbal University
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Nursing Care of Women With Complications During Labor and Birth

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KEY TERMS:

anaphylactoid syndrome
artificial rupture of membranes (AROM)
augmentation of labor
Bishop score
cephalopelvic disproportion (sĕf-ăh-lō-PĔL-vĭc dĭs-prŏ-PŎR-shŭn),
chignon (SHĒN-yon,)
chorioamnionitis (kō-rē-ō-ăm-nē-ō-NĪ-tĭs),
complementary and alternative medicine (CAM)
dysfunctional labor
dystocia
fibronectin (fī-brō-NĔK-tĭn),
hydramnios (hī-DRĂM-nē-ŏs),
induction of labor
laminaria (lăm-ĭ-NĂ-rē-ăh,)
macrosomia (măk-rō-SŌM-ē-ă,)
oligohydramnios (ŏl-ĭ-gō-hī-DRĂM-nē-ŏs),
shoulder dystocia (SHŌL-dŭr dĭs-TŌ-sē-ă,)
spontaneous rupture of membranes (SROM)
tocolytics (tō-kō-LĬT-ĭks),

Induction and augmentation of labor are both medical interventions used to manage the process of childbirth, but they serve different purposes and are applied under distinct circumstances.

Induction of Labor:

Induction is the intentional initiation of labor before it begins spontaneously. It may be recommended when there are medical reasons that require delivery to occur sooner than nature would dictate. Some indications for induction include:

- Post-term pregnancy (after 42 weeks)
- Preeclampsia or hypertension
- Diabetes or gestational diabetes
- Fetal growth restriction or other fetal concerns
- Maternal medical conditions, such as kidney disease
- Ruptured membranes without labor

Before inducing labor, it is essential to confirm fetal maturity, as induction is generally avoided before 39 weeks gestation unless medically necessary. This can be assessed using:

- **Ultrasound**: To estimate fetal size and assess amniotic fluid levels.
- **Amniotic fluid analysis**: A test for the lecithin/sphingomyelin (L/S) ratio, which indicates lung maturity in the fetus. A mature L/S ratio suggests that the fetus is ready for birth.

Augmentation of Labor:

Augmentation refers to stimulating uterine contractions after labor has already started but is not progressing adequately. This can be necessary when contractions become weak, infrequent, or inefficient, potentially leading to prolonged labor. Methods of augmentation may include:

- Administration of oxytocin (Pitocin), a hormone that stimulates contractions.
- Rupturing the membranes (amniotomy) to enhance labor progress.

Bishop Score:

The **Bishop score** is a tool used to assess the readiness of the cervix for labor and its likelihood of responding to induction. It evaluates five components:

1. **Cervical dilation** (how open the cervix is)
2. **Cervical effacement** (how thin the cervix is)
3. **Cervical consistency** (firm, medium, soft)
4. **Cervical position** (posterior, mid, anterior)
5. **Fetal station** (position of the baby's head relative to the pelvis)

A higher Bishop score suggests a more favorable cervix for induction. A score of 6 or higher typically indicates that the cervix is favorable and may respond well to induction.

Fetal Fibronectin (fFN):

Fetal fibronectin is a protein found in the cervico-vaginal fluid. Its presence in high concentrations near the cervix can be a marker of an increased likelihood of preterm labor. A negative fetal fibronectin test can indicate that preterm labor is unlikely. This test can help guide decisions regarding labor induction or augmentation.

Monitoring:

During labor induction or augmentation, **continuous monitoring** of uterine contractions and fetal heart rate is essential to ensure that both the mother and fetus are tolerating the process well. Uterine activity should be closely observed to ensure that contractions are effective but not overly strong, which could cause fetal distress. Fetal heart rate monitoring helps assess fetal well-being and detect signs of distress during labor.

Table 8.1

Modified Bishop Scoring System

	SCORE			
	0	1	2	3
Dilation of cervix (cm)	0	1–2	3–4	5–6
Consistency of cervix	Firm	Medium	Soft	—
Length of cervix (cm)	>4	2–4	1–2	1–2
Cervical effacement (%)	0–30	40–50	60–70	80
Position of cervix	Posterior	Midline	Anterior	—
Station of presenting part related to ischial spines	−3	−2	−1 or 0	+1 or +2

NOTE: High score is predictive of a successful labor induction because the cervix has ripened, or softened, in preparation for labor. The American College of Obstetricians and Gynecologists (ACOG) recommends a score of 6 or above before induction of labor.

Modified from Stables D, Rankin J: *Physiology in childbearing: with anatomy and related biosciences*, ed

Indications for Induction of Labor:

Labor may be induced when continuing the pregnancy poses risks to the mother or fetus. Common indications include:

- **Gestational hypertension**: High blood pressure during pregnancy that can lead to complications like preeclampsia.
- **Ruptured membranes without spontaneous onset of labor**: When the water breaks but labor does not begin on its own.
- **Infection within the uterus**: Infections such as chorioamnionitis that can harm the mother or fetus.
- **Medical problems in the woman**: Conditions like diabetes, kidney disease, or pulmonary disease that worsen during pregnancy.
- **Fetal problems**: Issues like slowed growth, prolonged pregnancy (post-term), or incompatibility between maternal and fetal blood types.
- **Placental insufficiency**: When the placenta is not providing enough nutrients and oxygen to the fetus.
- **Fetal death**: When the fetus has passed away in utero.

In these situations, inducing labor helps to ensure the safety of both mother and baby.

Contraindications to Induction of Labor:
Labor should not be induced in the following conditions, as induction could pose risks to the mother or fetus:

- **Placenta previa**: When the placenta covers or is too close to the cervix, which can cause bleeding during labor.
- **Umbilical cord prolapse**: When the umbilical cord slips ahead of the baby, risking cord compression and fetal distress.
- **Abnormal fetal presentation**: Conditions like breech or transverse lie, where the fetus is not positioned head-down for delivery.
- **High station of the fetus**: When the baby's head is not engaged in the pelvis, which can suggest a preterm fetus or a small maternal pelvis.
- **Active herpes infection**: A genital herpes outbreak at the time of labor, as the infection can be transmitted to the baby during birth.
- **Abnormal size or structure of the mother's pelvis**: If the mother's pelvis is too small or shaped in a way that makes vaginal delivery risky.
- **Previous classic (vertical) cesarean incision**: A scar from a previous cesarean that is vertical, which increases the risk of uterine rupture during induction.

In these cases, induction of labor could lead to complications, so cesarean delivery may be recommended instead.

Nonpharmacological Methods to Stimulate Contractions:

1.Walking: Walking is a simple and effective method to help stimulate contractions. It can:

1. Stimulate contractions by promoting uterine activity.
2. Relieve pressure on the mother's back by allowing the fetus to shift positions.
3. Utilize gravity to enhance the downward force of contractions, which can facilitate labor progression.

2.If walking is not preferred, other **upright positions** can also be helpful. These include:

1. Sitting in a chair, on the side of the bed, or in the bed itself.
2. Squatting, kneeling (with support from the raised head of the bed), or maintaining other upright positions.

These positions encourage effective contractions and help the labor process continue without the use of medications.

Nipple Stimulation to Stimulate Labor:

Nipple stimulation triggers the release of **oxytocin** from the posterior pituitary gland, which enhances the quality of contractions, similar to the effect of synthetic oxytocin (IV). This method can be effective if contractions have slowed or weakened. The woman can stimulate her nipples in the following ways:

- **Pulling or rolling the nipples**: Gently manipulate each nipple one at a time.
- **Brushing the nipples with a dry washcloth**: Light stimulation with a soft cloth.
- **Using water**: A whirlpool tub or shower can provide a soothing environment while stimulating the nipples.
- **Using a breast pump**: Applying suction to the nipples with a pump can stimulate oxytocin release.
- **Sexual intercourse**: This can also stimulate uterine contractions, as sperm contains prostaglandins that help soften the cervix.

Acupuncture and acupressure have also been used for centuries as natural methods to stimulate labor when performed by professionals.

If the contractions become too strong, the woman should stop the stimulation to avoid overstimulation of the uterus.

Pharmacological and Mechanical Methods to Stimulate Contractions:

Cervical Ripening:

Cervical ripening is the process of softening and preparing the cervix for labor, allowing it to efface (thin out) and dilate (open). A "ripe" cervix makes labor induction more effective and reduces the risk of complications. If the cervix is not ripe, the use of **oxytocin** (a hormone used to induce contractions) may not be effective, and the woman may require a **cesarean section**.

Methods to Ripen the Cervix:

1.Pharmacological Methods: These involve medications that help soften the cervix, making it easier for labor to progress.

1. **Prostaglandins** (such as misoprostol or dinoprostone): These medications can be administered vaginally or orally to ripen the cervix by stimulating collagen breakdown, leading to softening and dilation.
2. **Oxytocin** (Pitocin): Although oxytocin is primarily used to stimulate contractions, it may sometimes be used after cervical ripening to induce labor.

2.Mechanical Methods: These physical devices or techniques are used to encourage cervical ripening and dilation.

1. **Foley catheter or balloon catheter**: A catheter is inserted into the cervix, and a balloon is inflated to apply pressure, helping to soften and dilate the cervix.
2. **Hydroscopic dilators**: These are devices that absorb moisture from the cervix and expand, promoting ripening.

Cervical ripening methods help improve the likelihood of successful labor induction by preparing the cervix for the onset of contractions. Without a "ripe" cervix, labor induction is less likely to be effective and may lead to complications.

Pharmacological Methods for Cervical Ripening:

Pharmacological methods, particularly prostaglandins, are commonly used to ripen the cervix before labor induction.

Prostaglandins:

- **Prostaglandin E2 (Dinoprostone, Cervidil)**:
  - **Indication**: Dinoprostone is typically used as a sustained-release vaginal insert for cervical ripening.
  - **Contraindication**: Prostaglandin use is contraindicated in women with a history of **uterine myomectomy** (surgery to remove fibroids) or **previous cesarean section**, as there is an increased risk of **uterine rupture**.
- **Prostaglandin E1 (Misoprostol)**:
  - **Indication**: Originally developed to treat peptic ulcers, **misoprostol** is considered an "off-label" use for cervical ripening. It is highly effective in achieving vaginal delivery within 24 hours.
  - **Administration**: Misoprostol can be administered orally (sublingual or buccal) or intravaginally.
  - **Considerations**: Misoprostol is more effective for timely delivery but is associated with risks such as **uterine tachysystole** (excessively frequent contractions) and **fetal heart rate abnormalities**.

Both prostaglandins help ripen the cervix by softening it, which facilitates dilation and prepares the uterus for labor. However, due to their potency and associated risks, careful monitoring of uterine activity and fetal well-being is essential during their use.

Procedure for Cervical Ripening with Prostaglandins:

1.Explanation and Consent:

1. The procedure should be thoroughly explained to the woman and her family to ensure understanding and obtain informed consent.

2.Monitoring Before and During the Procedure:

1. **Fetal Heart Rate**: A baseline fetal heart rate is recorded to monitor for any changes during the procedure.
2. **IV Line**: An intravenous (IV) line with saline or heparin sodium (“hep-lock”) may be placed. This is done in case uterine tachysystole (excessively frequent uterine contractions) occurs, and IV tocolytics (drugs that reduce uterine contractions) may be needed.

3.Post-Insertion Care:

1. After the **prostglandin gel** (e.g., Dinoprostone) is inserted, the woman remains on **bed rest** for **1 to 2 hours** to allow the medication to take effect. During this time, she is carefully monitored for uterine contractions.
2. **Vital Signs & Fetal Heart Rate**: These are continuously recorded to monitor the woman's and fetus's well-being.

4.Timing for Oxytocin Induction:

1. **Oxytocin induction** (for stronger contractions) can typically begin **6 to 12 hours** after the vaginal insert is removed, depending on the woman's response.

5- Signs of Uterine Tachysystole:

1. Uterine tachysystole is characterized by contractions lasting longer than **90 seconds** or more than **five contractions in 10 minutes**. If these signs are observed, immediate intervention may be required.

6- Removal of Prostaglandin Insert:

1. The **vaginal insert** can be easily removed by pulling on the **netted string** that protrudes from the vaginal opening.

7- Labor Progression:

In some cases, **labor may begin** naturally after the use of cervical ripening products without the need for additional **oxytocin stimulation**.

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Mechanical Methods for Cervical Ripening:

1.Stripping the Amniotic Membranes:

1. **Procedure**: This involves the manual separation of the **chorioamniotic membranes** (the amniotic sac and fetal membranes) from the **lower uterine segment** and cervix. The examiner's gloved finger is inserted through the cervix and beyond the internal cervical os (opening), then rotated along the lower uterine segment to separate the membranes.
2. **Goal**: This process stimulates the release of **prostaglandins**, which helps to ripen the cervix and can encourage the onset of labor.

2.Hydroscopic Dilators (Laminaria and Lamicel):

1. **Procedure**: These are mechanical dilators made from seaweed (Laminaria) or synthetic material (Lamicel) that are placed in the lower uterine segment. They work by absorbing moisture, which causes them to swell inside the cervix.
2. **Action**: As they swell, they apply gentle pressure to the cervix, promoting mechanical **cervical dilation** and stimulating the release of **prostaglandins** from the fetal membranes and maternal decidua (lining of the uterus), helping to prepare the cervix for labor.

3.Transcervical Balloon Dilators:

1. **Procedure**: A **16-Fr catheter** with a **30-mL balloon** is inserted through the cervix and inflated once it is positioned in the lower uterine segment.
2. **Action**: The balloon applies **mechanical pressure** by gentle traction against the cervix, which gradually **dilates** the cervix to facilitate the onset of labor.

These mechanical methods provide physical means to induce cervical ripening and dilation, often avoiding pharmacological agents, while also stimulating the cervix to release natural substances that help trigger labor.

Amniotomy (Artificial Rupture of Membranes - AROM):

Amniotomy is the **artificial rupture of the amniotic sac** using a sterile sharp instrument to release the **amniotic fluid**. This procedure is typically performed to **induce** or **augment labor**. It may also be done to allow for **internal fetal monitoring** during labor.

Procedure and Roles:

•**Performed by**: A healthcare provider, such as an obstetrician or midwife.

•**Assisted by**: The nurse, who provides support during the procedure and helps care for the woman and fetus afterward.

Key Considerations:

•**Confirmation of Fetal Position**: It is important to confirm that the baby is in a **vertex presentation** (head-down) and assess the **station** (position of the baby's head in relation to the pelvis) to **prevent umbilical cord prolapse** (when the umbilical cord slips ahead of the baby, which can cause compression and fetal distress).

•**Effects**:

- **Prostaglandin Secretion**: The procedure stimulates the release of **prostaglandins**, which help to further stimulate **uterine contractions**, aiding in labor progression.
- **Risk of Umbilical Cord Compression**: The loss of amniotic fluid following amniotomy can increase the risk of **umbilical cord compression**, which may affect fetal oxygenation and heart rate.

Amniotomy is a common method for augmenting labor, but it requires careful monitoring to ensure both maternal and fetal safety, especially after the membranes are ruptured.

Complications of Amniotomy:

Amniotomy, the artificial rupture of the membranes, carries certain risks that can also arise in cases of **spontaneous rupture of membranes (SROM)**. The three main complications include:

1.Prolapse of the Umbilical Cord:

1. **Cause**: This occurs if the **umbilical cord** slips down into the vaginal canal with the gush of amniotic fluid when the membranes rupture.
2. **Risk**: The prolapsed cord can become compressed between the baby's head and the cervix, leading to a **reduced blood supply and oxygen to the fetus**, potentially causing **fetal distress**.

2.Infection:

1. **Cause**: Once the membranes are ruptured, there is no longer a protective barrier between the uterus and the external environment. This increases the risk of **infection** as vaginal organisms can now enter the uterus.
2. **Management**: Amniotomy commits the woman to **delivery within a certain timeframe**, as prolonged rupture of membranes increases the risk of infection. Healthcare providers typically delay the procedure until they are confident that **labor and delivery will occur promptly**.

1.Abruptio Placentae (Placental Abruption):

1. **Cause**: Abruptio placentae, the premature separation of the placenta from the uterine wall, is more likely to occur if the uterus is **overdistended** (e.g., due to **hydramnios**, or excessive amniotic fluid) at the time of membrane rupture.
2. **Mechanism**: When the membranes rupture, the uterus contracts and shrinks, but the placenta remains the same size. This mismatch can lead to **placental separation** from its implantation site, potentially causing **bleeding** and compromising fetal oxygenation.

In summary, while amniotomy is a common method for inducing or augmenting labor, it carries risks that need careful management and monitoring to protect both the mother and baby during labor.

Nursing Care After Amniotomy:

After an amniotomy (artificial rupture of membranes), nursing care focuses on **monitoring for complications**, promoting the woman's **comfort**, and maintaining hygiene to reduce infection risk. The care steps include:

General Nursing Care:

•**Comfort Measures**: Ensure the woman is comfortable and well-positioned following the procedure.

•**Hygiene**: Change **wet underpads** and **linens** frequently to prevent skin breakdown and reduce infection risk.

- **Nursing Tip**: Keep the woman as dry as possible, as moist conditions can increase the risk of **infection** or **skin irritation**.

Monitoring for Complications:

•**Fetal Heart Rate**:

- Monitor the **fetal heart rate** for at least 1 minute after amniotomy to assess the fetus's well-being.
- A heart rate **outside the normal range** of **110-160 beats/min** may suggest the possibility of **prolapsed umbilical cord** or other complications.

•**Risk of Prolapsed Umbilical Cord**:

- A **large volume of fluid** can increase the risk of cord prolapse, especially if the fetus is in a **high position in the pelvis**.
- If prolapse is suspected, **immediate medical intervention** is necessary.

•**Amniotic Fluid Observation**:

- **Record the color, odor, amount, and character of the amniotic fluid**.
- **Normal Fluid**: Clear fluid, possibly with flecks of **vernix** (newborn skin coating) and **lanugo** (fetal hair), and no unpleasant odor.
- **Abnormal Fluid**: **Cloudy**, **yellow**, or **malodorous** fluid suggests potential **infection**.

By closely monitoring the woman's condition and the characteristics of the amniotic fluid, nurses can help identify complications early, ensuring both maternal and fetal well-being.

Nursing Care After Amniotomy (Continued):

Meconium-Stained Amniotic Fluid:

•**Green Fluid**: If the amniotic fluid is **green**, it typically indicates that the **fetus has passed meconium** (the first stool) into the amniotic sac before birth.

•**Implications**:

- **Fetal Compromise**: Meconium-stained amniotic fluid is often linked with **fetal distress** or **compromise** during labor.
- **Respiratory Concerns**: It can also lead to **respiratory distress** in the infant after birth, as meconium may be inhaled into the lungs.

Maternal Temperature Monitoring:

•**Routine Monitoring**: After amniotomy, the woman's temperature should be taken every **2 to 4 hours**, as per **facility policy**.

•**Elevated Temperature**: A maternal temperature of **38°C (100.4°F)** or higher may indicate **infection**.

•**Fetal Heart Rate Monitoring**:

- An increase in **fetal heart rate**, especially if it exceeds **160 beats/min**, can be an early warning sign of infection or impending maternal temperature rise.

Promoting Comfort:

•**Underpad Use**:

- Before or after amniotomy, several **disposable underpads** should be placed for **comfort and hygiene**, as the woman will experience **amniotic fluid leakage**.
- Keeping the woman **dry** and **comfortable** is essential to prevent skin breakdown and maintain cleanliness.

By observing changes in **fluid characteristics**, monitoring **vital signs**, and **fetal heart rate**, the nurse helps identify potential complications early and can intervene promptly to ensure the well-being of both mother and baby.

Promoting Comfort After Amniotomy:

•**Disposable Underpads**:

- Before performing **amniotomy**, place several **disposable underpads** under the woman's hips to absorb the amniotic fluid that will continue to leak from the vagina during labor.
- **Frequent Changes**: Change the underpads regularly to keep the woman **reasonably dry** and reduce the **moist, warm environment** that could promote **microorganism growth**, reducing the risk of infection.

Oxytocin Induction and Augmentation of Labor:

•**Induction of Labor**:

- **Oxytocin (Pitocin)** is commonly used to **induce labor** in women with a **favorable or "ripe" cervix**. It is administered to **initiate uterine contractions**, effectively starting labor when it does not begin spontaneously.

•**Augmentation of Labor**:

- In cases where labor has already started but is **not progressing effectively**, oxytocin may be used to **augment labor** by stimulating stronger or more frequent contractions.

Both methods aim to ensure that labor progresses efficiently and safely for both the mother and the baby. Regular monitoring of uterine contractions and fetal heart rate is essential during oxytocin use to avoid complications such as **uterine tachysystole** (excessively frequent contractions).

