CASE 3- Toy et al. CASE FILES: Obstetrics & Gynecology

After a 4-hour labor, a 31-year-old G4 P3 woman undergoes an uneventful vaginal delivery of a 7 lb 8 oz infant over an intact perineum. During her labor, she is noted to have mild variable decelerations and accelerations that increase 20 beats per min (bpm) above the baseline heart rate. At delivery, the male baby has Apgar scores of 8 at 1 min, and 9 at 5 min. Slight lengthening of the cord occurs after 28 min along with a small gush of blood per vagina. As the placenta is being delivered, a shaggy, reddish, bulging mass is noted at the introitus around the placenta.

◆ What is the most likely diagnosis?

◆ What is the most likely complication to occur in this patient?
ANSWERS TO CASE 3: Uterine Inversion

Summary: A 31-year-old G4 P3 woman has a normal vaginal delivery of her baby, and after slight lengthening of the cord, a reddish mass is noted bulging in the introitus.

**Most likely diagnosis:** Uterine inversion.

**Most likely complication:** Postpartum hemorrhage.

Analysis

Objectives

1. Know the signs of spontaneous placental separation.
2. Recognize the clinical presentation of uterine inversion.
3. Understand that the most common cause of uterine inversion is undue traction of the cord before placental separation.

Considerations

This patient’s history reveals that the first and second stages of labor are normal. The third stage of labor (placental delivery) reaches close to the upper limits of normal. The evidence for placental separation is never definite. **The four signs of placental separation are:** 1) gush of blood, 2) lengthening of the cord, 3) globular and firm shape of the uterus, and 4) the uterus rises up to the anterior abdominal wall.

In this case, although there is not good evidence for placental separation, traction on the cord is exerted, which results in an inverted uterus. The reddish bulging mass noted adjacent to the placenta is the endometrial surface; hence, the mass will have a shaggy appearance and be all around the placenta. Other masses and/or organs may at times prolapse, such as vaginal or cervical tissue, but these will have a smooth appearance.
APPROACH TO INVERTED UTERUS

Definitions

**Third stage of labor:** From delivery of infant to the delivery of the placenta (upper limits of normal is 30 min).

**Abnormally retained placenta:** Third stage of labor that has exceeded 30 min.

**Uterine inversion:** A “turning inside out” of the uterus; whereupon the fundus of the uterus moves through the cervix, into the vagina (Figure 3–1).

**Signs of placental separation:** Cord lengthening, gush of blood, globular uterine shape, and uterus lifting up to the anterior abdominal wall.

Clinical Approach

After a vaginal delivery, **95% of women experience spontaneous placenta separation within 30 min.** Because the uterus and placenta are no longer joined, the placenta is usually in the lower segment of the uterus, just inside the cervix, and the uterus is often contracted. The umbilical cord lengthens due to the placenta having dropped into the lower portion of the uterus. The gush of blood represents bleeding from the placental bed, usually coinciding with placental separation. If the placenta has not separated, excessive force on the cord may lead to uterine inversion. Massive hemorrhage usually results; thus, in this situation, the practitioner must be prepared for rapid volume replacement. Although it was classically taught by some that the shock was out of proportion to the actual amount of blood loss, this is not the case. In other words, **shock is due to massive hemorrhage!**

The best method of averting a uterine inversion is to await spontaneous separation from the placenta from the uterus before placing traction on the umbilical cord. Even after one or two of the signs of placental separation are present, the operator should be cautious not to put undue tension on the cord. At times, part of the placenta may separate, revealing the gush of blood, but the remaining attached placenta
Figure 3–1. Inverted uterus. Uterine inversion can occur when excessive umbilical cord traction is exerted on a fundally implanted, un-separated placenta (A). Upon recognition, the operator attempts to reposition the inverted uterus using cupped fingers (B).
may induce a uterine inversion or traumatic severing of the cord. The grand-multiparous patient with the placenta implanted in the fundus (top of uterus) is at particular risk for uterine inversion. A placenta accreta, an abnormally adherent placenta, is also a risk factor.

Treatment

With the diagnosis of an inverted uterus, immediate assistance—including that of an anesthesiologist—is essential because a uterine relaxation anesthetic agent, such as halothane (for uterine replacement), and/or emergency surgery may be necessary. If the placenta has already separated, the recently inverted uterus may sometimes be replaced by using the gloved palm and cupped fingers. Two intravenous lines should be started as soon as possible and preferably prior to placental separation, since profuse hemorrhage may follow placental removal. Terbutaline or magnesium sulfate can also be utilized to relax the uterus if necessary prior to uterine replacement. Upon replacing the uterine fundus to the normal location, the relaxation agents are stopped, and then uterotonic agents, such as oxytocin, are given. Placement of the clinician’s fist inside the uterus to maintain the normal structure of the uterus is important.

Note: Even with optimal treatment of uterine inversion, hemorrhage is almost a certainty.

Comprehension Questions

[3.1] Which of the following placental implantation sites would most likely predispose to an inverted uterus?

A. Fundal  
B. Anterior  
C. Posterior  
D. Lateral  
E. Lower segment
[3.2] Which of the following would be the next step after a 30-min third stage of labor?

A. Initiate oxytocin  
B. Wait for an additional 30 min  
C. Hysterectomy  
D. Attempt a manual extraction of the placenta  
E. Estrogen intravaginally

[3.3] Which of the following is LEAST likely to be a risk factor for uterine inversion?

A. Short umbilical cord  
B. Atonic uterus  
C. Nonseparated placenta  
D. Attenuated umbilical cord  
E. Grand-multiparity

[3.4] A 33-year-old G5 P5 woman who is being induced for preeclampsia delivers a 9 lb baby. Upon delivery of the placenta, uterine inversion is noted. The physician attempts to replace the uterus, but the cervix is tightly contracted, preventing the fundus of the uterus from being repositioned. Which of the following is the best therapy for this patient?

A. Vaginal hysterectomy  
B. Dührssen’s incisions of the cervix  
C. Halothane anesthesia  
D. Discontinue the magnesium sulfate  
E. Infuse oxytocin intravenously

Answers


[3.2] D. After 30 min, the placenta is abnormally retained, and a manual extraction is generally attempted.
[3.3] **D.** An attenuated umbilical cord leads to severing of the cord with traction and in a way protects against uterine inversion, whereas an unusually sturdy cord may predispose to uterine inversion.

[3.4] **C.** A uterine relaxing agent (such as halothane anesthesia) is the best initial therapy for a nonreducible uterus. Dührssen’s incisions are used to treat the entrapped fetal head of a breech vaginal delivery.

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**CLINICAL PEARLS**

- Although it can occur spontaneously, one of the most common causes of inverted uterus is undue traction on the cord when the placenta has not yet separated.
- The signs of placental separation are 1) gush of blood, 2) lengthening of the cord, 3) globular-shaped uterus, and 4) the uterus rising to the anterior abdominal wall.
- Hemorrhage is a common complication of an inverted uterus.
- The upper limit of normal for the third stage of labor (time between delivery of the infant to delivery of the placenta) is 30 min.

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**REFERENCES**

