Playing a Complicated Role in Gestation: The Placenta

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“I get no respect.”

Frequently, the placenta has been examined only cursorily and then discarded. 😞

rippleeffectsocialmag.wordpress.com

www.beginbeforebirth.org
Objectives

• Identify several abnormal types of placentas and relate them to compromise of the fetus during the antenatal and intrapartum period.

• List the characteristics evaluated with a macroscopic evaluation of the placenta.

• Describe various umbilical cord abnormalities including vasa previa, furcate cord, and velamentous insertion.
Careful Evaluation of the Placenta

- Can give much insight into disorders of the pregnancy in both the mother and fetus.
- Can confirm the clinical suspicions of processes including hemorrhage or infection.
- Can explain problems during labor.
- Lead to specific diagnoses in cases of IUGR and demise.
- Holds clues to the origins of disease unsuspected at birth that manifest later with significant clinical sequelae.
Placental Lore

“In the days that man was “young,” it seems the placenta as an independent organ passed unnoticed or at least unrecognized, perhaps because of its uninspiring appearance overshadowed by the wonder of the birth of a new being.”

- E. Croft Long

www.istockphoto.com
Relationship Between Placenta and Child

• “Linked by an invisible cord of magic and kinship as well as by a visible connection.”
Placental as....

- “Nourishing mother of child” (Ural Mountains)
- Sibling of the newly born child (Parigi in Celebes Islands)
- Companion (Timor, off Australia)
- Second child, the “double” (Uganda)
- Seat of spirit (Icelanders) or guardian angel
- Seat of sympathetic magic (China, Spain)
- Magical charm
- Special properties affecting fertility and ensuring quick labor
- Cure for infertility (Morocco and Moravia)
- Treatment for scars, birthmarks and epilepsy
• A custom that seems comical when viewed from our position of less ignorance was once profound; a practice, both evil and disgusting to our prejudiced refinement, was once essential.

• The strange superstitious and religious practices connected with the placenta are elemental because they concern the very survival of the species.

alisonbrierley.wordpress.com
Placenta Anatomy and Physiology

- Circulation by **17th day** of gestation
- Placenta completely develops and functions by **10th week** but continues forming until the end of the 16th week of gestation.
- 3 weeks after fertilization, small projections appear and form the chorionic villi.
- These villi erode the walls of the maternal blood vessels and open sinuses where maternal blood pools.
- It is a temporary endocrine organ and has a blood flow of **1000 mL per minute.**
Placenta Anatomy and Physiology

• The maternal surface has 15-20 cotyledons each containing major branches of the umbilical blood vessels.
• The villi hang in the intervillous space inside the uterine wall that is filled with mom’s blood. This is where the exchange of nutrients, oxygen, and waste products occur.
• It serves as an organ for respiration, nutrition, excretion, and protection as well as secreting hormones to stabilize pregnancy.
(Normal) Placenta “Stats” at Term

- Weight: 400-470 grams
- Diameter: 20-22 cm
- Thickness: 2.5 cm
- Umbilical cord length: 49-52 cm
- Umbilical cord thickness: 2.5 cm
Abnormal Placentas

- Abnormal structures
- Abnormal shapes
- Placental malperfusions
- Extrachorialis placentas
- Accreta family of abnormalities
- Infarcts/Calcifications

www.nlm.nih.gov
Placenta Abruptio
Chronic vs Traumatic Abruption

library.med.utah.edu

neundimension.tistory.com
Vasa Previa
Vasa Previa

• Rare, potentially catastrophic complication.
• Often associated with a velamentous insertion of the umbilical cord.
• Fetal vessels run through the fetal membranes.
• Vessels are at risk of rupture with consequent fetal exsanguination.
• Affects 1:1,300 to 8,300 pregnancies.
Kleihauer-Betke Test

• Blood from vagina may be tested to confirm origin – mom or fetus.

• However, in clinical practice it cannot be done quickly enough to be of value.
Yikes!
Velamentous Insertion
Furcate Insertion of Umbilical Cord

• Sites of cord insertion are variable.
• Insertion itself can take an abnormal shape.
• Vessels may branch before the cord inserts onto the surface of the placenta.
• The individual vessels are visible and lost some protection of Wharton’s jelly as they insert onto the placental surface.

aibolita.com
Battledore Placenta

• Cord insertion is near the placenta margin rather than the center.
• May be called a “marginal insertion” placenta.

Comparison of marginal and velamentous insertion of cord.
Bi-lobed Placenta (Bilobata)
Succenturiate Placenta

- Single or multiple lobe(s)
- Differ from bi-lobed only in the size and number of accessory lobes.
- 50% are associated with infarction or atrophy of the succenturiate lobe.
- Membranous vessels always present connecting each lobe and are susceptible to damage.
- Umbilical cord insertion in the dominant lobe.

midwifetotheworld.blogspot.com
Placenta Previa

Definition

• Placenta covers the cervix either completely or partially OR
• Extends close enough to the cervix to cause bleeding:
  • when the cervix dilates or
  • the lower uterine segment effaces

Etiology

• Underlying cause: unknown
Placenta Previa: Low-Lying

Placenta “migration” = trophotropism

- Placenta does not move—it is likely the placenta grows toward the improved blood supply at the fundus
- This leaves the distal portions closer to the poor blood supply of the uterine segment.
- That part of the placenta regresses and atrophies.
Placenta Previa Management

• Elective delivery performed before significant bleeding occurs.
  • Just after 36 weeks

• Previa and low lying placentas provide substantial risk of intraoperative hemorrhage.
• Postpartum hemorrhage may occur from the placenta implantation site secondary to atony.
• May require addition pharmacologic agents to control blood loss.
• B-lynch suture or local suturing of the placenta bed may be needed.
• If refractory hemorrhage, hysterectomy may be required.
Placenta Accreta

Diagnostic feature of accreta is the lack of decidua and not implantation onto the myometrium.
Placenta Accreta

MRI Helps Detect Placenta Accreta

MRI shows placenta overlying the cervix, with irregular outer contour and an abnormal appearance, indicating uterine invasion.

