Placental Anomalies

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Purpose and Objectives  
The purpose of this course is to provide the nurse with an overview of the normal placental structure and function as well as an overview of some of the more commonly seen placental and cord anomalies, so that the nursing management of these anomalies will be more thoroughly understood, and better nursing care can be provided.  

After successful completion of this course, you will be able to:
1. Describe the structure and function of the healthy placenta & umbilical cord.
2. State the causes, presentation and nursing management of placental anomalies, including abruptio placenta, placenta previa, placenta circumvallata and placenta accreta.
3. Identify umbilical cord anomalies such as velamentous cord, two vessel cord, vasa previa and umbilical cord prolapse.
4. Recognize the significance of these umbilical cord anomalies and identify appropriate nursing interventions.
**Structure of the Placenta**

A healthy placenta is the single most important factor in producing a healthy baby.

The placenta forms at the time of implantation and consists of two layers of cells:
- the outer syncytium
- an inner cytotrophoblast.

A third layer develops later, dividing the decidua into separate areas known as cotyledons (lobules). A placenta will typically contain 15 - 20 cotyledons, each of which are a functional unit, containing fetal blood vessels. This maternal-embryonic circulation is fully functional by Day 17, when the embryonic heart starts beating (Wong et al, 2006).

*It is important for the nurse to be familiar with the appearance of the normal placenta, so that she can easily identify an abnormal finding.*

**Structure of the Placenta**

Growth and expansion of the placenta continues until about 20 weeks, when it covers about half of the inside of the uterus. After 20 weeks gestation, the placenta thickens but does not widen any further.

The placenta develops two distinct parts, the maternal portion and fetal portion:
- The maternal portion consists of the decidua basalis and it's circulation. Its surface is red and meaty in appearance.
- The fetal portion consists of the chorionic villi and it's circulation. The fetal surface of the placenta is covered by the amnion, which gives it a shiny grey appearance.

*At 40 weeks gestation, the placenta is between 5.9 - 7.9 inches wide, about 1-1.2 inches thick and weighs approximately 14 - 21 oz.*

**Function of the Placenta**

The placenta functions as a means of metabolic and nutrient exchange between the embryonic and maternal circulations. It develops at the site where the developing embryo attaches to the uterine wall.

Exchange of gases and nutrients between the maternal and fetal circulation take place across the highly vascular cotyledons. This exchange is limited in the first three months of gestation because of limited permeability across the thick villous membrane at this time.

As the villous membrane thins out, placental permeability increases, until the last month of the pregnancy, when the aging placenta looses some permeability again.

Other functions of the placenta include:
- Fetal respiration
- Fetal excretion
- Transportation and metabolic activities
- Hormone production to maintain the pregnancy and support the fetus (endocrine
The Placenta as an Endocrine Gland
The placenta produces four hormones necessary to maintain a pregnancy and support the developing fetus:

- **hCG (Human Chorionic Gonadotropin)** is a protein hormone produced by the placenta and is used as the basis of the pregnancy test. This hormone functions to preserve the ovarian corpus luteum to ensure a continued supply of estrogen and progesterone needed to maintain a pregnancy.
- **hPL (human Placental Lactogen)**, also known as hCS (human Chorionic somatomammotropin) is similar to a growth hormone and stimulates maternal metabolism to increase nutrient production for the fetus. This hormone increases insulin resistance, facilitates glucose transportation and stimulates breast tissue development in preparation for lactogenesis (breastfeeding).
- **Progesterone** is initially produced by the corpus luteum, but is later produced by the placenta. Progesterone maintains the endometrium, decreases uterine contractility and stimulates maternal metabolism and breast tissue growth.
- **Estrogen** in the form of estriol is secreted by the placenta after 7 weeks gestation, and stimulates uterine growth and blood flow. It causes proliferation (growth) of the maternal breast tissue and stimulates myometrial contractility.

**Metabolic & Transfer Functions of the Placenta**
The placenta produces glycogen, cholesterol and fatty acids continuously for fetal use and hormone production. The placenta also produces numerous enzymes as well as epinephrine and histamine. The placenta also stores glycogen and iron.

The placental membrane actively controls the transfer of substances by diffusion, osmosis, pinocytosis (engulfment of larger molecules), facilitated and active transportation.

