**Topic: Normal labor**

**On completion of this unit the learner will be able to:**

1. Definition of labor

2.Describe four components of labor (4 p’s)

3.Comparism between True land False labor .

4.Arrangement the stage of labor .during the four different stages of labor

5.Draw the Periodic patterns in the FHR

6.Planning nursing management in each stage of labor.

**1st . Terms**

A. Labor: coordinated sequence of involuntary uterine contractions

B. Delivery: actual event of birth

**C. Factors leading to onset of labor**

1- Hormonal factors

Hormones such as oxytocin, progestrone, estrogen and prostaglandins influence labour.

\*- Oxytocin: The slow increase of oxytocin in the maternal blood through out the labour process acts on uterine muscles and induces contractions.

\*- Estrogen: The increased level of estrogen prior to onset of labour causes irritability of myometrium and promote the prostaglandin synthesis.

\*- Prostaglandins: Helps in mechanical stretching of uterine and softening of the cervix.

2- Pressure on the cervix

Pressure on the cervix by a well fitting presenting part stimulates the nerve ending in the cervix.This causes the softened cervix to dilate at the internal os.

3- Over distension

contract.

Over distension stimulates the nerve receptors in the uterine muscles to

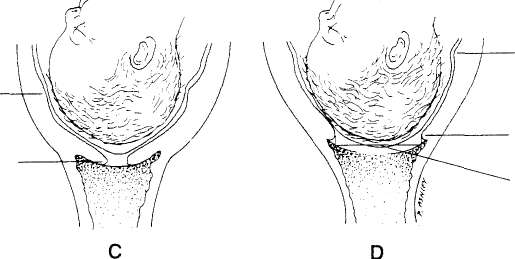
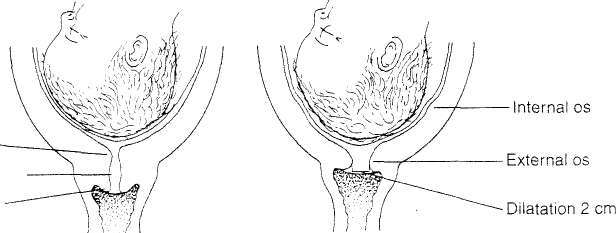
**D. Sings of labor**

a- Lightening

Sinking of the uterus which occurs 2-3 wks before onset of labour.

b- Cervical changes

Softening of the cervix, effacement begins and dilate slightly Cervical effacement and dilatation.



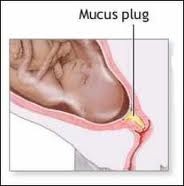
**B**

A

. A, Before labor. B, Beginning effacement (dilatation 2 cm). C, Complete effacement (100%). D, Complete dilatation (10 cm)

C- Show

Blood stained mucus discharge from the cervix is termed as show. This occurs due to changes occurs in the cervix



d- Frequency of Micturition

Pressure of gravid uterus lead to frequency of micturition.

e- Nesting instinct( energy Spurt)

Some women experienced a sudden burst of energy and s a compulsion to clean everything or rearrange household things.

**E.Five P's**

P: our major factors (four p's) interact during normal childbirth;

The four p's are interrelated and depend on each other for a safe delivery

\*- Powers: uterine contractions

1. The forces acting to expel the fetus

2. Effacement: shortening and thinning of the cervix during the first stage of labor

3. Dilation: enlargement of cervical os and cervical canal during first stage

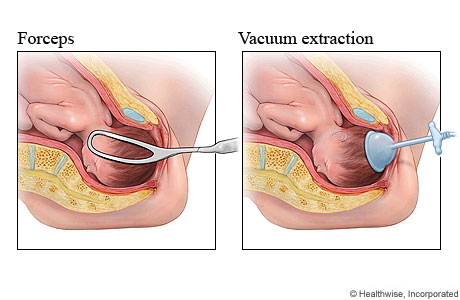
4. Pushing efforts of mother during second stage. \*Passageway: the mother's rigid bony pelvis and the soft tissues of the cervix, pelvic floor, vagina, and introitus (vaginal opening)

*\** Passenger: the fetus

\*Psyche: The mother may experience anxiety or fear.Any defect in each factor will lead problems in delivery and can cause to instrumental delivery.

