unit 5

Postpartum Period

chapter 15

Maternal Adaptation During the Postpartum Period

KeyTERMS

engorgement
engrossment
involution
lactation
letting-go phase
lochia
puerperium
taking-hold phase
taking-in phase
uterine atony

LearningOBJECTIVES

After studying the chapter content, the student should be able to accomplish the following:

1. Define the key terms.
2. Describe the systemic physiologic changes occurring in the woman after childbirth.
3. Identify the phases of maternal role adjustment as described by Reva Rubin.
4. Discuss the psychological adaptations occurring in the father after delivery.

WOW

A new mother's expectations are seen through rose-colored glasses.

At times, their fantasy is better than the reality.

The postpartum period covers a critical transitional time for a woman, her newborn, and her family on physiologic and psychological levels. The postpartum period begins after the delivery of the placenta and lasts for approximately 6 weeks.

This period, also known as the **puerperium,** generally encompasses the time after delivery as the woman's body begins to return to the prepregnant state until these changes resolve, generally by the sixth week after giving childbirth. However, the postpartum period can also be defined to include changes in all aspects of the mother's life that occur during the first year following the birth of her child. Some birth professionals feel the postpartum adjustment period lasts well into the first year, making the fourth phase of labor the longest.

This chapter describes the major physiologic and psychological changes that occur in a woman after childbirth. Various systemic adaptations take place throughout the woman's body systems. In addition, the mother and the family unit adjust to the new addition psychologically. The birth of a child changes the family structure and the roles of the family members. The adaptations are dynamic in nature and continue to evolve as physical changes occur and new roles emerge.

Maternal Physiologic Adaptations

During pregnancy, the woman's entire body system experienced changes to accommodate the needs of the growing fetus. After birth, the woman's body once again undergoes significant changes in all body systems to return her body to its prepregnant state.

Reproductive System Adaptations

The female reproductive system is unique in its capacity to remodel constantly throughout the woman's reproductive life. The events after birth, with the shedding of the placenta and subsequent uterine **involution,** involve substantial tissue destruction and subsequent repair and remodeling. For example, the woman's menstrual cycle, interrupted during pregnancy, will begin to return again several weeks after childbirth. The uterus, which has undergone tremendous expansion during pregnancy to accommodate progressive fetal growth, will now return to its prepregnant size over several weeks. In addition, the maternal breasts have grown to prepare for **lactation.** However, the breasts will not return to their prepregnant size as the uterus does.

The reproductive system goes through tremendous adaptations to return to the prepregnancy state. All organs and tissues of the reproductive system are involved.

Uterus

The uterus returns to its normal size through a gradual process of involution, which involves retrogressive changes that return it to its nonpregnant size and condition. Involution involves three retrogressive processes:

1. Contraction of muscle fibers to reduce those previously stretched during pregnancy
2. Catabolism, which reduces enlarged, individual myometrial cells
3. Regeneration of uterine epithelium from the lower layer of the decidua after the upper layers have been sloughed off and shed during **lochia** (Murray et al., 2006)

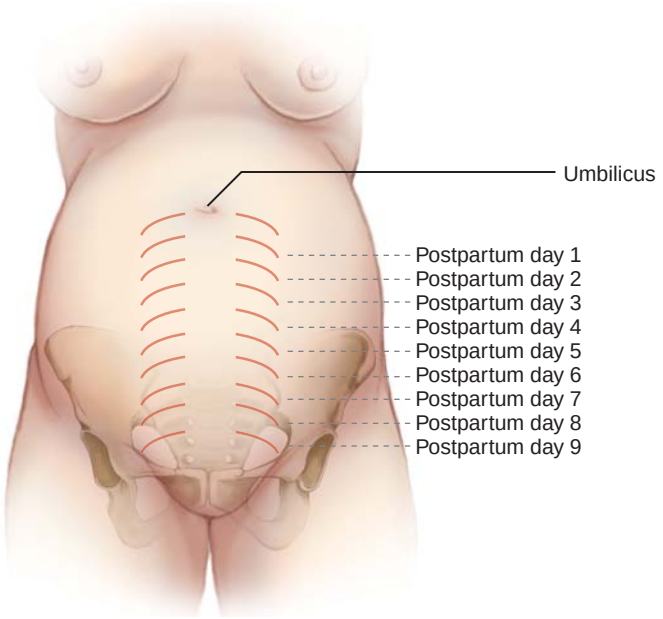
Uterine involution is fairly rapid. It requires massive remodeling of the extracellular matrix in association with cell proliferation as the uterus returns to the prepregnancy state. The uterus, which weighs approximately 1000 g (2.2 lb) soon after birth, undergoes physiologic involution in its return to its nonpregnant state. Approximately 1 week after birth, the uterus weights about 500 g (1 lb); at the end of six weeks, it weighs approximately 60 g (2 oz), about the weight before the pregnancy (Scoggin, 2004).

During the first 3 days postpartum, the endometrium is very thin with a variable amount of decidual tissue, which can be retained after labor. Within the first 2 weeks, a normal healing process appears to occur along with abundant shedding of lochia. From weeks 3 to 6, the endometrium appears to be inactive, resembling proliferative phase tissue and reflecting the completion of involution (Salamonsen, 2003).