Oxytocin Infusion and Monitoring:

- **Infusion Regulation**:
  - The infusion of **oxytocin** is carefully regulated using an **infusion pump**.
  - **Initial Dosage**: The administration begins at a **very low rate** and is gradually adjusted **upward or downward** depending on the response of both the fetus and the woman's contractions.
  - **Individualized Dose**: The oxytocin dose is customized for each woman based on her unique response and the progression of labor.
- **Reduction of Oxytocin Rate**:
  - Once **contractions are well established**, it may be possible to **reduce the oxytocin rate** to maintain the balance between effective labor stimulation and preventing excessive contractions.
- **Difference Between Induction and Augmentation**:
  - **Augmentation** typically requires a **lower total dose** of oxytocin than **induction**, as the uterus is usually **more sensitive to the drug** once labor has already started.
- **Continuous Monitoring**:
  - **Continuous electronic monitoring** is standard practice to **assess** and **record fetal heart rate** and **maternal contraction patterns** during oxytocin infusion.
  - **Internal Monitoring**: Many healthcare providers prefer using **internal monitoring methods** (e.g., internal fetal heart rate monitoring, intrauterine pressure catheter) when oxytocin is used, as these methods are **more accurate**, especially for **contraction intensity**.

•**Use in Postpartum Period**:

- **Oxytocin may also be administered** in the **fourth stage of labor** (post-delivery) to help **reduce uterine bleeding** after the placenta is delivered, promoting uterine contraction and controlling hemorrhage.

•**Vital Signs Monitoring**:

- Vital signs, including maternal **blood pressure**, **heart rate**, and **temperature**, are monitored closely to detect any potential complications or adverse reactions to oxytocin.

By continuously adjusting the oxytocin infusion and monitoring both fetal and maternal responses, healthcare providers can ensure that labor progresses efficiently and safely while minimizing risks.

Complications of Augmentation of Labor:

1.Fetal Compromise:

1. **Cause**: Excessive uterine contractions (tachysystole) can lead to reduced blood flow to the placenta, impairing **placental oxygen exchange** and nutrient supply to the fetus.
2. **Impact**: Placental exchange primarily occurs between contractions, so excessive contractions—whether too **frequent**, **intense**, or **long**—can **impair oxygenation**, leading to **fetal compromise**.
3. **Signs of Fetal Compromise**:
    1. **Abnormal fetal heart rate** (outside the normal range of **110–160 beats/min**)
    2. **Late decelerations** (fetal heart rate drops after a contraction)
    3. **Loss of variability** (reduced or absent variation in fetal heart rate)

2.Uterine Rupture:

1. **Cause**: Prolonged or excessively strong contractions, particularly with the use of oxytocin, can increase the risk of **uterine rupture**, especially in women with a history of **cesarean sections** or other uterine scars.
2. **Impact**: Uterine rupture is a life-threatening complication that can lead to hemorrhage and fetal distress.

4- Water Intoxication:

1. **Cause**: Oxytocin has an antidiuretic effect, meaning it can inhibit the excretion of urine and promote fluid retention.
2. **Risk**: **Water intoxication** can occur when **large doses of oxytocin** and **fluids** are given, particularly **postpartum** when the woman is no longer in labor and may not be able to excrete excess fluid.
3. **Symptoms**: **Water intoxication** is rare during labor but can present with symptoms like **hyponatremia** (low sodium levels) and swelling.

Management:

•If signs of **fetal compromise** or **excessive uterine contractions** occur, **oxytocin is discontinued**, or its infusion rate is **reduced** immediately to reduce risk to both the mother and fetus. Close monitoring of **fetal heart rate** and uterine contractions is essential throughout labor augmentation to detect these complications early.

Safety Alert: Tachysystole Management

Tachysystole refers to excessive uterine contractions, and it can pose significant risks to both the fetus and the mother. It is often characterized by the following:

- **Contraction frequency**: More than **five contractions** in **10 minutes**.
- **Contraction duration**: Each contraction lasts longer than **90 seconds**.
- **Resting intervals**: Less than **60 seconds** between contractions.
- **Resting tone**: The **resting tone** of the uterus (muscle tension between contractions) is often higher than normal, and this can lead to **uterine fatigue** and compromise uterine blood flow.

Management of Tachysystole:

If tachysystole is suspected or detected (especially if there is **fetal compromise** or **maternal distress**), **nursing interventions** should immediately focus on correcting the uterine activity. The following measures are recommended:

1.Stop Oxytocin Infusion:

1. **Immediate action**: Discontinue the oxytocin infusion to prevent further uterine overstimulation.

2.Increase Nonmedicated IV Solution:

1. **Hydration**: Increase the infusion of **nonmedicated IV fluids** (such as saline or Ringer's lactate) to help dilute oxytocin effects and promote better uterine relaxation.

3.Change Maternal Position:

1. **Positioning**: Have the woman change her position (preferably not supine), as it may help improve uterine blood flow and reduce pressure on the uterus.

4-Administer Oxygen:

1. **Oxygen Therapy**: Administer **oxygen** via face mask at **8-10 L/min** to help improve fetal oxygenation if there are signs of fetal distress.

5- Notify Healthcare Provider:

1. The **healthcare provider** should be **notified immediately** after these corrective actions are taken to assess further medical intervention.

6- Use of Tocolytics:

1. **Tocolytic Drugs**: If uterine contractions do not subside after stopping oxytocin, a **tocolytic agent** (such as **magnesium sulfate** or **terbutaline**) may be ordered to relax the uterus and reduce contractions.

Note:

•**Internal uterine activity monitoring** may be used to assess uterine **peak pressure** and **resting tone** more accurately during tachysystole episodes, allowing for better management of uterine contractions.

Safety Alert: High-Alert Medication - IV Oxytocin

Oxytocin is considered a **high-alert medication** due to its potential to cause significant adverse reactions if administered incorrectly. It requires careful monitoring and immediate intervention if any complications arise.

Nursing Responsibilities:

1.Monitor Uterine Activity:

1. Assess **uterine contractions** regularly for signs of overstimulation (tachysystole).
2. Monitor the **fetal heart rate (FHR)** closely:
    1. Every **15 minutes** during active labor.
    2. Every **5 minutes** during the transitional phase.

2.Signs of Increased Uterine Activity or Fetal Heart Rate Abnormalities:

1. **Fetal heart rate changes** (e.g., non-reassuring patterns, late decelerations, loss of variability).
2. **Tachysystole**: excessive contractions that may impair uterine blood flow and fetal oxygenation. ensure the safety of both the mother and the fetus.

Safety Interventions for Oxytocin-Induced Uterine Contractions or Fetal Heart Rate Abnormalities:

1.Notify Healthcare Provider:

1. Inform the **healthcare provider** immediately if abnormal uterine activity or fetal heart rate abnormalities are detected.

2.Reposition the Woman:

1. Change the woman's position to **left or right lateral** to help optimize uterine blood flow and improve fetal oxygenation.

3.Adjust Oxytocin Dose:

1. **Reduce the oxytocin dose** to **half** the current rate or discontinue the infusion altogether, depending on the situation.

4.Prepare IV Bolus:

1. Administer a **lactated Ringer's IV bolus** to help manage hydration and improve uterine relaxation.

5.Administer Oxygen:

1. Provide **oxygen at 10 L/min** via a **nonrebreather face mask** to improve fetal oxygenation in case of fetal distress.

6.Administer Tocolytics:

1. **Prepare IV terbutaline** for administration to relax the uterus if contractions persist or if tachysystole occurs.

7.Frequent Assessments:

8. Continue **assessing uterine contractions and fetal heart rate** every **5 minutes** to ensure stability and proper response to interventions.

By following these interventions, the nurse can help manage the potential risks associated with **IV oxytocin** and

Nursing Care During Induction or Augmentation:

Nurses provide **direct, one-on-one care** for patients undergoing **oxytocin-induced labor** or **augmentation**, often in a **1:1 or 1:2 ratio** to ensure proper monitoring and timely interventions.

Key Nursing Responsibilities:

1.Fetal Heart Rate Monitoring:

1. **Assess and record fetal heart rate**:
    1. Every **15 minutes** during **active labor**.
    2. Every **5 minutes** during **the transition phase**.
2. Any abnormalities in **fetal heart rate** or patterns require immediate action.

2.Maternal Vital Signs:

1. Assess **baseline maternal vital signs** (blood pressure, pulse, and respirations) before initiating oxytocin to ensure that there are no contraindications to induction or augmentation.
2. **Monitor maternal blood pressure, pulse, and respirations** every **30 to 60 minutes** during labor.
3. **Take maternal temperature** every **2 to 4 hours** to assess for signs of infection.

3.Fetal Monitor Tracing:

1. **Perform fetal monitoring** to check for any signs of fetal distress or complications.
2. If fetal heart rate abnormalities or maternal complications are observed, **stop oxytocin** and take corrective measures, such as reducing uterine contractions and increasing placental blood flow.

4.Intake and Output: Record **intake and output** to monitor fluid balance, especially to identify any potential signs of **water intoxication** due to oxytocin administration.

Nursing Tip:

A woman undergoing **oxytocin stimulation of labor** may experience contractions that are difficult to manage. It's important for nurses to help the woman stay focused on **breathing and relaxation techniques** with each contraction to reduce discomfort and manage stress during the process.

Amnioinfusion:

Amnioinfusion is the introduction of warmed **sterile saline** or **lactated Ringer's solution** into the uterus through an **intrauterine pressure catheter** after the membranes have ruptured. This procedure is used to address specific labor-related issues and can help improve fetal outcomes.

Indications for Amnioinfusion:

1.Oligohydramnios:

1. A condition characterized by **lower-than-normal amniotic fluid** levels.

2.Umbilical cord compression:

1. Often caused by a lack of amniotic fluid, which can lead to **variable decelerations** in the fetal heart rate.

3.Reducing recurrent variable decelerations:

1. The amnioinfusion helps cushion the umbilical cord and relieve pressure, which can **reduce fetal heart rate decelerations** during contractions.

4.Diluting meconium-stained amniotic fluid:

1. **Meconium aspiration syndrome** (MAS) is a risk if the fetus inhales meconium during labor. The infusion of sterile fluid can help **dilute meconium**, reducing the risk of MAS.

Benefits of Amnioinfusion:

•**Restores cushioning** around the umbilical cord.

•Helps **relieve variable decelerations** in fetal heart rate caused by cord compression.

•Can help **prevent complications** related to meconium aspiration by diluting the meconium in the amniotic fluid.

By addressing these concerns, amnioinfusion can help to promote a safer labor experience for both the mother and the baby. Amnioinfusion can be administered in two ways:

1.One-time bolus for **1 hour**, where a specified amount of fluid is introduced into the uterus at once.

2.Continuous infusion, where the fluid is slowly introduced over a longer period, depending on the clinical need.

Nursing Care during Amnioinfusion:

•**Continuous monitoring** of uterine activity and fetal heart rate is crucial to assess the effectiveness and any potential complications of the procedure.

•**Change underpads** frequently to maintain the patient's comfort and prevent skin breakdown. The amniotic fluid can continue to leak, so keeping the woman dry is important.

•**Document the color, amount, and odor** of the fluid expelled from the vagina. This helps assess the effectiveness of the amnioinfusion and monitor for any signs of infection or complications, such as meconium staining or infection.

Proper nursing care ensures the procedure's safety and comfort while closely monitoring the well-being of both the mother and the fetus.

Version:

Version is a method used to change the fetal presentation, typically from breech or oblique to a cephalic (head-first) position. There are two primary methods of version:

1.External Version: The more common method, where the healthcare provider uses their hands to manually turn the baby outside the mother's abdomen.

2.Internal Version: This is a less common method where the doctor reaches into the uterus to turn the baby.

Benefits of Version:

•A successful version can help reduce the need for a cesarean delivery, improving the chances of a vaginal birth.

Risks and Contraindications:

Though external version has relatively few maternal and fetal risks, there are certain conditions in which version should not be attempted. Contraindications include:

•**Disproportion between the mother's pelvis and fetal size**: If the baby is too large or the pelvis is too narrow, the baby may not be able to be turned safely.

•**Abnormal uterine or pelvic size/shape**: Abnormalities that could prevent proper fetal rotation.

•**Abnormal placental placement**: Conditions like placenta previa (where the placenta covers the cervix) may make version risky.

- **Previous cesarean birth with a vertical uterine incision**: A vertical incision increases the risk of uterine rupture during the procedure.
- **Active herpesvirus infection**: The risk of spreading the infection to the baby during the procedure.
- **Inadequate amniotic fluid**: A lack of fluid reduces the ability to maneuver the baby and increases the risk of umbilical cord compression.
- **Poor placental function**: If the placenta is not functioning well, turning the baby may compromise the baby's oxygen supply.
- **Multifetal gestation**: Multiple babies in the womb complicate the procedure, as it may not be safe or possible to turn one baby without affecting the others.
- **Malfunctioning placenta**: Any issues with the placenta, such as placental insufficiency, can make the procedure too risky.

In cases where version is contraindicated or unsuccessful, cesarean delivery may be necessary to ensure the safety of both the mother and baby.

Version Procedure and Risks

Version, particularly **external version**, is performed to change the fetal position from breech or oblique to a head-first (cephalic) presentation, potentially reducing the need for a cesarean delivery. However, there are specific risks and considerations associated with the procedure.

Risks and Contraindications:

- **Uterine Rupture Risk:** The procedure should not be attempted in women at higher risk for uterine rupture, such as those with several previous cesarean births or those with high parity.
- **Fetal Presentation:** Version is not typically performed if the fetal presenting part (such as the head or buttocks) is already engaged in the pelvis, as this could make turning the fetus difficult or impossible.
- **Cord Entanglement:** A significant risk to the fetus is the possibility of umbilical cord entanglement, which can lead to cord compression, reducing oxygen and nutrients to the fetus. This is more likely in situations where there is insufficient room for fetal movement, such as in multifetal pregnancies or when amniotic fluid levels are low.
- **Inadequate Amniotic Fluid:** Low amniotic fluid (oligohydramnios) can make it harder to turn the fetus and increases the likelihood of cord entanglement.

Technique and Procedure:

1.Timing: External version is typically performed after **37 weeks gestation** but before labor begins.

2.Pre-Procedure Monitoring:

1. A **nonstress test (NST)** or **biophysical profile (BPP)** is done to assess the fetal well-being and to ensure there is enough amniotic fluid for the procedure.

3.Tocolysis:

1. A **tocolytic drug** is administered to relax the uterus, which helps facilitate the turning of the fetus by reducing uterine contractions.

4.Ultrasound Guidance:

1. The procedure is performed under **ultrasound guidance** to monitor the fetal position and ensure that the fetus is not at risk during the manipulation.

5.Turning the Fetus:

1. The health care provider applies gentle pressure to the fetal **buttocks** to lift them out of the pelvis, while simultaneously pushing the **fetal head** downward toward the pelvis. This is typically done in either a **clockwise or counterclockwise motion** depending on the fetal position.

6.Post-Procedure Care:

1. Fetal monitoring is continued throughout the procedure, and once it is completed (or abandoned if unsuccessful), the tocolytic drug is discontinued. Close observation continues after the procedure to monitor for complications such as fetal distress or premature labor.

Considerations:

•**Success Rate**: The success of external version depends on factors such as fetal position, amniotic fluid volume, and uterine tone.

•**Complications**: While the procedure is generally safe, complications such as **umbilical cord entanglement**, **fetal distress**, or **uterine rupture** can occur, although they are relatively rare.

1. If version is unsuccessful or contraindicated, a **cesarean section** may be required for delivery, particularly in cases where vaginal delivery is not feasible due to fetal positioning.

Additional Considerations:

•**Rh-negative Women**:

- If the woman is **Rh-negative**, and the fetus is found to be **Rh-positive**, the woman will receive a dose of **Rho (D) immune globulin (RhoGAM)** after the procedure to prevent the development of **Rh-positive antibodies**, which can be harmful in future pregnancies.

•**Internal Version**:

- If **external version** is unsuccessful or contraindicated, and the woman is delivering twins vaginally, an **internal version** may be performed in emergencies to change the position of the second twin. This is a more invasive procedure and should only be done by a trained health care provider.

By carefully following these guidelines and providing appropriate monitoring, nurses play a key role in ensuring that the external version procedure is carried out safely, while minimizing risks to both the mother and fetus.

Nursing Care During Version

Nursing care is crucial before, during, and after the **external version** procedure to ensure both the mother and fetus are closely monitored for complications.

Pre-Procedure Care:

1.Maternal Vital Signs:

1. Baseline **maternal vital signs** should be recorded, including blood pressure, heart rate, and respiratory rate. This helps monitor any changes during or after the procedure.

2.Fetal Monitoring:

1. A **fetal monitor strip** (from a **nonstress test (NST)** or **biophysical profile (BPP)**) is done prior to the procedure to assess the fetal well-being and ensure that the fetus is not in distress before attempting the version.

3.Patient Education:

1. The nurse should **explain the procedure** to the woman and her family, addressing any questions or concerns they may have. This helps alleviate anxiety and prepares them for the process.

4.Tocolysis:

1. The woman will receive a **tocolytic drug** to relax the uterus, which helps facilitate the procedure. The nurse ensures the drug is administered properly and observes for any side effects.

During the Procedure:

1.Assisting with the Procedure:

1. The nurse assists the **health care provider** during the external version procedure, ensuring that **ultrasound guidance** is available for accurate positioning.

2.Continuous Monitoring:

1. During the procedure, **continuous fetal heart rate** and **maternal vital signs** are monitored. Any signs of **fetal distress** or **uterine hyperstimulation** should be reported immediately.

Post-Procedure Care:

1.Monitoring After Version:

1. After the procedure, the nurse must monitor the **mother and fetus** for at least **1 to 2 hours** to ensure that there are no complications or signs of distress.

2.Vital Signs:

1. The **mother's vital signs** and the **fetal heart rate** should be checked periodically to ensure that they return to normal levels after the procedure. If there are any abnormal findings, the health care provider must be notified.

3.Vaginal Leaking of Amniotic Fluid:

4. Any **vaginal leakage of amniotic fluid** should be noted and reported to the health care provider, as this may indicate that the procedure caused a tear in the membranes.

5.Uterine Contractions:

6. Typically, **uterine contractions** will decrease or stop after the version. If contractions persist or become stronger, this may signal complications, and the health care provider must be notified for further evaluation and intervention.

7.Signs of Labor:

8. Since **external version** is typically performed close to term, the nurse should review the **signs of labor** with the woman. This prepares her in case spontaneous labor begins after the procedure, which is a common occurrence at this stage.

Episiotomy and Lacerations:

An **episiotomy** is a surgical procedure that involves making an incision in the perineum (the area between the vagina and anus) to enlarge the vaginal opening during childbirth. This is typically done to help facilitate delivery and reduce the risk of more severe perineal tears.

In contrast, a **laceration** is an **uncontrolled tear** in the tissues, which can occur during childbirth. Lacerations can occur in the perineum or vaginal canal and are often categorized based on their severity. Both episiotomy incisions and lacerations are treated similarly but are classified based on the extent of tissue involvement:

- **First-degree:** Involves the vaginal mucosa or perineal skin only.
- **Second-degree:** Involves the vaginal mucosa, perineal skin, and deeper tissues of the perineum.
- **Third-degree:** Involves the same tissues as the second degree, but extends into the anal sphincter.
- **Fourth-degree:** Extends through the anal sphincter and into the rectal mucosa.

Third- and Fourth-Degree Lacerations:

- Women who experience **third- and fourth-degree lacerations** may face more significant discomfort postpartum, particularly if they experience **constipation**.
- The healing process for these types of lacerations requires extra care, especially in avoiding straining during bowel movements. healing.

Nutrition Considerations for Third- and Fourth-Degree Lacerations:

For women who have had **third- or fourth-degree lacerations**, nutrition plays a crucial role in preventing **constipation** and supporting proper healing. Here are key considerations:

- **High-fiber diet:** Eating foods rich in fiber (such as fruits, vegetables, and whole grains) helps to promote regular bowel movements and reduces the risk of constipation.
- **Adequate fluid intake:** Staying well-hydrated is essential for softening stools, making bowel movements easier, and supporting overall recovery.
- **Stool softeners:** In some cases, stool softeners or mild laxatives may be recommended to prevent straining, which could cause stress on the sutures or incision sites.

These nutritional strategies are essential for women recovering from severe perineal lacerations to avoid complications and promote

Indications for Episiotomy:

An **episiotomy** is not routinely performed but is done when specific indications arise during the expulsion stage of labor. It involves a surgical incision in the perineum to enlarge the vaginal opening and facilitate childbirth. The key indications for performing an episiotomy include:

- **Maternal Indications:**
    - **Better control over enlargement:** An episiotomy allows the healthcare provider to control the size and direction of the vaginal opening, which can be helpful in certain situations during labor.
    - **Clean incision edge:** Unlike a tear, which may be irregular and difficult to control, an episiotomy provides a clean, controlled incision. This makes the healing process more predictable and can reduce the risk of jagged or uneven healing.

Episiotomy is typically used **only when problems occur during the expulsion phase** of labor, such as when the baby's shoulders or head are too large for the vaginal opening, or when there is fetal distress requiring a rapid delivery.

