

AMSER Case of the Month

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Abnormal Vaginal Bleeding

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Patient Presentation

37 yo G4P1031 presented with bloating, abdominal pressure and pain, and abnormal vaginal bleeding

Vital Signs:

- BP 152/97
- Temp 98.5
- BMI 41.7

HR 105

RR 18

What Test Should We Order?

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β -hcG

Pertinent Labs

- **β -hcG 14,556**

- CBC

- Hg 11.8

- Hct 36.1

- **WBC 11.9**

- Plt 479

- BMP Normal

- UA neg

Differential Diagnosis

- Intrauterine Pregnancy with:
 - Subchorionic Hemorrhage
 - Severe Cervicitis
 - Threatened Abortion
 - Trauma
- Early Pregnancy Loss – Failed Intrauterine Pregnancy
- Ectopic Pregnancy
- Molar Pregnancy

What Imaging Should We Order?

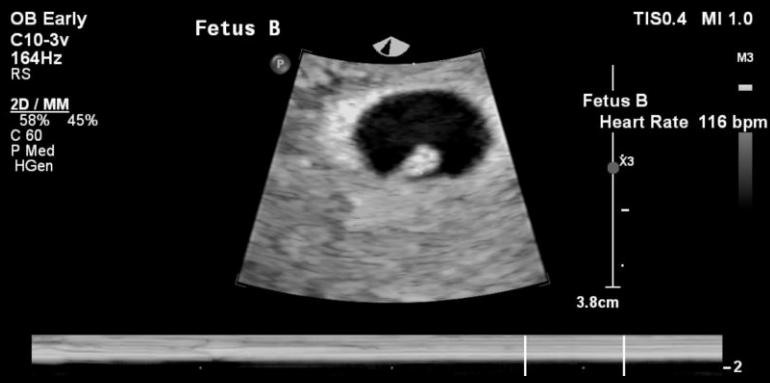
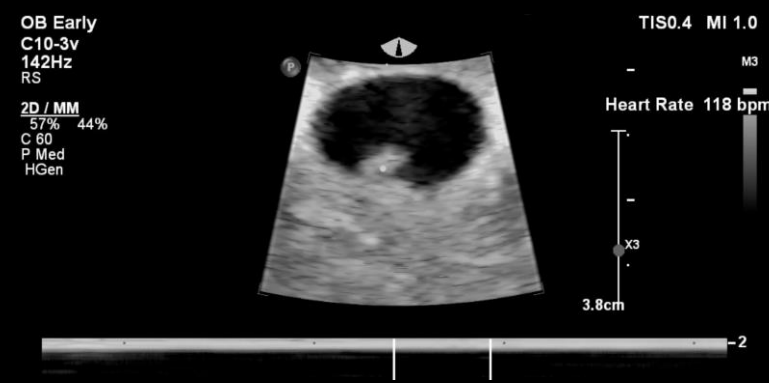
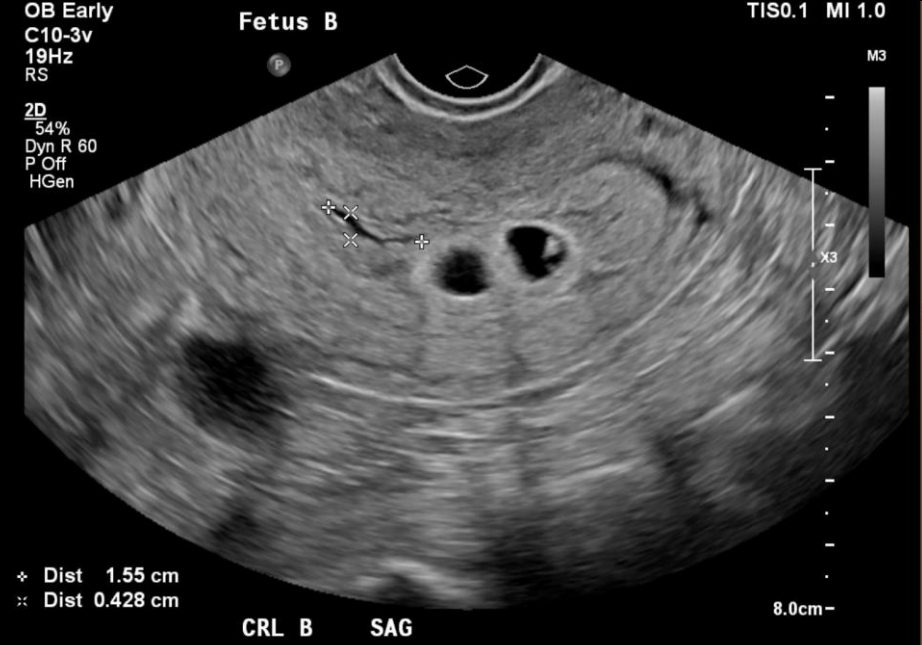
ACR Appropriateness Criteria