During the first few days after birth, the uterus typically descends downward from the level of the umbilicus at a rate of 1 cm (1 finger breadth) each day. By the end of 10 days, the fundus of the uterus usually cannot be palpated because it descended into the true pelvis.

Within a week of birth, the uterus shrinks in size by 50%, and by 6 weeks has returned to its normal size (Lowdermilk & Perry, 2004; Fig. 15-1). If retrogressive changes do not occur as a result of retained placental fragments or infection, subinvolution results.

Factors that facilitate uterine involution include complete expulsion of amniotic membranes and placenta at birth, complication-free labor and birth process, breast-feeding, and early ambulation. Factors that inhibit involution include prolonged labor and difficult birth, incomplete expulsion of amniotic membranes and placenta, uterine infection, overdistention of uterine muscles



● Figure 15-1 Uterine involution.

(such as by multiple gestation, hydramnios, or large singleton fetus), full bladder (which displaces uterus and interferes with contractions), anesthesia (which relaxes uterine muscles), close childbirth spacing (frequent and repeated distention decreases tone and causes muscular relaxation), and anesthesia.

Lochia

Lochia refers to the discharge that occurs after birth. It results from involution, during which the superficial layer of the decidua basalis becomes necrotic and is sloughed off. Immediately after childbirth, lochia is bright red and consists mainly of blood, fibrinous products, decidual cells, and red and white blood cells. The lochia from the uterus is alkaline, but becomes acidic as it passes through the vagina. It could be equated with the amount occurring during a heavy menstrual period. The average amount of lochial discharge is 240 to 270 mL (8–9 oz)(Scoggin, 2004).

Women who have had cesarean births tend to have less flow because the uterine debris is removed manually along with delivery of the placenta. Lochia discharge is present in most women for at least 3 weeks after childbirth, but may persist in some women for as long as 6 weeks.

Lochia passes through three stages: lochia rubra, lochia serosa, and lochia alba. Lochia rubra is a deep-red mixture of mucus, tissue debris, and blood occurring for the first 3 to 4 days after birth. As uterine bleeding subsides, it becomes paler and more serous. Lochia serosa characterizes the second stage. It is pink to brown in color and is expelled 3 to 10 days postpartum. Lochia serosa primarily contains leukocytes, decidual tissue, RBCs, and serous fluid. Lochia alba is the final stage. The discharge is creamy white or light brown and consists of leukocytes, decidual tissue, and reduced fluid content. It occurs from days 10 to 14, but can last 3 to 6 weeks postpartum in some women and still be considered normal. Lochia at any stage should have a fleshy smell; an offensive odor usually indicates an infection, such as endometritis. A danger signal is the reappearance of bright-red blood after lochia rubra has stopped. Reevaluation by the woman's healthcare professional is essential if this occurs.

Afterpains

Part of the involution process involves uterine contractions. Subsequently, many women are frequently bothered by painful uterine contractions termed *afterpains*. All women experience afterpains, but they are more acute in multiparous women secondary to repeated stretching of the uterine muscles. This repeated stretching reduces muscle tone, allowing for alternate uterine contraction and relaxation. The uterus of a primiparous woman tends to remain contracted after giving birth unless she is breastfeeding; has experienced a prolonged, difficult labor and birth; or had an overdistended uterus secondary to multiple gestation, hydramnios, or has retained blood clots or placental fragments.

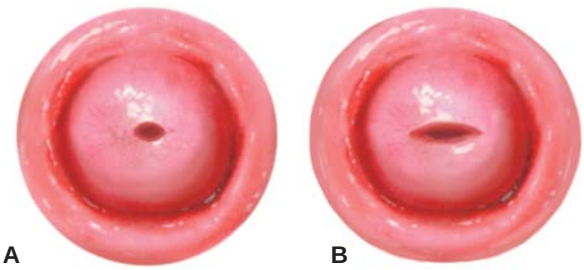
Afterpains are usually stronger during breast-feeding because oxytocin released by the sucking reflex strengthens uterine contractions. Mild analgesics can reduce this discomfort.

Cervix

The cervix typically returns to its prepregnant state by week 6 of the postpartum period. The cervix gradually closes but never regains its prepregnant appearance. Immediately after childbirth, the cervix is shapeless and edematous, and is easily distensible for several days. The cervical os gradually closes and returns to normal by 2 weeks, whereas the external os widens and never appears the same after childbirth. The external cervical os is no longer shaped like a circle, but instead appears as a jagged slit-like opening, often described as a "fish mouth" (Fig. 15-2).

Vagina

Shortly after birth, the vaginal mucosa is edematous and thin with few rugae. As ovarian function returns and as



● Figure 15-2 Appearance of the cervical os. (**A**) Before the first pregnancy. (**B**) After pregnancy.

estrogen production resumes, the mucosa thickens and rugae return in approximately 3 weeks. The vagina gapes at the opening and is generally lax. The vagina returns to approximate prepregnant size by 6 to 8 weeks postpartum, but will always remain a bit larger than it had been before pregnancy. Normal mucus production and thickening of the vaginal mucosa usually returns with ovulation (Lowdermilk & Perry, 2004). Ovulation can return as early as a month after childbirth in non–breast-feeding women, with a mean time frame of 3 months. The mean time to ovulation in breast-feeding women is approximately 6 months, but can vary greatly depending on breast-feeding patterns (Bowes & Katz, 2002).