\*Placenta position

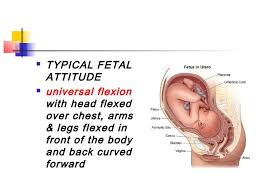
instrumental delivery



F. Attitude

1. Attitude is the. relationship of the fetal body parts to one another

2. Normal intrauterine attitude is flexion, in which the fetal back is rounded, the head is forward on the chest, and the arms and legs are folded in against the body.



G .Lie: Relationship of the spine of the fetus to the spine of the mother

1. Longitudinal or vertical

a. Fetal spine is parallel to the mother's spine,

b. Fetus is in cephalic or breech presentation.

2. Transverse or horizontal

a. Fetal spine is at a right angle, or perpendicular, to the mother's spine,

b. Presenting part is the shoulder,

c. Delivery by cesarean section is necessary.

3- Oblique

a. Fetal spine is at a slight angle from a true horizontal lie.

b. Delivery is by cesarean section if uncorrectable.

H.Presentation

portion of the fetus that enters the pelvis first, include:

1. Cephalic

a-Cephalic is the most *common presentation.*

b. Fetal head presents first.

2. Breech

a. Buttocks present first.

b. Delivery by cesarean section may be required, although vaginal birth is often possible.

3. Shoulder

a. Fetus is in a transverse lie, the arm, back, abdomen, or side could present,

b. If the fetus does not *spontaneously rotate* or if it is not possible to turn the fetus *manually*, a cesarean section may be performed.

J.Position:

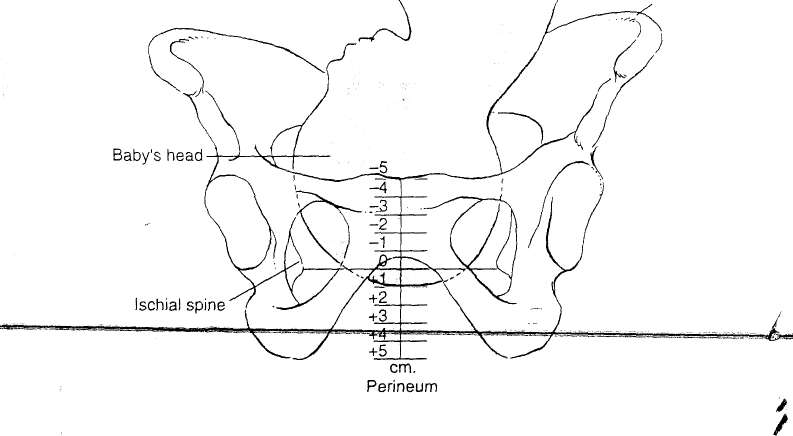
relationship of assigned area of the presenting part or landmark to the maternal pelvis Station.

1. The measurement of the progress of descent in centimeters above or below the mid plane from the presenting part to the ischial spine

2. Station 0: at ischial spine

3. Minus station: above ischial spine

4. Plus station: below ischial spine



Stations of presenting part (degree of engagement). In this diagram, the presenting part has reached a +1 station. The lower pelvis, from the ischial spines to the pelvic floor, represents positive stations (+1, +2, +3) and the upper pelvis, from the inlet or pelvic brim to the ischial spines, represents negative stations (-3, -2, -1

2nd . Mechanisms of LABOR

A. Assessment

1. Lightening or dropping: Fetus descends into the pelvis about 2 weeks before delivery for a primipara; the fetus may engage into the pelvis after labor commences for a *multipara*.

2. Braxton Hicks contractions increase.

3. Show is visible.

4. The vaginal mucosa is congested and vaginal mucus increases.

True Labor and False Labor

True Labor   
 Contractions increase in duration and intensity.

Cervical dilation and effacement are progressive.

Discomfort starts in the back and radiates around to abdomen.

Pain is not relieved by ambulation

Show is usually present.

FALSE LABOR

False labor does not produce dilation, effacement, or descent.

Contractions are irregular without progression.

Walking has no effect on contractions and often relieves false labor.

*Example: If a woman has been sleeping and wakes up with contractions, if she gets up and moves around and her contractions become stronger and closer together, this is true labor.If the contractions go away, this is false labor*.

Pregnancy and delivery is symptomatic and not disease

Characteristic of normal delivery:

1- Fetal pass through the birth canal.

2- Full term, that’s mean 37weeks or more.

3- The process of labor is complete spontaneous.

