THE THIRD STAGE OF LABOR

Introduction

The third stage of labor begins when the baby has been completely delivered and ends when the placenta has been expelled. This generally brief period of time is fraught with hazards including excessive blood loss, retained placenta, uterine inversion and major pelvic lacerations. During this time the mother requires the full attention of the delivery team in order to prevent, or to rapidly correct, any problems that may arise. Needed equipment must be ready, assistance available if needed, and a large bore IV running.

Steps in the Conduct of the Third Stage

- The baby's airway is cleared and the cord clamped and cut near the perineum.
- Blood pressure and pulse are checked and reported.
- Signs of placental separation occur usually within 3-5 minutes of delivery but may take up to 30 minutes:
  - The uterus becomes globular in shape
  - There may be a gush of blood
  - The uterus rises as it is displaced upward by the separated placenta
  - The cord "lengthens".
- The placenta is delivered to the introitus and then should be supported during its expulsion in order to prevent tearing and retention of the membranes.

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Expression of the placenta. Note that the hand is not trying to push the fundus of the uterus through the birth canal! As the placenta leaves the uterus and enters the vagina, the uterus is elevated by the hand on the abdomen (arrow) while the cord is held in position. The mother can aid in the delivery of the placenta by bearing down. As the placenta reaches the perineum the cord is lifted, which, in turn, lifts the placenta out of the vagina. Adherent membranes are eased away from thin attachments so as to prevent their being torn off and retained in the birth canal.

Cunningham FG, Gant NF, Leveno KJ, Gilstrap LC 3rd, Hauth JC, Nenstrom KD. Williams obstetrics. 1st ed. New York(NY):McGraw-Hill;2001. (Level III) *Note that the placenta should not be delivered by traction alone or in combination with downward pressure on the uterine fundus (Crede maneuver).*

- 20 units/liter of oxytocin should then be added to the IV (D5 RL or D5 1/2NS) and infused at a moderate rate. Bolus oxytocin IV should not be given. Alternatively, oxytocin infusion can be initiated after delivery of the anterior shoulder.
- Uterine massage should be initiated until the uterus firms.
- The placenta should be inspected, followed by careful inspection of the vagina and cervix.
- Following repair of an episiotomy or lacerations the vagina should be inspected again for any remaining gauze sponges and a rectal examination performed for any occult lacerations or sutures.

Manual Removal of the Placenta

If the placenta has not been expelled within a reasonable period of time (usually 30 minutes, sooner if brisk bleeding is noted), manual removal should be performed. Additional anesthesia or analgesia may be required and, of course, clean sterile gloves used. Antibiotics are not typically necessary.

- The cord is held taut with the left hand while the right hand follows it to the fetal surface of the placenta.
- An assistant's hand stabilizes the fundus while the fingers of the internal hand seek a plane of separation along the placental margin.
- The placenta is then separated by a sweeping or sawing motion of the hand until it has been fully separated, and then it is slowly withdrawn after awaiting contraction of the uterus over the exploring hand.
- The placenta, vagina, and cervix all should then be carefully examined. Reinspection of the vagina and cervix is indicated if bleeding persists in the presence of a firmly contracted uterus.

THE RECOVERY PERIOD AND THE RISK FOR POSTPARTUM HEMORRHAGE

Recovery

The recovery period of 1-4 hours postpartum requires close and careful observation of the mother. Uterine relaxation leading to postpartum hemorrhage occurs most frequently during this first hour, and often the relaxation is silent, with little external bleeding but with a massive accumulation of blood and clots within the uterine cavity. Therefore, frequent palpation of the fundus is essential. The IHS Manual states, "every patient is to be kept under the constant observation of an experienced nurse or physician during the first hour postpartum. Blood pressure, pulse, condition of the uterus, and degree of bleeding shall be recorded at least every 15 minutes during the first hour."