Localized dryness and coital discomfort (dyspareunia) usually plague most women until menstruation returns. Water-soluble lubricants can reduce discomfort during intercourse. Box 15-1 lists some commonly available water-soluble lubricants.

Perineum

The perineum is often edematous and bruised for the first day or two after birth. If the birth involved an episiotomy or laceration, complete healing may take as long as 4 to 6 months in the absence of complications at the site, such as hematoma or infection (Blackburn, 2003). Perineal lacerations may extend into the anus and cause considerable discomfort for the mother attempting to defecate or ambulate. The presence of swollen hemorrhoids may also heighten discomfort. Local comfort measures such as ice packs, warm water over the area via a peribottle, witch hazel pads, anesthetic sprays, and sitz baths can be helpful to relieve pain.

Supportive tissues of the pelvic floor are stretched during the childbirth process. Restoring their tone may require as long as 6 months. Pelvic relaxation can occur in any woman experiencing a vaginal birth. Nurses can encourage all women to practice Kegel exercises to improve pelvic floor tone, strengthen the perineal muscles, and promote healing. Not maintaining and restoring perineal muscular tone can lead to urinary incontinence later in life for many women.

BOX 15-1

WATER-SOLUBLE LUBRICANTS

- Astroglide
- Aqua Lube Personal
- Devine No 9
- Emerita
- Eros
- ID Glide sensual lubricant
- JO water-based lubricant
- K-Y personal lubricant
- LifeStyles personal lubricant
- Liquid Silk
- Nature's Dew
- Pre-Seed Intimate
- Replens
- Slippery Stuff

Cardiovascular System Adaptations

The cardiovascular system undergoes dramatic changes after birth. During pregnancy, the heart is displaced slightly upward and to the left. This reverses as the uterus undergoes involution. Cardiac output remains high for the first few days postpartum and then gradually declines to nonpregnant values within 2 to 4 weeks of birth.

Blood volume, which has increased substantially during pregnancy, drops rapidly after birth and returns to normal within 4 weeks postpartum (Bridges et al., 2003). The decrease in both cardiac output and blood volume reflects the birth-related blood loss (an average of 500 mL with a vaginal birth and 1000 mL with a cesarean birth). Blood volume is further reduced through diuresis, which occurs during the early postpartum period (Bridges et al., 2003). Despite the decrease in blood volume, the hematocrit level remains relatively stable and may even increase, reflecting the predominant loss of plasma. Thus, an acute decrease in hematocrit is not an expected finding and may indicate hemorrhage.

Pulse and Blood Pressure

The increase in cardiac output during pregnancy begins to diminish after birth. This decrease in cardiac output is reflected in bradycardia (50–70 bpm) for the first two 2 weeks postpartum. This slowing of the heart rate is related to the increased blood that flows back to the heart and to the central circulation after it is no longer perfusing the placenta. This increase in central circulation brings about an increased stroke volume and allows a slower heart rate to provide ample maternal circulation. Gradually, cardiac output returns to prepregnant levels by 3 months after childbirth (Blackburn, 2003).

Tachycardia (>100 bpm) in the postpartum woman warrants further investigation. It may indicate hypovolemia, dehydration, or hemorrhage. However, because of the increased blood volume during pregnancy, a considerable loss may be well tolerated and not cause a compensatory cardiovascular response such as tachycardia. In most instances of postpartum hemorrhage, blood pressure and cardiac output remain increased because of the compensatory increase in heart rate. Thus, a decrease in blood pressure and cardiac output are not expected changes during the postpartum period. Early identification is essential to ensure prompt intervention.

Blood pressure values should be similar to those obtained during the labor process. In some women there may be a slight transient increase lasting for about a week

after childbirth (Bowes & Katz, 2002). A significant increase accompanied by headache might indicate preeclampsia and requires further investigation. A decreased blood pressure may suggest orthostatic hypotension or uterine hemorrhage.

Coagulation

Clotting factors that increased during pregnancy tend to remain elevated during the early postpartum period. Giving birth stimulates this hypercoagulability state further. As a result, these coagulation factors remain elevated for 2 to 3 weeks postpartum (Littleton & Engebretson, 2005). This hypercoagulable state, combined with vessel damage during birth and immobility, places the woman at risk for thromboembolism (blood clots) in the lower extremities and the lungs.

Urinary System Adaptations

Pregnancy and birth can have profound affects on the urinary system. During pregnancy, the GFR and renal plasma flow increase significantly. Both usually normalize by 6 weeks after birth.

