

Postterm Pregnancy

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+ Definition / Diagnosis

- Postterm or Postdate pregnancy
- Extends beyond 42 completed weeks of gestation

The reported frequency of postterm pregnancy is approximately 7%.

+ Determination of Postterm Pregnancy

Early assessment is important in determining an accurate EDC.

EDC is usually determined by:

- Last menstrual period (LMP)
- Uterine size (fundal height)
- Timing of first auscultation of FHR
- Early ultrasound (before 18 weeks)

...Accurate dating is critical!

+ Physiology

Ultimately, the cause is unknown

Theories:

- Estrogen deficiency
- Continued secretion of progesterone and absence of oxytocin or prostaglandins
- Adrenal corticosteroid deficiency
- Thyroid disorders

+ Populations at Risk

- Previous postterm delivery
- Obesity
- Pregnancies with congenital anomalies
- Hormonal & genetic factors
- Other risk factors: nulliparity & male fetus

+ Potential Complications

Maternal:

- Increased risk of labor dystocia
- Increase in severe perineal injury related to macrosomia
- Doubling in rate of cesarean delivery

Fetus:

- Increased perinatal morbidity & mortality
- Lower umbilical artery pH levels at delivery
- Lower 5-minute APGAR scores
- Dysmaturity Syndrome/Postmaturity Syndrome

+ Maternal Morbidity

Related to prolonged labor and trauma:

- Maternal concerns such as Cephalopelvic Disproportion (CPD) and Postpartum hemorrhage (PPH)
- Lacerations / extensions of episiotomy

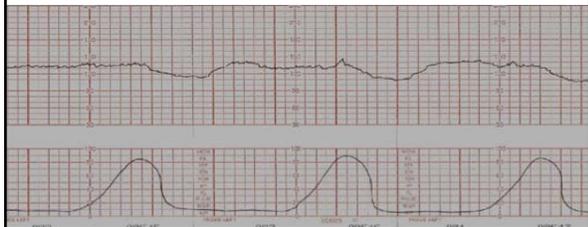
Risks from medical & surgical intervention:

- Induction, vacuum/forceps use, and cesarean rates are much higher in postterm pregnancies

+ Neonatal Morbidity/Mortality

- Postterm pregnancy remains one of the leading causes of neonatal morbidity and mortality
- Mortality is generally caused by placental pathology and related fetal hypoxia and perinatal asphyxia

PLACENTAL INSUFFICIENCY



+ Neonatal Morbidity

Related to uteroplacental insufficiency & placental degeneration

- Fetal intolerance of labor & intrauterine hypoxia
- Perinatal asphyxia
- Meconium Aspiration Syndrome (MAS)
- Lower APGAR scores
- Susceptible to hypoglycemia

Related to increased fetal size

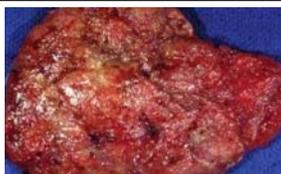
- Shoulder dystocia (and related injuries)
- Birth trauma secondary to macrosomia and instrument assisted delivery



Macrosomia resulting in shoulder dystocia and possible brachial plexus injury

+ Placental Reserve

- Placenta tends to degenerate and calcify after 36 weeks gestation
 - Decreased ability to carry oxygen and nutrients to fetus
 - May be multiple infarcts & villous degeneration
- Wharton's jelly deteriorates
 - Increased risk for cord compression



+ Amniotic Fluid Volume

- Peaks at 34 weeks (800-1200 mL), then gradually diminishes
 - Expected AFI for term pregnancy 500-1000 mL
 - Starts decreasing after 38 weeks
- By 42 weeks, amniotic fluid volume is below 500 mL and continues to decrease if pregnancy continues
- Less amniotic fluid decreases umbilical cord protection
- An abnormal AFV in a postterm pregnancy may be cause for delivery

+ Amniotic Fluid

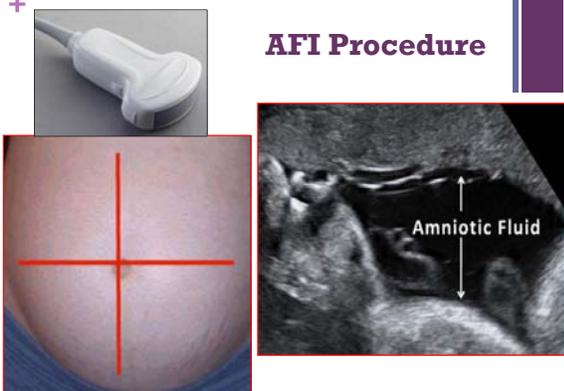
Amniotic Fluid Index (AFI)

- Measure the fluid volume in each uterine quadrant (in cms)
- Can only measure a clear fluid pocket (w/o fetal parts or cord)
- Oligohydramnios → less than 5 cm of measurable fluid
- Polyhydramnios → more than 25 cm of measurable fluid (also termed Hydramnios)

Single Deepest Pocket (SDP) or Maximum Vertical Pocket (MVP)

- Measure the depth of the largest visible pocket of amniotic fluid surrounding the fetus
- More than 2 cm and less than 8 cm is a normal range

+ AFI Procedure



+ Oligohydramnios

- Less than 500 mL of amniotic fluid
 - AFI of < 5 cm
 - SDP/MVP of ≤ 2 cm
- Indicates declining placental function and a decreased in umbilical cord protection
 - Diminished fetal urine production (preferential blood flow to vital organs)
 - May present as variable FHR decelerations during antenatal testing
- Occurs in <1% of all pregnancies and in 11% of all postterm pregnancies

+ Antenatal Testing



- Postterm pregnancy is one of the most common reasons for antenatal testing.
- Antepartum assessment tool
 - Establish a baseline status
 - Assists in detecting fetal compromise
- Patient education regarding purpose of antenatal testing increases patient compliance

+ Antenatal Testing



Fetal Movement Counts (aka "Kick Counts")

- Typically begin at 27-28 weeks, but important to continue throughout remainder of pregnancy
- Should be performed daily

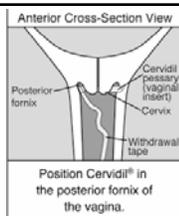
Antenatal Testing: usually started between 40-41 wks.