MRI shows placenta overlying the cervix, with a normal, smooth outer contour. There is no evidence of uterine wall invasion.
FIGURE 1 Ultrasound is an excellent screening test for accreta, with a sensitivity of 77%–93% and a specificity of 71%–91%.
C-hyst required for this woman. First pregnancy, no history of uterine surgery. Cesarean was for “failure to progress.” MD recognized issue, performed a C-hyst. Woman received only 2 units of blood products.
Preventing Maternal Death: 10 Clinical Diamonds
Authors: Clark, Steven L. MD; Hankins, Gary D. V. MD

Abstract
The death of a mother during or after childbirth is one of the most tragic events in medicine. We have identified 10 specific recurrent errors that account for a disproportionate share of maternal deaths, primarily related to pulmonary embolism, severe preeclampsia, cardiac disease, and postpartum hemorrhage. Attention to these principles and the development and adoption of local or regional clinical protocols that address these issues will help reduce the likelihood and effect of error and of maternal mortality.

2012 by The American College of Obstetricians and Gynecologists.
Diamond Nine

• Any woman with placental previa and one or more cesarean deliveries should be evaluated and delivered in a tertiary care medical center.
Placenta Membranacea (Diffusa)

- Rare abnormality
- Nearly all of the circumference of the fetal sac is covered by villous tissue.
- The placenta is thin (1 cm) and disrupted.
- Etiology? Perhaps abnormalities of the endometrium.
- May be associated with placenta previa.
- Affected pregnancies result in preterm birth and commonly placenta accreta.
- Hemorrhage is common.
Extrachorialis Placentas

**Definition**: Extra placental tissue beyond the chorionic plate.

- One is “plicated” or folded over on itself, the other is not.
- They are circummarginate and circumvallate placentas.
- About 25% of placentas show partial or complete extrachorialis.
Circumvallate Placenta

- Vallate = surrounded by a wall or elevation, cupped.
- Small chorionic plate with a thick whitish ring due to the membranes “double backing” on the fetal side around the edge of the placenta.
- The chorionic plate is smaller than the basal plate.
- Predisposition to margin separation and midtrimester bleeding.

Vessels terminate abruptly at margin of ring when viewed from fetal side.

www.fetalultrasound.com
Placenta Circummarginate

- A "normal" flat transition from the amnion and chorion of the chorionic plate to the amnion and chorion of the extraplacental membranes.
- The "insertion" of the extraplacental membranes appears normal, just at a distance inward from the outer circumference of the placental disk.
- There is no folding or rolling of the chorion, and there is minimal fibrin and no recent or old hemorrhage.

www.mussenhealth.us
Placental Infarcts & Calcification

- **Red Infarcts**
  - Hemorrhage from maternal vessels in decidua.
  - Become white due to fibrin.

- **White Infarcts**
  - Hypertensive states
  - Excessive fibrin or calcium deposition

[Image of a placenta with red and white areas]
Indications for Placenta Exam

**Maternal Indications**
- Coagulopathy
- Hypertension
- Diabetes
- Prematurity/postmaturity
- Oligo/poly
- Chorioamnionitis/fever
- Bleeding unknown origin
- Abruptio placenta

**Fetal/Neonatal Indications**
- Stillbirth/perinatal death
- IUGR
- Hydrops
- Neuro issues/seizures
- Apgar less than 3 at 5 min
- Suspected infection
- Congenital anomalies

**Placental Indications**
Gross abnormality of placenta, membranes or cord
Macroscopic Examination

- Odors
- Shape and weight
- Membranes (complete?)
- Membrane rupture site
- Color/appearance
- Membrane insertion
- Subchorionic region
- Fetal surface vessels
- Measure length/diameter of cord
- Identify spiraling of cord and insertion site
- Look for knots and # vessels
- Placenta disc dimensions
- Completeness
- Retroplacental hematoma?
- Color of villous tissue
- Any villous lesions
Lotus Birth

Lotus Birth is the practice of leaving the umbilical cord uncut, so that the baby remains attached to the placenta until the cord naturally separates at the navel, exactly as a cut cord does 3-10 days after birth.

news.asiantown.net

"We need to relearn what a birth can be like when it is not disturbed by the cultural milieu. We need a reference point from which we should try not to deviate too much. Lotus Birth is such a reference point." Michel Odent
It's practice, through witnessing, restores faith in the natural order. Lotus Birth extends the birth time into the sacred days that follow and enables baby, mother and father and all family members to pause, reflect and engage in nature's conduct. Lotus birth is a call to return to the rhythms of nature, to witness the natural order and to the experience of not doing, just being.
Other Things to Do with Placentas

• Encapsulate
• Artwork
• Jewelry
• Facial
• Hair condition
• Ah, yes, food
The danger of rabbit holes.....
References