Several factors affect the transfer rate, including molecular size, lipid solubility, maternal fetal blood flow, diffusion distance and placental size.

Disease states affect these factors, such as diabetes or placental infection. The resultant edema from these disease states increase the diffusion distance, slowing down diffusion.

Similarly, a placenta abnormality such as abruptio placentae lessens the functional area of the placenta available for exchange.

**Did You Know?**

**Substances with a molecular weight of 1000 daltons or more have difficulty crossing the placenta by diffusion. Heparin, with a large molecular weight does not cross the placenta, but Coumadin (Warfarin) has a smaller molecular weight and thus crosses the placenta easily.**
**The Umbilical Cord**
As the placenta develops, so the umbilical cord forms from the amnion. The body stalk, which attaches the embryo to the yolk sac, contains blood vessels that extend into the chorionic villi.

As the body stalk elongates to become the umbilical cord, the vessels within the cord decrease to form one large vein and two smaller arteries. About 1% of umbilical cords have only two vessels (an artery and a vein). This condition is often associated with congenital malformations, particularly in the cardiac and gastrointestinal systems. The nurse thus needs to closely examine the vessels in the cord as soon after delivery as possible.

A specialized connective tissue known as Wharton's Jelly surrounds the blood vessels in the cord and prevents compression of the vessels in utero.

At term, the average cord is 0.8 in. thick and about 22 in. long. Central insertion of the cord into the placenta is most common, but variations of this do occur and will be discussed later in detail.

**Examination of the Placenta and Umbilical Cord**
It is important for the nurse to closely examine the placenta and cord after delivery to identify possible risks to the maternal infant dyad. The findings of the assessment are documented in the delivery records.

During the examination, the size, shape, consistency and completeness of the placenta is noted, and the presence of accessory lobes, placental infarcts, hemorrhage, tumors and nodules are documented (Yetter, J. 1998). This is important as retained placental tissue can be associated with postpartum hemorrhage and infection. The color of the maternal surface of the placenta should be closely evaluated as well. In a term infant without anemia, the maternal surface of the placenta should be dark maroon. If pallor is noted, this may indicate fetal anemia, and a blood transfusion may be necessary.

The color and odor of the fetal membranes is also evaluated, and the membranes examined for the presence of large (velamentous) vessels (Yetter, J. 1998).

The umbilical cord is assessed for length, insertion, number of vessels, thromboses, knots and the presence of Wharton's jelly (Yetter, J. 1998).

**Abruptio Placenta**
Abruptio placenta is premature separation of the normally implanted placenta after the 20th week of pregnancy, typically with severe hemorrhage.

There are two types of abruptio placenta:
- Concealed hemorrhage - the placenta separates centrally, and a large amount of blood is accumulated under the placenta.
- External hemorrhage - the separation is along the placental margin, and blood flows under the membranes and through cervix.

The most common clinical manifestations of abruptio placenta include:
• Intense, localized uterine pain, with or without vaginal bleeding, which may present as external dark red bleeding.
• Uterus is firm to boardlike, with severe continuous pain & possible contractions.
• Uterine outline is possibly enlarged or changes shape.
• Fetal heart rate may be present or absent; and fetal presenting part may be engaged.

Placenta abruptio, including any amount of placental separation prior to delivery, occurs in about 1 out of 150 deliveries. The severe form, which results in fetal death, occurs only in about 1 out of 500 to 750 deliveries (Medline, 2009).

Risk Factors and Clinical Presentation of Abruptio Placenta
The risk factors for placental abruptio are often difficult to recognize, but are mostly related to an injury to the abdomen from an accident or a fall, or a sudden decrease in the volume of the uterus. This decrease in amniotic fluid volume could be a result of a significant loss of amniotic fluid or from the delivery of a first twin.

It is also thought that an abnormally short umbilical cord and / or the acute development of high blood pressure may be linked to the development of abruptio placenta (Healthlibrary, 2009).