4- Fetus present by cephalic.

5- The maximum time of delivery is 24hours.

6- It occur without surgical interference [except episiotomy].

7- It occur without complication for fetus and mother.

Mechanism of Labor

1.ENGAGEMENT

Engagement is the mechanism by which the fetus nestles into the pelvis.

Engagement also is termed *lightening* or *dropping.*

2.DESCENT

Descent is the process that the fetal head undergoes as it begins its journey through the pelvis.

Descent is a continuous process from the time of engagement until birth and is assessed by the measurement called station.

3.FLEXION

Flexion is a process of the fetal head's nodding forward toward the fetal chest.

4.INTERNAL ROTATION

Internal rotation of the fetus occurs most commonly from the occiput transverse position, assumed at engagement into the pelvis, to the *occiput anterior* position while continuously descending.

5.EXTENSION

Extension enables the head to emerge when the fetus is in a cephalic position.Extension begins after the head crowns.

Extension is complete when the head passes under the symphysis pubis and occiput and the anterior fontanel, brow, face, and chin pass over the sacrum and coccyx and are over the perineum.

6.RESTITUTION

Restitution is realignment of the fetal head with the body after the head emerges.

7.EXTERNAL ROTATION

The shoulders externally rotate after the head emerges and restitution occurs so that the shoulders are in the anteroposterior diameter of the pelvis

8.EXPULSION

Expulsion is the birth of the entire body

A III. LEOPOLD'S MANEUVERS

A. Description: method to determine position, presentation, and engagement

B. Preparation

1. Ask the mother to empty the bladder.

*2.* Warm hands and apply them to the mother's abdomen with firm and gentle pressure.

C. First maneuver

1. The first maneuver determines which part of the fetus is in the fundus.

*2.* Place palms on each side of the upper abdomen and palpate around the fundus.

3. If the head is in the fundus, one would feel a hard, round, movable object.

4. The buttocks will feel soft and have an irregular shape and are more difficult to move.

D. Second maneuver

1. Move hands downward over each side of the abdomen, applying firm, even pressure.

2. The fetus's back, which is a smooth, hard surface, should be felt on one side of the abdomen.

3. Irregular knobs and lumps, which may be the hands, feet, elbows, and knees, will be felt on the opposite side of the abdomen.

E. Third maneuver

1. The third maneuver confirms fetal position.

2. Place hand above the symphysis pubis.

3. Bring thumb and fingers together and grasp the part of fetus between them (may be the head or the buttocks).

Fourth maneuver

1. The fourth maneuver is used in the late stage of pregnancy to determine how far the fetus has descended into the pelvic inlet.

2. Place hands on the sides of the lower abdomen close to the midline.

3. If you have determined that the buttocks are in the fundus, then feel for the head.

4. If you cannot feel the head, it probably has descended

V. FETAL MONITORING

A. Description

1. The fetal monitor displays the fetal heart rate (FHR).

2. The device monitors uterine activity.

3. The monitor assesses frequency, duration, and intensity of contractions.

4. The monitor assesses FHR in relation to maternal contractions.

5. Baseline FHR is measured between contractions; the normal FHR at term is 120 to 160 beats per minute

External fetal monitoring

1. External fetal monitoring is noninvasive and is performed using a tocotransducer or Doppler ultrasonic transducer.
2. 2. Perform Leopold's maneuvers to determine on which side the fetal back is located, and place the ultrasound transducer over this area (fasten with a belt). 

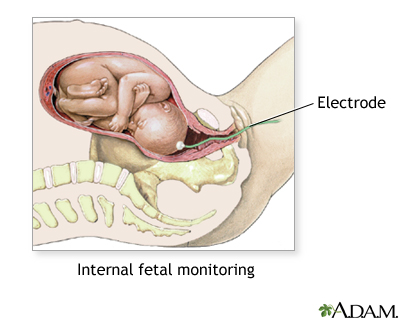
3. Place the tocotransducer over the fundus of the uterus where contractions feel the strongest (fasten with a belt).

4. Allow the client to assume a comfortable position, avoiding vena cava compression.

C. Internal fetal monitoring

1. Internal fetal monitoring is invasive and requires rupturing of the membranes and attaching an electrode to the presenting part of the fetus.

