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Ultrasound-guided instrumental removal of the retained placenta after vaginal delivery

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Abstract

The standard treatment for retained placenta is manual extraction, in which a hand is introduced inside the uterus to cleave a plane between the placenta and the uterine wall. For women without an epidural, the procedure is extremely uncomfortable and may require additional measures such as intravenous narcotics or regional anesthesia. Although ultrasound-guided instrumental removal of the placenta is standard practice as part of second-trimester abortion by dilation and evacuation and may be done at many institutions, especially after failed manual extraction, it has not yet been described in the literature as a technique following vaginal birth. Our experience with this technique is that it causes less discomfort to the patient than a traditional manual extraction, because the instrument entering the uterus is much narrower than a hand.

With the patient in dorsal lithotomy, we locate the cervix and stabilize it either with fingers or a ring forceps on the anterior lip. We introduce Bierer ovum forceps into the uterus under direct ultrasound guidance. The Bierer forceps are preferred because of their long length, large head and serrated teeth that allow for a firm, secure grip on the placenta. We grasp the placental tissue with the forceps and apply slow, gentle traction in short strokes, re-grasping increasingly more distal areas of placenta as necessary to tease out the placenta (Figure 3 & Video). After 1-2 minutes, the placenta separates and can be pulled out of the uterus, usually intact.

Our experience suggests that this technique is a well-tolerated option for women without an epidural who have a retained placenta. Further study is needed to quantify the amount of discomfort and anesthesia that can be avoided with this technique, as well as whether there is any change in the frequency of infectious complications or the necessity of post-removal curettage.

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Keywords

retained placenta; ultrasound-guidance; Bierer forceps

Problem

Manual extraction of the retained placenta is uncomfortable for the patient without an epidural.

A retained placenta occurs in approximately 2-3% of vaginal deliveries in the United States (1-3), and commonly is defined as the failure of the placenta to deliver within 30 minutes following birth or after an umbilical cord avulsion. The standard treatment is manual extraction, in which a hand is introduced inside the uterus to cleave a plane between the placenta and the uterine wall. Although no published studies describe this finding, for women without an epidural, manual removal is very uncomfortable and may require additional measures such as IV narcotics or placement of regional anesthesia.

During a second-trimester surgical termination of pregnancy, the placenta is removed using ovum forceps to gently encourage separation of the placenta from the uterine wall (4). At our institution, we have extensive clinical experience using Bierer forceps under ultrasound guidance to remove a retained placenta after a vaginal delivery. We find that this technique is causes less discomfort to the patient than traditional manual extraction, because the instrument entering the uterus is much narrower than a hand. In addition, the instrument is sterile and “no touch technique” is observed, which theoretically could lead to a decreased risk of infection. Because the placenta is more likely to be removed intact, a follow-up curettage and/or aspiration is less likely to be necessary. Although ultrasound-guided instrumental removal of the placenta is done at other institutions, especially after manual extraction has failed, this technique has not yet been described in the literature as a useful, first-line strategy following vaginal birth.

Our Solution

After delivery of the infant, we perform active management of the third stage. If we diagnose a retained placenta, we use ultrasound to visualize the location of the placenta within the uterus (Figure 1). With the patient in dorsal lithotomy, we locate the cervix and stabilize it with fingers or a ring forceps on the anterior lip. We introduce Bierer forceps into the uterus under ultrasound guidance (Figure 2). These forceps are preferred because of their length (28-33 cm), large head (16-19 mm) and serrated teeth that allow for a firm, secure grip on the placenta, qualities that make them superior to a ring forceps, which may be used if Bierers are unavailable. The handle provides adequate length to grasp the placenta in a uterus that may still be palpable above the umbilicus. We grasp the placental tissue and apply slow, gentle traction in short strokes, re-grasping increasingly more distal areas of placenta as necessary to tease out the placenta (Figure 3). After 1-2 minutes the intact placenta separates and can be pulled out of the uterus (Figure 4), leaving an empty uterus with a thin stripe (Figure 5). We give a single dose of prophylactic antibiotics before the procedure to reduce the risk of endometritis.