Risk factors for the development of Placenta Abruptio include:

• Previous placental abruptio in a prior pregnancy
• High blood pressure during pregnancy
• Pregnancy during older age
• Multiple previous deliveries (greater than average number)
• Excessively distended uterus
• Diabetes
• Drug use (cocaine)
• Cigarette smoking during pregnancy
• Alcohol abuse during pregnancy

Nursing Management of Abruptio Placenta
The nursing management of a patient in active labor with a placenta abruptio revolves around the continuous evaluation of maternal and fetal physiologic status. This includes monitoring of vital signs, amount of maternal hemorrhage and evaluation of electronic fetal and maternal monitoring tracings. The mother is closely observed for signs of shock. Maternal signs of shock may include a rapid pulse, cold and moist skin, a sudden drop in blood pressure and urinary output.

A thorough assessment is completed to identify the need for immediate delivery. If the client is in active labor and bleeding cannot be stopped with bed rest, an emergency cesarean delivery may be indicated.

Maintain bedrest with the patient positioned in a lateral position to prevent pressure on the vena cava. Establish venous access for fluid supplementation, and draw a blood fibrinogen level. A fibrinogen level will identify if there is a clotting disorder present, as fibrinogen is a
protein necessary for normal blood clotting. This test should be performed when there is suspected internal hemorrhage. Administer oxygen by mask, and record vital signs every 5 to 15 minutes. The patient should be prepped for cesarean section, and address all emotional and psychosocial needs at this time.

The outcome for the mother and fetus depends on the extent of the separation, amount of fetal hypoxia and amount of bleeding.

**The nurse should NEVER perform a vaginal or rectal examination or take any action that would stimulate uterine activity.**

**Placenta Previa**
During pregnancy, the placenta moves as the uterus stretches and grows. In early pregnancy, a low-lying placenta is very common, but as the pregnancy progresses, the growing uterus should "pull" the placenta toward the top of the uterus. In 1 out of 200 pregnancies, however, the placenta remains in the lower portion of the uterus, partly or completely covering the cervix. Placenta previa is more common in multiparous women (women who have had 2 or more pregnancies resulting in potentially viable offspring), multiple pregnancies and in cases of previous uterine scarring.

There are three different forms of placenta previa:

- **Marginal:** The placenta is against the cervix but does not cover the opening.
- **Partial:** The placenta covers part of the cervical opening.
- **Complete:** The placenta completely covers the cervical opening.

Diagnosis of placenta previa is confirmed on ultrasound exam. Most cases of placenta previa are identified by routine ultrasound during pregnancy.

**Risk Factors and Clinical Presentation of Placenta Previa**
Risk factors for the development of placenta previa include the following conditions:

- Previous cesarean section
- Uterine problems, such as fibroids
- Multiple pregnancy (two or more fetuses)
- Multiple previous full-term pregnancies
- Increasing age
- Smoking

The clinical presentation of placenta previa varies in severity depending on how much of the cervical opening is covered. The main symptom is painless bleeding from the vagina. This bleeding can range from light to very heavy. It usually occurs suddenly during late pregnancy. Anything that disrupts the placenta, such as sexual intercourse or digital exam of the vagina and cervix, may cause bleeding. The bleeding may be intermittent and associated with uterine cramping, or can be a sudden severe hemorrhage. Labor can start within days after heavy vaginal bleeding. In some cases, bleeding may not occur until after labor starts.

Spotting earlier in pregnancy may indicate placenta previa, but in most cases the placenta
safely moves away from the cervical opening by the time of delivery.

**Risk Factors and Clinical Presentation of Placenta Previa**
The main symptom of placenta previa is sudden, painless vaginal bleeding that often occurs near the end of the second trimester or beginning of the third trimester. The bleeding may be intermittent and associated with uterine cramping, or can be a sudden severe hemorrhage. Labor can start within days after heavy vaginal bleeding. In some cases, bleeding may not occur until after labor starts.

**Nursing Management of Placenta Previa**
The most important task in the management of placenta previa is the assessment of maternal fetal status and control of the bleeding.

Initiate strict bedrest in the left lateral position. Monitor vital signs at Q15 minute intervals while there is active bleeding, and hourly when stable. Intervene appropriately if any signs of shock are present. Assess uterine tone and contractions. Fetal heart rate monitoring should be continuous.

Maternal blood loss must also be closely monitored in terms of pad counts, pad weight, size and number of clots passed and maternal blood pressure. Depending on gestational age and maternal fetal stability and severity of bleeding, preparation for delivery may be necessary and the neonatal resuscitation team should be notified.

