



AMSER Case of the Month:

30-year-old G3P1112 with postpartum bleeding

Brenda Castlemain, MS4

Drexel University College of Medicine

Dr. Matthew Hartman, MD

Allegheny Health Network

Dr. Ariel Sandhu, MD, Pathology PGY4

Allegheny Health Network

Dr. Angela Sanguino, MD

Allegheny Health Network

Patient Presentation

The patient is a 30-year-old G3P1112 status post vaginal birth after c-section (VBAC) presenting with vaginal bleeding. She reports persistent vaginal bleeding since delivery 2 months ago and was treated empirically with Keflex for suspected endometritis.

Pertinent Labs and History

WBC 8.5

HGB 11.3

HCT 33.2

PLT 171

- PMH negative for STI
- FH positive for breast cancer in mother and ovarian cancer in grandmother
- SH negative for new sexual partners

What Imaging Should We Order?

ACR Appropriateness Criteria

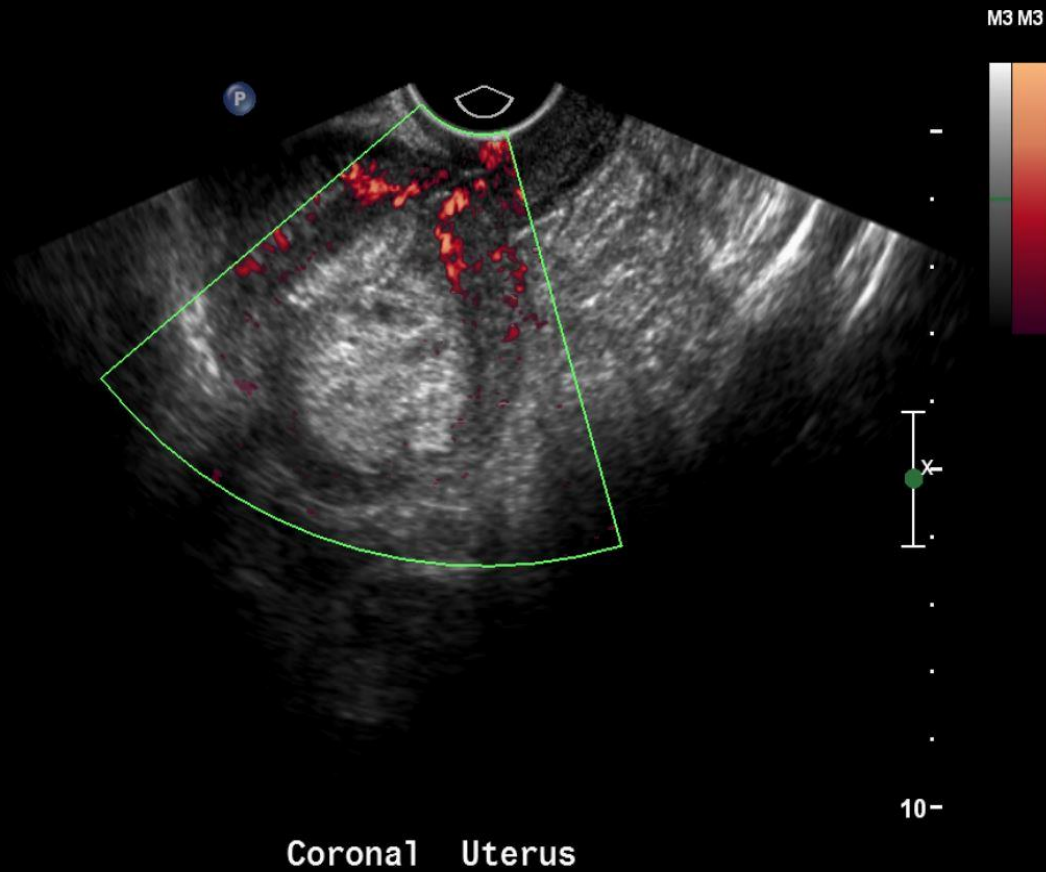
Variant 2: Postpartum hemorrhage. Early (within first 24 hours) after vaginal delivery. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
US duplex Doppler pelvis	Usually Appropriate	○
US pelvis transabdominal	Usually Appropriate	○
US pelvis transvaginal	Usually Appropriate	○
CT abdomen and pelvis with IV contrast	May Be Appropriate	⊕⊕⊕⊕
CT abdomen and pelvis without IV contrast	May Be Appropriate	⊕⊕⊕⊕
CT abdomen and pelvis without and with IV contrast	May Be Appropriate (Disagreement)	⊕⊕⊕⊕
CTA abdomen and pelvis with IV contrast	May Be Appropriate	⊕⊕⊕⊕
MRI pelvis without and with IV contrast	Usually Not Appropriate	○
MRI pelvis without IV contrast	Usually Not Appropriate	○