Perineal Massage and Stretching:

- Techniques like **perineal massage** and **stretching exercises** before labor may help reduce the need for an episiotomy. These methods are thought to improve flexibility and elasticity of the perineum, potentially preventing the need for an incision.

Risks of Episiotomy or Laceration:

Both episiotomy and lacerations come with **certain risks**:

1.Infection: As with any surgical procedure, **infection** is a primary risk. Careful hygiene and proper wound care are essential to reduce this risk.

2.Extension into a third or fourth-degree laceration: The episiotomy may extend into deeper tissues, including the **rectal sphincter** (third or fourth degree), which can lead to severe complications. This extension may cause **prolonged perineal discomfort**, **stress incontinence**, and difficulties with bowel control during the postpartum period.

3.Increased pain and discomfort: Recovery from an episiotomy can be uncomfortable, especially if it involves deep lacerations, and may require pain management strategies.

While episiotomy is less commonly performed today, it remains a valuable tool in managing certain birth complications, though it should be done with caution and only when medically necessary.

Episiotomy Technique:

The **episiotomy** is typically performed using **blunt-tipped scissors**, and the timing is crucial. The incision is made **just before the baby's head is delivered**, ensuring that the vaginal opening is enlarged sufficiently to allow for smoother delivery. There are two common directions:

1.Midline (Median) Episiotomy:

1. **Direction:** The incision extends directly from the lower vaginal border toward the anus.
2. **Advantages:**
    1. It is **easier to repair**, making it a more straightforward procedure for the healthcare provider.
    2. Heals relatively **neatly** in most cases.
3. **Disadvantages:**
    1. If the laceration extends from the median episiotomy, it is more likely to involve the **rectal sphincter** (third or fourth-degree lacerations), leading to more severe complications.

1.Mediolateral Episiotomy:

1. **Direction:** The incision extends from the lower vaginal border toward the **right** or **left** side of the perineum.
2. **Advantages:**
    1. Provides **more room** for the baby's head and shoulders to pass through, particularly in cases of large babies or fetal distress.
3. **Disadvantages:**
    1. Healing may cause **greater scarring**, which can lead to painful intercourse during recovery.
    2. The repair process is slightly more complicated than for a midline episiotomy.

Comparing the Two Types:

•The **median episiotomy** is favored when the goal is a quicker recovery and easier repair, though it poses a higher risk of involving the **rectal sphincter** if the incision extends.

•The **mediolateral episiotomy** provides more space for the baby's delivery but can result in more noticeable scarring and discomfort during healing.

Ultimately, the choice between a **midline** or **mediolateral** episiotomy depends on the specific clinical circumstances and the health care provider's judgment.

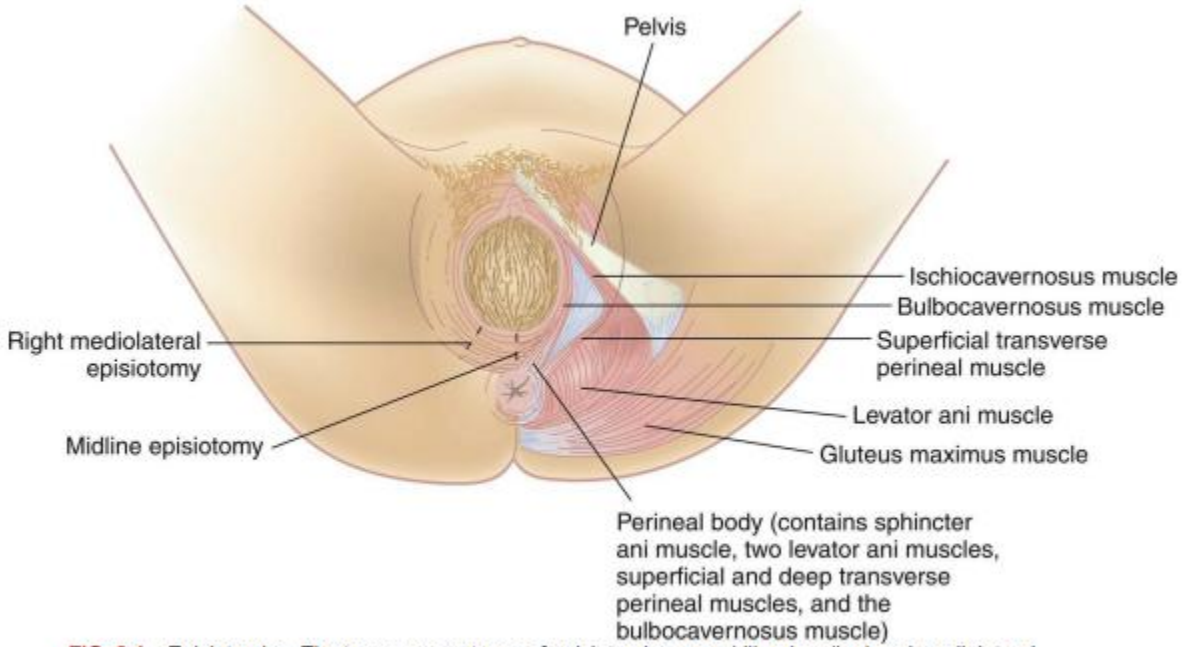

FIG. 8.1 Episiotomies. The two common types of episiotomies are midline (median) and mediolateral. (From Matteson PS: *Women's health during the childbearing years: a community-based approach,* St. Louis, 2001, Mosby.)

Nursing Care for Episiotomy or Laceration:

Nursing care for women who have undergone an **episiotomy** or **laceration** during childbirth is essential to ensure healing and minimize discomfort. Care begins in the **fourth stage of labor** and includes the following steps:

1.Cold Therapy (First 12-24 Hours):

1. Apply **cold packs** to the perineum immediately after delivery and for at least the **first 12 hours** to help reduce **pain**, **bruising**, and **edema (swelling)**. Cold therapy can help numb the area and minimize inflammation.

2.Heat Therapy (After 12-24 Hours):

1. After the initial **12 to 24 hours**, switch to **heat packs** or **sitz baths** to enhance **blood circulation** in the perineal area. Heat therapy promotes **comfort**, reduces muscle tension, and supports the healing process by improving blood flow.

3.Pain Management:

1. For pain relief, **mild oral analgesics** (such as acetaminophen or ibuprofen) are typically sufficient and effective. These help reduce discomfort and inflammation without strong side effects.

4.Perineal Care:

1. Encourage **gentle perineal hygiene**, advising the woman to clean the area with warm water after each void or bowel movement to reduce the risk of infection.
2. Consider **peri-bottles** (squirt bottles) for easier cleaning.
3. Use **witch hazel pads** or **topical anesthetics** as recommended by the healthcare provider for additional comfort.

1.Monitoring for Complications:

1. **Inspect the perineum** regularly for signs of infection, such as increased redness, swelling, discharge, or warmth at the incision site.
2. **Encourage Kegel exercises** (as appropriate) once healing begins to strengthen pelvic muscles and support the healing of the perineal area.

2.Education:

1. Educate the woman on the importance of **avoiding constipation** to prevent additional strain on the perineum. Encourage **a high-fiber diet** and adequate **fluid intake**.
2. Provide instructions on how to **care for the sutured area** and monitor for signs of infection or complications, such as **increased pain**, **fever**, or **foul-smelling discharge**.

By providing effective pain relief, promoting good hygiene, and supporting the woman's comfort, nursing care can play a significant role in ensuring a smooth recovery after an episiotomy or perineal laceration.

•

Forceps and Vacuum Extraction:

1. Forceps-Assisted Birth:

Forceps are surgical instruments used in obstetrics to assist in the delivery of a fetus when the mother's pushing efforts are insufficient. They are primarily used during vaginal births to provide **traction** and **rotation** to the fetal head.

•**Description**: Forceps are curved, tong-like instruments that fit around the fetal head. The blades are designed to help guide the fetal head out of the birth canal without causing excessive pressure or harm.

•**Indications**:

- **Prolonged second stage of labor** (when pushing efforts are not effective).
- **Maternal exhaustion** or inability to push effectively.
- **Fetal distress** that requires expedited delivery.
- **Abnormal presentation** such as a **rotational** abnormality of the head.
- **Breech delivery** for assisting in the delivery of the after-coming head.
- **Assisting with delivery in a cesarean section** (helping extract the fetal head through the incision).

•**Technique**: The healthcare provider positions the forceps around the fetal head, applying gentle traction to guide the head through the birth canal. It is important that forceps are used carefully to avoid **injury to the mother or baby**.

•**Risks and Complications**:

- For the **mother**: vaginal tears, perineal trauma, and possible injury to the bladder or rectum.
- For the **baby**: facial nerve injury, bruising, or **cranial injury** if the forceps are applied with too much force.
- Potential **risk of uterine rupture** in certain cases (e.g., previous cesarean scar).

2. Vacuum Extraction:

Vacuum extraction is another form of **assisted delivery** used when the fetus needs assistance in coming out but forceps are not suitable or preferred.

•**Description**: A vacuum extraction uses a **vacuum cup** attached to the fetal head to provide **traction** and **help the fetus descend** through the birth canal. The vacuum is usually applied to the top or back of the fetal head.

•**Indications**:

- Similar to forceps, vacuum extraction is used in cases of **prolonged second stage of labor**, maternal exhaustion, or fetal distress.
- It is more commonly used in **non-rotational** deliveries (where rotation of the head is not necessary).

•**Technique**: The healthcare provider places the vacuum cup on the fetal head and applies gentle suction to help pull the baby out during contractions. This technique allows the fetal head to descend with the help of the vacuum force, and may be used with maternal pushing efforts.

•**Risks and Complications**:

- **For the mother**: Vaginal tears or perineal injury, although the risks are generally lower than with forceps.
- **For the baby**: Potential **scalp lacerations**, **bruising**, and occasionally, **intracranial hemorrhage** if the suction pressure is too high or if the cup comes off during the procedure.

Nursing Care Considerations:

•**Before the procedure**:

- Ensure **informed consent** is obtained.
- Assess fetal **heart rate** regularly to identify signs of fetal distress.
- Ensure that **appropriate maternal positioning** is maintained to facilitate the procedure (usually a lithotomy position).

•**During the procedure**:

- Monitor the **fetal heart rate** and **maternal vital signs** closely.
- Assist the provider with positioning the forceps or vacuum cup appropriately.
- **Provide emotional support** to the mother, as assisted deliveries can sometimes feel rushed or overwhelming.

•**After the procedure**:

- Monitor the **mother** for signs of trauma or infection at the site of the incision or tear.
- Observe the **baby** for signs of trauma, including **bruising**, **facial nerve injury**, or **scalp lacerations**.
- Provide pain relief for the **mother**, including perineal care and possibly medications.
- **Assess the newborn** carefully for any signs of complications related to the assisted delivery, such as **cephalohematoma** or **caput succedaneum** (swelling of the baby's head).

While both forceps and vacuum extraction can be useful tools for assisted delivery, they should be used cautiously and with attention to both maternal and fetal well-being.

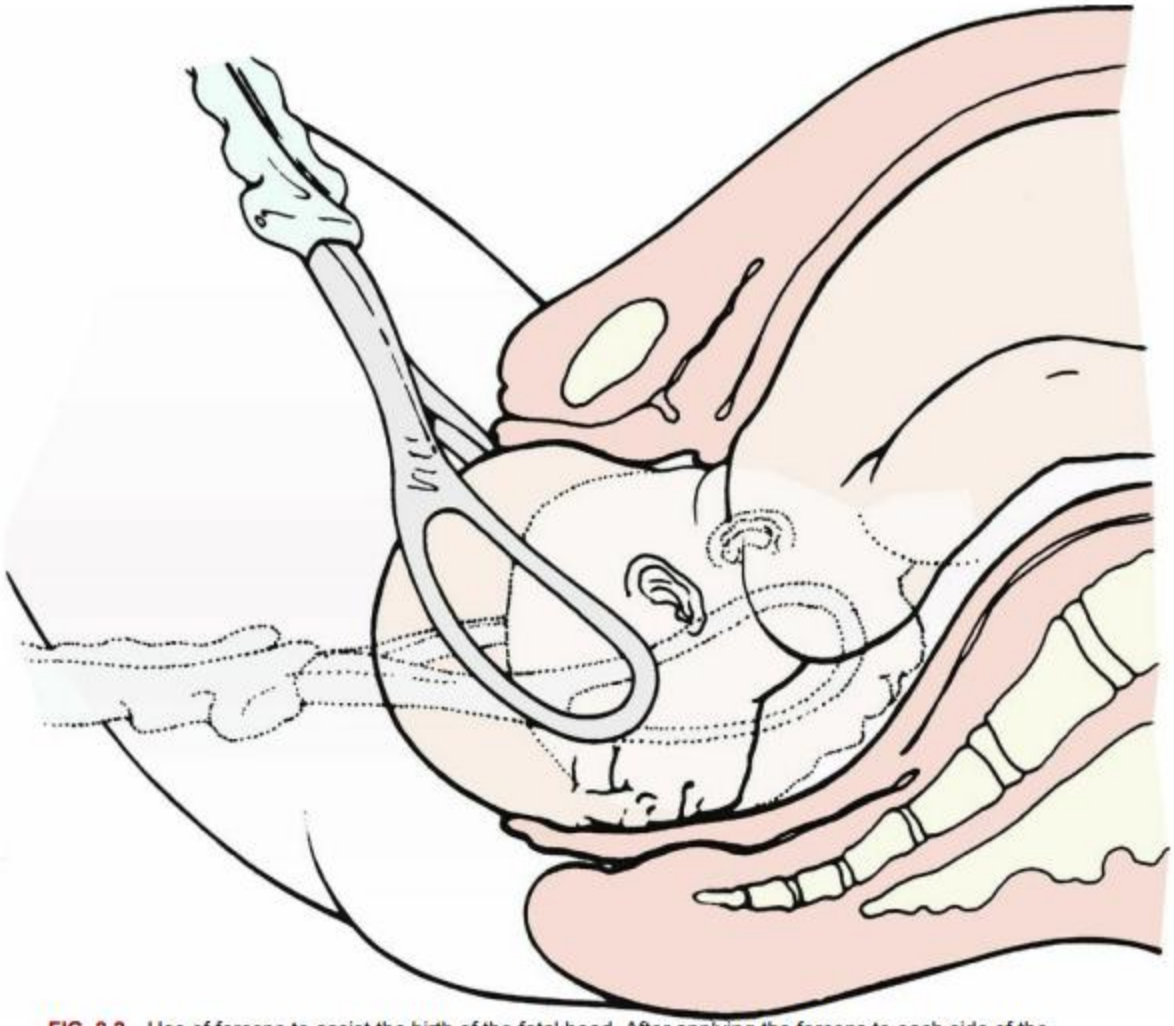

FIG. 8.2 Use of forceps to assist the birth of the fetal head. After applying the forceps to each side of the fetal head and locking the two blades, the physician pulls, following the pelvic curve.

Vacuum Extractor:

A **vacuum extractor** is a device used in obstetrics to assist with the **delivery of a fetus** during labor, particularly when the mother's pushing efforts are insufficient or the fetus needs help descending through the birth canal. The vacuum extractor uses **suction** applied to the fetal head to help facilitate delivery.

Indications for Use:

- **Occiput Presentation**: The vacuum extractor is typically used when the fetus is in an **occiput presentation**, where the back of the baby's head is facing the front of the mother's pelvis. This is the most common and favorable position for vaginal delivery.
- **Prolonged second stage of labor**: When the mother's pushing is ineffective, or if the fetal heart rate indicates distress, vacuum extraction can help expedite the delivery.
- **Fetal distress**: If the baby shows signs of distress (e.g., **abnormal fetal heart rate patterns**) and needs to be delivered quickly but the mother is unable to push effectively, a vacuum extractor can be used.

Advantages of Vacuum Extraction:

•**Less space requirement**: Unlike forceps, the vacuum extractor does not occupy space within the mother's pelvis, which allows more room for the baby's head to descend. This can be especially useful when the pelvic space is limited.

•**Easier handling**: It's easier to maneuver a vacuum extractor compared to forceps, which require a more precise position and application around the fetal head.

Risks and Considerations:

•**Fetal risks**: While generally considered safer than forceps in terms of maternal injury, vacuum extraction can still result in fetal **scalp lacerations**, **bruising**, or **intracranial hemorrhage** if excessive force is applied.

•**Maternal risks**: There is a risk for **perineal trauma** or **vaginal lacerations**, though these risks are typically lower than those associated with forceps.

•**Failure**: If the vacuum cup detaches during the procedure or if it's unable to provide enough traction, forceps may be required as an alternative.

Procedure:

1. **Vacuum Cup Placement**: The health care provider places a soft cup onto the top of the baby's head, using gentle suction to create a seal.
2. **Suction Application**: Once the suction is applied, the provider can use gentle traction during contractions to help guide the baby's head through the birth canal.
3. **Monitoring**: Continuous fetal heart rate monitoring is essential to ensure that the baby is not experiencing distress. If complications arise (such as the cup coming off or fetal heart rate abnormalities), the procedure may be discontinued.

In conclusion, vacuum extraction is a useful tool for assisting in deliveries, particularly for **occiput presentation** and when there is a need for timely intervention in the second stage of labor. However, it requires careful technique and monitoring to minimize risks to both the mother and fetus.

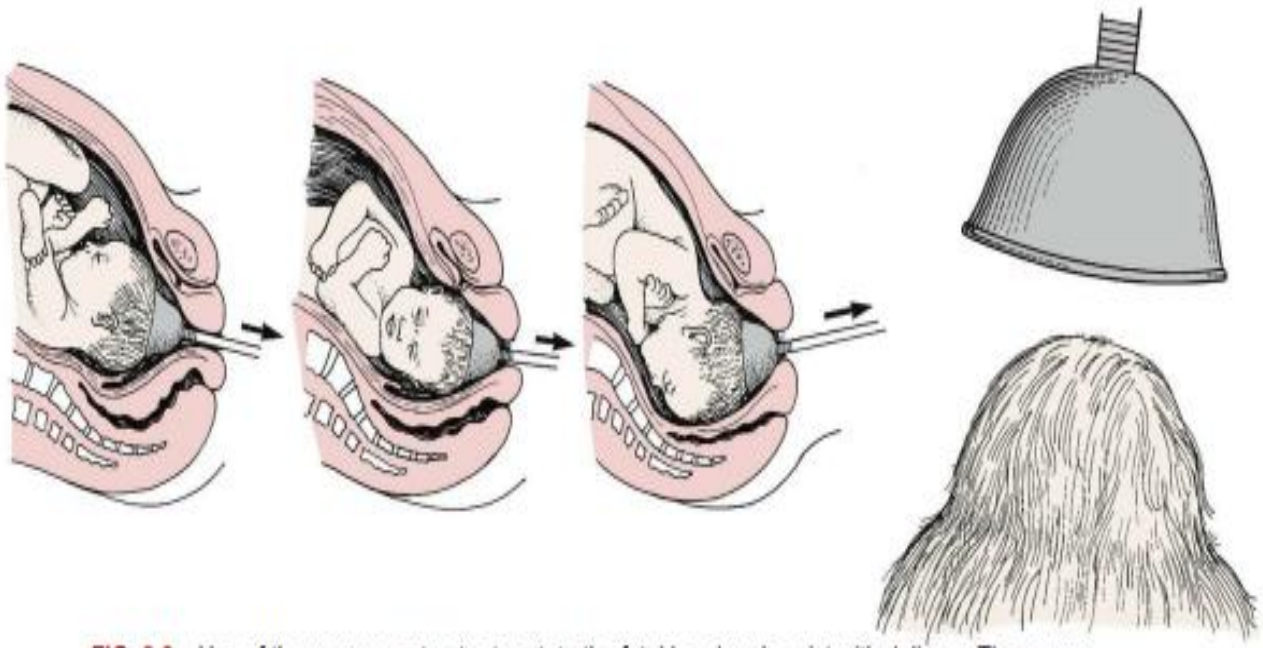

FIG. 8.3 Use of the vacuum extractor to rotate the fetal head and assist with delivery. The arrows indicate the direction of traction on the vacuum cup. The vacuum cup is positioned on the midline, near the posterior fontanelle

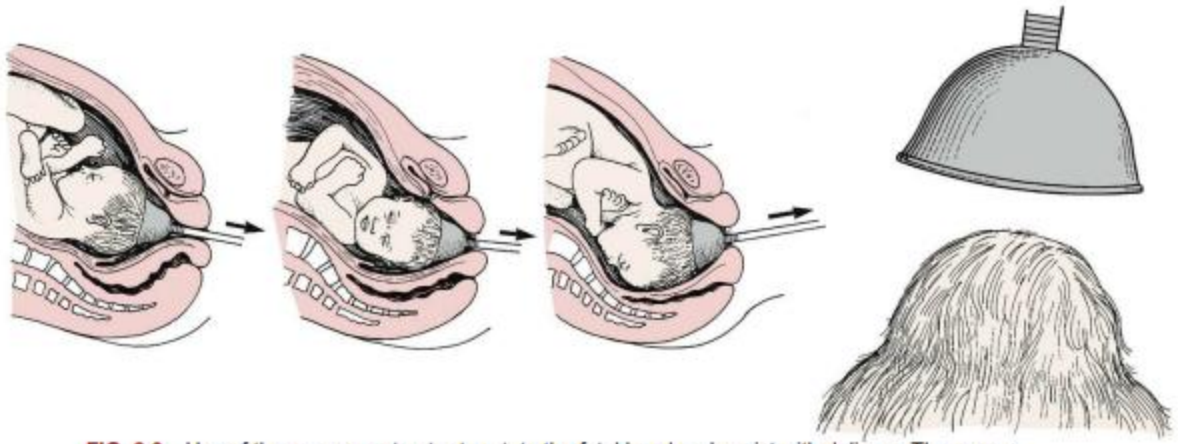

FIG. 8.3 Use of the vacuum extractor to rotate the fetal head and assist with delivery. The arrows indicate the direction of traction on the vacuum cup. The vacuum cup is positioned on the midline, near

the posterior fontanelle. (From Lowdermilk DL, Perry SE, Cashion KL: *Maternity nursing,* ed 8, St. Louis, 2013, Mosby.)