Postpartum Hemorrhage

Postpartum hemorrhage is classically defined as blood loss in excess of 500 mL during the first 24 hours after birth, even though the measured blood loss after an uncomplicated vaginal delivery averages approximately 600 mL. The most recent ACOG Educational Bulletin defines postpartum hemorrhage as either a 10% change in hematocrit between admission and the postpartum period or a need for erythrocyte transfusion. Based on these definitions, vaginal delivery has been associated with a 3.9% incidence of postpartum hemorrhage. Postpartum hemorrhage is the most common cause of serious blood loss in obstetrics. Studies of maternal deaths indicate that there is a tendency to grossly underestimate the volume of blood loss at delivery.

- The average interval between delivery and maternal death was 5-1/3 hours.
- The minimum time from delivery to death from hemorrhage was 1-1/2 hours, which

indicates that there should generally be adequate time for effective resuscitative therapy.

The causes for postpartum hemorrhage and their risk factors are as follows:

Atony	•	Uterine overdistension (twins, macrosomia, polyhydramnios)
	•	Rapid/prolonged labor
	•	Medications ($MgSO_4$)
	•	Previous episode
	•	Preeclampsia
	•	Oxytocin use during labor
Trauma	•	Operative delivery
	•	Macrosomia
	•	Precipitous labor
	•	Episiotomy
Coagulo	•	Abruptio placenta
-pathy	•	Preeclampsia
	•	Fetal demise
	•	Preexisting medical condition
Retained	•	Abnormally adherent (e.g., placenta accreta)
placenta	•	Succenturiate lobe
Uterine	•	Abnormally adherent
inversion	•	Mismanagement of third stage
Uterine	•	Prior uterine surgery
rupture	•	Fetal malpresentation (e.g., transverse lie)
	•	Markedly overdistended uterus
	•	Grand multiparity
	•	Oxytocin use during labor

It is important to understand that up to 50% of postpartum hemorrhage occurs in patients without identifiable risk factors. Therefore one must be prepared to identify and manage postpartum hemorrhage in all patients.

Management of Postpartum Hemorrhage

When bleeding persists despite the careful conduct of the third stage of labor, several steps are required, and these must be performed rapidly and effectively in order to minimize any additional risk to the mother.

- Bimanual compression of the uterus will control most hemorrhage due to atony and is performed by inserting one hand into the vagina and compressing the uterus against the vaginal hand with the abdominal hand. Massage of the posterior wall of the uterus with the abdominal hand and of the anterior wall with the vaginal fist, together with the continued administration of oxytocin, should successfully arrest the bleeding.
- If bleeding persists additional agents should be used. Methylergonovine maleate (methergine), 0.2 mg IM (contraindication: hypertension), or 15-methyl prostaglandin F2 (Hemabate), 250 mcg IM (contraindication: asthma), should be immediately available in all labor and delivery units. Misoprostol has also been reported to be successful in cases of persistent uterine atony.
- Obtain additional help if the bleeding persists. Upon consultation with a high-risk specialist, transport to a facility with surgical capability may be necessary. A clinical feature of

immediate postpartum hemorrhage is the failure of the pulse and blood pressure to undergo more than moderate changes until large amounts of blood have been lost. Suddenly, the strained compensatory functions can no longer be maintained, and then the pulse rate increases, blood pressure falls, and the patient is rapidly in shock.*

- Transfuse blood as needed.
- Reexplore the vagina and cervix for lacerations, which should be sutured after achieving adequate exposure with assistance as needed.
- Consider manual exploration or curettage of the uterus to rule out retained placental fragments as a cause of bleeding.
- If an *inversion of the uterus* is found, it is often the result of excessive cord traction, a fundally inserted placenta and pressure on the uterine fundus. This *true obstetric emergency* can rapidly lead to massive hemorrhage, circulatory collapse, and death. **Successful management requires early recognition of the inversion and prompt replacement of the uterus, followed by vigorous use of oxytocin so that the uterus remains firm. Occasionally, administration of a smooth muscle relaxant (terbutaline, 0.25 mg subcutaneously) may be useful to enable one to replace the uterus. If immediate replacement is not possible, aggressive support of circulation by blood transfusion and intravenous fluid during rapid transport to the nearest facility with operative obstetrics capability is urgently indicated.** *

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CONDUCT OF THE NORMAL POSTPARTUM COURSE