These imaging modalities were ordered by the physician

Ultrasound Findings (unlabeled)



FR 29Hz
RS
2D
60%
C 54
P Low
Res

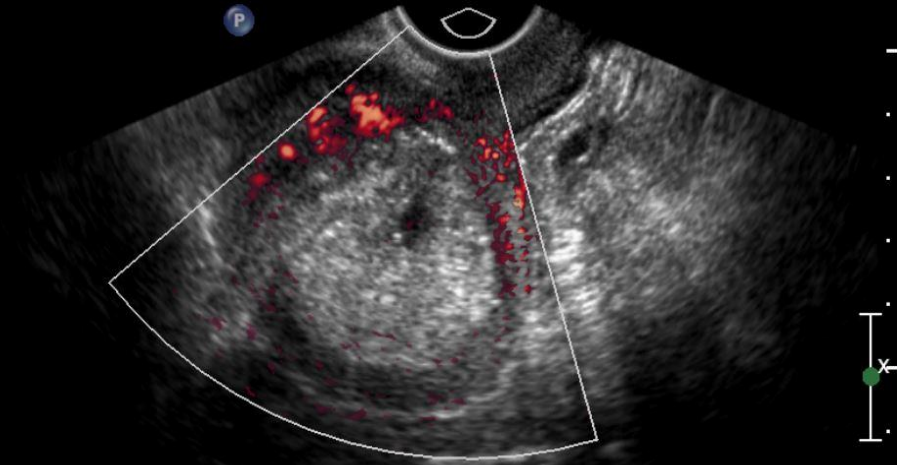
Dist 3.30 cm



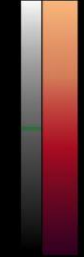
FR 10Hz
P1

2D
65%
C 43
P Med
Pen

CPA
100%
850Hz
WF 55Hz
Med



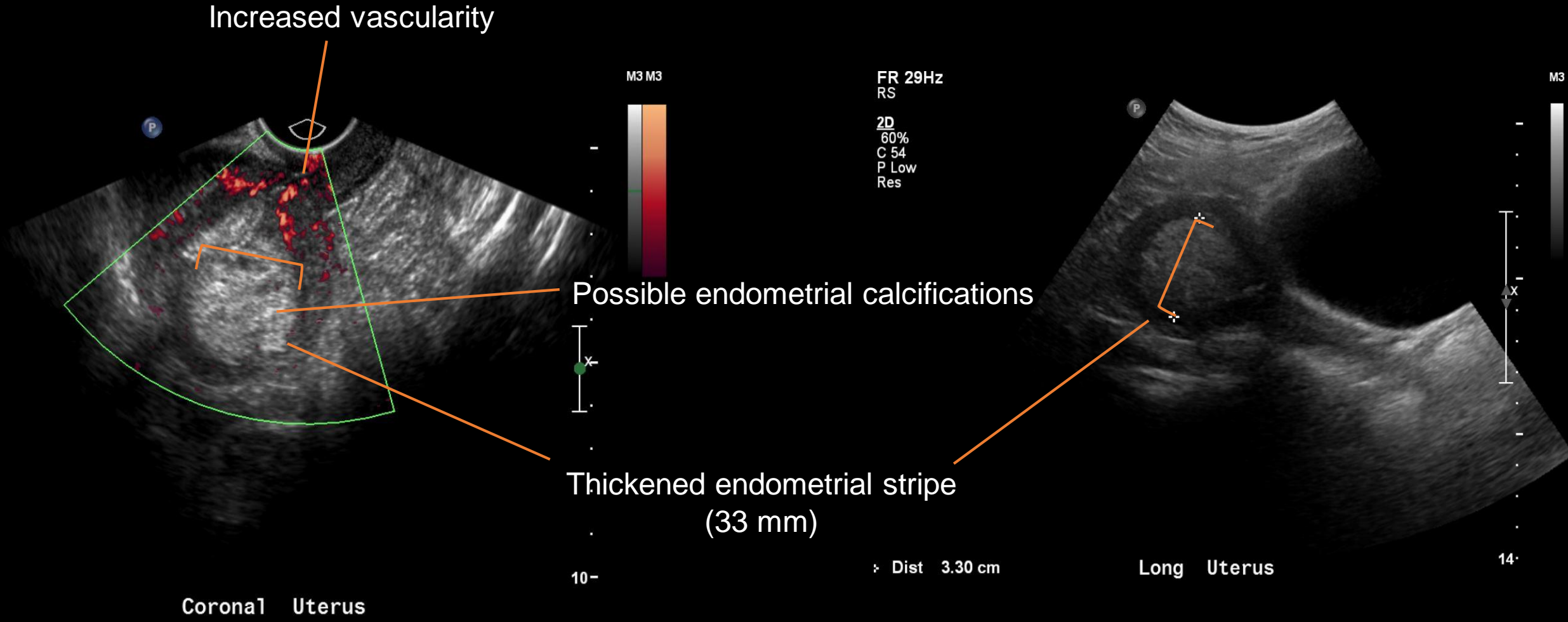
M3 M3