Indications for Forceps or Vacuum Extraction:

Forceps or **vacuum extraction** are obstetric instruments used to assist in the delivery of the fetus, typically when the second stage of labor (the pushing stage) is prolonged or when maternal or fetal conditions necessitate a quicker birth.

Maternal Indications:

- **Exhaustion**: If the mother is **exhausted** and unable to push effectively, these tools may be used to expedite delivery.
- **Inability to Push Effectively**: Some women may be unable to push due to physical or medical reasons, necessitating assistance.
- **Cardiac or Pulmonary Disorders**: Women with **cardiac** or **pulmonary conditions** (e.g., heart disease or respiratory problems) may require forceps or vacuum extraction to avoid prolonged pushing, which could exacerbate their medical conditions.
- **Health Conditions**: Conditions such as **spinal cord injury**, **neurological disorders**, or **epidural anesthesia** that impair motor function may also make assisted delivery necessary.

Fetal Indications:

- **Fetal Distress**: If there are signs of **fetal distress** (e.g., abnormal fetal heart rate patterns), either forceps or vacuum extraction may be used to speed up delivery and reduce the risk of complications.

•**Increased Risk to Fetus**: This includes scenarios where the fetus is at an increased risk if labor continues for too long, such as signs of **fetal hypoxia** or **cord prolapse**.
•**Malposition or Malpresentation**: If the baby is in an abnormal position that is preventing effective descent (e.g., occiput posterior position), forceps or vacuum may be used to help rotate and guide the baby through the birth canal.

Optimal Conditions for Use:

For the best outcomes, the following conditions are generally required:
•**Fully Dilated Cervix**: The cervix must be fully dilated (10 cm).
•**Ruptured Membranes**: The membranes should be ruptured to reduce the risk of infection and to ensure that there is no obstruction.
•**Empty Bladder**: The bladder must be empty to avoid any additional pressure on the uterine and pelvic structures.
•**Fetal Head Engaged and at +2 Station**: The fetal head should be engaged in the pelvic inlet and at a +2 station or lower, meaning it has descended sufficiently into the birth canal to allow for safe assisted delivery.

Use of Forceps or Vacuum Extraction:

•**Forceps**: These are large, curved instruments that are placed around the baby's head to help guide it through the birth canal. They can be used for rotation, traction, or both.
•**Vacuum Extraction**: A soft cup is placed on the baby's head, and suction is applied to assist in delivering the baby.

Contraindications for Forceps or Vacuum Extraction:

Forceps or vacuum extraction are **not appropriate alternatives** to a cesarean section when conditions require a **quicker delivery**, such as when there are significant risks to the mother or fetus that necessitate an immediate birth.

Specific Contraindications:

1.Fetal Position or Size:

1. **Fetus is high in the pelvis**: If the fetal head is not engaged in the birth canal (e.g., the fetus is high in the pelvis), forceps or vacuum extraction may not be effective and could be harmful.
2. **Fetal size**: If the fetus is **too large** for a vaginal delivery (macrosomia), the forceps or vacuum extractor may not be able to safely deliver the baby, and a cesarean section may be needed instead.

2.Failure to Progress in Labor: If labor is not progressing as expected and the reasons for failure are related to factors that cannot be addressed with forceps or vacuum extraction, a cesarean may be required.

3.Maternal or Fetal Complications: If there is **fetal distress** or other complications that cannot be adequately addressed with forceps or vacuum, cesarean delivery may be preferred.

Risks Associated with Forceps or Vacuum Extraction:

While forceps and vacuum extraction can be effective in certain situations, there are significant **risks** associated with their use, both for the **mother** and the **infant**.

Maternal Risks:

•**Perineal Trauma**: The mother may experience **lacerations** or **hematomas** (a collection of blood in the tissues) in the vaginal or perineal area due to the pressure applied by the instruments.

•**Tissue Damage**: The forceps can cause **bruising** or tearing of the **vaginal** or **perineal tissues**, which may require surgical repair.

Fetal Risks:

1.Bruising: The use of forceps or vacuum extraction can cause **bruising** on the baby's face or scalp, especially if excessive force is applied during the procedure.

2.Facial or Scalp Lacerations/Abrasions: Forceps, in particular, may cause **lacerations or abrasions** to the baby's scalp or face, which could require medical attention.

3.Cephalhematoma: A **cephalhematoma** (a collection of blood between the baby's skull and the periosteum) can occur as a result of vacuum extraction or forceps, though it typically resolves on its own over time.

4.Intracranial Hemorrhage: In more serious cases, the use of forceps or vacuum extraction can result in **intracranial hemorrhage** (bleeding within the baby's brain), which can have severe consequences if not treated promptly.

5.Chignon: A **chignon** is a **harmless, circular area of edema (swelling)** on the baby's scalp caused by the suction cup of the vacuum extractor. This condition is temporary and resolves on its own without intervention.

Nursing Tip for Forceps and Vacuum Extraction:

Many **parents** express concern about the **marks** left by the use of forceps on the baby's face or scalp. **Reassure parents** that these marks are **temporary** and **resolve on their own** without the need for medical treatment. It is important for the nurse to provide **emotional support** to parents, as the marks may initially be alarming, but they do not indicate long-term harm.

Technique for Forceps Assisted Delivery:

1.Catheterization: Before using forceps, the **health care provider** may catheterize the mother to **prevent trauma** to her **bladder** and to create more **room** in the pelvis. This step helps to reduce the risk of injury and ensure a smoother delivery process.

2.Application of Forceps:

1. After proper positioning and preparation, the health care provider applies **forceps** to the sides of the fetal head. The forceps are positioned in such a way as to provide controlled **traction**.
2. The **provider pulls in line with the pelvic curve**, making sure that the **forceps** are not applied with excessive force, which could cause harm to the mother or baby.
3. Often, an **episiotomy** (surgical incision in the perineum) is performed to **make more room** for the fetal head to emerge more easily.

3.Fetal Head Delivery:

1. Once the fetal head is under the **mother's symphysis pubis**, the rest of the birth proceeds in the usual manner with the healthcare provider assisting in the delivery.

Technique for Vacuum Assisted Delivery:

1.Application of the Vacuum Cup:

1. The health care provider applies the **vacuum cup** to the **posterior fontanelle** of the fetal occiput (back of the head). The vacuum helps secure the cup in place.
2. **Suction** is created through a machine to keep the cup firmly attached to the fetal head.

2.Traction:

1. The provider applies **gentle traction** by pulling on the handle of the vacuum extractor, assisting the mother's **expulsive efforts**. The provider must be careful not to apply too much force, as this could cause harm to the fetus or the mother's birth canal.
2. As with forceps delivery, once the fetal head is delivered, the birth proceeds normally.

Nursing Care During Forceps or Vacuum Extraction Birth

If **forceps** or **vacuum extraction** is anticipated during the delivery:

1.Preparation:

1. The **nurse** prepares by placing the **sterile equipment** on the **delivery instrument table**, ensuring everything is ready for use if the health care provider decides to use these tools during the birth.

2.Post-birth Care:

1. **Perineal care**: After the delivery, the nursing care is similar to that of a woman who has had an **episiotomy** or **perineal laceration**. This includes applying **ice** to the **perineum** to reduce **bruising** and **edema**.
2. **Monitor for hematoma**: The nurse should be vigilant for signs of a **vaginal hematoma** (a collection of blood in the tissues), which may occur after forceps or vacuum use. Symptoms include severe **pelvic or rectal pain** that is not relieved. If suspected, the health care provider should be notified immediately.

3.Infant Care:

1. **Examine the infant's head** for any **lacerations**, **abrasions**, or **bruising** that may have occurred due to the forceps or vacuum application.
2. **Facial reddening and molding** (shapes changes) of the infant's head are **common** and typically resolve without any intervention. These changes are not harmful and are temporary.
3. **Avoid cold treatments on neonates**: Cold treatments should not be used on neonates as they could cause **hypothermia**. Instead, warmth and other supportive measures should be prioritized to maintain the infant's body temperature.

4- Facial nerve injury: The pressure from the forceps may lead to **facial nerve injury**, resulting in **facial asymmetry**, which may be noticeable when the infant cries. This condition typically resolves on its own without the need for treatment.

5- Scalp chignon: The **scalp chignon** (a temporary swelling or bruise caused by the vacuum extractor) does not require intervention and usually resolves quickly without long-term effects.

Key Nursing Considerations:

- Monitor both mother and baby closely after the use of forceps or vacuum extraction.
- **Perineal care** is essential to prevent infection and manage discomfort.
- Be mindful of **signs of hematoma** and facial nerve injury, providing appropriate care if any complications arise.
- Provide **reassurance** to the parents about the common and temporary nature of any marks or injuries, helping them to understand that these conditions usually resolve without further treatment.

Cesarean Birth:

A **cesarean birth** (C-section) is the surgical delivery of the fetus through incisions made in the mother's **abdomen** and **uterus**. This method is used when a vaginal delivery is not possible or safe for the mother or baby. Cesarean birth can be planned in advance or may be performed as an emergency procedure.

Indications for Cesarean Birth:

Several conditions may necessitate a cesarean delivery, including:

- **Fetal Malpresentation**: Such as **breech** presentation (baby is positioned feet or buttocks down instead of head down) or **transverse lie** (sideways position).
- **Fetal Distress**: When the fetus shows signs of distress, such as **abnormal heart rate patterns** (e.g., **bradycardia** or **late decelerations**), it may require immediate cesarean delivery.
- **Placental Complications**: Conditions like **placenta previa** (placenta covering the cervix) or **placental abruption** (premature detachment of the placenta) may necessitate a cesarean to ensure maternal and fetal safety.
- **Cephalopelvic Disproportion (CPD)**: When the baby's **head** is too large to pass through the mother's pelvis, a cesarean delivery may be required.

- **Failure to Progress in Labor**: If labor is not progressing despite adequate contractions or if **cervical dilation** is not happening in a timely manner, a cesarean may be needed.
- **Multiple Gestations**: In some cases, twins or other multiple pregnancies may be delivered by cesarean if the babies are not in optimal positions or if there are other complications.
- **Maternal Health Conditions**: Certain health conditions, such as **heart disease**, **diabetes**, or **high blood pressure** (pre-eclampsia), may increase the risk of complications during vaginal delivery, and a cesarean may be recommended.
- **Previous Cesarean Birth**: While vaginal birth after cesarean (VBAC) is possible, a woman with a prior cesarean delivery may be more likely to require a repeat cesarean, especially if there were complications in the previous pregnancy.

Contraindications for Cesarean Birth:

While cesarean delivery is a common and often necessary procedure, there are certain circumstances where it is either contraindicated or not recommended:

1.Non-viable or Dead Fetus: If the fetus is **dead** or has no chance of survival outside the uterus, a cesarean birth is generally unnecessary, as it may pose additional risks to the mother without benefit to the fetus.

2.Extreme Prematurity: In cases where the fetus is **too premature to survive**, performing a cesarean may not be beneficial. If the fetus is not mature enough to live outside the womb, doctors will focus on other measures to support the pregnancy or induce labor.

3.Abnormal Blood Clotting Disorders: Women with **abnormal blood clotting disorders** (such as **hemophilia** or certain other coagulation issues) may have an increased risk of severe bleeding during surgery. In these cases, cesarean birth may be avoided, and alternative delivery methods or precautions are considered.

4.Elective Cesarean for Convenience: **Cesarean delivery should not be performed for the convenience of the mother** unless there are medical indications. Planned cesareans without clear, medical reasons increase the risks of complications for both the mother and the baby. These include:

1. **Infection**
2. **Blood loss**
3. **Injury to the mother's organs**
4. **Longer recovery time** compared to vaginal delivery.

Risks of Cesarean Birth

Cesarean birth, while a life-saving procedure in some cases, carries several risks for both the mother and the newborn. These risks must be carefully considered when determining the need for a cesarean delivery.

Maternal Risks:

1.Risks Related to Anesthesia:

1. General anesthesia or regional anesthesia (e.g., spinal or epidural) can have complications, including allergic reactions, low blood pressure, or difficulty breathing.

2.Respiratory Complications:

1. The surgery itself, especially if general anesthesia is used, can affect breathing. Additionally, **atelectasis** (collapse of the lung) or pneumonia can occur after surgery.

3.Hemorrhage:

1. Excessive bleeding during or after the surgery is a potential risk, especially if there is damage to blood vessels or the uterus. **Postpartum hemorrhage** is one of the more serious complications.

4.Blood Clots:

1. Women who undergo cesarean birth are at higher risk of developing **deep vein thrombosis (DVT)** or **pulmonary embolism (PE)** due to immobility, blood vessel injury, and blood-clotting issues.

5- Injury to the Urinary Tract:

The bladder or ureters may be injured during the procedure, which can lead to urinary tract infections or more severe complications.

6- Delayed Intestinal Peristalsis (Paralytic Ileus):

1. The surgery can lead to a condition where the intestines temporarily stop working, resulting in bloating, pain, and vomiting.

7- Infection:

1. As with any surgery, there is a risk of infection, especially at the surgical site or in the uterus. **Endometritis** (infection of the uterine lining) is one potential complication.

Risks to the Newborn:

1.Inadvertent Preterm Birth:

1. If a cesarean is scheduled too early or the gestational age is miscalculated, the baby may be born **preterm**. The baby's organs, including the lungs, may not be fully developed, which can lead to respiratory distress and other complications.

2.Respiratory Problems:

1. Babies born via cesarean may experience respiratory distress because the natural labor process helps to clear lung fluid. Cesarean deliveries do not provide this benefit, leading to difficulties such as **transient tachypnea of the newborn (TTN)** or **respiratory distress syndrome (RDS)**.

3- Injury:

1. While rare, the baby may suffer physical injury during the procedure, such as **lacerations** or **bruising**, particularly when forceps or a vacuum extractor are used, or in cases of a difficult birth.

4- Scarring of the Uterus:

1. Cesarean births result in **scarring** on the uterus, which can affect future pregnancies. Scarring may increase the risk of **placenta previa**, **placenta accreta**, or **uterine rupture** in subsequent pregnancies.

Preventive Measures:

•**Amniocentesis**: To avoid unintentional preterm birth, **amniocentesis** may be performed prior to a planned cesarean to check for lung maturity in the fetus. This test helps determine if the baby's lungs are sufficiently developed for birth

Technique of Cesarean Birth:

Cesarean birth can be planned, unplanned, or emergent, depending on the clinical circumstances that necessitate the procedure. Here's a breakdown of the standard process and preparations:

Preoperative Preparation:

1.Obtaining Informed Consent:

1. Before the procedure, the healthcare provider must ensure that the woman understands the reasons for the cesarean, the procedure itself, potential risks, and the anesthesia options. The woman is asked to sign a consent form for the surgery.

2.Routine Preoperative Care:

1. **Physical Assessment:** A complete physical assessment is performed, including the mother's vital signs (blood pressure, heart rate, temperature, respiratory rate) and fetal heart rate.
2. **Laboratory Studies:** Several tests are performed to check for potential complications:
    1. **Complete blood count (CBC)** to assess for anemia or infection.
    2. **Coagulation studies** (e.g., PT, PTT) to identify any blood clotting disorders.
    3. **Blood typing and screening** to confirm the mother's blood type, ensuring appropriate preparations for potential transfusions.
    4. If indicated, **cross-matching blood** for transfusion if there's a likelihood of excessive bleeding.

5- Blood Transfusion Preparedness:

1. If the woman has a high risk for hemorrhage, one or more units of blood may be cross-matched in advance to be available during or after the procedure.

6- Glasses or Contact Lenses:

1. If the woman wears eyeglasses, she should bring them to the operating room, as she will likely be awake during the procedure and will want to bond with her baby immediately afterward.

Surgical Procedure:

1.Anesthesia:

1. **Regional Anesthesia** (e.g., spinal or epidural anesthesia) is most commonly used for cesarean birth. This numbs the lower half of the body while allowing the mother to remain awake and alert.
2. **General Anesthesia** may be used in emergency situations or if regional anesthesia is contraindicated, though it carries more risks for the mother and baby.

2.Incision Site:

1. **Skin Incision:** A horizontal (bikini) incision is typically made just above the pubic hairline. In some cases, a vertical incision is necessary, depending on the baby's position or urgency.
2. **Uterine Incision:** The surgeon makes a cut into the uterus, typically a low transverse incision, which is less likely to cause complications in future pregnancies. A vertical incision may be used in some cases, particularly if the baby is positioned in a way that makes a transverse incision difficult. ations.

3- Delivery of the Baby:

1. The baby is delivered by gently pulling the baby through the incision. The healthcare provider may use gentle traction to help guide the baby out, making sure the baby is safely removed without causing injury.

4- Post-Delivery Procedures:

1. **Clamping and Cutting the Umbilical Cord**: After the baby is born, the umbilical cord is clamped and cut.
2. **Neonatal Resuscitation**: If the baby requires resuscitation, the neonatal team is on standby.
3. **Placenta Removal**: The placenta is delivered by gently pulling it out after the baby is born.
4. **Uterine and Abdominal Closure**: After the placenta is removed, the uterus is closed using sutures, followed by closure of the abdominal layers.

Postoperative Care:

•After the cesarean, the mother is taken to the recovery area for observation while the anesthesia wears off.

•Pain management is initiated, often with **NSAIDs** and **opioids** for more significant discomfort.

•Monitoring includes vital signs, wound assessment, and assessment of the uterus, which is palpated to ensure it is firm and contracting.

•The woman is encouraged to begin breastfeeding as soon as possible to promote bonding and initiate milk production.

•The baby is assessed for any potential complications related to the delivery.

Nursing Care Considerations:

- **Monitoring:** Vital signs, oxygen saturation, and output are monitored postoperatively. The nurse observes for signs of complications like hemorrhage or infection.
- **Pain Management:** Nurses manage pain with medications and comfort measures, such as positioning and support.
- **Breastfeeding Support:** Assistance with early breastfeeding is provided to encourage bonding and milk production.
- **Incision Care:** Nurses assess the surgical incision for signs of infection or complic

a series of steps in preparation for a surgical procedure, likely a cesarean section.

1. **Positioning the Woman**: The woman is positioned in a supine manner with a wedge placed under her hip. This helps prevent decreased blood flow to the fetus, which is crucial for its oxygenation and overall well-being during the procedure.
2. **Anesthesia and Medication**: A regional anesthetic is administered to numb the area for surgery, while an IV medication is given to reduce gastric acidity and promote gastric emptying. This reduces the risk of aspiration during surgery.
3. **Prophylactic Antibiotics**: A prophylactic intravenous (IV) antibiotic may be given before the surgery to reduce the risk of infection.
4. **Skin or Hair Removal**: Shaving or hair removal is not required, minimizing unnecessary procedures and potential complications.
5. **Foley Catheter Insertion**: An indwelling Foley catheter is inserted into the bladder to keep it empty. This helps avoid bladder trauma during the surgery.

1.Monitoring Urine Output: The catheter bag is placed near the head of the operating table for easy access by the anesthesiologist. Monitoring the woman's urine output is a key indicator of her circulating blood volume and overall physiological status.

2.Abdominal Scrubbing: The circulating nurse scrubs the abdomen with chlorhexidine alcohol in a circular motion, starting from the incisional area and moving outward. This antiseptic technique helps reduce the risk of infection.

3.Support Person at the Table: The woman's partner or father may wear a hat, mask, and gown to provide emotional support at the head of the table during the procedure, offering comfort and reassurance to the woman.

This preparation ensures the safety and comfort of both the woman and fetus during the surgery.

In cesarean birth, there are two types of incisions: one for the skin and one for the uterus.