Reproductive System Changes

The reproductive system undergoes a number of changes after delivery:

- The uterus returns to being a pelvic organ within 8-10 days after delivery and undergoes complete involution to its nonpregnant size in 5-6 weeks.
- The cervix is a flaccid, collapsed structure immediately after delivery. The internal os closes by 5-6 weeks after delivery but the external os does not completely return to a never-pregnant appearance.
- The vaginal rugae reappear in 2-3 weeks.
- The pattern of the lochia changes progressively from:

  Rubra 1-3 days postpartum, to

  Serosa 3-10 days postpartum, to

  Alba 10 days postpartum.
- The vulva becomes smaller but remains more flaccid than prior to the pregnancy. Generally any sutures dissolve within 3-4 weeks.

These features of the process of involution must be considered during the daily assessments of the early postpartum patient and again at the 4-6-week examination. The components of the evaluation of a postpartum patient include:

- Vital signs
- Laboratory studies
- Breast examination for tenderness, induration, color, condition of the nipples
- Abdominal examination for fundal height, masses, diastasis, fundal tenderness
- Bladder distension or tenderness
- Lochia: color, amount, odor
- Episiotomy/laceration: redness, swelling, discharge
- Status of perineum
- Tenderness, edema of extremities
- Parent-infant bonding
- Contraception counseling and family planning
- Breastfeeding assistance

Psychological and Physiological Changes

Numerous psychological and physiological changes occur during the postpartum period as a result of the process of involution as well as the numerous adaptive changes required of the new parents.

- Maternal exhaustion may lead to decreased libido, but there may be an increased need for intimacy as well.
- The baby's many demands upset previous routines and schedules.
- There may be decreased vaginal lubrication, especially with lactation, such that use of a water-soluble lubricant may be helpful for coitus.
- Sexual stimulation may lead to the "let down reflex," causing milk to flow from the nipples. Feeding the baby prior to lovemaking may help the mother avoid this.
- Episiotomy sensitivity may require time for resolution. Use of a lubricant and changing coital positions will minimize the discomfort.

IDENTIFICATION AND MANAGEMENT OF PUERPERAL INFECTION

Puerperal infection is infection of the genital tract after delivery. Older terms for infection during the puerperium include puerperal fever, puerperal sepsis, and childbed fever. The Joint Committee on Maternal Welfare has defined *puerperal morbidity* as "a temperature of 38.0° C (100.4° F) or higher, the temperature to occur on any two of the first 10 days postpartum exclusive of the first 24 hours, and to be taken by mouth by a standard technique at least 4 times daily." Since most elevations of temperature in the puerperium are caused by puerperal infection, the incidence of fever postpartum is a reliable index of the incidence of infection.

Predisposing factors to puerperal infection include:

- Duration of rupture of the membranes prior to delivery
- Number of vaginal examinations
- Use of intrauterine manipulations prior to delivery (e.g., use of intrauterine pressure catheters) or during delivery (e.g., manual removal of the placenta)
- Trauma to pelvic tissues (e.g., lacerations, hematomas)

ENDOMETRITIS

While all pelvic tissues can become sites of infection, the most common and significant site is the endometrium. The raw site of former placental attachment is particularly vulnerable to infection by various pathogenic bacteria that can lead to foul, bloody vaginal discharge, lower abdominal/back pain, and fever. Peritonitis and pelvic thrombophlebitis may follow if the infection remains untreated.

The predominant risk factor for endometritis is cesarean delivery. Other major risk factors include extended labor and/or prolonged rupture of membranes, multiple vaginal exams, low socioeconomic class, and invasive fetal monitoring.

The bacteria that cause puerperal infection are those that normally inhabit the cervix and lower genital tract. These microbes are inoculated into the endometrial cavity during the course of an extended labor. The principal pathogens include group B streptococci, enterococci, anaerobic streptococci, *Gardnerella vaginalis*, *E. coli*, and several species of *Bacteroides*.

Diagnosis of Postpartum Endometritis

The diagnosis of endometritis is usually straightforward and should be the first consideration in a postpartum patient with abdominal pain and/or fever. The differential diagnosis includes atelectasis, pyelonephritis, respiratory tract infection, viral syndrome, appendicitis, and episiotomy infection.

