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Research Letter

Ultrasound appearance and alternative management of postvaginal delivery placenta accreta

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Obstetricians may unexpectedly encounter placenta accreta in the third stage of labor during vaginal delivery. An inadvertent attempt to remove a retained placenta due to accreta at delivery may lead to uterine inversion or devastating *postpartum* hemorrhage (PPH) [1]. The risk factors of placenta accreta include but are not limited to previous uterine surgery and prior endometrial injuries secondary to inflammation, curettage or electric cauterization [2]. It remains a great challenge for obstetricians to suspect and identify placenta accreta occurring in a primigravida who has a lack of risk factors.

A 29-year-old primigravid woman suffered from a retained placenta, which was trapped in the cervix for 50 minutes after vaginal delivery. The patient had no previous histories of uterine surgery or infection. The signs of expulsion and elongation of the umbilical cord were noticed and the front part of placenta was palpable at the cervical os and visible from the vagina. A transabdominal sonography performed 1 hour after vaginal delivery revealed a very thin posterior uterine wall at the placental implantation site and an active low-resistance intraplacental flow, indicating an active functional placenta accreta with incomplete separation. Transcatheter arterial embolization (TAE) of the bilateral uterine arteries using gelfoam, which was performed 3 hours after delivery, prevented acute intrauterine bleeding. Three days after the application of TAE, significant amounts of blood accumulated in the uterine cavity proximal to the placenta that was confined to the excessively distended lower segment of the uterus (Fig. 1A). An obscured interface between the placenta and the very thin posterior uterine wall was clearly shown on computed tomography scan (Fig. 1B). Without anesthesia, ring forceps were used to remove most of the placenta except for the residual part of placenta accreta, which is firmly attached to the uterine wall. During the procedure, roughly 600 mL of blood was successfully drained from the uterus. To reduce and prevent further PPH, 1 mg of recombinant activated factor VII (Novoseven RT, Novo Nordisk, Denmark) was intravenously administered and oral misoprostol (0.2 mg, daily) and tranexamic acid (250 mg, 3 times a day) were prescribed. No blood transfusion was administered because the vital signs of the patient remained stable and her hemoglobin level was 100 g/L. Seven days later, despite no obvious vaginal bleeding, transvaginal sonography revealed a 5 cm × 4 cm × 3 cm blood clot in the uterine cavity and a 4 cm × 4 cm × 3 cm residual placenta that was adhered to the thin posterior uterine wall (Fig. 2A) and associated with significantly less vascularity compared to previous ultrasound appearance. The placenta and the blood clots were removed piece by piece using a ring forceps under ultrasound guidance. The entire procedure caused minimal uterine bleeding. The follow-up sonography was ordinary except that there was a thin wall in the posterior lower segment of the uterus (Fig. 2B). The serum level of β-human chorionic gonadotropin returned to normal within 1 month *postpartum* and the patient felt well.

Placental separation from the uterine wall is usually accompanied by signs of expulsion and elongation of the umbilical cord outside the vagina followed by descent of the placental tissue that is palpable at the cervical os. Of note, these signs may appear when partial placental separation occurs as a result of focal placenta accreta, leading to a descending placenta trapped in the cervix concomitant with PPH accumulating in the uterine cavity. Color Doppler images of postvaginal delivery placenta accreta performed during the third stage of labor are scant in the literature. It is prudent to use color Doppler studies to exclude the presence of placenta accreta prior to an attempt to remove a retained placenta during vaginal delivery [3]. Conservative treatment of placenta accreta is feasible but carries the risk of adverse events, such as infection, pain, coagulopathy, and PPH [4]. TAE using gelfoam plays a role in minimizing acute PPH and accelerates

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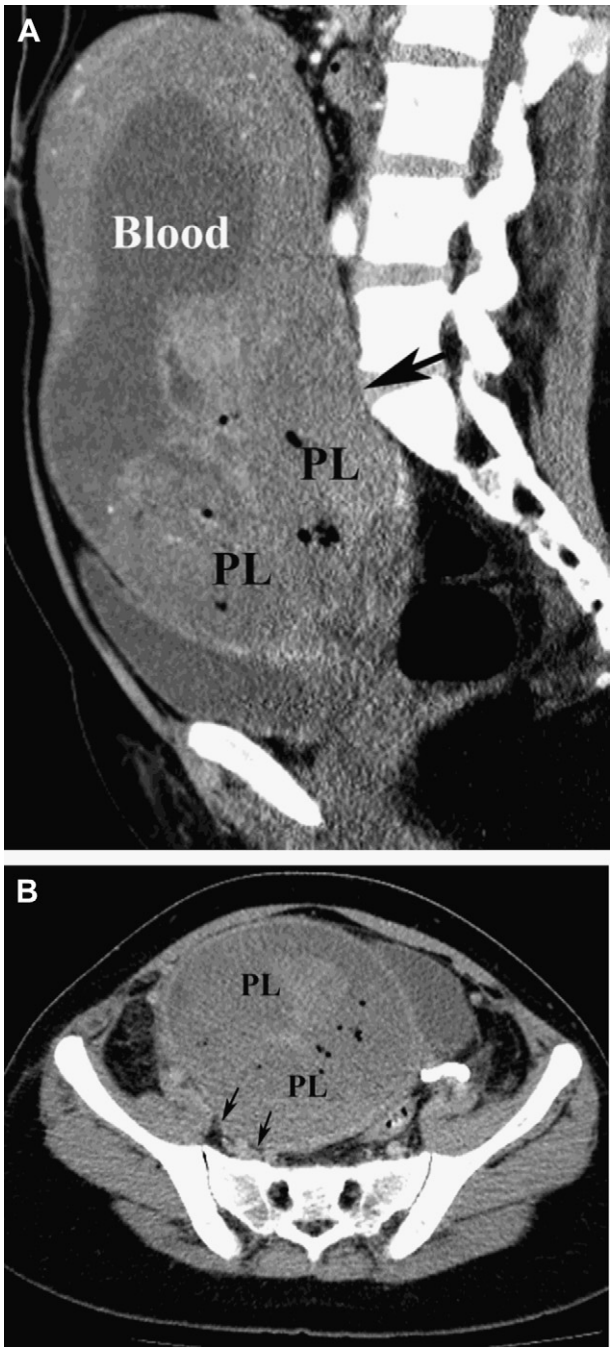