2. Mother must be dilated 2 to 3 cm to perform internal monitoring



D. Periodic patterns in the FHR

1. Fetal bradycardia and tachycardia

a. Bradycardia: The FHR is less than 120 beats per

minute for 10 minutes or more,

b. Tachycardia: The FHR is greater than 160 beats

per minute for 10 minutes or more,

c. Change position of the mother and administer

oxygen,

d. Notify the physician.

2. Accelerations

a. Accelerations are brief temporary increases in the FHR of at least 15 beats greater than the baseline and lasting at least 15 seconds.

b. Accelerations usually are a reassuring sign, reflecting a responsive, non acidotic fetus.

c. Accelerations usually occur with fetal movement.

d. Accelerations may occur with uterine contractions, vaginal examinations, or mild cord compression, or when the fetus is in a breech presentation.

decelerations

a. Early decelerations are decreases in FHR below baseline; the rate at the lowest point of the deceleration usually remains greater than 100 beats per minute.

b. Early decelerations occur during contractions as the fetal head is pressed against the woman's pelvis or soft tissues, such as the cervix, and return to the baseline FHR by the end of the contraction,

c. Tracing shows a uniform shape and mirror image of uterine contractions,

d. Early decelerations are not associated with fetal compromise and require no intervention.

Late decelerations

a. Later decelerations are non reassuring patterns that reflect impaired placental exchange or utero placental insufficiency.

b. The patterns look similar to early decelerations but begin well after the contraction begins and return to baseline after the contraction ends.

c. Interventions include improving placental blood flow and fetal oxygenation.

6. Variable decelerations

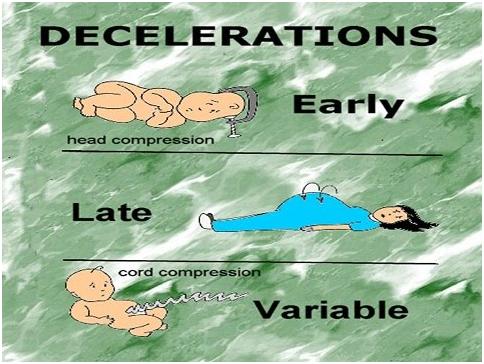
a. Variable decelerations are caused by conditions that restrict flow through the umbilical cord.

b. Variable decelerations do not have the uniform appearance of early and late decelerations.

c. Their shape, duration, and degree of fall below baseline heart rate are variable; they fall and rise suddenly with the onset and relief of cord compression.

d. Variable decelerations also may be nonperiodic, occurring at times unrelated to contractions.

e. Variable decelerations are significant when the FHR repeatedly decreases to less than 70 beats per minutes and persists at that level for at least 60 seconds before returning to the baseline.



7. Hypertonic uterine activity

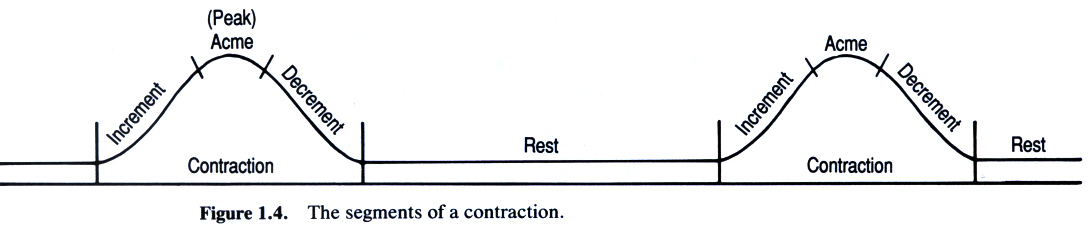
a. Assessment of uterine activity includes frequency, duration, intensity of the contractions, and uterine resting tone.

b. The uterus should relax between contractions for 60 seconds or longer.

c. Uterine contraction intensity is about 50 to 75 mm Hg (with the intrauterine uterine catheter) during labor and may reach 110 mm Hg with pushing during the second stage.

d. The average resting tone is *5 to 15 mm* Hg.

e. In hypertonic uterine activity the uterine resting tone between contractions is high, *reducing uterine blood flow and decreasing fetal oxygen supply*.