Commence fluid replacement with normal saline or Ringer's Lactate, until blood products arrive. Monitor intake and output. Insert urinary catheter if bleeding is severe, and prepare for blood transfusion.

The prognosis for placenta previa is better if the infant is more than 36 weeks old. However, there is an increased risk for infection, blood clots, and blood transfusions with placenta previa (Medline, 2009).

Prematurity (infant is less than 36 weeks gestation) causes most infant deaths in cases of placenta previa. Fetal blood loss or hemorrhage may occur because the placenta separates from the wall of the uterus during labor. The fetus also can lose blood when the uterus is opened during a C-section delivery.

**Lab investigations may include:**

1. CBC, Hgb, Hct
2. Coagulation Studies
3. Electrolytes, BUN, Creatinine levels
4. Group & cross match 2-4 units of packed red blood cells.

**Placenta Circumvallate**
Circumvallate placenta is essentially a ring of membranes on the fetal side of the placenta that is visible macroscopically. The edges of the membranes appear thickened and elevated, and curl up away from the placenta. It results when the chorionic plate or the fetal side of the placenta is smaller than the basal plate which is located on the maternal side.

Placenta circumvallate occurs in 1-2% of pregnancies, and can be associated with:

- Prematurity
- Prenatal bleeding
- Abruption
Multiparity

Early fluid loss (Benirschke K, Kaufmann P; 1990)

The characteristic thick ring of membranes on the fetal surface will typically have elevated edges, rather than edges that firmly attached the uterine surface. This increases the risk for an abruption, and can limit the nutritional supply to the fetus, since there is a smaller surface area of placenta attached to the uterine wall.

Placenta Circumvallate

It is important that the nurse recognize a placenta circumvallate as it is associated with a higher incidence of serious perinatal complications. Also, it is generally concluded that placentae with more than 50% circumvallation are associated with prematurity and under-weight (AllExperts.com, 2009).

A similar but thinner ring of membrane tissue on the fetal surface of the placenta is known as a circummarginate placenta. This type of placenta is probably of no clinical significance, although one study found an association between this structural anomaly and an increase in fetal malformations (Benirschke K, Kaufmann P; 1990).

Abnormal Placental Adhesions

On occasion, the placenta attaches too firmly to the uterine wall, causing excessive bleeding upon separation in the third stage of labor.

There are 3 main variants of the abnormal adhesion of the placenta to the uterine wall, namely:

- Placenta Accreta: The placenta attaches directly to the muscle of the uterine wall. This is the most common variation and is found in 75% of cases of abnormal placental attachment.
- Placenta Increta: The placenta actually extends or embeds into the muscle layer of the uterus. This occurs in about 17% of cases of abnormal placental attachment.
- Placenta Percreta: The placenta attaches right through the entire wall of the uterus, and is found in approximately 7% of cases.

The difference between placenta accreta, increta or percreta is determined by the severity of the attachment of the placenta to the uterine wall.

Placenta Accreta

Placenta Accreta occurs when the placenta attaches too deep in the uterine wall but it does not penetrate the uterine muscle. Placenta accreta is the most common variant, accounting for approximately 75% of all cases.

Statistics indicate that although placenta accreta was a rare occurrence in the past, it now has an alarming incidence of one in 2,500 deliveries (Hosler, E. 2002). The incidence of placenta accrete is on the rise primarily due to the dramatic increase in the number of cesarean sections. Any type of uterine surgery increases the maternal risk of developing placenta accrete with subsequent pregnancies. When placenta previa is present in a woman who had one previous cesarean section, the risk of placenta accrete increases to 30%, and...
jumps to 40% or more in women who have had more than one previous cesarean section (Hosler, E. 2002).

A cesarean delivery increases the possibility of a future placenta accreta, and the more cesareans, the greater the increase. Multiple cesareans were present in over 60% of placenta accreta cases.

**Placenta Accreta**

Risks of placenta accreta to the fetus:

Premature delivery and subsequent complications are the primary concerns for the baby. Bleeding during the third trimester may be a warning sign that placenta accreta exists, and this commonly results in a premature delivery.