We demonstrate the technique on a 29-year-old gravida 1 woman who delivered vaginally without epidural anesthesia. Her placenta remained in situ after 30 minutes and subsequently underwent ultrasound-guided instrumental removal of the placenta, which was removed intact. She reported minimal pain with the procedure and required only 100mcg of fentanyl (Video.)

Our experience with this technique suggests that ultrasound-guided placental removal using Bierer forceps is an excellent option for management of the retained placenta, especially in a woman without regional anesthesia or acute bleeding. Further study is needed to quantify the amount of discomfort and anesthesia that can be avoided with this technique, as well as whether this technique could decrease the frequency of infectious complications or the necessity of post-removal curettage.

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Condensation

Ultrasound-guided instrumental removal of the retained placenta is an alternative to manual extraction, especially in the patient without regional anesthesia.

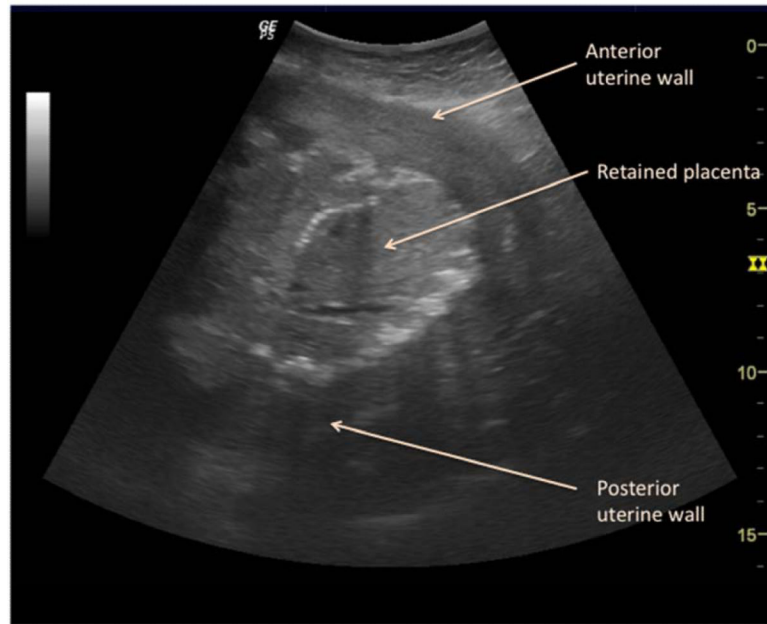


Figure 1.
Ultrasound image of the retained placenta in situ
This ultrasound image shows a retained placenta before it was removed.



Figure 2.
Bierer forceps, the instrument of choice for placental removal
This is a photo of the Bierer forceps, the instrument used for placental removal.

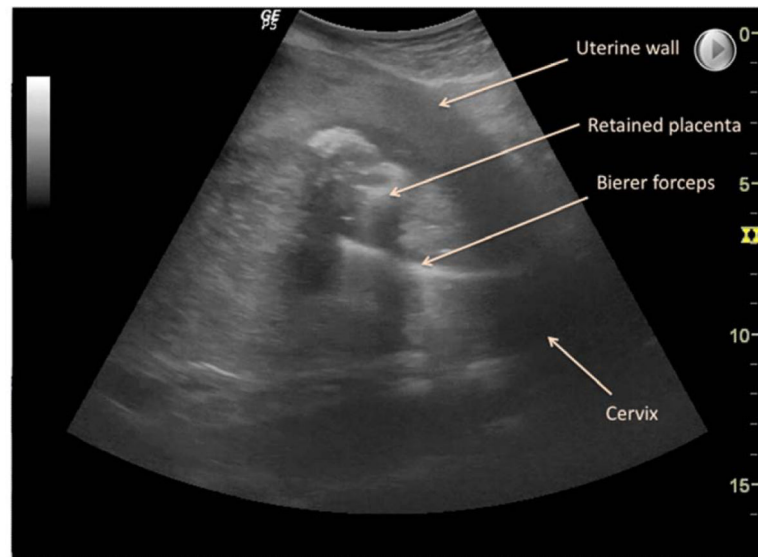


Figure 3.