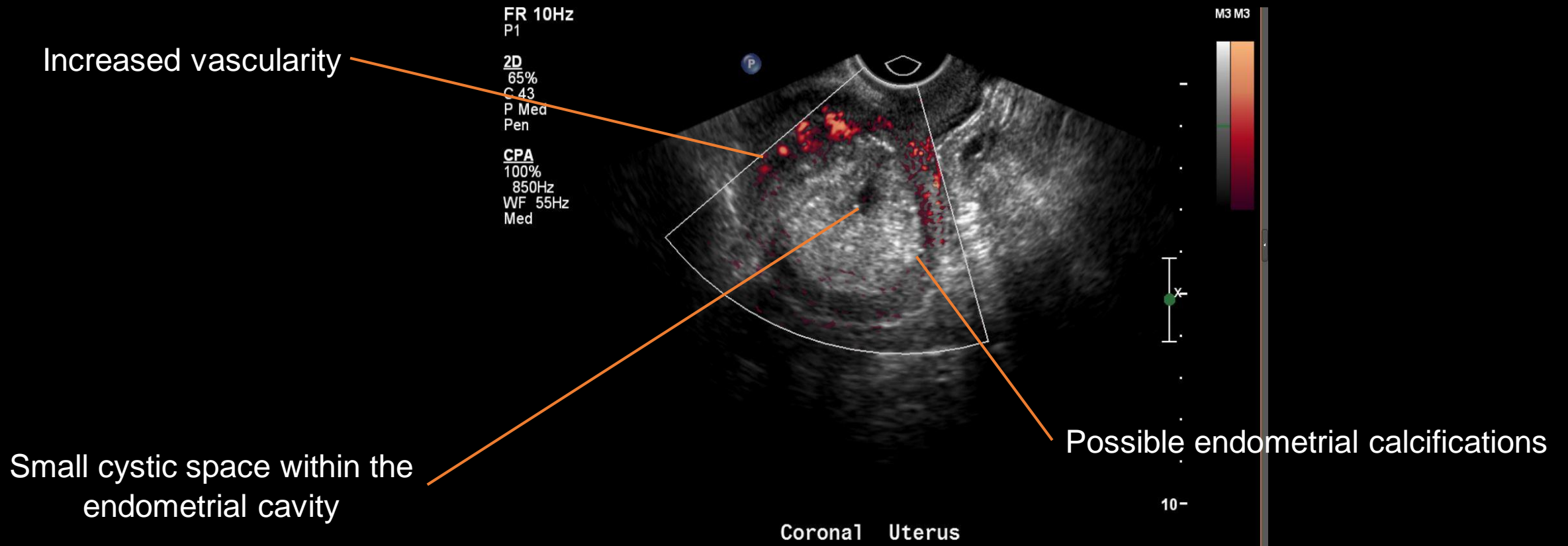


10-

Corona1 Uterus

Findings (labeled)





What is the diagnosis?

Differential Diagnoses

1. Retained products of conception (RPOC)
 - a. Placental/fetal tissue remaining in the uterus after delivery
2. Arterio-venous malformation (AVM)
 - a. Abnormal connection between uterine arteries and veins
3. Endometritis
