

SIMULATIONS AND DRILLS: EDUCATIONAL TOOL #1.

SAMPLE SCENARIO #1: ABRUPTIO PLACENTAE

Leslie Casper, MD

SCENARIO: A 22 year old gravida 4 para 3303 caucasian woman carrying a singleton pregnancy at 35 weeks estimated gestational age presents to the emergency room with vaginal bleeding. She has had limited prenatal care and she reports that she is approximately 36 weeks estimated gestational age by dates. Her records indicate she is carrying a singleton pregnancy in the vertex presentation. Her past medical history is uncomplicated, she has no allergies, and she takes no medications other than prenatal vitamins. She admits to smoking one-half pack of cigarettes per day. Her prenatal labs are not available. She states that her pregnancy has been uncomplicated with the exception of occasional spotting in the last trimester. She is uncertain if she has experienced rupture of membranes. An external fetal monitor is in place.

Physical examination reveals:

- Vital signs heart rate = 132 beats per minute, blood pressure 135/80 mm Hg
- Uterus: longitudinal fetal lie, vertex presentation
- Cervix: dilatation 2 cm, effacement 40%, station -2, small amounts of bright red blood per vagina are noted

Fetal Monitor Output:

Fetal Heart Rate

- Baseline: 140 beats per minute
- Deviations from baseline: accelerations seen initially, then vanishing; variable decelerations evolving into persistent late decelerations

Fetal Heart Rate Variability

- Short-term: normal becoming decreased
- Long-term: normal becoming decreased

Maternal Uterine Activity

- Frequency of contractions: normal progression with increased frequency progressing to hypertonus near time of delivery
- Duration of contractions: gradually increasing to 80 seconds intensity of contractions: gradually increasing to 120mm Hg

CASE SUMMARY: Abruptio placentae or placental abruption is the premature detachment of a normally implanted placenta from the uterus. The incidence is approximately 0/5-1%.¹ The majority of cases actually occur prior to the initiation of labor. The combination of uterine bleeding, increased frequency of uterine contractions or hypertonus, and a non-reassuring fetal heart rate tracing is highly suspicious for placental abruption. As functional placental surface area decreases with evolving abruption, placental gas exchange becomes increasingly impaired resulting in fetal hypoxemia and acidemia. A retroplacental clot is often found upon inspection of the placenta after delivery.

Abruptio placentae is classified as follows²:

- Grade 1: mild vaginal bleeding and uterine irritability
- Grade 2: moderate bleeding with increased uterine irritability or tetany; maternal supine hypotension and tachycardia; evidence of fetal distress on fetal monitor tracings
- Grade 3: severe bleeding; uterine tetany; maternal hypotension and coagulopathy

Ultrasound will help to differentiate placental abruption from placenta previa.

Placental abruption has been associated with maternal hypertension, chorioamnionitis, advanced maternal age, advanced parity, maternal trauma, and ingestion of cocaine or tobacco.^{3,4} Although the incidence of placental abruption is <1%, it accounts for a significant percentage of perinatal mortality.

Management of abruptio placentae can be difficult. While a grade 1 abruption in a woman carrying a full term fetus mandates close monitoring and active management of labor, more advanced degrees of abruption may require emergent operative delivery due to significant risk to both mother and fetus.

REFERENCES

1. Knab D. Abruptio placentae. An Assessment of the time and method of delivery. *Obstet Gynecol* 1979;52:625-9.
2. Benedetti TJ. Obstetric hemorrhage. In: Bagge SG, Niebyl JR, Simpson JL, eds. *Obstetrics: Normal and Problem Pregnancies*. 2E. Churchill Livingstone. New York, NY: 1991;579-84.
3. Acker d, Sachs BP, Tracey KJ, Wise WE. Abruptio placentae associated with cocaine use. *Am J Obstet Gynecol* 1983;146:220-1.
4. Andres RL. The association of cigarette smoking with placenta previa and abruptio placentae. *Sem Perinatol*; 1996;20:154-9.