8. Interventions for non reassuring patterns

a. Identify the cause (assess for cord prolapse).

b. Discontinue oxytocin (Pitocin) if infusing as prescribed.

c. Change the mother's position (avoid the supine position for patterns associated with cord compression),

d. Administer oxygen by face mask at 8 to 10 L per

minute.

e. Increase intravenous (IV) fluids as prescribed,

f. Notify the physician or nurse midwife as soon

as possible,

g. Prepare to initiate continuous electronic fetal

monitoring with internal devices if not con-

traindicated.

h. Prepare to obtain a fetal scalp pH monitor to

determine a blood pH value,

i. Prepare for cesarean delivery if necessary.

STAGES OF LABOR

A. Stage 1( Full dilation)

Assessment Latent phase

a. Cervical dilation is 0 - 3 cm.

b. Uterine contractions occur every 15 to 30 minutes and are 15 to 30 seconds in duration and of mild intensity.

c. Mother is talkative and eager to be in labor.

2. Interventions

a. Encourage mother and partner to participate in care.

b. Assist with comfort measures, changes of position, and ambulation.

c. Keep mother and partner informed of progress,

d. Offer fluids and ice chips,

e. Encourage voiding every 1 to 2 hours.

B. Stage 1 active phase

1. Assessment

a. Cervical dilation is 4 to 7 cm.

b. Uterine contractions occur every 3 to 5 minutes and are 30 to 60 seconds in duration and of moderate intensity.

c. Mother may experience feelings of helplessness.

d. Mother becomes restless and anxious as contractions become stronger

2. Interventions

a. Encourage maintenance of effective breathing

patterns.

b. Provide a quiet environment,

c. Keep mother and partner informed of progress.

d. Promote comfort with backrubs, sacral pres­sure, pillow support, and position changes.

e. Instruct partner in effleurage.

f. Offer fluids and ice chips and ointment for dry lips.

g. Encourage voiding every 1 to 2 hours.

C. Stage 1 transition phase

1. Assessment

a. Cervical dilation is 8 to 10 cm.

b. Uterine contractions occur every 2 to 3 minutes and are 45 to 90 seconds in duration and of strong intensity,

c. Mother becomes tired, is restless and irritable, and feels out of control.

2. Interventions

a. Encourage rest between contractions.

b. Wake mother at beginning of contraction so

she can begin breathing pattern,

c. Keep mother and partner informed of progress, d. Provide privacy.

e. Offer fluids and ice chips and ointment for

dry lips.

f. Encourage voiding every 1 to 2 hours.

D. Interventions throughout stage I

1. Monitor maternal vital signs.

2. Monitor FHR via ultrasound Doppler, fetoscope, or electronic fetal monitor.

3. Assess FHR before, during, and after a contraction, noting that the normal FHR is 120 to 160 beats per minute.

4. Monitor uterine contractions by palpation or monitor, determining frequency, duration, and intensity.

5. Assess status of cervical dilation and effacement.

6. Assess fetal station presentation and position by Leopold's maneuvers.

7. Assess the color of the amniotic fluid if the membranes have ruptured because meconium-stained fluid can indicate fetal distress.

2. Interventions

a. Perform assessments every 5 minutes,

b. Monitor maternal vital signs,

c. Monitor FHR via ultrasound Doppler, fetoscope, or electronic fetal monitor.

E. Stage 2

1. Assessment

a. Cervical dilation is complete.

b. Progress of labor is measured by descent of fetal head through the birth canal (change in fetal station).

c. Uterine contractions occur every 2 to 3 minutes, lasting 60 to 75 seconds, and the intensity is strong.

d. Increase in bloody show occurs.

e. Mother feels urge to bear down; assist mother in pushing efforts.

d. Assess FHR before, during, and after a contraction, noting that normal fetal heart rate is 120 to 160 beats per minute.

e. Monitor uterine contractions by palpation or monitor, determining frequency, duration, and intensity.

g. Keep mother and partner informed of progress.

h. Maintain privacy.

i. Provide ice chips and ointment for dry lips.

f. Provide mother with encouragement and praise and provide for rest between contractions.

j. Assist mother into a position that promotes comfort and assists pushing efforts, such as lithotomy, kneeling, or squatting.

k. Monitor for signs of approaching birth, such as perineal bulging or visualization of the fetal head.