- ****** Modified BPP (NST & AFI)
- Nonstress Test (NST)
- Contraction Stress Test (CST)
- Amniotic Fluid Volume (AFV)

+ Medical Interventions

Induction of labor:

- Stripping of membranes
- Cervical ripening options
 - Medication (Misoprostol, Cervidil)
 - Cervical ripening balloon
- AROM



+ Amnioinfusion

Is a procedure performed to artificially increase fluid by instilling a solution into the amniotic space around the fetus to cushion the umbilical cord

TO DO:

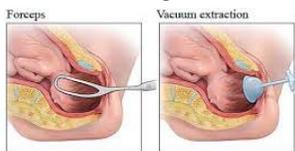
- Have IUPC in place
- Refer to and review hospital policy
- Assess for fluid return
- Closely monitor uterine activity and tone and PALPATE

+ Assisted Delivery

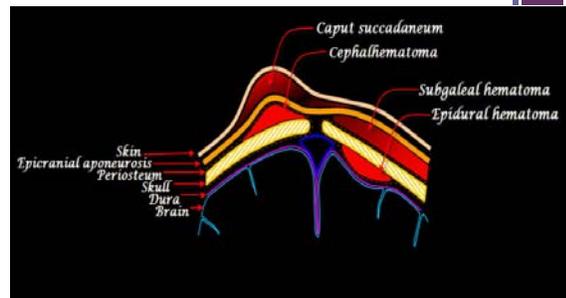
- The use of a vacuum or forceps to assist with delivery, usually needed because of maternal fatigue, ineffective pushing efforts, and/or fetal intolerance of labor.

Complications:

- **Maternal** → pain, hemorrhage, vaginal and/or cervical lacerations, bladder trauma, uterine atony, extension of an episiotomy, perineal wound infection, increased vaginal bleeding
- **Fetal** → shoulder dystocia, cephalohematoma, subgaleal hemorrhage, intracranial hemorrhage, brachial plexus injury, trauma



+ Caput vs Cephalohematoma vs Subgaleal Hematoma



+ Definitions

Caput Succedaneum: edema or swelling of the scalp caused by pressure; swelling crosses suture lines

Cephalohematoma: swelling of bloody fluid subperiosteal; does not cross suture lines

Subgaleal Hematoma/Hemorrhage: bleeding between skull & scalp leading to swelling. Possible to bleed profusely from ruptured blood vessels below the scalp (rupture of emissary vessels), potentially causing massive hypovolemic shock d/t blood loss. There are no barriers to stop the bleeding. Space can hold 240-260 mL.

+ Delivery Room Care of the Postterm Infant

- Have personnel available for infant resuscitation if needed (refer to hospital policy)
- Glucose stability assessment: these neonates are more susceptible to hypoglycemia d/t rapid depletion of glycogen stores
- Delivery trauma assessment, especially if macrosomic
- Encourage skin to skin, breastfeeding (if this is patient's preference), and family bonding once infant is stable

+ Postterm Neonates

❖ **Infant may be LGA, AGA, or SGA depending on placental function**

-LGA if placenta continues to function well, but

-If placental function decreases, the fetus may not receive adequate nutrition and wasting of subcutaneous fat, muscle, or both resulting in Postmaturity Syndrome

+ Neonatal Assessment

Post Maturity Syndrome occurs in ~20% of postterm/postdates pregnancies

■ **Signs and symptoms:**

- Long nails/hair
- Skin thin, dry, wrinkled, peeling, cracked; visible creases on palms and soles
- Vernix scant or absent; lanugo absent
- Breast buds large
- Minimal fat deposition
- May have long thin body and SGA
- Advanced maturity- open-eyed, unusually alert, appears old and worried
- Often times in conjunction with oligohydramnios, MAS, & macrosomia

+ Post Maturity Syndrome



+ Macrosomia

■ **Definition:** a newborn with an excessive birth weight of 4000grams (8lbs 14oz) to 4500grams (9lbs 15oz); or >90% percentile for gestational age and sex

■ Occurs when the placenta continues to provide adequate nutrients, allowing fetal growth after 40 weeks

■ Approximately 25% of all postterm pregnancies will result in fetal macrosomia



+ Meconium Aspiration

- When a fetus or newborn infant aspirates meconium into the tracheobronchial tree resulting in significant respiratory compromise
- Main theories re: cause of meconium passage is fetal maturity, or from stress as a result of hypoxia or infection. Hypoxia may elicit a significant vagal response resulting in meconium passage, but this can also occur in the absence of hypoxia



+ Meconium Aspiration Syndrome (MAS)

- Aspiration of meconium causing chemical pneumonitis causing acute lung injury, mechanical airway blockage, pneumothorax, and possibly death
- Meconium is present in 8-20% of newborns; of these 5-10% will develop MAS, and may be higher in postterm infants
- Severity of syndrome correlates with the consistency and amount of meconium aspirated, in addition to gestational age
- Thick meconium fluid generally reflects some degree of oligohydramnios
- Mortality rates have ranged from 5-40%

These are very sick babies...



+ References

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