Many women have difficulty with feeling the sensation to void after giving birth if they have received an anesthetic block during labor (which inhibits neural functioning of the bladder), or if they received oxytocin to induce or augment their labor (antidiuretic effect). These women will be at risk for incomplete emptying, bladder distention, difficulty voiding, bladder distention and urinary retention. In addition, urination may be impeded by

- Perineal lacerations
- Generalized swelling and bruising of the perineum and tissues surrounding the urinary meatus
- Hematomas
- Decreased bladder tone as a result of regional anesthesia
- Diminished sensation of bladder pressure as a result of swelling, poor bladder tone, and numbing effects of regional anesthesia used during labor (McKinney et al., 2005)

Difficulty voiding can lead to urinary retention, bladder distention, and ultimately, urinary tract infection (UTI). Urinary retention and bladder distention can cause displacement of the uterus from the midline to the right and can inhibit the uterus from contracting properly, which increases the risk of postpartum hemorrhage. Urinary retention is a major cause of **uterine atony,** which allows excessive bleeding. Frequent voiding of small amounts (<150 mL) suggests urinary retention with overflow, and catheterization may be necessary to empty the bladder to restore tone.

Postpartum diuresis occurs as a result of several mechanisms: the large amounts of IV fluids given during labor, a decreasing antidiuretic effect of oxytocin as its level declines, the buildup and retention of extra fluids during pregnancy, and a decreasing production of aldosterone—the hormone that decreases sodium retention and increases urine production (Littleton & Engebretson, 2005). All these factors contribute to rapid filling of the bladder within 12 hours of birth. Diuresis begins within 12 hours after childbirth and continues throughout the first week postpartum. Normal function returns within a month after birth (Mattson & Smith, 2004).

An inability to void leads to bladder overfilling and distention. The uterus, in turn, is displaced and unable to contract effectively (uterine atony). As a result, the uterine blood vessels do not compress, placing the woman at risk for hemorrhage.

ConsiderTHIS!

Have you ever felt like a real idiot by not being able to complete a simple task in life? I had a beautiful baby boy after only 6 hours of labor. My epidural worked well and I actually felt very little discomfort throughout my labor. Because it was in the middle of the night when they brought me to my postpartum room, I felt a few hours of sleep would be all I needed to accomplish anything. During an assessment early the next morning, the nurse found my uterus had shifted to the right from my midline and I was instructed to empty my bladder. I didn't understand why the nurse was concerned about where my uterus was located and, besides, I didn't feel any sensation of a full bladder. But I did get up anyway and tried to comply. Despite all the nurse's tricks of faucet water running for sound effects, in addition to having warm water poured over my thighs via the peri-bottle, I was unable to urinate. How could I not accomplish one of life's simplest tasks?

Thoughts: Women who receive regional anesthesia frequently experience reduced sensation to their perineal area and do not feel a full bladder. The nursing assessment revealed a displaced uterus secondary to a full bladder. What additional "tricks" can be used to assist this woman to void? What explanation should be offered to her regarding why she is having difficulty urinating?

Gastrointestinal System Adaptations

The GI system quickly returns to normal because the gravid uterus is no longer encompassing the abdominal cavity and producing pressure on the abdominal organs. Progesterone levels, which caused relaxation of smooth muscle during pregnancy and diminished bowel tone, also are declining. Bowel tone remains slow for several days after birth. Subsequently constipation is a common problem during the postpartum period.

Regardless of the type of delivery, most women experience sluggish bowels for several days after birth. Decreased peristalsis occurs in response to analgesic pain management, surgery, diminished intraabdominal pressure, low-fiber diet and insufficient fluid intake, and

diminished muscle tone. In addition, women with an episiotomy, perineal laceration, or hemorrhoids may fear pain or damage to the perineum with their first bowel movement, thereby attempting to delay it. A stool softener can be prescribed for this reason.

Most women are hungry and thirsty after childbirth, commonly related to restrictions imposed and energy expended during labor. Their appetite returns to normal immediately after giving birth. Anticipating the woman's need to replenish the body with food and fluids, and providing both soon after childbirth, are important.

Musculoskeletal System Adaptations

The effects of pregnancy on the muscles and joints vary widely. During pregnancy, the hormones relaxin, estrogen, and progesterone relax the joints. After birth, these hormones decline, resulting in a return of all joints to their prepregnant state, with the exception of the woman's feet. Parous women will note a permanent increase in their shoe size (Lowdermilk & Perry, 2004).

Woman commonly experience fatigue, activity intolerance, and have a distorted body image for weeks after birth secondary to declining relaxin and progesterone levels, which cause hip and joint pain that interferes with ambulation and exercise. Good body mechanics and correct position are important during this time to prevent low back pain and injury to the joints. Within 6 to 8 weeks after delivery, joints are completely stabilized and return to normal.

During pregnancy, stretching of the abdominal wall muscles occurs to accommodate the enlarging uterus. This stretching leads to a loss in muscle tone and possibly separation of the longitudinal muscles (rectus abdominis muscles) of the abdomen. Separation of the rectus abdominis muscles is called *diastasis recti* and is more common in women who have poor abdominal muscle tone before pregnancy. After birth, muscle tone is diminished and abdominal muscles are soft and flabby. Specific exercises are necessary to help the woman regain muscle tone. If rectus muscle tone is not regained through exercise, support may not be adequate during future pregnancies. Fortunately, diastasis responds well to exercise, and abdominal muscle tone can be improved (see Chapter 16 for more information about exercises to improve muscle tone).