The most common clinical findings are fever, uterine and adnexal tenderness, and tachycardia. Helpful lab studies include a WBC count and urine analysis with culture. A chest X-ray is only indicated if there are physical findings suggestive of pneumonia. Blood cultures are not routinely helpful and should only initially be obtained in compromised patients or those at risk for bacterial endocarditis. Cervical and endometrial cultures are not helpful.

Principles of Management of Postpartum Endometritis

Treatment of endometritis requires broad-spectrum antibiotic coverage. Traditional therapy consists of a combination of an aminoglycoside such as gentamicin to cover coliforms and either clindamycin or metronidazole for anaerobes. Ampicillin may be added if enterococcus is suspected. Single agent therapy has been shown to be reasonably effective, including the use of extended spectrum penicillins and cephalosporins such as ampicillin-sulbactam and ceftizoxime.

Treatment failures occur in only about 5% of cases. Patients who do not show a satisfactory response within 48-72 hours should be thoroughly reevaluated for possible wound infection or a resistant organism that may require broader coverage. Other less common considerations are hematoma, pelvic abscess, septic pelvic vein thrombophlebitis, recrudescence of connective tissue disease, drug fever, and mastitis.

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Instructions for the Mother

Postpartum Care at Home

Activity and Rest

Labor is hard work! It is important to take time for your body to recover. It often takes 6-8 weeks after the birth to get your energy back. Try to sleep/rest whenever your baby sleeps especially the first week after the birth. Accept help from family and friends – for assistance with childcare, shopping, cooking and cleaning. Your vaginal bleeding will become heavier if you are doing too much activity.

Nutrition, Vitamins and Iron Pills

It is important to continue to eat well, and drink a lot of fluids (8-10 glasses) every day. Good nutrition will help increase your energy level, prevent infections, and heal stitches in the vaginal area. A good diet is also especially important for breastfeeding mothers. All mothers should continue to take their prenatal vitamins and iron pills (as indicated) until the follow-up appointment with your midwife at 6-8 weeks after the birth.

Vaginal Bleeding (Lochia)

After the birth you will have heavy vaginal bleeding like a period. Each day the flow should become less and less. The color will change from bright red, to a brown and then cream color. The discharge can last up to 6-8 weeks after the birth. The bleeding should not have a strong odor. If the bleeding becomes very heavy – you may be doing too much – SLOW DOWN. Emptying your bladder every 2 hours is also helpful in decreasing the amount of vaginal bleeding. It is also normal to pass small blood clots the size of raisins or grapes. Contact your health center:

(1) If the clots are large like lemons or oranges
(2) If the bleeding needs more than 2 Kotex pads per hour

Vaginal Area Suture Care

This area will be very tender after the birth. You may have some burning the first time you urinate after the delivery. Try voiding in the shower or bathtub, or using squirt bottle filled with warm water to help the discomfort. Using the squirt bottle after you urinate or move your bowels is helpful in keeping the area clean. Always wipe from front to back when using the toilet. Ice packs to the vaginal area for the first 24 hours after birth can decrease pain and swelling. After 24 hours, switch to warm water soaks or sitz baths 2-3 times a day for 15-20 minutes while in the hospital and at home. If you have stitches – the good news is that they will absorb into your skin and do not need to be removed. You can use Tylenol (325-650 mg every 4-6 hours) or ibuprofen (400-600 mg every 4-6 hours) for pain of the vaginal tear or episiotomy. Avoid douching, tampons, and additives to the tub water such as bubble baths.

Sexual Intercourse

Once the vaginal bleeding has stopped, and your vaginal area is not sore, it is alright to make love. For most women this is around 3-4 weeks after birth. Some women find it is more comfortable to make love the first time, if they are positioned on top of their partner. A water soluble lubricant like K-Y jelly may help make sex more enjoyable. The vagina does not

become as lubricated/wet as usual when making love in some breastfeeding mothers. Do not be surprised if you leak milk when you reach orgasm; this is common in breastfeeding mothers.