Variant 1:

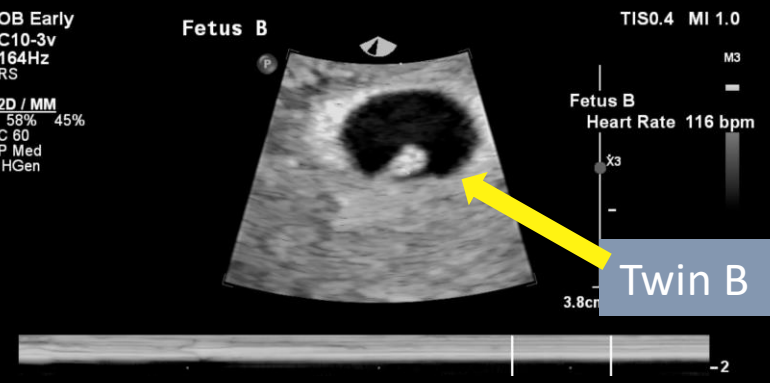
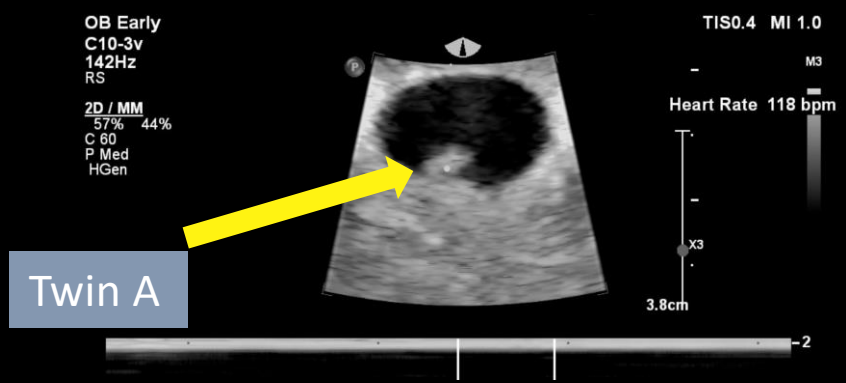
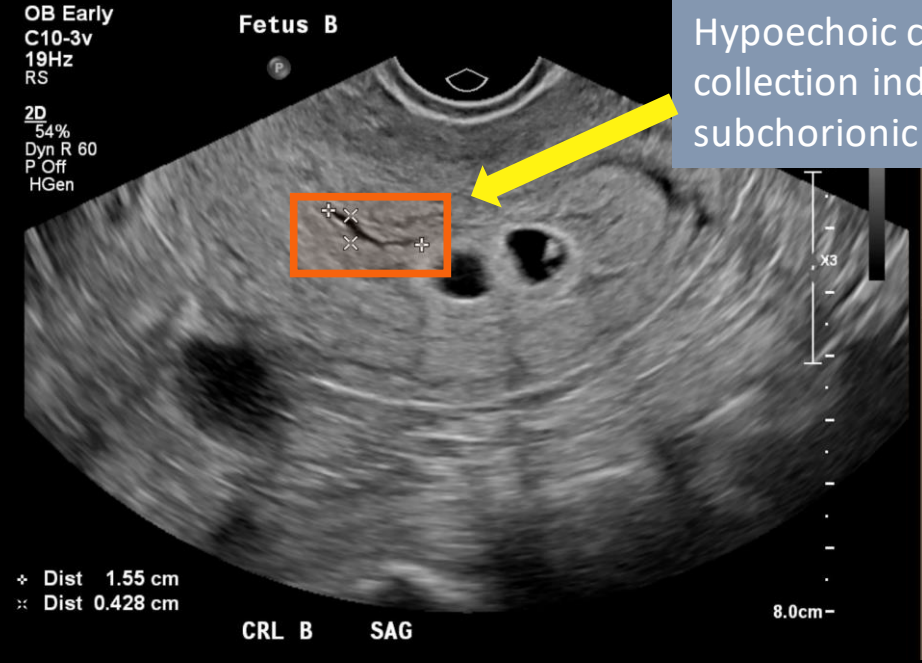
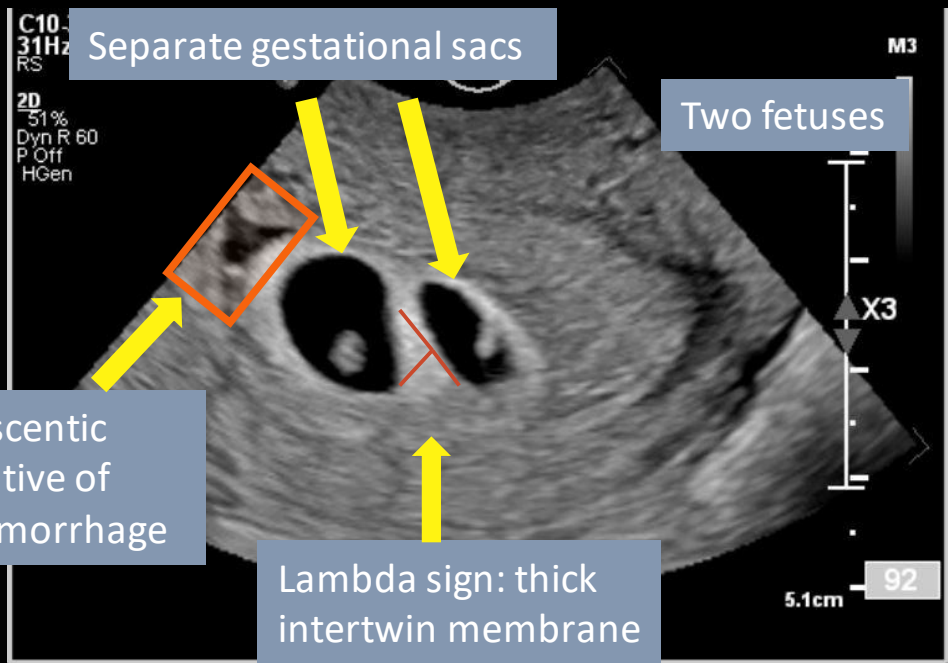
First trimester vaginal bleeding. Positive urine or serum pregnancy test.

Procedure	Appropriateness Category	Relative Radiation Level
US pelvis transvaginal	Usually Appropriate	○
US pelvis transabdominal	Usually Appropriate	○
US duplex Doppler uterus	May Be Appropriate	○
MRI pelvis without IV contrast	May Be Appropriate	○
MRI pelvis without and with IV contrast	Usually Not Appropriate	○
CT pelvis without IV contrast	Usually Not Appropriate	☼ ☼ ☼
CT pelvis with IV contrast	Usually Not Appropriate	☼ ☼ ☼
CT pelvis without and with IV contrast	Usually Not Appropriate	☼ ☼ ☼ ☼

Ultrasound Findings



Ultrasound Findings Labeled



Diagnosis?