Integumentary System Adaptations

Another system that experiences lasting effects of pregnancy is the integumentary system. As estrogen and progesterone levels decrease, the darkened pigmentation demonstrated on the abdomen (linea nigra), face (melasma), and nipples gradually fades. Some women experience hair loss during pregnancy and postpartum periods. Approximately 90% of hair is growing at any one time, with the other 10% entering a resting phase. Because of the high estrogen levels present during pregnancy, an increased number of hairs go into the resting phase, which is part of the normal hair loss cycle. The most common period of hair loss occurs within 3 months after birth, when estrogen returns to normal levels and more hair is allowed to fall out. This hair loss is temporary, and regrowth generally returns to normal levels in 6 to 12 months (Ladewig, London, & Davidson, 2006).

Striae gravidarum (stretch marks) developed during pregnancy on the breasts, abdomen, and hips gradually fade to silvery lines. However, these lines do not disappear completely. Although many products on the market claim to make stretch marks disappear, the actual effectiveness of these products is highly questionable.

The profuse diaphoresis (sweating) that is common during the early postpartum period is one of the most noticeable adaptations in the integumentary system. Many women will wake up drenched with perspiration during the puerperium. This postpartal diaphoresis is a mechanism to reduce the fluids retained during pregnancy and restore prepregnant body fluid levels. It can become profuse at times. It is common, especially at night during the first week after birth. Reassure the client that this is normal and encourage her to change her gown to prevent chilling.

Respiratory System Adaptations

Respirations usually remain within the normal adult range of 16 to 24 breaths per minute. As the abdominal organs resume their nonpregnant position, the diaphragm returns to its usual position. Anatomic changes in the thoracic cavity and rib cage caused by increasing uterine growth change quickly. As a result, discomforts such as shortness of breath and rib aching are relieved. Tidal volume, minute volume, vital capacity, and functional residual capacity return to prepregnant values, typically within 1 to 3 weeks of birth (Matteson, 2001).

Endocrine System Adaptations

The endocrine system undergoes several changes rapidly after birth. Levels of circulating estrogen and progesterone drop quickly with delivery of the placenta. Decreased estrogen levels are associated with breast **engorgement** and with the diuresis of excess extracellular fluid accumulated during pregnancy (Ladewig, London, & Davidson, 2006). Estrogen is at its lowest level a week after birth. For the nonbreast-feeding woman, estrogen levels begin to increase by 2 weeks after birth. For the breast-feeding woman, estrogen levels remain low until breast-feeding frequency decreases.

Other placental hormones (hCG, hPL, progesterone) decline rapidly after birth. hCG levels are nonexistent at the end of the first postpartum week and hPL is undetectable within 1 day after birth (Mattson & Smith, 2004). Progesterone levels are undetectable by 3 days after childbirth, and production is reestablished with the first menses. Prolactin levels decline within 2 weeks for the nonbreast-

feeding mother and remain elevated for the lactating woman (McKinney et al., 2005).

Lactation

Lactation is the secretion of milk by the breasts. It is thought to be brought about by the interaction of progesterone, estrogen, prolactin, and oxytocin. Breast milk typically appears 3 days after childbirth.

During pregnancy, the breasts increase in size and functional ability in preparation for breast-feeding. Within the first month of gestation, the ducts of the mammary glands grow branches, forming more lobules and alveoli. These structural changes make the breasts larger, more tender, and heavy. Each breast gains nearly 1 lb in weight by term, the glandular cells fill with secretions, blood vessels increase in number, and there are increased amounts of connective tissue and fat cells (Sloane, 2002).

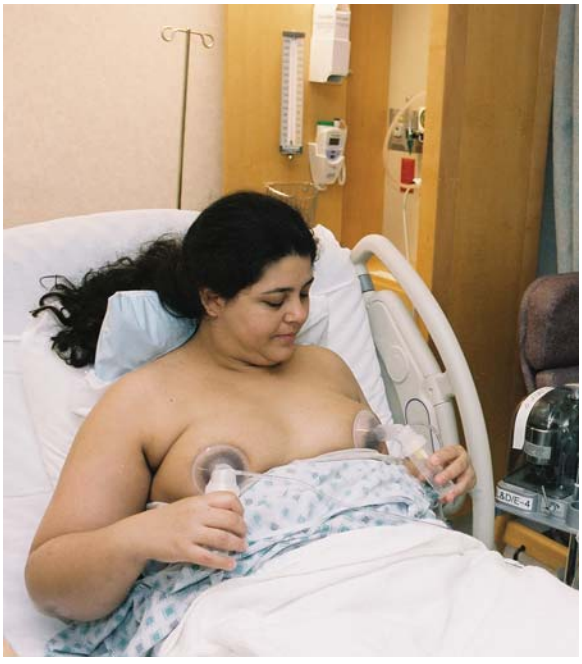
Prolactin from the anterior pituitary gland, secreted in increasing levels throughout pregnancy, triggers synthesis and secretion of milk after giving birth. During pregnancy, prolactin, estrogen, and progesterone cause synthesis and secretion of colostrum, which contains protein and carbohydrate, but no milk fat. It is only after birth takes place, when the high levels of estrogen and progesterone are abruptly withdrawn, that prolactin is able to stimulate the glandular cells to secrete milk instead of colostrum. This takes place within 2 to 3 days after giving birth. Oxytocin acts so that milk can be ejected from the alveoli to the nipple. Therefore, sucking by the newborn will release milk. Prolactin levels increase in response to nipple stimulation during feedings. Prolactin and oxytocin result in milk production if stimulated by sucking (Sloane, 2002)(Fig. 15-3). If the stimulus (sucking) is not present, as with a non–breast-feeding mother, breast engorgement and potential milk production will subside within 2 to 3 days postpartum.

