STOP using instruments to assist with delivery of the head at cesarean

START disengaging the head prior to surgery

Errol R. Norwitz, MD, PhD, MBA

Rates of cesarean delivery in the second stage of labor have increased dramatically over the past few years. Compared with cesarean delivery prior to labor, second-stage labor cesarean is associated with a higher risk to both the mother and the fetus; risks include excessive bleeding, lower uterine segment extensions, injuries to the maternal ureters or bladder, and injury to the fetus. The risk is increased even further if the fetal head is deeply impacted in the pelvis. What can we do to avoid and manage such situations?

Anticipate an impacted fetal head

The true incidence of an impacted fetal head at the time of cesarean is not known, although a number of risk factors have been described (TABLE, page 32). Obstetric care providers should be aware of these risk factors and anticipate the likelihood of a difficult delivery of the fetal head at cesarean.

Options for managing an impacted fetal head at cesarean

Several techniques have been reported in the literature for managing the delivery of a deeply engaged head, including:

Using an assistant to push the fetus’s head up using a hand in the vagina (“push” technique). This can cause trauma to the fetus, since the force required to push the fetus up from below is uncontrolled. The reverse breech extraction (“pull” technique) involves pulling the infant out feet first through the uterine incision.

Use of an instrument. The most common instrument used is a vacuum extractor, although a number of other devices have been developed, including the Mureless fetal head extractor (an instrument with a hinged shaft and sliding collar lock), the C-Snorkel impacted fetal head release device (the device’s tip contains ventilation ports to facilitate airflow and release of the vacuum/suction created by the impacted fetal head), and the Fetal Pillow (a balloon device inserted in the vagina and inflated with sterile saline to disimpact an engaged fetal head before cesarean delivery).

While all of these techniques can cause injury to the mother and the fetus, available

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Routine use of vacuum extraction at the time of cesarean delivery cannot be recommended. Data favor use of the reverse breech extraction (pull) technique, since it is associated with fewer maternal risks, including lower rates of uterine incision extension, infection, and postpartum hemorrhage and a shorter operative time.\textsuperscript{12−18} As such, routine use of vacuum extraction at the time of cesarean delivery cannot be recommended.

Start disengaging the fetal head prior to cesarean

One useful technique in planning a cesarean in the second stage of labor or when an impacted fetal head is anticipated is to disengage the fetal head vaginally prior to skin incision. This can be done in the delivery room or in the operating room immediately prior to surgery with the help of an assistant.

While supporting the patient’s legs, the assistant inserts a hand into the vagina and pushes upward on the fetal head with gentle, sustained effort. The assistant should use a

**TABLE Risk factors for an impacted fetal head at cesarean delivery**

- Failed operative vaginal delivery
- Excessive caput and molding of the fetal head
- Secondary arrest of dilation
- Prolonged second stage of labor
- Occiput-posterior position

**FIGURE Assist from a vaginal hand: The “push” technique**
cupped hand or the palm of the hand while attempting to both elevate and flex the fetal head. It is best to avoid using 1 or 2 fingers to elevate the head, as this may cause excessive pressure at a single point and lead to injury, such as a skull fracture (FIGURE). The assistant should disengage his or her hand only when the operating surgeon is able to reach down and secure the fetal head from above.

Elevating the fetal head prior to skin incision offers 3 major advantages:

1. It avoids the embarrassing situation of having the fetus deliver vaginally before it can be pulled out through the abdominal incision. Although rare, this has been known to happen, because the dense regional musculature, leading to flexion and rotation of the fetal head, which then descends and delivers. Performing a final bimanual examination in the operating room after the establishment of surgical level anesthesia and immediately prior to skin incision will avoid this situation.

2. It elevates the fetal head, thereby creating additional space between the bony pelvis and fetal presenting part for the provider’s hand to fit. This helps minimize injury to the fetus and to the maternal soft tissues at the time of cesarean.

3. Lastly, it provides additional information about the extent to which the fetal head is impacted in the pelvis and may influence decision making around the time of cesarean delivery. For example, if the fetal head were deeply impacted in the pelvis and could not be disimpacted vaginally, the surgeon may choose to make a different uterine incision (such as a low vertical hysterotomy), administer a uterine relaxant (an inhaled anesthetic agent or nitric oxide), ask for additional instrumentation, and/or ask an assistant to be ready to elevate the fetal head vaginally should this be necessary.

References