Ultrasound image of Bierer forceps grasping the retained placenta with uterus, forceps and cervix identified.

This ultrasound image shows the forceps grasping the placenta in preparation to bring it out.

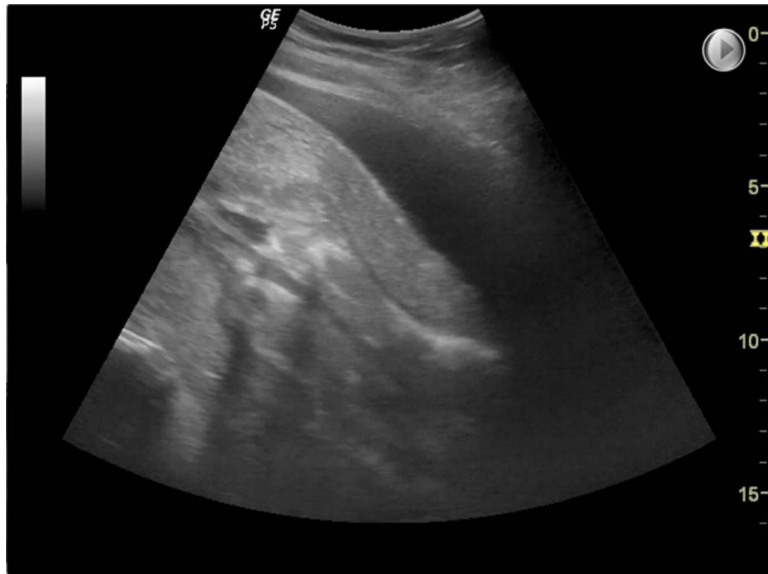


Figure 4.
Ultrasound image of placenta being brought out with Bierer forceps
In this image, the placenta has been loosened from its attachment to the uterine wall and is being slowly pulled out with the forceps/

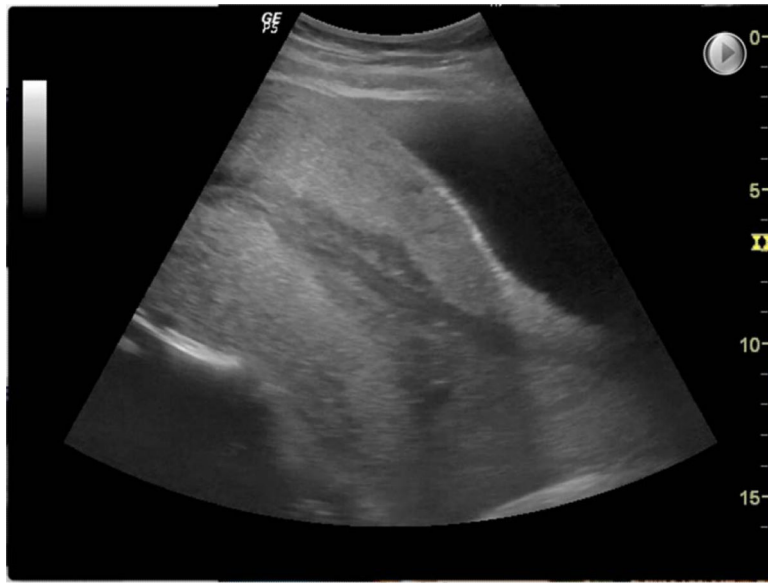


Figure 5. Ultrasound image of empty uterus after instrumental removal of the previously retained placenta.

This image shows the empty uterus after successful instrumental removal.

Video Clip: Ultrasound cine clip of Bierer forceps removing a retained placenta.

This video clip shows how the Bierer forceps are used to grasp and then slowly detach the placenta from the uterine wall and then bring it out of the uterus.