Often a new mother does not have much interest in sex for a while after the birth of the baby. However, the father/partner is greatly interested. Be sure to keep communication open about these differences.

It is also a good idea to know what birth control method you are going to use before making love. Remember you can get pregnant very quickly after the birth, even before you have your first period. Enclosed is a list of birth control ideas. If you have not chosen a method before your 6-week postpartum exam, use foam and condoms as protection. They can be purchased at any drug store.

Bottle-feeding Mothers

For those of you who have chosen to bottle-feed your baby, your milk will still "come in." This usually happens two-four days after the birth. Your breasts will become very full and large. Many women feel very uncomfortable when this happens – the good news is that it usually only lasts for 24-36 hours. During this time it is recommended to wear a supportive bra, the sports bras are great. When showering, do not let the warm water run over your breasts – this will stimulate milk production. Ice packs are helpful – try using frozen vegetables such as bags of peas or corn and place them over your breasts and under your armpits. Tylenol (325-650 mg every 4-6 hours) or Ibuprofen (400-600 mg every 4-6 hours) may also help with the pain. You may have some leakage of milk for about 2 weeks after the birth.

It is possible, but uncommon, for breast infections to happen to bottle-feeding mothers. If you notice a red, hot, painful area on your breasts, try applying warm wet compresses several times a day. If you have a fever more than 101°F, call or see your midwife or physician.

Hemorrhoids and Constipation

Hemorrhoids are swollen veins around your rectum that are very common in pregnancy, especially after delivery. They can be very painful or even bleed when having a bowel movement. Tucks or Witch Hazel compresses can be helpful to decrease the pain. Keep them in your refrigerator at home. Warm water soaks in the bathtub 3-4 times a day for 15 minutes will also help shrink the size of hemorrhoids. It is important to avoid constipation, especially if you have hemorrhoids. Increase your fluid intake to 8-10 glasses of fluid a day and eat foods high in fiber like raisins, prunes, bran cereals/muffins, beans, raw fruits and vegetables. Try a stool softener such as Colace (100 mg 1-2 times a day) or a mild laxative if constipation remains a problem.

Uterus and "After Birth Pains"

Immediately after the birth of the baby your uterus should contract and become the size of a grapefruit – you should be able to feel the top of it just below your belly button. It usually takes about 6 weeks for the uterus to return to its non-pregnant size. Many women experience menstrual like uterine cramping several days after the birth. This is especially true for breastfeeding mothers when feeding. Your body is helping your uterus return to its normal size and prevent heavy bleeding. Try taking ibuprofen (400-600 mg every 4-6 hours) to help with the cramping. Red Raspberry leaf tea decreases the cramping for some women – drink it as often as you like. A warm bath/shower or hot water bottle applied to your abdomen may also be comforting.

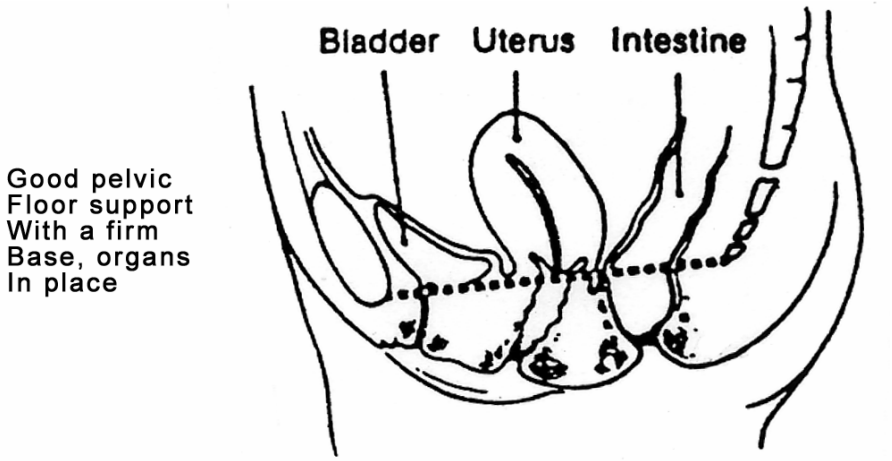
Emotions and the "Baby Blues"

It is very common to cry now and then during the first several weeks after the baby's birth. This is called the "baby blues" – when you are happy one moment and crying the next. It is very normal and many times caused by the hormonal changes after the birth. The "blues" usually last several weeks. However, it is not normal to cry or feel sad/depressed all the time, this may be "postpartum depression" for which treatment is available. Talking with friends or family members about your emotions can be very helpful. Speak to your midwife or physician – do not suffer in silence.