1. Skin Incisions:

- **Vertical Incision:**
  - **Location:** This incision is made vertically along the abdomen.
  - **Advantages:**
    - Provides more room for the delivery of a large fetus.
    - Often necessary for an obese woman, as it allows better access to the uterus.
    - Can be performed more quickly in emergency situations, especially if there is a need for rapid delivery.
  - **Disadvantages:**
    - Leaves a visible scar running vertically along the abdomen, which may be more noticeable after healing.
- **Transverse Incision:**
  - **Location:** This incision is made horizontally across the lower abdomen, just above the pubic bone.
  - **Advantages:**
    - Results in a nearly invisible scar after healing, which is often preferred for cosmetic reasons.
  - **Disadvantages:**
  - May not be suitable for obese women or those with a very large fetus, as it does not provide as much room for access to the uterus.
  - Takes slightly longer to perform compared to the vertical incision in emergencies. ry.

2. Uterine Incisions:

The uterine incision is typically made once the skin incision is made, and it can also be vertical or transverse. The direction of the uterine incision is influenced by the skin incision as well as the specific needs of the surgery.

- **Transverse Uterine Incision:** This is the most common type for cesarean sections because it is less likely to cause complications in future pregnancies (such as uterine rupture).
- **Vertical Uterine Incision:** This may be used in emergency situations or when the fetus is in a difficult position. It provides more room for delivery but may increase the risk of complications in future pregnancies.

In summary, both skin and uterine incisions can be made in vertical or transverse directions, depending on factors like the size of the fetus, the woman's body type, and the urgency of the situation. The choice of incision is based on the individual circumstances of the delive

Types of Uterine Incisions in Cesarean Birth

1.Low Transverse Incision

1. **Location:** Horizontally across the lower part of the uterus, just above the cervix.
2. **Advantages:**
    1. Most commonly used and preferred due to fewer complications in future pregnancies.
    2. Lower risk of uterine rupture during subsequent vaginal deliveries.
    3. Easier healing with less scarring.
3. **Indications:** Typically used for most routine cesarean sections, especially when the fetus is in a normal (head-down) position.

2.Low Vertical Incision

1. **Location:** Vertically on the lower part of the uterus, below the umbilicus but above the low transverse incision.
2. **Advantages:**
    1. Provides better access in cases where the fetus is in a non-optimal position (e.g., transverse or breech).
    2. More space for delivering a large fetus.
3. **Indications:** Used in situations such as multiple gestation, abnormal fetal positions, or specific medical conditions affecting the uterus.

1.Classic Incision

1. **Location:** Vertical incision on the upper part of the uterus, often extending into the fundus (top of the uterus).
2. **Advantages:**
    1. Useful in emergencies requiring rapid access to the uterus, such as severe fetal distress.
3. **Indications:**
    1. Rarely used today due to higher risks.
    2. May be used when other incisions are not effective, such as in cases of large fibroids or severe adhesions.
    3. Associated with a higher risk of uterine rupture in future pregnancies, as the scar is less flexible.

Summary:

•**Low Transverse Incision:** Preferred for most cesarean deliveries due to lower risk for future complications.

•**Low Vertical Incision:** Used when more access is needed (e.g., large fetuses, abnormal fetal positions).

•**Classic Incision:** Rarely used, mainly for emergency situations, but carries higher risks for future pregnancies.

The choice of uterine incision depends on the position and size of the fetus, the urgency of the surgery, and the woman's medical condition. The **low transverse incision** is generally preferred due to its lower risks for future pregnancies.

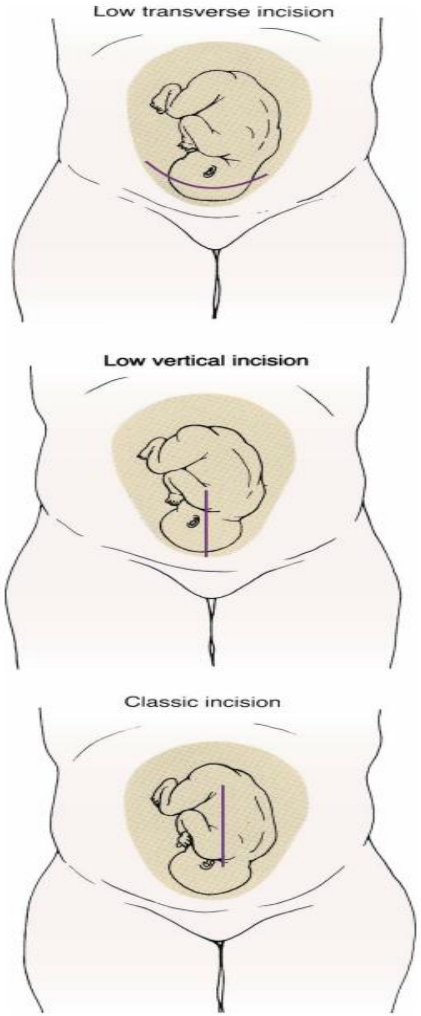

FIG. 8.4 Three types of uterine incisions for cesarean birth. The low transverse uterine incision is preferred because it is not likely to rupture during a subsequent birth, allowing vaginal birth after a cesarean birth. The low vertical and classic incisions may occasionally be used. The skin incision and uterine incision do not always match.

the types of cesarean section incisions:

1.Low Transverse Incision: Preferred for its lower risk of rupture in future pregnancies, less blood loss, and easier repair. It allows for vaginal birth after cesarean (VBAC), but may not be suitable for a large fetus or placenta previa.

2.Low Vertical Incision: Allows delivery of larger fetuses with minimal blood loss, but carries a higher risk of rupture in future pregnancies (lower than the classic incision).

3.Classic Incision: Used in specific cases (e.g., transverse lie or placenta previa), but has higher blood loss and the greatest risk of rupture in subsequent pregnancies. It is rarely used due to these risks.

Nursing Care During and After Cesarean Birth:

The RN is responsible for most of the preoperative and postoperative care, including:

- **Preoperative Care**:
  - Obtain necessary lab studies.
  - Administer medications.
  - Provide preoperative teaching and preparation for surgery.
- **Postoperative Care**:
  - Monitor the mother's recovery and manage any complications.

Emotional support is crucial for women who have cesarean births, as they may experience a mix of happiness for their newborn, as well as grief, guilt, or anger due to the unplanned nature of the surgery. These emotions may resurface in future pregnancies.

Nurses should also provide emotional care to the **partner and family**, as they too may be anxious, especially if the cesarean is an emergency. Partners often need reassurance, even if they do not express their fears openly.

the nursing care related to the partner during a cesarean birth:

1. The nurse informs the partner about when they may enter the operating room, noting that up to 30 minutes or longer may be required for anesthesia administration and surgical preparation if the situation is not urgent.
2. The partner is provided with surgical attire during this waiting time.
3. The partner may feel as exhausted as the mother, especially if the cesarean birth follows many hours of labor.
4. The nurse is mindful of the partner's emotional and physical well-being, offering support throughout the process.
5. After the birth, the mother, neonate, and partner are encouraged to stay together, similar to a vaginal birth. The nurse encourages open communication between the woman and her partner to process the experience.

Nursing Assessments After Cesarean Birth:

1.Uterine Fundus:

1. Assess the uterine fundus every 15 minutes for the first 1–2 hours, then every 30 minutes for 1 hour, based on hospital policy.
2. The fundus is checked gently; the woman flexes her knees slightly and takes slow, deep breaths to reduce discomfort during the assessment.
3. One hand supports the lower uterus, while the other hand "walks" from the side to the midline.
4. If the fundus is firm, massaging is unnecessary.

2.Recovery-room Assessments:

1. **Vital Signs**: Monitor to detect signs of hemorrhage or shock. A pulse oximeter may be used to assess respiratory function.
2. **IV Site and Flow Rate**: Check the IV site and the rate of solution infusion.
3. **Fundus**: Assess for firmness, height, and midline position.
4. **Dressing**: Inspect for any drainage from the surgical site.
5. **Lochia**: Evaluate the quantity, color, and presence of clots.
6. **Urine Output**: Monitor the urine output from the indwelling catheter.
7. **Sensation**: Check for the return of sensation to the lower body after anesthesia.

These assessments help ensure that the mother’s recovery is progressing as expected and that potential complications, such as hemorrhage or infection, are detected early.

Pain Management and Respiratory Support After Cesarean Birth:

•**Deep Breathing and Coughing**: The woman is instructed to take deep breaths and cough during each assessment to help move secretions from her airways, preventing respiratory complications. A small pillow or folded blanket is placed on her incision site to support it and reduce pain when she coughs or moves.

•**Position Changes**: To help expand her lungs and promote comfort, the woman should change positions every 1–2 hours.

•**Pain Relief**:

- **Patient-Controlled Analgesia (PCA)**: PCA pumps allow the woman to manage her pain by controlling the amount of analgesia administered.
- **Narcotic Injections**: Intermittent narcotic injections may be used for pain relief.
- **Epidural Narcotics**: These provide long-lasting pain relief but can be associated with delayed respiratory depression and itching, depending on the drug used.

•**Transition to Oral Analgesics**: After the first 24 hours, the woman is typically switched to oral pain medications for continued pain management. These measures help ensure the woman's comfort, promote effective breathing, and manage pain effectively during her recovery.

Critical thinking question

1. What are the advantages and disadvantages of a transverse abdominal incision compared with the classic midline incision?

Critical thinking question

1. A woman, para 0, gravida 1, has been admitted with ruptured membranes. Contractions are irregular and ineffective, and progress in dilation and effacement of the cervix is very slow. An oxytocin IV infusion is started after 15 hours. What could happen if the health care provider decided not to augment labor?

Critical Thinking Question 1: Advantages and Disadvantages of a Transverse Abdominal Incision vs. Classic Midline Incision

Transverse Abdominal Incision (Low Transverse Incision):

•**Advantages**:

- **Lower risk of rupture in future pregnancies**, which is ideal for women considering a vaginal birth after cesarean (VBAC).
- **Less blood loss** compared to the classic incision.
- **Easier and quicker repair**, leading to a faster recovery time.
- **Aesthetically favorable**, as the incision is usually hidden in the bikini line, offering psychological benefits.

•**Disadvantages**:

- May not be possible if the fetus is large or in certain positions, or if placenta previa is present.
- Limited access for emergency situations, particularly when the fetus is in an abnormal position.

Classic Midline Incision:

•**Advantages**:

- **Better access** for complex deliveries, such as those involving a transverse lie or placenta previa.
- Provides a **larger opening**, which is beneficial in complicated cases where quick and more extensive access to the uterus is needed.

•**Disadvantages**:

- **Higher risk of rupture** in future pregnancies, making it less desirable for women who plan on more children.
- **More blood loss** during the surgery.
- **Harder to repair**, leading to a longer recovery period.
- **Visible scar**, since the incision is made vertically, which may be a concern for some women.

Critical Thinking Question 2: Potential Outcomes If Labor Is Not Augmented with Oxytocin

If a woman with ruptured membranes, irregular contractions, and slow progress in cervical dilation and effacement does **not receive oxytocin to augment labor**, several potential outcomes could occur:

1.Prolonged Labor: Without augmentation, the woman may experience a longer labor as contractions remain ineffective, leading to fatigue, discomfort, and possible delays in delivery.

2.Increased Risk of Infection: Prolonged labor with ruptured membranes increases the risk of infection, such as **chorioamnionitis**, due to the prolonged exposure of the uterus to bacteria.

1.Fetal Distress: Slow labor progression may cause **fetal distress** due to umbilical cord compression or inadequate oxygen supply, which could necessitate an emergency cesarean section.

2.Increased Likelihood of Cesarean Birth: Without effective contractions, the healthcare provider may eventually opt for a **cesarean birth** due to failure to progress, which could result in additional risks and longer recovery time.

3.Maternal Fatigue: Without augmentation, the woman may experience exhaustion from ineffective labor, which could hinder her ability to continue and may require further interventions like pain management or additional monitoring.

In summary, oxytocin augmentation may be crucial in promoting labor progress and reducing the risks associated with prolonged or stalled labor, both for the mother and baby.

Abnormal Labor (Dysfunctional Labor):

Normal labor is characterized by consistent progression in cervical effacement, dilation, and fetal descent. In contrast, **abnormal labor**, also known as **dysfunctional labor** or **dystocia**, does not follow this regular progression.

The "Four Ps" of Labor: Abnormalities in any of the following four key factors can result in dysfunctional labor:

1.Powers (Contractions):

1. Dysfunctional contractions may be too weak, irregular, or ineffective to facilitate cervical dilation or fetal descent.

2.Passage (Birth Canal):

1. Any abnormality in the shape, size, or condition of the pelvis or soft tissues may impede the baby’s passage through the birth canal.

3.Passenger (Fetus):

1. The fetus may be in an abnormal position (e.g., breech or transverse), or it may be too large for the mother's pelvis, complicating the birth.

4.Psyche (Psychological State):

1. A woman’s emotional state, anxiety, or fear can influence labor progress. Stress may result in ineffective contractions and prolonged labor.

Additional Factors:

•Abnormal labor can result in a labor that is either **unusually long or short**.

•**Increased risks**: Labor abnormalities may necessitate **forceps** or **cesarean delivery** and can lead to **injuries** to the mother or fetus.

Nursing Role:

•Nurses must have a solid understanding of normal labor to **identify deviations** early. This allows for **prompt interventions** to ensure both maternal and fetal well-being.

•Providing **effective support** to the woman and her family is essential, contributing to **competent and compassionate care** during labor.

Risk Factors for Dysfunctional Labor (Dystocia):

1.Advanced Maternal Age: Women over the age of 35 may experience a higher risk of complications during labor, including dysfunctional labor due to factors such as reduced uterine contractility and cervical response.

2.Obesity: Excess weight can affect the efficiency of labor contractions and lead to complications, such as a longer labor, the need for assisted delivery, or cesarean birth.

3.Overdistention of the Uterus: Conditions like **hydramnios** (excess amniotic fluid) or **multifetal pregnancies** can lead to a stretched and overdistended uterus, which can impair the uterus' ability to contract effectively.

4.Abnormal Presentation: If the fetus is in an abnormal position, such as **breech** or **transverse**, it may complicate labor, leading to a prolonged or dysfunctional labor process.

5.Cephalopelvic Disproportion (CPD): This occurs when the baby's head is too large, or the mother's pelvis is too small, making it difficult for the fetus to pass through the birth canal.

6.Overstimulation of the Uterus: Excessive use of **oxytocin** or other uterine stimulants may lead to hyperstimulation, causing overly frequent or strong contractions that can hinder the normal progress of labor.

7-Maternal Fatigue, Dehydration, and Fear: Physical and emotional exhaustion, dehydration, or high levels of anxiety and fear can disrupt labor progress by affecting uterine contractions and the mother's ability to participate in the process.

8- Lack of Analgesic Assistance: Insufficient pain relief or poor management of discomfort during labor may result in ineffective contractions and increased maternal stress, which can lead to a stalled or prolonged labor.

These risk factors can impact labor progression, and it’s crucial for healthcare providers to recognize them early and intervene appropriately to ensure both maternal and fetal health.

Hypertonic Labor Dysfunction (Increased Uterine Muscle Tone):

•**Characteristics**:

- **Frequent, cramp-like, poorly coordinated contractions** that are too close together but ineffective in progressing labor.
- **Persistent uterine tension** between contractions reduces blood flow to the placenta, risking fetal distress and oxygenation issues.
- **Nonproductive contractions** that do not contribute to cervical dilation or fetal descent.

•**Management and Intervention**:

- **Pain relief** and improving **maternal comfort** are key.
- **Relaxation techniques**, **analgesics**, and **tocolytic drugs** (e.g., terbutaline) to reduce uterine tone may be used.
- If untreated, hypertonic dysfunction can lead to prolonged labor and increased risks to both mother and baby.

Hypertonic labor dysfunction is less common than hypotonic labor dysfunction but requires careful management to avoid complications.

Hypertonic Labor Dysfunction:

Medical Treatment:

- **Mild Sedation**: Helps the woman rest and reduce anxiety.
- **Tocolytic Drugs (e.g., Terbutaline)**: Relax the uterine muscles, reduce tension, and improve contraction coordination.

Nursing Care:

- **Emotional Support**: Acknowledge the woman's frustration, anxiety, and fatigue, offering reassurance and validating her experience.
- **Comfort Measures**: Provide relaxation techniques like warm showers or baths to ease discomfort.
- **Pain Management**: Focus on comfort, avoiding judgment about the reported pain, and providing appropriate pain relief strategies.
- **Partner Support**: Recognize the partner’s exhaustion and support both the woman and her partner throughout the labor.
- **Encouragement**: Help the woman maintain confidence and stay positive about the labor process.

Nurses play a crucial role in managing both the physical and emotional aspects of hypertonic labor to ensure comfort and support during this challenging phase of labor.

Decreased Uterine Muscle Tone (Hypotonic Labor Dysfunction):

1. **Weak Contractions**: The contractions are too weak to be effective during active labor, failing to promote cervical dilation or fetal descent.
2. **Labor Progression**: Labor may start normally, but contractions diminish during the **active phase** (after 4 cm of dilation), when labor is expected to progress more quickly.
3. **Risk Factors**: This dysfunction is more likely to occur in cases of **uterine overdistention**, such as with **twins**, a **large fetus**, or **hydramnios** (excess am

Medical Treatment for Hypotonic Labor Dysfunction:

1.Amniotomy: If the membranes are intact, the physician may perform an amniotomy to help speed up labor and increase the effectiveness of contractions.

2.Oxytocin or Nipple Stimulation: Augmentation of labor with **oxytocin** or **nipple stimulation** can help strengthen contractions.

3.Fluids: IV or oral fluids may be administered to improve contraction quality, especially if the woman is dehydrated.

Nursing Care:

1.Emotional Support: The woman may feel **frustrated** due to the slow progression of labor. The nurse should **validate her frustrations** and offer **emotional support** to both her and her partner.

2.Encouragement: The nurse should **reinforce progress** by reassuring the woman when she makes any advancements in labor to encourage her to continue her efforts.

3.Position Changes: **Upright positions** or lying on the **side** may help make contractions more effective, though they may occur less frequently. **Walking** or **nipple stimulation** can also intensify contractions.

4.Relieving Discomfort: The nurse can help with comfort measures, ensuring the woman is as comfortable as possible while labor progresses.

Effective nursing care during hypotonic labor involves both physical and emotional support, helping the woman through frustration while promoting labor progression.

Ineffective Maternal Pushing during the second stage of labor can occur due to lack of understanding, fear of tearing, epidural or regional blocks, or exhaustion. This can prevent the woman from pushing effectively.

Nursing Care involves:

1.Coaching the woman on proper pushing techniques.

2.Guiding women with regional blocks by timing pushes with contractions.

3.Encouraging pushing **only when there is a strong urge** for exhausted women.

4.Addressing fear by explaining that sensations of tearing are normal and the body can accommodate the fetus.

5.Promoting relaxation, encouraging position changes, and ensuring **hydration** and energy conservation to help sustain effective pushing.

These interventions aim to support the woman emotionally and physically, helping her push more effectively.

Problems with the Fetus:

1.Fetal Size (Macrosomia): A fetus is considered large if it weighs over 4000 g (8.8 lb). This can lead to complications such as:

1. **Pelvic Disproportion:** The large fetus may not fit through the mother's pelvis.
2. **Hypotonic Labor Dysfunction:** A large fetus can overstretch the uterus, leading to weak contractions and delayed labor progress.

2.Abnormal Fetal Part Sizes: Sometimes only part of the fetus is too large, such as:

1. **Hydrocephalus:** Excessive fluid in the brain, making the head larger than normal.
2. **Large Head:** The body may be normal in size, but the head is too large to pass through the pelvis.
3. **Abnormal Presentation:** Large fetuses are often in abnormal positions, which can complicate delivery.

3.Shoulder Dystocia: This occurs when the fetal shoulders become impacted above the mother's symphysis pubis, usually in large fetuses. It is an emergency because:

1. **Respiratory Distress:** The fetal head is out, but the chest is compressed, preventing the baby from breathing.
2. **Cord Compression:** The umbilical cord may be compressed between the fetus and the mother's pelvis.

Management of Shoulder Dystocia:

•The healthcare provider may ask the nurse to apply **suprapubic pressure** (firm downward pressure just above the symphysis pubis) to push the shoulders toward the pelvic canal.

•**Squatting or flexing the thighs sharply** against the abdomen can help release the shoulders and facilitate delivery. Shoulder dystocia is a critical situation that requires prompt intervention to ensure the safety of both the mother and the baby.