Maternal risks of placenta accreta:

The placenta usually has difficulty separating from the uterine wall. The primary concern for the mother is hemorrhaging during manual attempts to detach the placenta. Severe hemorrhaging can be life threatening. Other potentially fatal complications include:

- Disseminating Intravascular Coagulation (DIC) and pulmonary embolism.
- Blood-transfusion complications such as transfusion reaction, fluid overload, infection and multiple organ failure.
- Surgery-associated morbidity including emergency hysterectomy, bowel injury, urethral trauma and bladder lacerations.

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When placenta accreta is diagnosed before birth, a caesarian section followed by a total abdominal hysterectomy may be planned in order to reduce blood loss and complications in the mother.

**Management of Placenta Acretta**

Hysterectomy is a common therapeutic intervention, but the results involve the loss of the uterus and the ability to conceive.

The majority of women with placenta accrete will have their uterus removed in an attempt to control the bleeding.

Statistics show that 10% of women with placenta accrete die of complications (Hosler, E. 2002).

**Placenta Increta**

Placenta increta occurs when the placenta further extends into the myometrium and happens in around 17% of all cases.

Although the abnormally deep adhesion of the placenta to the uterine wall is known to be associated with placenta previa and the presence of scar tissue from a prior caesarean section, recent research indicates that a thin decidua can also be a contributing factor to such trophoblastic invasion.

Some studies suggest that the rate of incidence is higher when the fetus is female (American
Placenta Percreta
Placenta percreta is the worst form of this condition and occurs in 5-7% of all cases involving abnormal adhesion of the placenta to the uterine wall.

In placenta percreta, the placenta penetrates the entire myometrium, through the serosal layer of the uterus. In other words, the placenta invades right through the entire uterine wall.

This variant can lead to the placenta attaching to other organs such as the rectum or bladder or potentially into any surrounding organ and tissue.

Nearly 14% of all cases of abnormal placental adhesion involve placenta percreta.

Placenta Percreta
Treatment for placenta percreta has primarily been surgical, with hysterectomy chosen as the treatment of choice in the vast majority of all cases.

The patient undergoing this procedure, as well as her family, needs a lot of support during this difficult time. It is often a women in the midst of her childbearing years, and it may be extremely difficult to accept that her ability to conceive will be permanently terminated. Most clients are expected to move slowly through the 5 steps of the Kübler-Ross grieving process before coming to terms with the loss of their uterus.

The nurse plays an important role in helping the patient and her family understand the emergent need for a hysterectomy, and supporting them through the surgical and recovery periods.

The Kübler-Ross model describes 5 discrete stages, through which people deal with grief and personal loss. The stages are: Denial, anger, bargaining, depression and acceptance.

Kübler-Ross recognizes that these steps do not necessarily come in the order noted above, nor are all steps experienced by all patients, though she has stated that a person will always experience at least two.

Conservative Management of Placenta Percreta
An alternative option to surgery is conservative pharmacological management of Placenta Percreta. Conservative management is especially desirable in the rare setting of the involvement of an adjacent organ, such as the bowel or bladder, because of the increased risk of uncontrollable hemorrhage. Chemotherapeutic agents, particularly methotrexate, have been used with success and transarterial catheter embolization has also been used successfully in the management of placenta percreta.

Methotrexate, formerly known as amethopterin, is an antimetabolite and antifolate drug used in treatment of cancer and some autoimmune diseases. In the management of placenta percreta, it is used to obliterate any viable placenta tissue that cannot be manually removed.

Transarterial catheter embolization (TACE) is an interventional radiology procedure which may be used to facilitate the delivery of Methotrexate to a localized region of the uterus. This
technique allows for the focused administration of this drug at a higher dose to the tissue, while simultaneously reducing systemic exposure, which is typically the dose limiting factor.

**Umbilical Cord Structure**

The umbilical cord begins to form at five weeks after conception. It becomes progressively longer until 28 weeks of pregnancy, reaching an average length of 22 to 24 inches. Typically, a cord ranges in length from 40 - 70 cms (Heifetz, S.A. 1996). As the cord gets longer, it generally coils around itself.

The cord should contain three blood vessels: two arteries and one vein. The vein carries oxygen and nutrients from the placenta to the fetus, and the two arteries transport waste from the fetus back to the placenta, for disposal by the maternal renal system.