Typically, during the first 2 days after birth, the breasts are soft and nontender. The woman also may report a tingling sensation occurring in both breasts. After this time, breast changes depend on whether the mother is breast-feeding or taking measures to prevent lactation.

Engorgement is the process of swelling of the breast tissue as a result of an increase in blood and lymph supply as a precursor to lactation (O'Toole, 2003). Breasts increase in vascularity and swell in response to prolactin 2 to 4 days after birth. If engorged, the breasts will be hard and tender to touch. They are temporarily full, tender, and very uncomfortable until the milk supply is ready. Frequent emptying of the breasts helps to minimize discomfort and resolve engorgement. Standing in a warm shower or applying warm compresses to the breasts may provide some relief. To maintain milk supply, the breasts need to be stimulated by a nursing infant, a breast pump, or manual expression of the milk (Fig. 15-4).

If the woman is not breast-feeding, relief measures include wearing a tight, supportive bra 24 hours daily,

● Figure 15-3 Physiology of lactation.



● Figure 15-4 Mother using breast pumps to stimulate milk production.

applying ice to her breasts for approximately 15 to 20 minutes every other hour, and not stimulating the breasts by squeezing or manually expressing milk from the nipples. In addition, avoiding exposing the breasts to warmth (e.g., hot shower water) will help relieve breast engorgement. Nonbreast-feeding engorgement typically subsides within 2 to 3 days with these measures.

Ovulation and Return of Menstruation

A series of changing hormone levels constantly interacts with one another to produce bodily changes. Four major hormones affect the postpartum period: estrogen, progesterone, prolactin, and oxytocin. Estrogen is the major female hormone during pregnancy, but it drops profoundly at birth and reaches its lowest level a week into the postpartum period. Progesterone quiets the uterus to prevent a preterm birth during pregnancy, and its increasing levels during pregnancy prevent lactation from starting before birth takes place. As with estrogen, progesterone levels decrease dramatically after birth and are undetected 72 hours after childbirth. Progesterone levels are reestablished with the first menstrual cycle (Behnke, 2003).

During the postpartum period, oxytocin stimulates the uterus to contract during the breast-feeding session and for as long as 20 minutes after each feeding. Oxytocin also acts on the breast by eliciting the milk let-down reflex during breast-feeding. Prolactin is also associated with the breast-feeding process by stimulating milk production. In women who breast-feed, prolactin levels remain elevated into the sixth week after birth (Bowes & Katz, 2002). The levels of the hormone increase and decrease in proportion to nipple stimulation. Prolactin levels decrease in nonlactating women, reaching the prepregnant levels by the third postpartum week (Bowes & Katz, 2002). High levels of prolactin have been found to delay ovulation by inhibiting ovarian response to FSH (Too, 2003).

Lactating and nonlactating women differ considerably in the timing of their first menses and ovulation after birth. For nonlactating women, menstruation usually resumes 7 to 9 weeks after giving birth, with the first cycle being anovulatory (Sloane, 2002). The return of menses in the lactating woman depends on breast-feeding frequency and duration. It can return anytime from 2 to 18 months after childbirth, depending on whether the breast-feeding mother is exclusively breast-feeding or supplementing with formula. The first postpartum menses may be heavier than prepregnant ones and are frequently anovulatory (Youngkin & Davis, 2004). However, ovulation may occur before menstruation; therefore, breast-feeding is not a reliable method of contraception. Other methods of family planning need to be used to control fertility (Alexander et al., 2004).

Psychological Adaptations

Mothers' and fathers' experiences of pregnancy are necessarily different, and this difference continues after childbirth as they both adjust to their new parenting roles. Parenting involves caring for infants physically and emotionally to foster the growth and development of responsible, caring adults. During the early months of parenthood, mothers experience more life changes and get more satisfaction from their new roles than fathers. However, fathers interact with their newborns much like mothers (Buist et al., 2003). Early parent–infant contact after birth improves attachment behaviors. Other members of the newborn's family unit, such as siblings and grandparents, also experience changes related to the birth of the newborn. Chapter 16 describes these changes.

Maternal Adaptations

The woman experiences a variety of responses as she adjusts to a new family member, postpartum discomforts, changes in her body image, and the reality of change within her life. In the early 1960s, Reva Rubin (1984) identified three phases that a mother goes through to adjust to her new maternal role. Rubin's maternal role framework can be used to monitor the client's progress as she "tries on" her new role as a mother. Absence of these processes or inability to progress through the phases satisfactorily may impede the appropriate development of the maternal role (Rubin, 1984). Although Rubin's maternal role development theories are of value, some of her observations regarding the length of each phase may not be completely relevant for the contemporary woman of the 21st century. Today, many women know their infant's gender, have "seen" their fetus in utero through four-dimensional ultrasound, and have a working knowledge of childbirth and child care. They are less passive than in years past and progress through the phases of attaining the maternal role at a much faster pace than Rubin would have imagined. Still, Rubin's framework is timeless for assessing and monitoring expected role behaviors when planning care and appropriate interventions.

