

EP14.14. First reported real-time ultrasound visualization of marginal placental sinus rupture causing third-trimester bleeding

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Background

Marginal placental sinus rupture is a rare cause of third-trimester bleeding. We report the first case in which **rupture was directly visualized in real time by ultrasound**, with immediate correlation with vaginal bleeding.

Case

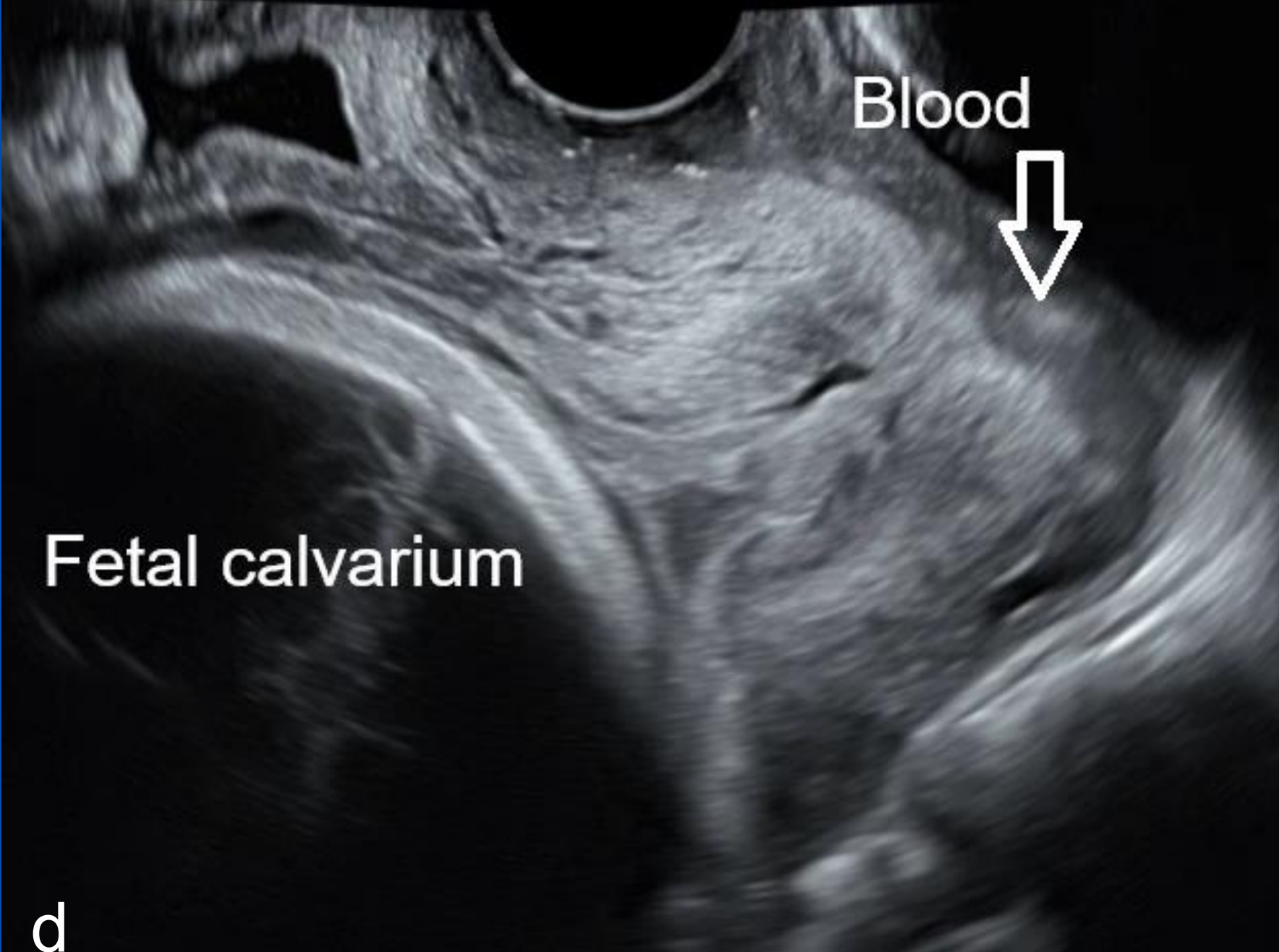
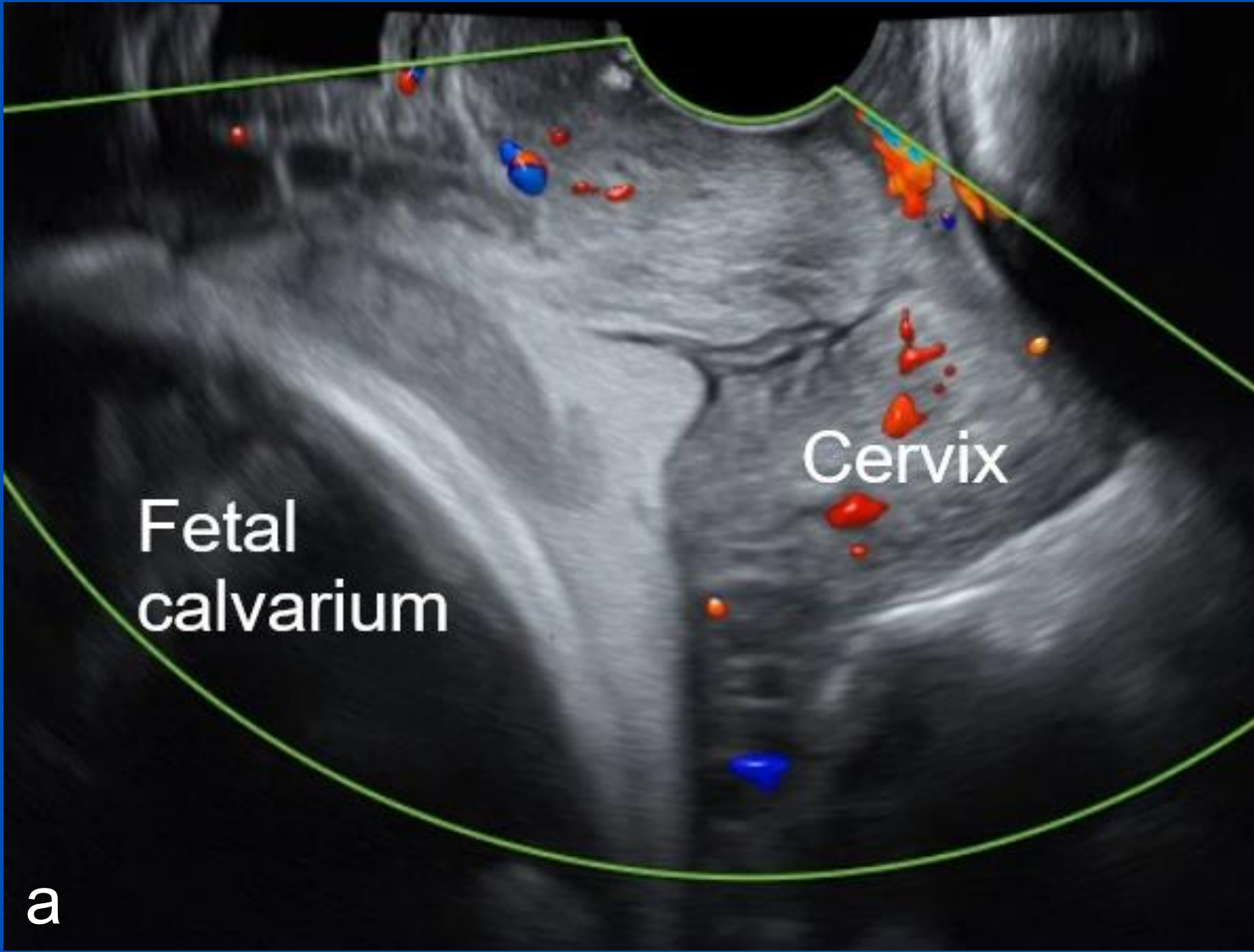
A 34+1-week primigravida presented for a routine third-trimester ultrasound examination. A previous ultrasound performed in her home country had reported complete placenta previa. Transvaginal ultrasound was performed with elevation of the fetal head to assess the region of the internal cervical os. A posterior placenta with a **marginal sinus extending over and beyond the internal cervical os into the cervical canal** was identified. No Doppler flow was detected within the sinus. During the examination, **real-time rupture of the marginal sinus was observed**, coinciding with uterine activity. Blood was immediately visualized in the vagina, followed by vaginal bleeding. The patient was managed conservatively with tocolysis (atosiban), corticosteroids and observation. The bleeding resolved without further complications.