A gelatin-like tissue called Wharton's jelly cushions and protects these blood vessels. The absence of Wharton's jelly predisposes the cord vessels to compression and could compromise fetal well being. In addition, the absence of Wharton's jelly has also been linked to congenital fetal abnormalities.

A short cord can be associated with fetal malformations, Down Syndrome and Oligohydramnios.

Conversely, a long cord has an increased risk of torsion, thromboses and knots.

**Umbilical Cord Anomalies: Two Vessel Cord**

A number of abnormalities can affect the umbilical cord. The cord may be too long or too short. It may connect improperly to the placenta or become knotted or compressed. Cord abnormalities can lead to problems during pregnancy or during labor and delivery.

In some cases, cord abnormalities are discovered before delivery during an ultrasound. However, they usually are not discovered until after delivery when the cord is examined directly.

It is important for the nurse to thoroughly examine the placenta and cord, and to count the number of vessels in the cord as soon after delivery as possible. As the cord dries out, the vessels become distorted, making them more difficult to identify.

The nurse must document the number of vessels present, as well as the presence of Wharton's jelly, the cord length and type of insertion into the placenta. Any abnormal findings, such as the absence of a cord vessel, should not only be documented but also brought to the immediate attention of the attending physician, as well as the neonatologist / pediatrician, who may decide to do some further investigations. The absence of one of the umbilical arteries has a 50% incidence of associated congenital cardiac and renal anomalies (Yetter, J. 1998).

**Umbilical Cord Anomalies: Velamentous Cord Insertion**

When assessing the umbilical cord, close attention must be paid to the point of insertion of the cord into the placenta. The umbilical cord typically inserts into the placenta near its center. About 90 % of cord insertions are central or eccentric. About 7% of umbilical
insertions occur at the placental margin, but these insertions are generally benign.

In about 1 percent of singleton fetuses, cord insertion is velamentous, and is associated with an increased risk of fetal hemorrhage, vascular compression and thrombosis.

Velamentous cord insertion is also associated with advanced maternal age, diabetes mellitus, smoking, a single umbilical artery and fetal malformations (Yetter, J. 1998).

**Umbilical Cord Anomalies: Velamentous Cord**
The vessels of the umbilical cord should enter the placenta directly before branching out. However, in the case of a velamentous cord, the vessels of the cord separate prematurely into smaller vessels within the membranes, before reaching the placenta. This form of cord insertion is found most frequently in multiple gestations and is most often associated with fetal abnormalities (Pillitteri, A. 2007).

The incidence of this condition is about 1% in singleton pregnancies and 8.7% in twin gestations.

These unprotected vessels may rupture at any time during pregnancy, causing fetal hemorrhage and death.

Although spontaneous rupture has been reported before labor, this occurs most often during amniotomy (intentional rupturing of the amniotic sac). Thus, it is extremely important for the nurse to first identify fetal and placental structures before inserting an instrument, such as an amnio hook or internal fetal scalp electrode.

**Umbilical Cord Anomalies: Vasa Previa**
The most significant clinical problem arising from a velamentous insertion of the umbilical cord is vasa previa, a dangerous condition in which the velamentous vessels traverse the fetal membranes below the presenting fetus. The vessels can actually cross over the cervical os and deliver before the fetus.

In addition, as labor progresses and the cervix dilates, the vessels may tear or rupture, resulting in sudden fetal blood loss.

The signs and symptoms of vasa previa are sudden, painless bleeding that coincides with the onset of cervical dilatation.

The diagnosis can be confirmed by ultrasound and if placenta previa is diagnosed, an emergency cesarean section must be performed.

**Placenta Previa:** The *placenta* implants into the lower portion of the uterus, partly or completely covering the cervix.

**Vasa Previa:** The *velamentous cord* vessels run close to the cervical os, and can hemorrhage when the membranes rupture.

Image of vasa previa. Note how the velamentous cord vessels traverse (run through) the fetal membranes.
**Umbilical Cord Anomalies: Cord Prolapse**
An umbilical cord prolapse is the protrusion of the cord alongside or ahead of the presenting part of the fetus. This condition occurs in 1 out of every 300 births, of which 3.7% are breech deliveries.