Nursing Care for Delivery of a Large Infant:

1.Post-Delivery Observations:

1. **For the Mother:**
    1. **Episiotomy or Laceration:** The woman may have a large episiotomy or perineal lacerations due to the size of the baby.
    2. **Uterine Atony & Postpartum Hemorrhage:** The uterus may not contract well after delivery, increasing the risk of uterine atony and postpartum hemorrhage. Close monitoring is essential for signs of bleeding and uterine tone.
2. **For the Infant:**
    1. **Clavicle Fractures:** The large infant is more likely to experience fractures of the clavicles. Nurses should assess the infant for:
        1. **Crepitus:** A crackling sensation when palpating the clavicles.
        2. **Deformity:** Any visible abnormality in the clavicle.
        3. **Moro Reflex:** Check for equal arm movement, as unilateral movement could indicate nerve damage or fractures.

2.Abnormal Fetal Presentation or Position:

1. **Labor Efficiency:** Labor progresses most efficiently when the fetus is in a flexed, cephalic presentation (head down) and in one of the occiput anterior positions (head facing the mother's back).
2. **Complications from Abnormal Presentation:** Abnormal fetal positions (e.g., breech, transverse, or posterior) can prevent the smallest diameter of the fetal head from fitting through the smallest diameter of the mother's pelvis, which impedes the progress of labor.

Abnormal Presentations:

1.Breech Presentation:

1. In a breech presentation, the fetus is positioned with the buttocks or feet facing down instead of the head.
2. **Labor Complications:** This position can prevent the fetus from passing easily through the woman's pelvis and interferes with the normal mechanisms of labor.
3. **Mode of Delivery:** Most fetuses in breech presentation are delivered via cesarean section due to the increased risk of complications.
4. **Vaginal Birth Risks:** If vaginal birth occurs, the fetus's **trunk and extremities** are delivered before the head. After the body is delivered, the **umbilical cord** can become compressed between the fetal head and the mother's pelvis, which can reduce oxygen flow to the fetus.
5. **Fetal Hypoxia:** The head is the largest part of the fetus, and it must be delivered quickly to prevent **fetal hypoxia**, as the compression of the cord can compromise the baby's oxygen supply.

2.Face Presentation:

1. In a face presentation, the fetus's face is the presenting part instead of the top of the head.
2. This can similarly make delivery difficult, as the abnormal angle can obstruct the progress of labor.

Nursing Care for Abnormal Presentations:

- **Monitor Fetal Heart Rate:** Due to the risk of umbilical cord compression and fetal hypoxia, continuous fetal monitoring is essential.
- **Prepare for Cesarean Section:** In breech and other abnormal presentations, be prepared for a possible cesarean delivery, ensuring readiness for rapid intervention if needed.
- **Support During Vaginal Birth:** If vaginal delivery is attempted, nurses should support the timely delivery of the head to prevent fetal hypoxia and assist in managing the potential for cord compression.

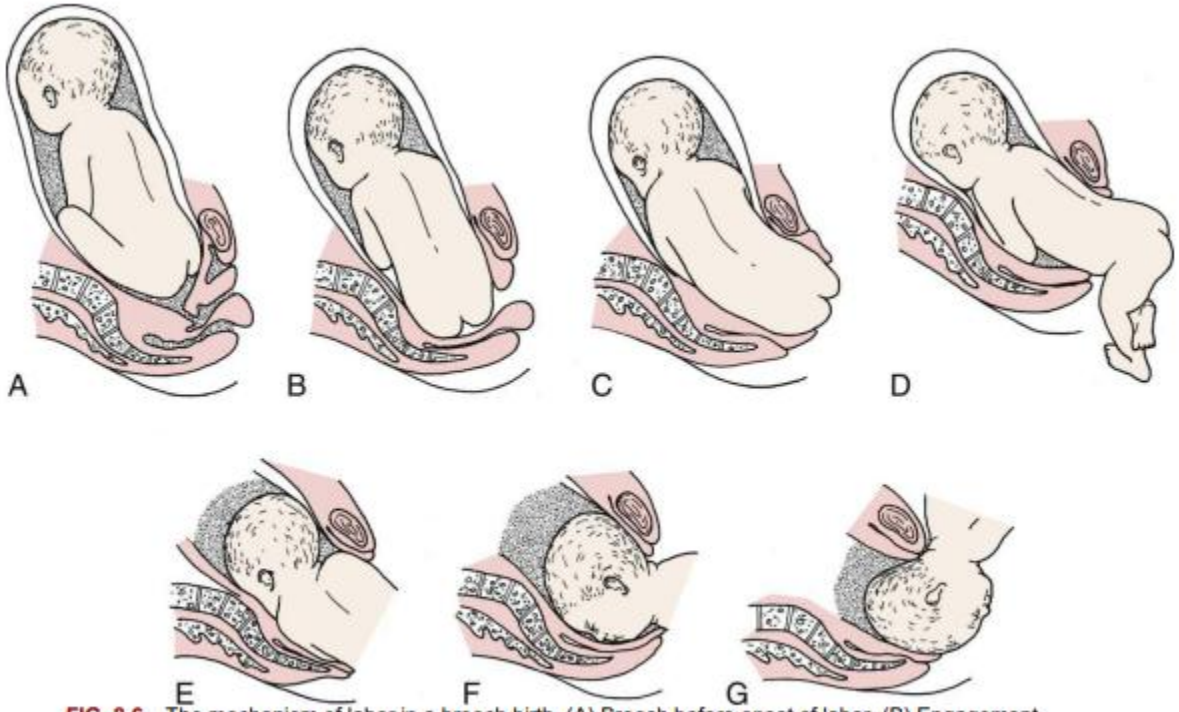

FIG. 8.6 The mechanism of labor in a breech birth. (A) Breech before onset of labor. (B) Engagement and internal rotation of buttocks. (C) Lateral flexion. (D) External rotation and restitution of buttocks. (E) Internal rotation of shoulders and head. (F) Face rotates to sacrum. Note that there is no flexion of the

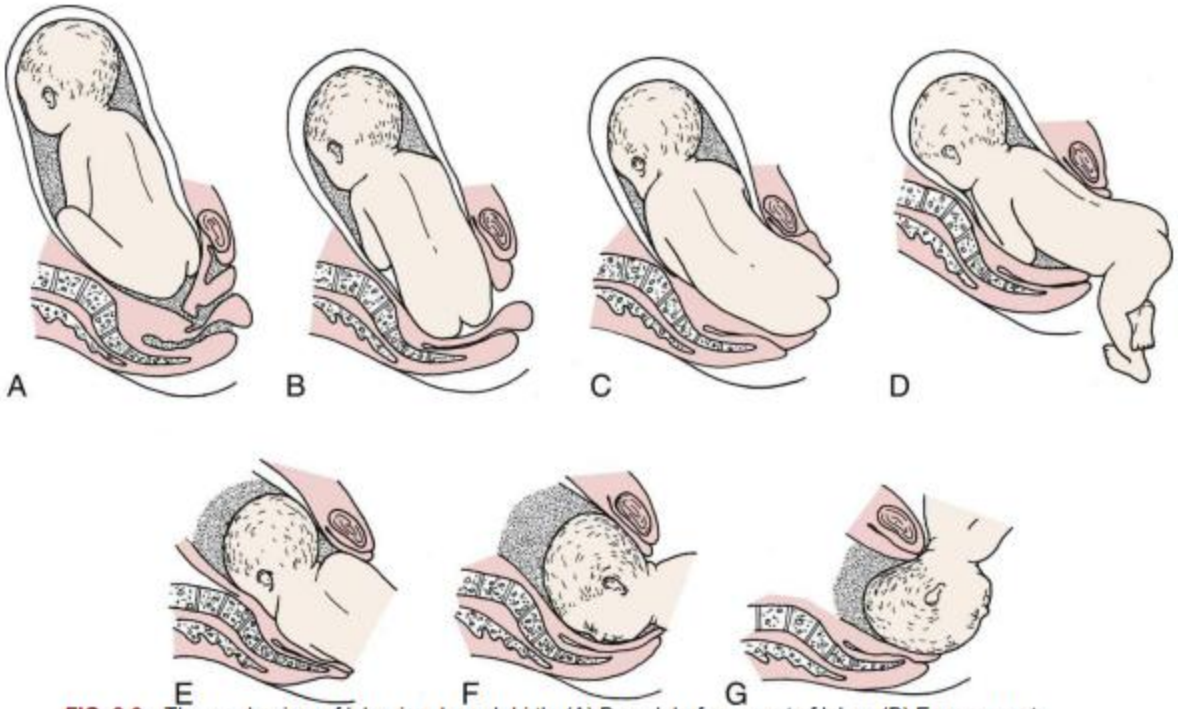

FIG. 8.6 The mechanism of labor in a breech birth. (A) Breech before onset of labor. (B) Engagement and internal rotation of buttocks. (C) Lateral flexion. (D) External rotation and restitution of buttocks. (E) Internal rotation of shoulders and head. (F) Face rotates to sacrum. Note that there is no flexion of the

head so that the smallest diameter of the fetal head is not passing through the pelvis. The umbilical cord is compressed between the fetal head and the bony pelvis. (G) The head is born as the fetal body is elevated. (From Lowdermilk DL, Perry SE, Cashion KL: *Maternity nursing,* ed 8, St. Louis, 2013, Mosby.)

Intrapartum Care for Abnormal Presentations and Positions:

1.Breech Birth Assistance:

1. Nurses must be prepared to assist with a breech delivery, particularly if a **cesarean delivery** is not initially planned.
2. **External Version:** This is a procedure used to attempt turning a breech baby into a head-down (cephalic) position before delivery, to avoid the need for a cesarean. However, external version is not always successful, and the fetus may return to the breech position after the procedure.

2.Abnormal Fetal Position - Occiput Posterior (OP):

1. **Persistent Occiput Posterior (LOP or ROP):** A common cause of abnormal labor is when the fetus remains in a **persistent occiput posterior position**, where the fetal occiput (back of the head) is positioned in the **left or right posterior quadrant** of the mother's pelvis.
2. **Normal Rotation:** Typically, the fetal head rotates during labor in a clockwise or counterclockwise direction to move the occiput into an anterior position (left or right anterior quadrants of the pelvis), aiding in a smoother delivery.
3. **Labor Complications:** If the rotation does not occur, labor is often **longer** and more difficult.

3.Symptoms of Occiput Posterior Position:

1. **Pain:** Labor is characterized by intense, poorly relieved **back and leg pain**, which is a common sign of occiput posterior position.
2. **Delivery Challenges:** Women with a small or average-sized pelvis may have difficulty delivering an infant in this position, as it can obstruct the normal descent and cause more strain during labor.

4- Interventions for Occiput Posterior:

Forceps Rotation: If the fetal head does not rotate naturally into an anterior position, the physician may use **forceps** to assist in rotating the fetal head into the occiput anterior position.

Nursing Care Considerations:

•**Pain Management:** Nurses should help manage intense back pain, commonly experienced in occiput posterior presentations, with techniques like counterpressure, repositioning, and appropriate analgesia.

•**Monitoring Progress:** Nurses need to carefully monitor the progress of labor, as a prolonged second stage is often associated with this abnormal position.

•**Preparation for Assisted Delivery:** Be prepared for potential use of forceps or even a cesarean delivery if the labor becomes more complicated or if rotation is unsuccessful.

Effective management and preparation are essential for handling these abnormal fetal presentations and positions to ensure the safety of both the mother and the baby.

Nursing Care During Labor for Fetal Rotation and Descent:

The nurse should encourage positions that aid fetal rotation, descent, and reduce back pain. Effective positions include:

1. **Sitting, kneeling, or standing while leaning forward** to promote fetal descent.
2. **Rocking pelvis on hands and knees** to encourage fetal rotation.
3. **Side-lying** (left side for ROP, right side for LOP) to facilitate rotation.
4. **Squatting** in second-stage labor to widen the pelvis and aid in fetal descent.
5. **Lunging** by placing one foot on a chair and lunging sideways during contractions to help open the pelvis and encourage rotation.

These positions help reduce back pain, facilitate fetal rotation, and support the progress of labor.

FIG. 8.7 The hands-and-knees position can help the fetus rotate from an occiput posterior to an occiput anterior position. Gravity causes the fetus to float downward toward the pool of amniotic fluid. This position can be practiced before labor.

After Birth:

- **Maternal Care:** The mother should be monitored for **vaginal hematomas**, especially if the fetus was in an occiput posterior position for a long time.
- **Infant Care:** The infant may experience **excessive molding**, **caput succedaneum** (scalp swelling), or injuries from instruments like forceps or a vacuum extractor.

Multifetal Pregnancy:

- **Labor Complications:** Factors like **uterine overdistention**, abnormal fetal **presentation or position**, and one fetus being **breech** can make labor difficult.
- **Cesarean Birth: Cesarean delivery** is common, particularly when three or more fetuses are involved, due to the complexities of multifetal labor.

Nursing Care for Multifetal Pregnancy:

1.Monitoring of Each Fetus:

1. Each fetus is monitored **separately** during labor to ensure proper fetal well-being.

2.Positioning for Comfort and Breathing:

1. An **upright or side-lying position** with the head slightly elevated is recommended to aid breathing and provide comfort during labor.

3.Labor Care:

1. Care is similar to that for a **single pregnancy**, with additional attention to **hypotonic labor** (weak or inefficient contractions), which is more likely in multifetal pregnancies.

4.Preparation for Birth:

1. The **nursery and intrapartum staff** prepare **equipment and medications** for each expected infant to ensure readiness for delivery.

5.Specialized Care Teams:

1. Due to potential maternal or neonatal complications, an **anesthesiologist** and a **pediatrician** are often present at the birth.
2. **One nurse** is assigned to each infant, while **another nurse** focuses on the mother's needs, ensuring comprehensive care for both the mother and the babies.

This approach ensures that both the mother and her infants receive specialized and attentive care during labor and delivery.

Problems with the Pelvis and Soft Tissues:

1.Bony Pelvis Issues:

1. Some women have a **small or abnormally shaped pelvis** that can impede the normal progression of labor.
2. The **gynecoid pelvis** is the most favorable for vaginal birth.

2.Pelvic Measurements:

1. **Absolute pelvic measurements** are rarely useful in determining if a woman's pelvis is suitable for vaginal birth.
2. A woman with a "small" pelvis may still have a successful vaginal delivery if other factors, like the **size of the fetus**, **fetal head position**, **good contractions**, and **soft tissues yielding easily**, are favorable.

3.Vaginal Delivery Despite a "Small" Pelvis:

1. A woman with a small pelvis may successfully deliver an infant weighing over 9 lbs (4082 g) but may struggle with delivering a larger baby (e.g., 10 lbs/4536 g). This highlights that pelvic size is only one factor in the birth process.

4.Pelvic Adequacy:

1. The **ultimate test** of pelvic adequacy is whether the baby can pass through it during labor.
2. If the baby cannot fit, a **trial of labor** may be attempted, and **cesarean delivery** is performed if necessary.

Soft Tissue Obstructions During Labor:

1.Full Bladder:

1. The most common **soft tissue obstruction** during labor is a **full bladder**, which can interfere with the progress of labor.
2. The woman should be encouraged to **urinate every 1 to 2 hours** to prevent bladder distention.
3. If the woman is unable to urinate, especially after receiving a **regional anesthetic** or large amounts of **IV fluids** (which fill the bladder quickly while reducing the sensation to void), **catheterization** may be necessary.

2.Pelvic Tumors:

1. Less common soft tissue obstructions include **pelvic tumors**, such as **benign fibroids**, which can obstruct the passage of the fetus through the pelvis.

3.Cervical Scarring:

1. Some women may have a **scarred cervix** from previous infections or surgeries. This scar tissue may prevent the cervix from **effacing** (thinning) and **dilating** properly during labor, hindering the normal progression of childbirth.

Psychological Factors and Their Impact on Labor:

1.Stress and Adaptation:

1. While **labor is inherently stressful**, women who have received **prenatal care** and have **adequate social and professional support** tend to adapt better and can labor and deliver normally.

2.Factors Increasing Stress and Dystocia:

1. **Lack of analgesic control** for excessive pain.
2. **Absence of a support person** or coach to assist with nonpharmacological pain relief methods.
3. **Immobility** and **restriction to bed** during labor.
4. **Inability to carry out cultural traditions** during labor can increase stress.

3.Physiological Response to Stress:

1. Increased **anxiety** releases **stress hormones** (epinephrine, cortisol, and adrenocorticotropic hormone) that reduce the contractility of the uterus and disrupt labor.
2. The body's **fight-or-flight response** impedes normal labor through:
    1. **Using glucose** needed by the uterus for energy.
    2. **Diverting blood** away from the uterus.
    3. **Increasing tension** in the pelvic muscles, hindering fetal descent.
    4. **Amplifying pain perception**, leading to more anxiety and worsening the cycle of stress.

Nursing Care for Psychological and Labor Support:

1.Promoting Relaxation and Energy Conservation:

1. The nurse should focus on **relaxation techniques** to help the woman conserve her energy for childbirth, ensuring that she remains as comfortable and relaxed as possible throughout labor.

2.Supporting Comfort and Energy Conservation:

1. **Comfort-promoting interventions** should be used to spare the woman's energy, such as encouraging **position changes** during the first and second stages of labor to ease discomfort and aid labor progression.

3.Delay Pushing until Full Cervical Dilation:

1. **Encouraging a delay in pushing** until after **full cervical dilation** is achieved helps the woman avoid unnecessary exertion and reduces the risk of complications.

4.Use of Electronic Fetal Monitoring and Epidural Anesthesia:

1. **Electronic fetal monitoring** and **epidural anesthesia** can assist in monitoring the fetal well-being and pain management, both of which may impact the length of labor stages and contribute to positive outcomes for both the mother and baby.

5.Guiding the Need for Cesarean Section:

1. Nursing interventions, such as proper monitoring and supportive care, can help assess the need for a **cesarean section** if complications arise during labor.

Prolonged Labor and Potential Complications:

1.Potential Problems:

1. **Maternal or newborn infection**: Particularly if the **membranes have been ruptured for over 24 hours**.
2. **Maternal exhaustion**: Prolonged labor can lead to physical and emotional fatigue.
3. **Postpartum hemorrhage**: Increased risk due to prolonged labor and uterine fatigue.
4. **Greater anxiety and fear**: Mothers with difficult and prolonged labors may experience heightened **anxiety and fear** in future pregnancies.

Nursing Care for Prolonged Labor:

1.Supporting the Woman During Labor:

1. Focus on helping the woman **conserve her strength** and **maintain emotional support** as she copes with the physical and mental challenges of long labor.

2.Monitoring for Infection:

1. The nurse should closely monitor both the **mother and newborn** for signs of **infection** during and after the delivery, particularly if the membranes were ruptured for an extended period.

Precipitate Birth:

1.Definition and Characteristics:

1. A **precipitate birth** occurs when labor lasts **less than 3 hours**.
2. Labor typically begins **abruptly** and intensifies quickly, with **frequent and intense contractions** from the start.
3. There may be no healthcare provider present at the time of birth due to the rapid progression.

2.Risks for the Mother:

1. If the **woman's tissues** (such as the cervix and vaginal tissues) do not stretch easily to accommodate the powerful contractions, she may experience:
    1. **Uterine rupture**.
    2. **Cervical lacerations**.
    3. **Hematoma**.

3.Risks for the Fetus:

1. **Fetal oxygenation** can be compromised during **precipitate labor** due to the short interval between contractions, which limits the time the placenta has to replenish oxygenated blood to the fetus.
2. **Birth injuries** are more likely because of the rapid passage through the birth canal, including:
    1. **Intracranial hemorrhage** (bleeding in the brain).
    2. **Nerve damage**.

Nursing Care for Precipitate Birth:

1.Emotional Support:

1. Women who experience a precipitate birth may have **panic responses**, such as concerns about **not reaching the hospital on time** or **not having their healthcare provider present**.
2. Even though relief often follows the birth, the nurse should provide **ongoing support** and **reassurance** about the deviation from their expected birth experience.

2.Post-Birth Monitoring for Injury:

1. After delivery, the nurse should observe both the **mother** and **newborn** for **signs of injury**:
    1. For the mother, **excessive pain or bruising** in the vulvar area should be noted and reported.
    2. **Cold applications** can help reduce pain, bruising, and **edema** in the vulvar region.

3.Newborn Assessment:

1. **Abnormal findings** during the newborn's assessment, such as signs of **intracranial hemorrhage** or **nerve damage**, should be promptly reported to the healthcare provider for further evaluation.

Premature Rupture of Membranes (PROM):

1.Definition:

1. **PROM** refers to the **spontaneous rupture of the membranes** at **term (38+ weeks)**, more than **1 hour before labor contractions** begin.
2. A related condition, **preterm premature rupture of membranes (PPROM)**, occurs when the membranes rupture before **37 weeks of gestation**, with or without uterine contractions.

2.Causes:

1. Vaginal or cervical infections may contribute to the premature rupture of the membranes.

3.Diagnosis:

1. The diagnosis is confirmed by testing the fluid with **nitrazine paper**, which turns **blue** in the presence of **amniotic fluid**.