Outcome

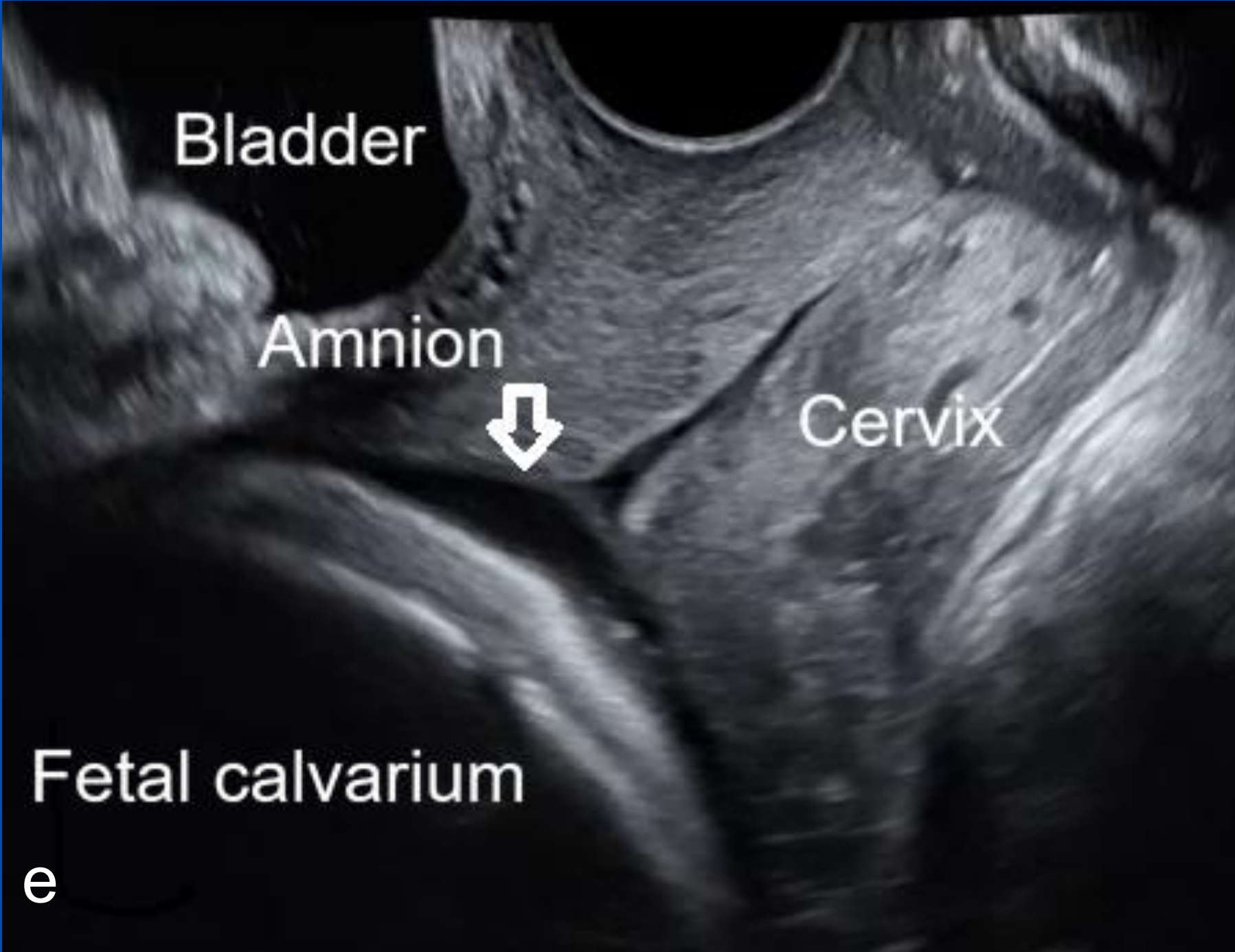
At 38 weeks, follow-up transvaginal ultrasound showed the **cervical canal, amnion and amniotic fluid anterior to the internal cervical os**, with neither the placenta nor the marginal sinus visualized in this area. The placental edge was 28 mm from the internal cervical os. Vaginal delivery was therefore not contraindicated, and spontaneous labour was awaited. At 40+1 weeks, she had a **spontaneous vaginal delivery of a healthy 3900 g neonate** (Apgar 9/10; umbilical artery pH 7.18).

Conclusion

- **Marginal placental sinus rupture may be an underdiagnosed cause of antepartum bleeding.**
- **Real-time ultrasound can directly demonstrate sinus rupture and its temporal relationship with vaginal bleeding.**
- **Extension of the marginal sinus beyond the internal cervical os may resolve during pregnancy and does not necessarily preclude vaginal delivery.**



Sequence of transvaginal ultrasound images at 34+1 weeks of gestation, obtained after elevating the fetal head to assess the area of the internal cervical os and the placental insertion. (a) Marginal placental sinus extending over and beyond the internal cervical os, with no detectable Doppler flow. (b) Marginal sinus extending into the cervical canal. (c) **Real-time rupture of the marginal placental sinus**. (d) Following rupture, **blood is immediately visualized in the vagina**, followed by vaginal bleeding. See accompanying video demonstrating the real-time sequence from uterine contraction to sinus rupture and immediate vaginal bleeding.



(e) Follow-up transvaginal ultrasound at 38 weeks of gestation showing the **cervical canal, amnion, and amniotic fluid anterior to the internal cervical os**, with neither the placenta nor the marginal sinus visualized in this area. The placental edge measured 28 mm from the internal cervical os, and **vaginal delivery was not contraindicated**.