Subchorionic Hemorrhage of Dizygotic Twin Pregnancy

Subchorionic Hemorrhage

Background

- Vaginal bleeding is a frequent complication of pregnancy during the first trimester with an incidence of 16%–25%
- Intrauterine hemorrhages are commonly observed features on ultrasound examinations, especially among patients with clinically evident bleeding in early pregnancy, and the incidence has been reported to be 4%–22%
- Subchorionic hemorrhage occurs when blood collects between the uterine wall and the chorionic membrane in pregnancy
- It is a frequent cause of first and second trimester bleeding
- Subchorionic hemorrhages usually appear as hypoechoic or anechoic crescent-shaped areas on ultrasonography
- Although the exact etiology is uncertain, they are believed to result from partial detachment of the chorionic membranes from the uterine wall
- Uterine malformations, history of recurrent pregnancy loss, and infections are predisposing factors

Quantification

- In early pregnancy, a subchorionic hemorrhage is considered small if it is <20% of the size of the sac, medium-sized if it is 20-50% and large if it is >50-66% of the size of the gestational sac
- Large hematomas by size and volume (>50 mL) worsen the patient's prognosis

Outcome

- Fetal outcome is dependent on the size of the hematoma, maternal age, and gestational age
- In most cases, they gradually decrease in size on follow-up and can resolve over 1-2 weeks

Dizygotic Twin Gestation

- Conceiving spontaneous dizygotic twins is complex and influenced by both environmental factors and genetic disposition
- Twins are relatively common and occur on average 13 times per 1000 maternities
- Twinning frequency varies over time and geographic location
- Dizygotic twinning occurs when two separate oocytes are released during the same menstrual cycle and fertilized by two sperm
- Dizygotic twins have the same genetic relationship as non-twin brothers and sisters and share about 50% of their genes
- Mothers of dizygotic twins report more female family members with dizygotic twins than mothers of monozygotic twins.
- Major maternal factors such as genetic history, advanced age and increased parity are known to increase the risk of dizygotic twins
- The increased use of fertility treatments such as *in vitro* fertilization, intracytoplasmic sperm injection, intra-uterine insemination and ovulation induction is commonly cited as the main cause of the increase in twin births in the past few decades

Imaging

- Ultrasound is crucial in the monitoring pregnancy and planning for delivery
- Ultrasound is used to determine the number of fetuses, their chorionicity and amnionicity
- It is easiest to determine chorionicity and amnionicity in the first trimester
- **Dizygotic twins:** dichorionic, separate gestational sacs, lambda sign, separate placental masses.

References

- ACRAppropriatenessCriteria<https://acsearch.acr.org/list>
- Chantal H, Zhen Z, Cornelius L, Gonneke W, Martin N, Dorret I. Boomsma, Montgomery G. (2008) Dizygotic twinning, *Human Reproduction Update*, 14, 37–47
- Bloch C, Altchek A, Levy-Ravetch M. (1989) Sonography in early pregnancy: the significance of subchorionic hemorrhage. *Mt Sinai J Med*. 56(4):290-292.
- Şükür, Y. E., Göç, G., Köse, O., Açmaz, G., Özmen, B., Atabekoğlu, C. S., Koç, A., & Söylemez, F. (2014). The effects of subchorionic hematoma on pregnancy outcome in patients with threatened abortion. *Journal of the Turkish German Gynecological Association*, 15(4), 239–242.
- Marceau, K., McMaster, M. T., Smith, T. F., Daams, J. G., van Beijsterveldt, C. E., Boomsma, D. I., & Knopik, V. S. (2016). The Prenatal Environment in Twin Studies: A Review on Chorionicity. *Behavior genetics*, 46(3), 286–303.