4.Treatment:

5. Treatment is based on balancing the risks of **early delivery** of the fetus against the risks of **infection** (such as **chorioamnionitis**, an infection of the fetal membranes) and **sepsis** in the newborn.
6. **Ultrasound** is used to determine **gestational age** and assess for **oligohydramnios** (low amniotic fluid), which is confirmed if the **amniotic fluid index (AFI)** is less than **5 cm**.
    1. Oligohydramnios before **24 weeks** can lead to **fetal pulmonary** and **skeletal defects**.

7.Management Based on Gestational Age:

1. If **PROM** occurs at **36 weeks** or later, **labor is induced** within **24 hours**.
2. The loss of the cushioning effect of amniotic fluid increases the risk of **umbilical cord compression**, which can be harmful to the fetus.

Nursing Care for Premature Rupture of Membranes (PROM):

1.Monitoring and Reporting:

1. **Maternal temperature**: Observe, document, and report any maternal temperature **above 38°C (100.4°F)**, which may indicate infection.
2. **Fetal tachycardia**: Monitor for signs of fetal tachycardia as a potential indicator of fetal distress.
3. **Uterine tenderness**: Report any tenderness over the uterine area, which may suggest infection or complications.

2.Anticipated Interventions:

1. **Antibiotics and steroids**: Antibiotic therapy may be initiated to prevent infection, and steroid therapy may be used to help mature the fetus's lungs if delivery is imminent.
2. **Cultures**: Cultures may be taken to check for infections.
3. **Labor induction or Cesarean section**: If complications arise or delivery becomes necessary, labor may be induced or a **Cesarean section** may be indicated.

3.Teaching for Non-Induced Labor:

1. **Infection prevention**: Educate the woman to report a temperature above **38°C (100.4°F)** and to avoid actions that increase infection risk:
    1. **Avoid sexual intercourse** or insertion of anything into the vagina.
    2. **Avoid orgasm** and **breast stimulation**, both of which can trigger contractions.
2. **Activity restrictions**: Encourage adherence to any prescribed activity restrictions.
3. **Monitoring signs of complications**:

4. Watch for **uterine contractions**, **reduced fetal activity**, or other signs of infection.

5. Daily fetal kick counts: Record and report fewer than **10 kicks in a 12-hour period**.

Preterm Labor:

1.Definition:

1. **Preterm labor** occurs between **20 weeks** and **37 weeks of gestation**, before a pregnancy reaches full term.

2.Risks and Complications:

1. The **main risks** of preterm labor are the **immaturity of the newborn**, which can lead to a range of health issues.
2. Preterm delivery is a significant cause of **perinatal morbidity** (illness) and **mortality** (death).
3. It has a **major medical and economic impact**, contributing to the rising costs of healthcare.

3.Public Health Goal:

1. One of the **Healthy People 2030** objectives is for **90% of women** to receive **prenatal care** starting in the **first trimester**, which can help reduce the risk of preterm labor and improve overall maternal and infant health outcomes.

Risk Factors for Preterm Labor:

1. **Exposure to Diethylstilbestrol (DES):** Women who were exposed to DES, a synthetic estrogen, may have an increased risk of preterm labor.
2. **Underweight:** Being underweight before pregnancy or during pregnancy can increase the likelihood of preterm labor.
3. **Chronic Illnesses:** Conditions like **diabetes** or **hypertension** can increase the risk of preterm labor.
4. **Dehydration:** Lack of adequate hydration can contribute to early labor.
5. **Preeclampsia:** This condition, characterized by high blood pressure and protein in the urine, increases the risk of preterm labor.
6. **Previous Preterm Labor or Birth:** A history of preterm labor or previous preterm birth increases the chances of future preterm deliveries.
7. **Previous Pregnancy Losses:** Multiple previous pregnancy losses can also be a risk factor.
8. **Uterine or Cervical Abnormalities or Surgery:** Abnormalities in the uterus or cervix, or previous cervical surgeries, can lead to preterm labor.
9. **Uterine Distention:** Overstretching of the uterus, often caused by carrying multiple fetuses or having a large baby, can trigger preterm labor.
10. **Abdominal Surgery During Pregnancy:** Surgery on the abdomen while pregnant may also increase the risk of preterm labor.

Additional Risk Factors for Preterm Labor:

1.Infection: Infections, particularly urinary tract infections or sexually transmitted infections, can increase the risk of preterm labor.

2.Anemia: Low iron levels or anemia during pregnancy can contribute to preterm labor.

3.Preterm Premature Rupture of Membranes (PPROM): Early rupture of the membranes before labor begins increases the risk of preterm birth.

4.Inadequate Prenatal Care: Lack of early and continuous prenatal care can prevent timely identification and management of risks.

5.Poor Nutrition: Inadequate nutrition can lead to complications, including preterm labor.

6.Age: Women who are **younger than 18** or **older than 40** years of age are at higher risk for preterm labor.

7.Low Education Level: Women with lower levels of education may have limited access to healthcare resources or understanding of pregnancy risks.

8.Poverty: Economic challenges often result in inadequate access to prenatal care, poor nutrition, and increased stress, all of which contribute to preterm labor.

9.Smoking: Smoking during pregnancy increases the risk of preterm labor and other pregnancy complications.

10- Substance Abuse: Use of drugs or alcohol can harm the pregnancy and lead to preterm birth.
11- Chronic Stress: High levels of ongoing stress can trigger hormonal responses that affect labor progression.
12- Multifetal Pregnancy: Carrying more than one fetus increases the likelihood of preterm labor.
Interventions and Prevention:
•**Early Prenatal Care:** Vital for educating women on recognizing the signs of preterm labor, allowing for early intervention.
•**Home Uterine Activity Monitoring:** For women at high risk of preterm labor, this can help detect early signs of labor, allowing for timely medical interventions.

Signs of Impending Preterm Labor:

1.Shortened Cervix: A **transvaginal ultrasound** showing a shortened cervix at **20 weeks gestation** may indicate a higher risk of preterm labor, especially in high-risk women.

2.Fetal Fibronectin Test: This cervicovaginal test detects **fetal fibronectin**, a protein produced by the fetal membranes. If uterine activity, infection, or cervical dilation of **2 cm or more** occurs, fibronectin can leak into vaginal secretions.

1. **Increased fibronectin levels** between **22 and 24 weeks gestation** are predictive of preterm labor.

3.Cervical Effacement and Dilation: A diagnosis of **preterm labor** is made when **cervical effacement** (thinning) and **dilation** of the cervix occur, particularly when dilation exceeds **2 cm**.

Maternal Symptoms of Preterm Labor:

Women may seek medical care for the following symptoms of preterm labor:

1. **Contractions**: These may be uncomfortable or painless, occurring at regular intervals.
2. **Frequent "Balling Up" Sensation**: Women may feel the fetus "balling up" frequently, indicating contractions or fetal positioning.
3. **Menstrual-like Cramps**: Cramping similar to what is experienced during menstruation.
4. **Constant Low Backache**: Persistent lower back pain that doesn't subside.
5. **Pelvic Pressure**: A feeling of pressure or the fetus pushing down in the pelvis.
6. **Change in Vaginal Discharge**: An increase or alteration in the nature of vaginal discharge, which could indicate infection or labor progression.
7. **Abdominal Cramps**: Abdominal discomfort, sometimes accompanied by diarrhea.
8. **Pain or Discomfort in the Vulva or Thighs**: Pain that radiates to the vulva or thighs.
9. **"Just Feeling Bad"**: A general feeling of being unwell, as though "coming down with something."

Diagnosis and Treatment:

- **Ultrasound**: An ultrasound may be performed to assess fetal maturity, position, and other potential complications.
- **Treatment**: The approach to treating preterm labor is more aggressive at **28 weeks** gestation than at **34 weeks**, due to the increasing viability of the fetus. baby.

Assessment Guidelines for Preterm Labor:

To determine if preterm labor is present, an assessment can be completed within **2 to 4 hours** and includes the following steps:

1.Contractions: Contractions alone are not a reliable indicator of preterm labor.

2.History and Physical Examination: A thorough medical history and physical examination to assess symptoms and potential risk factors.

3.Transvaginal Ultrasound: This is used to measure **cervical length**. A cervical length of **less than 20 mm** may indicate a higher risk of preterm labor.

4.Fetal Fibronectin Test: A cervicovaginal test for fetal fibronectin, a protein produced by the fetal membranes.

1. **Fetal fibronectin** is **undetectable** in vaginal secretions between **22 and 35 weeks gestation**.
2. If present, it may indicate that delivery is likely to occur within the next **14 days**.

Tocolytic Therapy:

Tocolysis refers to the inhibition of uterine contractions, with the primary goal of stopping labor and keeping the fetus in utero until the lungs are sufficiently mature for life outside the womb, typically for **2 to 7 days**.

•**Magnesium Sulfate** is the drug of choice for tocolytic therapy. Although not the most effective tocolytic, magnesium sulfate is preferred because it helps reduce the risk of **cerebral palsy** in the fetus.

•**Administration**: Magnesium sulfate is given via continuous **IV infusion**, with **therapeutic levels** monitored to avoid overdose.

•**Side Effects and Monitoring**:

- The woman may experience a **warm flush** during the initiation of therapy.
- **Overdose** can affect the **cardiorespiratory system**, so **vital signs** should be recorded every hour.
- If the baby is born while the mother is on magnesium sulfate, the infant may show signs of **drowsiness** and may require **resuscitation**.
- The **nursery staff** should be informed if magnesium sulfate therapy was administered within **2 hours** prior to delivery.

Additional Considerations in Tocolytic Therapy:

1.Calcium Gluconate:

1. Calcium gluconate should be readily available to treat **adverse effects** in the newborn, such as low blood calcium, which can result from prolonged use of magnesium sulfate.

2.FDA Recommendations:

1. The **FDA** advises limiting the use of **magnesium sulfate** to **less than 5 to 7 days**. Prolonged use can lead to **low blood calcium**, **bone problems**, and **respiratory depression** in the fetus.

3.Nursing Monitoring During Magnesium Sulfate Therapy:

1. Nurses should monitor for:
    1. **Respiratory rate** and **lung sounds** to detect any respiratory issues.
    2. Signs of **fluid overload**.
    3. **Urine output** to assess kidney function.
    4. **Deep tendon reflexes** as magnesium sulfate can reduce reflexes.
    5. **Bowel sounds**, as the drug can relax intestinal muscles and affect gastrointestinal motility.

4- β-Adrenergic Drugs (Terbutaline):

1. **Terbutaline (Brethine)** is administered **subcutaneously** to stop uterine contractions within minutes.
2. **Cardiac side effects** may occur, such as **increased pulse rate** and **blood pressure**.
3. **Nasal stuffiness** and **hyperglycemia** are possible side effects.
4. The drug should be **discontinued 2 hours before delivery** to prevent adverse effects on the newborn.

5- Prostaglandin Synthesis Inhibitors:

1. **Indomethacin**, a **prostaglandin synthesis inhibitor**, is another drug that can be used to stop labor contractions by inhibiting prostaglandins, which are involved in uterine contractions.

Key Points on Tocolytic Therapy and Contraindications:

1.Reduction in Amniotic Fluid:

1. Some **tocolytic drugs**, such as **prostaglandin synthesis inhibitors** or **indomethacin**, can reduce amniotic fluid. This can be helpful in cases of **polyhydramnios** (excessive amniotic fluid).
2. However, **indomethacin** can also cause premature **closure of the ductus arteriosus**, a critical fetal vessel. This can lead to **fetal death**, making it a less commonly used option.
3. **Close fetal monitoring** is essential when using these medications.

2.Calcium Channel Blockers (Nifedipine):

1. **Nifedipine** (**Procardia**), a **calcium channel blocker**, is widely used to stop labor contractions by relaxing the uterus.
2. The drug causes **vasodilation**, which may result in **maternal flushing** and **hypotension**. Therefore, **blood pressure** and **pulse** should be carefully monitored.
3. **Magnesium sulfate** should not be used in conjunction with nifedipine due to potential complications.
4. It should also be avoided in cases of **intrauterine infection**.

3.Antimicrobial Therapy:

1. **Antimicrobial therapy** is often initiated in women with **preterm labor** to treat **subclinical chorioamnionitis** (infection of the fetal membranes), which is common, or to prevent **group B streptococcus infection**. therapy.

4- Contraindications to Tocolytics:

1. **Tocolytic drugs** should not be used in the following cases:
    1. **Preeclampsia** (high blood pressure and organ damage during pregnancy).
    2. **Placenta previa** (placenta covers the cervix).
    3. **Abruptio placentae** (premature detachment of the placenta).
    4. Gestational age greater than **37 weeks**.
    5. **Chorioamnionitis** (infection of the membranes).
    6. **Fetal demise** (death of the fetus).
2. In these cases, delaying birth would not benefit the obstetric outcome, and the focus shifts to the delivery of the fetus rather than tocolytic

Fetal Lung Maturation and Activity Restrictions:

1.Fetal Lung Maturation with Glucocorticoids:

1. **Steroid drugs (glucocorticoids)**, such as **betamethasone**, are administered to speed up **fetal lung maturation** if preterm birth seems imminent, typically between **24 and 34 weeks** of gestation.
2. **Betamethasone** is usually given in **two intramuscular injections**, 24 hours apart.
3. These drugs help improve lung development, reducing the risk of **respiratory distress syndrome** (RDS) and other complications in preterm infants.

2.Use of Glucocorticoids with Tocolytics:

1. Glucocorticoids are often used **in combination with tocolytic therapy** (drugs that stop contractions) to prolong pregnancy and allow the fetus to mature further before birth.

3.Activity Restrictions:

1. **Bed rest** was previously a common prescription for women at risk of preterm birth, but its effectiveness is unclear.
2. **Total bed rest** is now prescribed less often due to potential **adverse maternal effects**, such as increased risk for **muscle atrophy**, **blood clots**, and **mental health decline**.
3. More **moderate activity restrictions** are typically recommended, such as **semi-Fowler's position** (partially reclining) or **partial bed rest**..

Nursing Care for Preterm Labor:

1.Positioning and Monitoring:

1. Position the woman **on her side** to improve **placental blood flow** and reduce the risk of complications.
2. **Frequent monitoring** of **vital signs** is crucial, with immediate notification of the healthcare provider if **tachycardia** (increased heart rate) occurs.
3. Closely observe for signs of **pulmonary edema**, such as:
    1. **Chest pain**
    2. **Cough**
    3. **Crackles or rhonchi** (abnormal lung sounds)
4. **Intake and output** should be monitored to assess fluid balance.

2.Home Monitoring (If applicable):

1. For women monitored at home, provide clear **activity restrictions** and instructions on which activities are safe.
2. Make **arrangements for household responsibilities**, including child care, with the help of family members or social services.

3.Preparation for Delivery:

4. If preterm delivery occurs, **monitor the fetal heart rate** closely for signs of distress.
5. Prepare for possible admission to the **neonatal intensive care unit** (NICU) for the newborn.

6.Emotional Support:

7. Offer **full emotional support** to the parents, as they may be grieving the loss of the **normal birth process** and facing anxiety about the baby's health.
8. Provide reassurance and information about the newborn's care

Prolonged Pregnancy:

•Definitions:

- **Late-term pregnancy**: Lasts between **41 weeks and 41 weeks 6 days**.
- **Post-term pregnancy**: Lasts **42 weeks or longer**.
- **Postmature infant**: A fetus with prolonged gestation, typically associated with aging placental function.

•Risks to the Fetus:

- **Placental Insufficiency**: As the placenta ages, it becomes less efficient at delivering oxygen and nutrients to the fetus. This can lead to:
  - **Fetal weight loss**.
  - **Skin peeling** as a typical sign of postmaturity.
  - **Meconium aspiration**: The fetus may pass meconium (the first stool) into the amniotic fluid, which can lead to **severe respiratory issues** at birth.
  - **Low blood glucose**: Post-term infants are at risk of hypoglycemia after birth.
  - **Poor tolerance to labor**: The fetus with placental insufficiency may struggle during contractions due to reduced blood flow and oxygenation.
- **Macrosomia** (Large Fetus): If the placenta continues to function well, the fetus continues to grow, which can lead to:
  - **Macrosomia**, where the baby is significantly larger than average, which could complicate vaginal delivery (e.g., shoulder dystocia).

- **Risks to the Mother:**
  - **Physical Risk**: There are minimal physical risks if placental function remains intact, but the mother may face complications from a large fetus during labor (e.g., prolonged labor or birth trauma).
  - **Psychological Impact**: Women often experience heightened anxiety about when labor will begin, feeling the pregnancy will never end. This can lead to increased stress as the mother anticipates interventions from her healthcare provider.

Medical Treatment for Prolonged Pregnancy:

1.Evaluation of Gestation:

1. Health care provider checks if the pregnancy is truly prolonged or if there was a miscalculation of gestation.
2. Regular prenatal care and early ultrasounds usually clarify the true gestational age.

2.Monitoring:

1. Any pregnancy lasting beyond 41 weeks must be closely monitored with:
    1. Non-Stress Test (NST)
    2. Amniotic Fluid Index (AFI)
    3. Biophysical Profile (BPP)
2. These tests are conducted twice weekly.
3. Daily kick counts are also encouraged.

3.Indication for Labor Induction:

1. Oligohydramnios (low amniotic fluid) is an indication for labor induction in postterm pregnancies.

4.Labor Induction:

1. If pregnancy reaches 41 weeks and 6 days, labor is typically induced using **oxytocin**.
2. Prostaglandins are sometimes used to ripen the cervix before administering oxytocin, improving the likelihood of a successful induction.

Nursing Care for Prolonged Pregnancy:

1.Fetal Observation During Labor:

1. Nurses must carefully monitor the fetus for signs of poor placental blood flow.
2. Indicators of compromised blood flow may include **late decelerations** in the fetal heart rate.

Emergencies During Childbirth:

Several intrapartum conditions can threaten the health of the mother or fetus, requiring prompt intervention to minimize harm. Nursing and medical actions often overlap in these situations.

Prolapsed Umbilical Cord:

The umbilical cord may prolapse (slip downward into the pelvis) after the membranes rupture. This can cause the cord to become compressed between the fetal head and the mother's pelvis, interrupting blood supply to and from the placenta.

Timing of Prolapse:

- **Immediate:** The prolapsed cord can slip down immediately after the membranes rupture.
- **Delayed:** The prolapse may occur later during labor.

Classifications of Prolapsed Umbilical Cord:

1. **Complete Prolapse:** The cord is visible at the vaginal opening.
2. **Palpated Prolapse:** The cord is not visible, but can be felt during a vaginal examination as a pulsating structure.
3. **Occult Prolapse:** The prolapse is hidden and cannot be seen or felt. It is suspected if abnormal fetal heart rates are observed.

These conditions require immediate action to prevent damage to the fetus and ensure safe delivery.

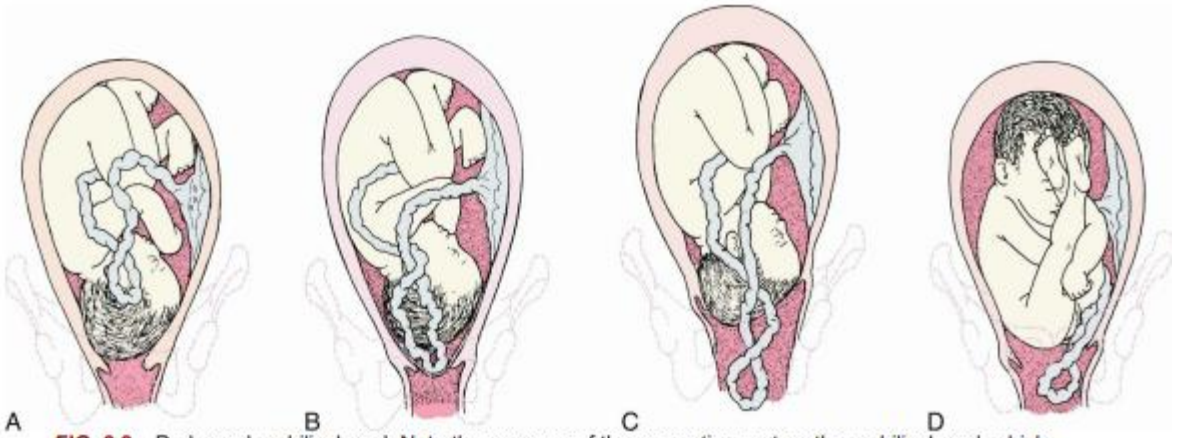

FIG. 8.8 Prolapsed umbilical cord. Note the pressure of the presenting part on the umbilical cord, which will interfere with oxygenation of the fetus. (A) Occult (hidden) prolapse of cord. The cord will be compressed between the fetal head and the mother's bony pelvis. (B) Complete prolapsed cord. Note that the membranes are intact. (C) Cord is presenting in front of the fetal head and may be seen in the vagina. (D) Frank breech presentation with prolapsed cord. (From Lowdermilk DL, Perry SE, Cashion KL: *Maternity nursing*, ed 8, St. Louis, 2013, Mosby.)