Taking-In Phase

The **taking-in phase** is the time immediately after birth when the client needs sleep, depends on others to meet her needs, and relives the events surrounding the birth process. This phase is characterized by dependent behavior. During the first 24 to 48 hours after giving birth, mothers often assume a very passive role in meeting their own basic needs for food, fluids, and rest, allowing the nurse to make decisions for them concerning activities and care. They spend time recounting their labor experience to anyone who will listen. Such actions help the mother integrate the birth experience into reality—that is, the pregnancy is over and the newborn is now a unique individual, separate from herself. When interacting with the newborn, new mothers spend time claiming the newborn and touching them, commonly identifying specific features in the newborn, such as "he has my nose" or "his fingers are long like his father's" (Fig. 15-5). This phase

● Figure 15-5 Mother bonding with newborn during the taking-in phase.

typically lasts 1 to 2 days and may be the only phase observed by nurses in the hospital setting because shortened postpartum stays are the norm today.

Taking-Hold Phase

The **taking-hold phase** is the second phase of maternal adaptation, characterized by dependent and independent maternal behavior. This phase typically starts on the second to third day postpartum and may last several weeks.

As the client regains control over her bodily functions during the next few days, she will be *taking hold* and becoming preoccupied with the present. She will be particularly concerned about her health, the infant's condition, and her ability to care for him or her. She demonstrates increased autonomy and mastery of her own body's functioning, and a desire to take charge with support and help from others. She will show independence by caring for herself and learning to care for her newborn, but she still requires assurance that she is doing well as a mother. She expresses a strong interest in caring for the infant by herself.

Letting-Go Phase

The **letting-go phase** is the third phase of maternal adaptation, occurring later in the postpartum period when the woman reestablishes relationships with other people. She adapts to parenthood through her new role as a mother. She assumes the responsibility and care for the newborn with a bit more confidence now (Engstrom, 2004). The focus of this phase is to move forward by assuming the parental role and to separate herself from the symbiotic relationship that she and her newborn had during pregnancy. She establishes a lifestyle that includes the infant. The mother relinquishes the fantasy infant and accepts the real one.

Paternal Adaptations

For men, becoming a parent can be a perplexing time as well as a time for great social change. The transition to fatherhood is influenced by many factors, including participation in childbirth, relationships with significant others, competence in child care, the family role organization, the father's cultural background, and the method of infant feeding. Most research findings stress the importance of early contact for father and newborn, as well as participation in infant care activities to foster that relationship (Matteson, 2001). Infants have a powerful effect on their fathers, who become intensely involved with them (Fig. 15-6). The father's developing bond to his newborn—a time of intense absorption, preoccupation, and interest—is called **engrossment.** Engrossment is characterized by seven behaviors:

1. *Visual awareness of the newborn*—the father perceives the newborn as attractive, pretty, or beautiful
2. *Tactile awareness of the newborn*—the father has a desire to touch or hold the newborn and feels this activity as pleasurable to himself
3. *Perception of the newborn as perfect*—the father does not "see" any imperfections
4. *Strong attraction to the newborn*—the father focuses all attention on the newborn when he is in the room
5. *Awareness of distinct features of the newborn*—the father can distinguish his newborn from others in the nursery
6. *Extreme elation*—the father feels a "high" after the birth of his child
7. *Increased sense of self-esteem*—the father feels proud, bigger, more mature, and older after the birth of his child (Greenberg & Morris, 1974)

Similar to mothers, fathers also go through a predictable three-stage process during the first 3 weeks as

● Figure 15-6 Engrossment of the father and his newborn.

they too "try on" their roles as fathers. The three stages include expectations, reality, and transition to mastery (Henderson & Brouse, 1991).

Stage 1: Expectations

New fathers pass through stage 1 (expectations) with preconceptions about what home life will be like with a newborn. Many men may be unaware of the dramatic changes that can occur when this newborn comes home to live with them. For some, it is an "eye-opening" experience.

Stage 2: Reality

Stage 2 (reality) occurs when fathers realize that their expectations in stage 1 are not realistic. Their feelings change from those of elation to sadness, ambivalence, jealousy, and frustration. Many wish to be more involved in the newborn's care and yet do not feel prepared to do so. Some find parenting fun, but at the same time feel they are not fully prepared to take on that role.

Stage 3: Transition to Mastery

Stage 3 (transition to mastery) describes a father who makes a conscious decision to take control and be at the center of his newborn's life regardless of his preparedness. This adjustment period is similar to that of the mother's letting-go phase when she incorporates the newest member into the family unit.

Frequently, fathers are portrayed as well meaning, but bumbling, when caring for newborns. Fathers have their own unique way of relating to their newborns and can become as nurturing as mothers. A father's nurturing responses may be less automatic and slower to unfold than a mother's, but fathers are capable of a strong bonding attachment to their newborns (Sears, 2004). Encouraging fathers to express their feelings, by seeing, touching, and holding their son or daughter; and by cuddling, talking to, and feeding will help to cement this new relationship. Reinforcement of this engrossing behavior helps fathers to facilitate a positive attachment during this critical period.

