



# **PLACENTAL EXAMINATION**

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## Introduction

- **Placenta** is derived from the Greek word, plakuos, meaning flat cake and this reflects its typical appearance.
- **Placenta** is a foetal organ of pregnancy, which is responsible for providing nutrition and oxygen to the foetus as well as excretory functions.

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## Embryology

- Placenta is formed by foetal and maternal components
- **Maternal component** - decidua placentalis is the inner portion of the placenta, which is formed by trophoblastic invasion of endometrium
- **Fetal component** - chorion frondosum is formed by an arterial plexus (branches of umbilical artery), protruding into intervillous spaces as chorionic villi

## Gross anatomy

- The placenta normally lies along the anterior or posterior wall of uterus and may extend to lateral wall with increasing gestational age .
- The term placenta weighs ~470g to 500g and measures ~22cm in diameter with a thickness of 2.0-2.5cm 3.
- Placental thickness is usually directly proportional to gestation age, to the extent that it can often predict the gestation weeks (e.g. 21 mm thickness at 21 weeks gestation).



## Examination of the Placenta

- A one-minute examination of the placenta performed in the delivery room provides information that may be important to the care of both mother and infant.
- The findings of this assessment should be documented in the delivery records.
- During the examination, the size, shape, consistency and completeness of the placenta should be determined, and the presence of accessory lobes, hemorrhage, tumors and nodules should be noted

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- The umbilical cord should be assessed for length, insertion, number of vessels, thromboses, knots and the presence of Wharton's jelly.
- The color, luster and odor of the fetal membranes should be evaluated, and the membranes should be examined for the presence of large (velamentous) vessels

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- Tissue may be retained because of abnormal lobation of the placenta or because of placenta accreta.
- Numerous common and uncommon findings of the placenta, umbilical cord and membranes are associated with abnormal fetal development and perinatal morbidity.
- *The placenta should be submitted for pathologic evaluation if an abnormality is detected or certain indications are present.*

## Clinical Characteristics of the Normal Placenta

- A fresh, term, healthy placenta is approximately 15 – 20 cm in diameter, 2.0 to 2.5 cm thick and height ranges between 40 -60cm. It generally weighs approximately 5-600gms (1/6 of the baby's birth weight)
- The maternal surface of the placenta should be dark maroon in colour and should consist of around 20 cotyledons. The structure should appear complete, with no missing cotyledons.
- The fetal surface of the placenta should be shiny, gray and translucent enough that the color of the underlying maroon villous tissue may be seen.



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- The normal cord contains two arteries and one vein. During the placental examination, the delivering physician should count the vessels in either the middle third of the cord or the fetal third of the cord, because the arteries are sometimes fused near the placenta and are therefore difficult to differentiate.
- Fetal membranes are usually gray, wrinkled, shiny and translucent. It consist of two layers; the amnion and the chorion

## Procedure: examination of the placenta

- Explain the procedure to the parents and ask if they wish to observe.
- Ensure that there is adequate lighting to check the placenta. If the lighting in the delivery room is dim, it is advised that the placenta is examined in an alternative location where there is adequate lighting
- Prepare a flat surface with protection to avoid blood spillage.
- Prepare syringe and needle if cord samples are required
- Wearing an apron and gloves lay the placenta fetal side uppermost, noting the size, shape, smell and colour.
- Examine the cord, noting the length, insertion point and presence of true knots or thrombi.

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- Inspect the umbilical cord vessels at the cut end at the furthest point from the placenta as the arteries can be fused around the insertion site making it difficult to differentiate them.
- Observe the fetal side for irregularities such as succenturate lobes, missing cotyledons, fatty deposits or infarctions
- Lift the placenta up by the cord, by doing this the membranes can be observed for completeness. There is usually a single hole where the baby passes through the membranes
- Return the placenta to the surface and spread out the membranes to look for extra vessels, lobes or holes in the surface. Separate the amnion from the chorion by pulling the amnion back over the base of the umbilical cord to ensure both are present.

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- Turn the placenta over to inspect the maternal surface.
- Examine the cotyledons, ensuring all are present, noting the size and any areas of infarction, blood clots or calcification. Retain the clots to make an accurate assessment of blood loss.
- The lobes of a complete placenta fit neatly together without any gaps with the edges forming a uniform circle. Broken fragments of cotyledon should be carefully replaced before making an accurate assessment. e.g. succenturate lobes, missing cotyledons, fatty deposits or infarctions.



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- Where there is suspicion that the placenta and/or membranes are incomplete, they should be kept for further inspection and referred to the duty obstetrician.
- Inform the mother of your findings
- Complete documentation in the woman's health care record.

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## Interpretations

### Placental Size:

- Placentas less than 2.5 cm thick are associated with intrauterine growth retardation of the fetus.
- Placentas more than 4 cm thick have an association with maternal diabetes mellitus, fetal hydrops and intrauterine fetal infections

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## Placental Consistency and Surfaces

A: Maternal Surface. In a term infant without anemia, the maternal surface of the placenta should be dark maroon. In a premature infant, the placenta is lighter in color.

- Pallor of the maternal surface indicates the presence of fetal anemia, which may be a sign of hemorrhage. With prompt recognition of fetal hemorrhage (such as occurs in vasa previa), lifesaving transfusion can be performed.
- Clots on the maternal surface, particularly adherent centrally located clots, may represent placental abruption.

B: Fetal Surface. A thick ring of membranes on the fetal surface of the placenta may represent a circumvallate placenta which is associated with prematurity, prenatal bleeding, abruption, multiparity and early fluid loss. A similar but thinner ring of membrane tissue represents a circummarginate placenta

## Umbilical Cord

- While opinions of authorities differ with regard to the limits of normal for cord length, 40 to 70 cm would appear to be a reasonable range. A short cord is associated with a less active fetus, fetal malformations, myopathic and neuropathic diseases, Down syndrome and oligohydramnios.
- Short cords may result in cord rupture, hemorrhage and stricture. Cords of insufficient length may also result in breech and other fetal malpresentations, a prolonged second stage of labor, abruption and uterine inversion.
- The umbilical cord may become excessively long because of fetal hyperkinesis. Long cords are associated with entanglements, torsion, knots and thromboses.



## **Cord Vessels**

- The umbilical cord typically contains two arteries and a single vein. If only one artery and one vein are grossly visible, the fetal anomaly rate is nearly 50 percent. These anomalies may affect the cardiovascular, genitourinary or gastrointestinal system, and other systems as well.

## **Free Fetal Membranes**

- Fetal membranes should be thin, gray and glistening. Thick, dull, discolored or foul-smelling membranes indicate the possibility of infection.
- The nature of the odor may provide a clue to the infecting organism: a fecal odor may indicate *Fusobacterium* or *Bacteroides*, while a sweet odor may indicate *Clostridium* or *Listeria*

## References

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2. JB Sharma " midwifery and Gynecological nursing" 1<sup>st</sup> edition, 2015, published by Avichal publishing house
3. Dc Dutta " Textbook of obstetrics" 8<sup>th</sup> edition ,2006, published by Jaypee brothers