Safety Tip for Prolapsed Umbilical Cord:

- **Increased Risk:** The risk of prolapsed cord is higher if the membranes rupture **before** the fetal presenting part (e.g., the head) is fully engaged in the pelvis.
- **Nursing Responsibility:** It is essential for the nurse to **document the fetal heart rate** immediately after the membranes rupture. This helps identify any signs of cord prolapse or fetal distress and ensures timely intervention if necessary.

Risk Factors for Prolapse of the Umbilical Cord:

The likelihood of umbilical cord prolapse increases when the fetus does not fill the pelvic space properly or if there is excessive fluid pressure when the membranes rupture. The following situations are associated with a higher risk of cord prolapse:

1.Fetus is High in the Pelvis:

1. When the presenting part (e.g., fetal head) is not engaged in the pelvis at the time of membrane rupture.

2.Prematurity or Small Fetus:

1. A very small fetus, such as in cases of prematurity, may not occupy the pelvis fully, increasing the risk.

3.Abnormal Presentation:

1. Abnormal fetal presentations, such as **footling breech** or **transverse lie**, where the presenting part is not properly positioned for birth.

4.Hydramnios:

1. The presence of **excess amniotic fluid** (hydramnios) can contribute to greater pressure and increase the likelihood of prolapse.

Medical Treatment for Prolapsed Umbilical Cord:

1.Fetal Displacement:

1. The physician may attempt to **push the fetus upward** from the vagina to relieve pressure on the cord.

2.Oxygen and Tocolytics:

1. Oxygen may be administered to the mother to improve oxygenation to the fetus.
2. A **tocolytic drug** like **terbutaline** may be given to relax the uterus and reduce contractions.

3.Delivery Method:

1. The primary goal is to **deliver the fetus as quickly as possible**, typically by **cesarean delivery** to prevent further harm to the fetus.

Nursing Care for Prolapsed Umbilical Cord:

1.First Action – Fetal Displacement:

1. The nurse's immediate action is to **displace the fetus upward** to stop compression against the pelvis.
2. This can be done by using maternal positions such as:
    1. **Knee-chest position** or **Trendelenburg (head down)** position.
    2. **Side-lying position** with hips elevated on pillows to reduce cord pressure.

2.Remain Calm and Provide Support:

1. Since prolapsed cord is a sudden emergency, **anxiety and fear** are natural reactions for the woman and her partner.
2. Nurses should remain calm and focused to avoid increasing the woman's anxiety and to provide a sense of reassurance and competence.

3- Post-Delivery Support:

1. After birth, the nurse should take time to help the woman and her family **understand the experience**.
2. The woman may need **multiple explanations** about what occurred and why, offering clarity and emotional support following the emergency situation.

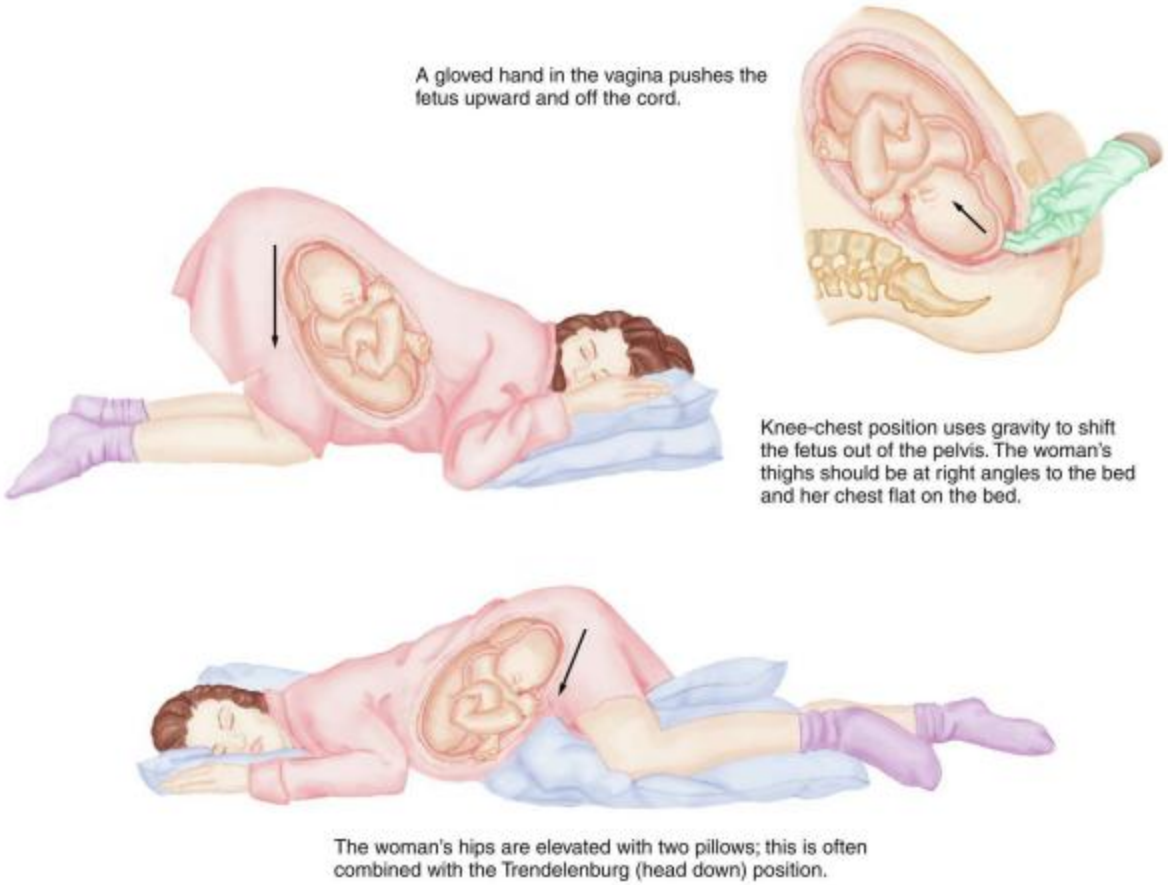

FIG. 8.9 Positioning of the mother when the umbilical cord prolapses. These positions can be used to relieve pressure on the prolapsed umbilical cord until delivery can take place. (From Murray SS, McKinney ES: *Foundations of maternal-newborn and women's health nursing,* ed 5, St. Louis, 2011, Saunders.)

Placenta Accreta:

Placenta accreta is a condition where the placenta abnormally attaches to the uterine wall, affecting about **3 out of 1000 deliveries**. It is more common in women with certain risk factors:

- **Previous cesarean section** delivery.
- Presence of **fibroids** in the uterus.
- **Increased maternal age**.
- **Endometrial defects** (issues with the lining of the uterus).

Symptoms:

- **Profuse bleeding** during attempts to manually deliver the placenta after the fetus is born.

Diagnosis and Treatment:

- **Pre-delivery diagnosis** is possible via **ultrasound**.
- Interventions are aimed at minimizing **postpartum blood loss**, but in many cases, **hysterectomy** (removal of the uterus) is necessary to stop the bleeding.

Nursing Care and Responsibilities:

1.Support and Care for the Woman:

1. Provide emotional and physical support, especially considering that the woman may not have the opportunity to carry another pregnancy due to the hysterectomy.

2.Monitoring and Documentation:

1. **Vital signs** must be monitored closely.
2. Document interventions and any changes in the woman's condition.

3.IV Therapy:

1. Administer IV fluids to manage blood loss and ensure hydration.

4.Pain Relief:

1. Provide adequate **pain management** to address discomfort related to the procedure and recovery.

5.Blood Transfusion Therapy:

1. Be prepared to observe and assist with blood transfusion therapy if necessary, following the principles of managing **bleeding disorders** in pregnancy.

These nursing interventions are critical to manage the condition effectively and provide holistic care for the woman during this high-risk situation.

Uterine Rupture:

Uterine rupture is a tear in the uterine wall, often occurring when the muscle cannot withstand the pressure inside the uterus. This is a serious and potentially life-threatening condition that requires immediate medical intervention. There are three variations of uterine rupture:

1.Complete Rupture:

1. The **entire uterine wall tears**, creating a hole from the uterine cavity to the abdominal cavity. This is the most severe form and can lead to significant internal bleeding.

2.Incomplete Rupture:

1. The **uterus tears into a nearby structure**, such as a ligament or the broad ligament, but **does not reach the abdominal cavity**. This type is less severe than complete rupture but still requires urgent care.

3.Dehiscence:

1. This occurs when a **previous uterine scar**, such as one from a **cesarean section**, **separates**. Dehiscence may be less dramatic than a complete rupture but still poses serious risks, particularly for maternal and fetal well-being.

Uterine rupture is a medical emergency, and its management typically involves prompt surgical intervention, often requiring a **cesarean section** and sometimes a hysterectomy, depending on the severity.

Risk Factors for Uterine Rupture:

1.Previous Uterine Surgery:

1. Uterine rupture is more likely if the woman has had previous **surgery on the uterus**, especially a **cesarean section**.
2. A **low transverse uterine incision** (side-to-side) is least likely to rupture, making it safer for subsequent vaginal deliveries.
3. A **classic uterine incision** (up-and-down) is more prone to rupture, so **vaginal birth after cesarean (VBAC)** is **not recommended** with this type of incision.

2.Vaginal Birth After Cesarean (VBAC):

1. Women with a previous cesarean section who wish to attempt a vaginal delivery should undergo a **trial of labor (TOLAC)**.
2. A **surgical team** must be **available during labor** to respond immediately in case of uterine rupture, with **surgical intervention available within 30 minutes** if needed.

3.Labor Induction and Oxytocin Use:

1. **Tachysystole** (excessive uterine contractions) due to **labor induction with oxytocin** can increase the risk of uterine rupture.

4.Blunt Abdominal Trauma:

1. Trauma to the abdomen, such as from a **motor vehicle accident** or **physical abuse** (battering), can lead to uterine rupture.

Characteristics of Uterine Rupture:

Uterine rupture can be asymptomatic, or it may present suddenly with severe signs and symptoms, including:

1.Shock from Internal Bleeding:

1. The woman may go into **shock** due to bleeding into the abdomen, though **vaginal bleeding may be minimal**.

2.Abdominal Pain:

1. Sudden and severe **abdominal pain** can occur.

3.Pain in Chest or Shoulders:

1. Pain may radiate to the **chest**, **between the scapulae** (shoulder blades), or **with inspiration** due to irritation of the diaphragm.

4.Cessation of Contractions:

1. **Contractions may stop** suddenly, indicating a rupture.

5.Abnormal or Absent Fetal Heart Tones:

1. Fetal heart tones may be **abnormal** or **absent**, indicating fetal distress or death.

6.Palpation of the Fetus Outside the Uterus:

1. If the fetus has pushed through the torn area of the uterus, it may be palpable outside the uterine cavity.

Medical Treatment for Uterine Rupture:

1.Surgical Intervention:

1. If the fetus is still alive or if **excessive blood loss** is present, the obstetrician will perform **surgery** to deliver the fetus and control the bleeding.

2.Hysterectomy:

1. For an **extensive uterine rupture**, a **hysterectomy** (removal of the uterus) is often necessary to stop the bleeding and prevent further complications.

3.Repair of Smaller Tears:

1. In cases of **smaller tears**, the uterus may be **surgically repaired** rather than removed.

Nursing Care for Uterine Rupture:

1.Monitoring High-Risk Women:

1. Nurses should **identify women at high risk** for uterine rupture, such as those with previous cesarean deliveries or other risk factors. **Close monitoring** during labor is essential to detect any signs of rupture early.

2.Preparation for Emergency Cesarean Section:

1. When uterine rupture is suspected or detected, the nurse should **prepare the woman for an immediate cesarean section**. This includes ensuring necessary equipment and personnel are ready for emergency surgery.

3.Alleviating Anxiety:

1. Emergency situations like uterine rupture can be overwhelming, so **providing emotional support** to both the woman and her partner is crucial. The nurse should help **reduce anxiety** by explaining what is happening, offering reassurance, and supporting them throughout the process.

4.Post-Birth Monitoring:

1. Sometimes uterine rupture is only discovered **after birth**, when dramatic symptoms are not present.
2. In these cases, **continuous bleeding** that is brighter red than normal postbirth bleeding may be a sign of uterine rupture.
3. Nurses should closely monitor for signs of **hypovolemic shock** due to excessive blood loss, which may include:
    1. **Rising pulse rate**
    2. **Falling blood pressure**
4. These are critical signs of shock, indicating the need for rapid intervention to prevent further complications.

Amniotic Fluid Embolism (AFE):

Amniotic fluid embolism (AFE), also known as **anaphylactoid syndrome**, is a rare but life-threatening condition that occurs when **amniotic fluid** — including particles like **vernix**, **fetal hair**, and sometimes **meconium** — enters the woman's circulation. This can cause small blood vessels in the lungs to obstruct, leading to severe complications. AFE is more likely to occur during **intense labor**, when the amniotic fluid is "pushed" into small blood vessels that rupture as the cervix dilates.

Characteristics of Amniotic Fluid Embolism:

- **Abrupt Onset of Hypotension:** A sudden drop in blood pressure.
- **Respiratory Distress:** Difficulty breathing and low oxygen levels.
- **Coagulation Abnormalities:** Triggered by the thromboplastin in the amniotic fluid, which can cause disseminated intravascular coagulation (DIC).

Treatment for Amniotic Fluid Embolism:

1.Respiratory Support:

1. **Intubation** and **mechanical ventilation** may be required to ensure adequate oxygenation.

2.Shock Treatment:

1. Administer **electrolytes** and **volume expanders** to treat shock.
2. **Coagulation factors** such as **platelets** and **fibrinogen** may need to be replaced to address clotting issues.

3.Blood Replacement:

1. **Packed red blood cells** may be given intravenously to address blood loss.

4.Monitoring:

1. **Intake and output** must be closely monitored to assess fluid balance.
2. **Pulse oximeter** is used to monitor oxygen saturation levels and ensure adequate oxygen delivery to tissues.

5.Intensive Care:

1. The woman may be **transferred to the intensive care unit (ICU)** for more intensive monitoring and nursing care due to the severity of the condition.

AFE is a medical emergency requiring immediate intervention to manage the respiratory, circulatory, and coagulation issues that arise.

Unfolding Case Study

Tess and Luis were introduced to the reader in Chapter 4, and Tess' pregnancy experience has unfolded in each chapter. Refer to earlier chapters for her history and progress.

Tess was admitted to the labor unit and has been in active labor. However, after many hours, her labor contractions stop. The health care provider determines that her Bishop score is 7 and decides to augment her labor.

Questions

1. What is a Bishop score?
2. What is the difference between induction of labor and augmentation of labor?
3. When is induction or augmentation of labor contraindicated?
4. How can the nurse help Tess stimulate labor contractions using nonpharmacological methods? How can her husband Luis help?
5. What nursing responsibilities are involved during the administration of oxytocin during labor?

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1. What is a Bishop score?

The Bishop score assesses cervical readiness for labor and predicts the likelihood of a successful vaginal delivery. It evaluates five components: cervical dilation, effacement, consistency, position, and fetal station. A score of 7 or more indicates favorable conditions for vaginal delivery, while a score below 6 may require interventions like cervical ripening or induction.

2. What is the difference between induction and augmentation of labor?

- **Induction** starts labor artificially when it hasn't begun naturally, using methods like oxytocin, prostaglandins, or amniotomy.
- **Augmentation** enhances labor that has already started but is not progressing effectively, typically using oxytocin to improve contractions.

3. When is induction or augmentation contraindicated?

Induction or augmentation is contraindicated in cases such as placenta previa, vasa previa, umbilical cord prolapse, previous uterine surgeries, active herpes outbreaks, and medical conditions like severe preeclampsia or uncontrolled bleeding.

4. How can the nurse and Tess's husband help stimulate labor non-pharmacologically?

- **Non-pharmacological methods**: Ambulation, position changes, nipple stimulation, hydration, warm baths, and massage can help stimulate contractions.
- **Husband's support**: Luis can provide emotional support, help with position changes, offer encouragement, and assist with comfort measures like massage.

5. What nursing responsibilities are involved with oxytocin administration during labor?

Nurses must:

1. Monitor contractions and fetal heart rate for signs of distress.
2. Assess maternal vital signs for complications.
3. Adjust the oxytocin infusion rate as needed.
4. Monitor for side effects like uterine tachysystole or water intoxication.
5. Educate and comfort the patient, and prepare for emergency interventions if necessary.

Get Ready for the NCLEX® Examination! Key Points

• An amnioinfusion is the insertion of fluid directly into the uterus to provide a cushion for the umbilical cord after amniotic fluid is lost.

• Induction of labor is the intentional initiation of labor before it occurs naturally.

• Augmentation of labor is the stimulation of contractions after they started naturally.

• A Bishop score greater than 6 may predict successful labor induction because of a “ripe cervix.”

• The nurse observes the character of the amniotic fluid and fetal heart rate when the membranes are ruptured. Fluid should be clear, but it may contain bits of lanugo and have a mild odor; the fetal heart rate should remain near its baseline level and between 110 and 160 beats/min at term.

• The nurse observes the fetal condition and character of contractions if any methods to stimulate labor are used.

• Dystocia is a term used to describe a difficult labor, which can be caused by an abnormality of the power, passenger, passage, or psyche of the woman.
• Nursing measures such as encouraging position changes, aiding relaxation, and reminding the woman to empty her bladder can promote a more normal labor.
• Pharmacological, nonpharmacological, or mechanical methods can be used to stimulate labor.
• After version, the nurse observes for leaking amniotic fluid and for a pattern of contractions that may indicate labor has begun. Before discharge, signs of labor are reviewed with the woman so she will know when to return to the birth center.
• Nursing care after episiotomy or perineal lacerations includes comfort measures such as cold applications, analgesics, and wound assessment.
• Nursing care after cesarean birth is similar to care after vaginal birth with the addition of assessing the wound, indwelling catheter patency, and IV flow. The woman and her partner may need extra emotional support after cesarean birth.

• Nursing care after births involving instruments (forceps or vacuum extraction) and after abnormal labor and birth include observations for maternal and newborn injuries or infections. Infection is the most common hazard after membranes rupture prematurely, especially if there is a long interval before delivery.
• When oxytocin is given to the woman in labor, the nurse must be aware of signs and symptoms of increased uterine activity and monitor the fetal heart rate every 15 minutes during active labor and every 5 minutes during the transition phase.
• Induction of labor is more effective if cervical ripening is achieved before oxytocin is administered to stimulate contractions.
• The nurse should be aware of the subtle symptoms a woman may experience at the beginning of preterm labor and should encourage her to seek care at the hospital promptly.
• The nurse must be aware of the side effects of tocolytic drugs and monitor the mother and fetus closely.
• Anaphylactoid syndrome occurs when amniotic fluid enters the woman's circulation.
• After any type of emergency, the woman and her family need emotional support, explanations of what happened, and patience with their repeated questions

Review Questions for the NCLEX® Examination

The nurse notes that a woman's contractions during oxytocin induction of labor are every 2 minutes; the contractions last 95 seconds, and the uterus remains tense between contractions. What action is expected based on these assessments?

1. No action is expected; the contractions are normal.
2. The rate of oxytocin administration will be increased slightly.
3. Pain medication or an epidural block will be offered.
4. Infusion of oxytocin will be stopped.

2. The nurse can anticipate that which of the following patients may be scheduled for induction of labor? A woman who is:

1. 38 weeks' gestation with fetus in transverse lie.
2. 40 weeks' gestation with fetal macrosomia.
3. 40 weeks' gestation with gestational hypertension.
4. 40 weeks' gestation with a fetal prolapsed cord.

3. A woman has an emergency cesarean delivery after the umbilical cord was found to be prolapsed. She repeatedly asks similar questions about what happened at birth. The nurse's interpretation of the woman's behavior is that she:

1. cannot accept that she did not have the type of delivery she planned.
2. is trying to understand her experience and move on with postpartum adaptation.
3. thinks the staff is not telling her the truth about what happened at birth.
4. is confused about events because the effects of the general anesthetic are persisting.

4. What nursing intervention during labor can increase space in the woman's pelvis?

1. Promote adequate fluid intake.
2. Position her on the left side.
3. Assist her to take a shower.
4. Encourage regular urination.

5. A woman is being observed in the hospital because her membranes ruptured at 30 weeks gestation. While providing morning care, the nursing student notices that the draining fluid has a strong odor. The priority nursing action is to:

1. caution the woman to remain in bed until her physician visits.
2. ask the woman if she is having any more contractions than usual.
3. take the woman's temperature; report it and the fluid odor to the RN.
4. help to prepare the woman for an immediate cesarean delivery.

6. Following a vacuum extraction delivery, the nurse notices the newborn's head is not symmetrical with a chignon over the posterior fontanelle. The appropriate nursing action would be to:

a. apply cold compresses to the swollen area
b. notify the charge nurse or health care provider
c. document and continue routine observation
d. explain to the parents the swelling will resolve without treatment

1. a and b
2. a and c
3. c and d
4. all of the above

Thanks for listing