Fig. 1. (A) Sagittal computed tomography showing a distended uterus filled with a large quantity of blood, a retained placenta (PL) trapped in the lower segment of the uterus, and an obscured interface between the placenta and the very thin posterior uterine wall (arrow). (B) Axial view showing an obscured interface (arrows) between the placenta and the very thin posterior uterine wall, corresponding to placenta accreta. Most of the placenta was removed by the use of ring forceps.

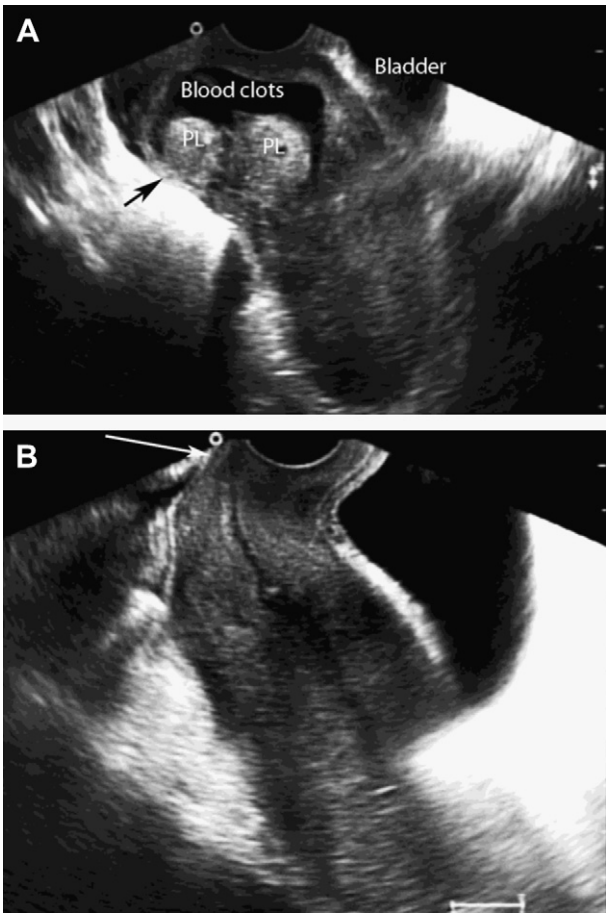

Fig. 2. (A) Transvaginal sonography performed 10 days after vaginal delivery displayed blood clots and residual placental tissues (PL), which were adhered to the thin posterior uterine wall (arrow) and associated with significantly less vascularity compared to previous ultrasound appearance. The blood clots and the residual placenta were removed by the use of a ring forceps under ultrasound guidance. (B) The follow-up transvaginal sonography was ordinary except that there was a thin wall in the posterior lower segment of the uterus (arrow).

the involution of placenta accreta [3,5], but may fail to prevent delayed PPH because of recanalization of blood vessels after absorption of gelfoam. Of note, renal failure due to the use of over-dose contrast, necrosis of the bladder or uterus, pulmonary embolism, and embolization of leg vessels are the potential major complications after the application of TAE [4].

The recommended dose of recombinant activated factor VII to treat acute PPH is 0.04–0.09 mg/kg [6]. A small dose (1.2 mg) of recombinant activated factor VII has been reported to successfully deal with PPH due to immune thrombocytopenia purpura [7]. Thus a small dose of recombinant activated factor VII may be considered to reduce and prevent delayed uterine bleeding due to a residual placenta. However, blood clots may gradually accumulate in the uterine cavity and need further management by the use of ring forceps or oral misoprostol [7].

Ring forceps provide the benefit of allowing one to firmly clamp, gently twist and remove the residual placenta with less bleeding and complication. Under ultrasound guidance, the application of ring forceps is simple and seems to be safe. This alternative approach enables the patient to retain her uterus and avoids invasive major surgery. The risk of recurrence of placenta accreta during future delivery still exists, however, and obstetricians should deliver this message to the patient [8].

In summary, precise diagnosis of postvaginal delivery placenta accreta by color Doppler studies obviated an attempt to remove the retained placenta and prevented devastating acute PPH. In combination with the application of embolization of uterine arteries and recombinant factor VII, the use of ring forceps under ultrasound guidance seems to be another alternative method to efficiently tackle postvaginal delivery placenta accreta and preserve the uterus for future fertility.

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