The risk of cord prolapse is greater when the fetal presenting part does not fit snugly into the lower uterine segment, and requires prompt recognition and intervention to achieve a positive outcome (March of Dimes, 2007).

Umbilical cord prolapse may be occult (hidden) or frank (visible). Frank prolapse is more common directly after rupture of membranes, when gravity pushes the cord downwards.

Risk factors for developing cord prolapse include lengthy cords, malpresentations (especially breech and transverse lie) and an unengaged presenting part.

Signs and symptoms of a prolapsed cord include:

- Fetal bradycardia with variable deceleration during uterine contractions.
- Maternal reports of 'feeling' or sensing the presence of the cord in the vagina after rupture of membranes.
- Cord is visible or tangible in the vagina.

**When a fetal presenting part does not fully occupy the lower uterus, the nurse should suspect a possible cord prolapse.**

**Nursing Management of a Prolapsed Cord**
Prompt recognition and management of a prolapsed cord is important to prevent fetal hypoxia from prolonged cord compression.

Help should be immediately summoned, and the pressure can be relieved by inserting two sterile gloved fingers into the vagina and lifting the presenting part off of the umbilical cord to relieve compression. A rolled towel should be placed under the mother's right or left hip to further relieve downward pressure on the cord. The mother should be positioned in modified Sims (left lateral position with the left leg extended and right leg flexed, and pillows to elevate hips), Trendelenburg (head lower than limbs) or knee-chest position to relieve pressure on the presenting part.

If the cord is visibly protuding from the vagina, the nurse should wrap the cord loosely in a sterile towel soaked in warm sterile normal saline, and oxygen should be administered by mask at 8-10 L/min until delivery is complete. IV fluids should be initiated, usually normal saline or Ringers Lactate.

Continuous assessment of maternal and fetal status is necessary to detect any changes and to evaluate the effectiveness of the interventions. Internal scalp electrode monitoring is advisable, if possible.

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If the cervix is fully dilated, immediate vaginal delivery can be initiated. If the cervix is not fully dilated, the nurse should prepare for cesarean section.

Critical Thinking Scenarios

Scenario 1:
Your patient is a 28 year old primiparous (A woman who has delivered her first child), presenting with a 39 week fetus in a transverse lie. She reports an unremarkable pregnancy, and started labor spontaneously 4 hours ago. Her membranes rupture spontaneously and you notice variable decelerations on the fetal monitor.

- You realize that this is a fetal emergency and suspect a diagnosis of: Click here for the answer.
- Select the most important nursing interventions. Click here for the answer.

Scenario 2:
Your 40 year old multiparous client is 36 weeks and presents at 4 cms dilation. She is coping well with contractions which are still 5 minutes apart, and lasting less than 30 seconds. Suddenly, she complains of a more intense, continuous and localized pain, low down on the uterus, which is extremely firm on palpation. There is no sign of bleeding but the fetal heart rate becomes difficult to auscultate. Maternal blood pressure drops sharply, and she becomes tachypnoeic. Her heart rate increases to 110 bpm. What do you suspect is happening? Click here for the answer.

Critical Thinking Scenarios

Scenario 3:
You are carefully examining the placenta after a spontaneous term vaginal delivery, and you notice that there is a thick ring of membranes present on the fetal surface of the placenta, and the edges of the membranes are elevated away from the placenta. What condition comes to mind, and what is the significance of this finding? Click here for the answer.

Scenario 4:
You are monitoring the progress of a Molly, who is in early labor and requests an epidural. Following the epidural, dilation progresses well, but she suddenly experiences a completely painless bright red vaginal bleed. Fetal movement decreases. What condition are you most concerned about? Click here for the answer.

Conclusion
An understanding of the normal anatomy and physiology of the placenta and umbilical cord is important for the nurse to master, in order to be able to identify significant abnormal findings.

A routine delivery can deteriorate at any time into an emergent situation. A knowledgeable nurse plays a major role in the early identification of potential problems and the timely coordination of interventions to ultimately achieve a positive outcome.

One of the Healthy People 2010 Maternal, Infant and Child Health objectives is the reduction of fetal and infant death. These National Health Goals address maternal and newborn
outcomes involving complications of labor and birth. These goals are highlighted in Healthy People 2010, and should be familiar to all nurses working in this field.

References


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