KEY CONCEPTS

- The postpartum period or puerperium refers to the first 6 weeks after delivery. During this period, the mother experiences many physiologic and psychological adaptations to return her to the prepregnant state.
- Involution involves three processes: contraction of muscle fibers to reduce stretched ones, catabolism (which reduces enlarged, individual cells), and regeneration of uterine epithelium from the lower layer of the decidua after the upper layers have been sloughed off and shed in lochia.
- Lochia passes through three stages: lochia rubra, lochia serosa, and lochia alba during the postpartal period.
- Maternal blood volume decreases rapidly after birth and returns to normal within 4 weeks postpartum.
- Reva Rubin (1984) identified three phases the mother goes through to adjust to her new maternal role. The phases of maternal postpartum adjustment are taking in, taking hold, and letting go.
- The transition to fatherhood is influenced by many factors, including participation in childbirth, relationships with significant others, competence in child care, the family role organization, the father's cultural background, and the method of infant feeding.
- Similar to mothers, men go through a predictable three-stage process during the first 3 weeks as they too "try on" their roles as fathers. The three stages include expectations, reality, and transition to mastery.

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Web Resources

American College of Nurse-Midwives, **www.midwife.org**
Association for Perinatal Psychology and Health, **www.birthpsychology.com**
Association of Maternal & Child Health Programs, **www.amchpl.org**
Center for Postpartum Health, **www.postpartumhealth.com**
Depression after Delivery, **www.depressionafterdelivery.com**
Home-Based Working Moms (HBWM), **www.hbwm.com**
International Lactation Consultants Association, **www.ilca.org**
La Leche League, **www.lalecheleague.org**
Midwifery Today, Inc., **www.midwiferytoday.com**
National Center for Fathering, **www.fathers.com**
National Parenting Center, **www.tnpc.com**
National Women's Health Information Center, **www.4women.gov**
Parenthood Web, **www.parenthoodweb.com**
Parenting Q & A, **www.parenting-qa.com**
Parents Anonymous, Inc., **www.parentsanonymous.org**
Parents Helping Parents, **www.php.com**
Postpartum Support International, **www.chss.iup.edu/postpartum/**

Chapter WORKSHEET

MULTIPLE CHOICE QUESTIONS

1. The nurse understands that postpartal breast engorgement occurs 48 to 72 hours after giving birth as a result of an increase in

   a. Blood and lymph supply

   b. Estrogen and progesterone levels

   c. Colostrum production

   d. Fluid retention in the breasts

2. In the taking-in maternal role phase described by Rubin (1984), the nurse would expect the woman's behavior to be characterized as which of the following?

   a. Gaining self confidence

   b. Adjusting to her new relationships

   c. Being passive and dependent

   d. Resuming control over her life

3. The nurse is explaining to a postpartal woman that the afterpains she is experiencing are as a result of

   a. Manipulation of the uterus during labor

   b. A large infant weighing more than 8 lb

   c. Pregnancies that were too closely spaced

   d. Contractions of the uterus after birth

4. The nurse would expect a postpartal woman to demonstrate lochia in which sequence?

   a. Rubra, alba, serosa

   b. Rubra, serosa, alba

   c. Serosa, alba, rubra

   d. Alba, rubra, serosa

5. One of the mothers on the postpartum unit asks the nurse why she is sweating so much since giving birth to her baby. The nurse replies that profuse diaphoresis occurs because her body is

   a. Starting the lactation process

   b. Ridding her body of the pain medications

   c. Restoring her prepregnant fluid levels

   d. Signaling an infectious process

CRITICAL THINKING EXERCISES

1. A new nurse assigned to the postpartum mother–baby unit makes a comment to the oncoming shift that Ms. Griffin, a 25-year-old primipara seems lazy and shows no initiative in taking care of herself or her baby. The nurse reported that Ms. Griffin talks excessively about her labor and birth experience, and seems preoccupied with herself and her needs, and not her newborn's care. She wonders if something is wrong with this mother because she seems so self-centered and has to be directed to do everything.

   a. Is there something "wrong" with the Ms. Griffin's behavior?

   b. What maternal role phase is being described by the new nurse?

   c. What role can the nurse play to support the mother through this phase?

2. Mrs. Lenhart, a primipara, gave birth to a healthy baby boy yesterday. Her husband John seemed elated at the birth, calling his friends and family on his cell phone minutes after the birth. He passed out cigars and praised his wife for her efforts. Today, when the nurse walked into their room, Mr. Lenhart seemed very anxious around his new son and called for the nurse whenever the baby cried or needed a diaper change. He seemed standoffish when asked to hold his son and he spent time talking to other fathers in the waiting room, leaving his wife alone in the room.

   a. Would you consider Mr. Lenhart's paternal behavior to be normal at this time?

   b. What might Mr. Lenhart be feeling at this time?

   c. How can the nurse help this new father adjust to his new role?

STUDY ACTIVITIES

1. Find an Internet resource that discusses general postpartum care for new mothers who might have questions after discharge.
2. Prepare a teaching plan for new mothers outlining the various physiologic changes that will take place after discharge.
3. The term that describes the return of the uterus to its prepregnant state is _____.
4. A deviated fundus to the right side of the abdomen would indicate a _____.