Stage 3

Assessment

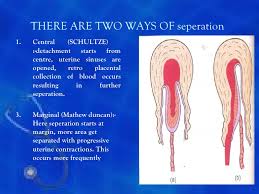
a. Contractions occur until the placenta is born.

b. Placental separation and expulsion occur.

c. Birth of placenta occurs 5 to 30 minutes after birth of the baby.

d. Schultze mechanism: Center portion of placenta separates first, and its shiny fetal surface emerges from the vagina.

e. Duncan mechanism: Margin of placenta separates, and the dull, red, rough maternal surface emerges from the vagina first.



2. Interventions

a. Assess maternal vital signs.

b. Assess uterine status.

c. Provide parents with an explanation regarding birth of the placenta.

d. Following birth of the placenta, uterine fundus remains firm and is located 2 fingerbreadths below the umbilicus.

e. Examine placenta for cotyledons and membranes to verify that it is intact.

f. Assess mother for shivering and provide warmth.

g. Promote parental-neonatal attachment.

G. Stage 4

1. Description: the period of time from 1 to 4 hours  
after delivery

2. Assessment

a. Blood pressure returns to prelabor level,

b. Pulse is slightly lower than during labor.

c. Fundus remains contracted, in the midline,

1 to 2 fingerbreadths below the umbilicus.

d. Lochia is moderate or scant and is red.

3. Interventions

a. Perform maternal assessments every 15 minutes for 1 hour, every 30 minutes for 1 hour, and hourly for 2 hours,

b. Provide warm blankets.

c. Apply ice packs to the perineum.

d. Massage the uterus if needed and teach the

mother to massage the uterus,

e. Provide breast-feeding support as needed,

ANESTHESIA

A. Local anesthesia

1. Local anesthesia is used for blocking pain during episiotomy.

2. Local anesthesia is administered just before the birth of the baby.

3. The anesthetic has no effect on the fetus.

B. Pudendal block

1. A pudendal block is administered just before the birth of the baby.

2. Injection site is at the pudendal nerve through a transvaginal route.

3. Anesthetic blocks the perineal area for episiotomy.

4. Effect lasts about 30 minutes.

5. Anesthetic has no effect on contractions or the

fetus.

C. Lumbar epidural block

1. Injection site is in epidural space at L3 to L4.

2. The block is administered after labor is established birth.

3. The anesthetic relieves pain from contractions and numbs the vagina and perineum.

4. The block may cause hypotension.

5. The anesthetic does not cause headache because the dural mater is not penetrated.

6. Assess maternal blood pressure.

7. Maintain the mother in side-lying position or place a rolled blanket beneath the right hip to displace the uterus from the vena cava.

8. Administer IV fluids as prescribed.

9. Increase fluids as prescribed if hypotension

occurs.

D. Subarachnoid (spinal) block

1. Injection site is in the spinal subarachnoid space at L3 to L5.

2. The block is administered just before birth.

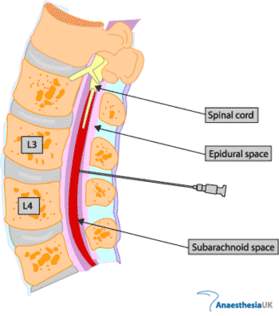
3. The anesthetic relieves uterine and perineal pain and numbs the vagina, perineum, and lower extremities.

4. The anesthetic may cause maternal hypotension.

5. The anesthetic may cause postpartum headache.

6. The mother must lie flat for 8 to 12 hours following spinal injection.

7. Administer IV fluids as prescribed.



E. General anesthesia

1. General anesthesia may be used for some surgical interventions.

2. The mother is not awake.

3. General anesthesia presents a danger of respiratory depression and vomiting.

Amniotomy

6. Meconium-stained amniotic fluid may be associ­ated with fetal distress.

7. Bloody amniotic fluid may indicate abruptio placenta or fetal trauma.

8. An unpleasant odor to amniotic fluid is associated with infection.

9. Polyhydramnios is associated with maternal diabetes and certain congenital disorders.

10. Oligohydramnios is associated with intrauterine growth restriction and congenital disorders.

11. Expect more variable decelerations after rupture of the membranes as a result of possible cord compression during contractions.

12. Limit client activity if prescribed

E. Episiotomy

1. An episiotomy is an incision made into the perineum to enlarge the vaginal outlet and facilitate delivery.

2. Check episiotomy site.

3. Institute measures to relieve pain.

4. Provide ice packs during the first 24 hours.

*5.* Instruct the client in the use of sitz baths.

6. Apply analgesic spray or ointment as prescribed.

Thank you