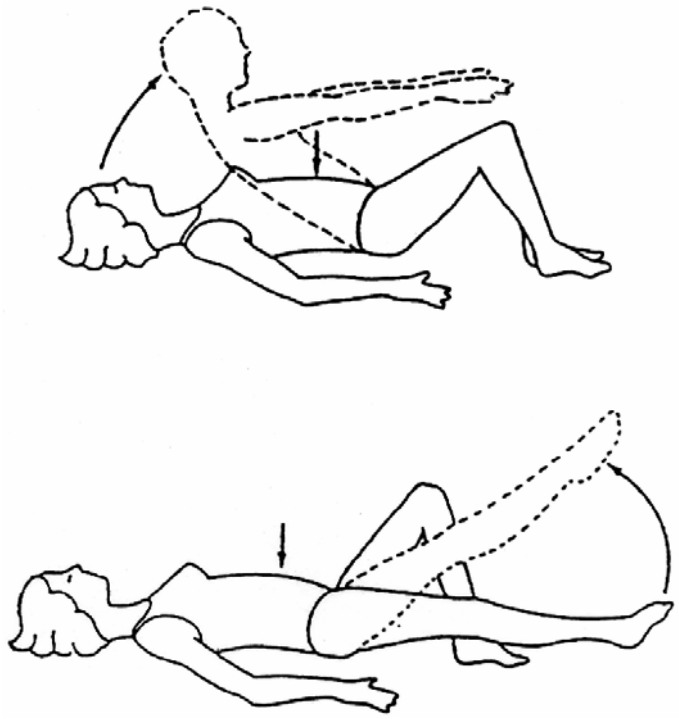
Exercise

Take the first week to rest and recover from the birth of your baby. Then it would be a good idea to increase your activity level and begin exercising. Taking a 30-minute walk each day is a great way to begin. If your vaginal bleeding increases, you need to slow down your activity.

Kegel's exercises are a great way to strengthen and improve circulation to the vaginal/perineal muscles. They are sometimes weakened during childbirth. These muscles help prevent urinary incontinence (wetting your underwear when sneezing or coughing), and dropping of the uterus, bladder, and rectum into the vagina. You can find the perineal muscle by trying to stop and restart the flow of urination. If you can do this, you can control and strengthen your perineal muscle. Try doing 10 "squeezes" each time you feed the baby.



Below are some abdominal exercises that you can start during the second week after delivery. Try each exercise 10 times each in the morning and evening, increasing as you feel comfortable.



Breastfeeding Mothers

Congratulations for breastfeeding your baby. The first few days after the birth your body will produce ”colostrum” which is very rich in vitamins and antibodies for your baby. Two-four days after the birth is when your milk will “come in.” Your breasts will become very large and full, it can be uncomfortable for some women and generally lasts 24-36 hours. Continue to breastfeed, although you may need to manually express some milk in the warm shower, so the baby can latch onto your nipple. Sore nipples are also a common concern the first week after the birth. Be sure the baby is “latching on” correctly and that the areola (brown area) is well inside the baby’s mouth – not just the nipple. Remember to break the suction with your fingers before removing the baby from the breast. Allow the nipples to dry before putting on your bra. Creams such as Lansinoh (Walmart and Walgreens) applied to the nipple can also help with healing. Breastfed babies usually feed every 2-3 hours, the more the baby feeds the more milk your body will make.

Watch for red, hard, and painful areas on your breast. These could be plugged milk ducts or a breast infection called “mastitis.” Continue to breastfeed your baby, apply warm compresses, and massage the area well to assist with drainage. If you have a fever more than 101°F, contact your health center.