 - a. Inflammation of the endometrium, often due to infection
4. Hematocolpos
 - a. Anatomical obstruction of blood flow from the uterus, resulting in collection of blood in the vagina.

What should be done next?

Dilation and curettage (D&C)

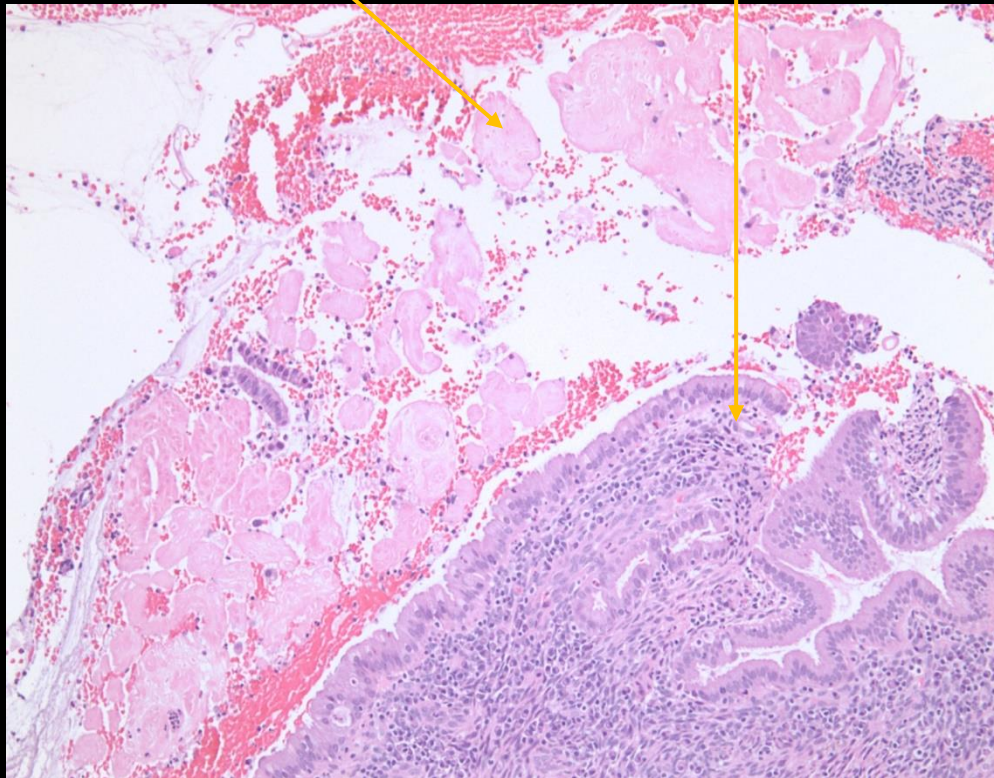


Gross specimen

Pathology- Endocervical Curettage

Necrotic chorionic villi

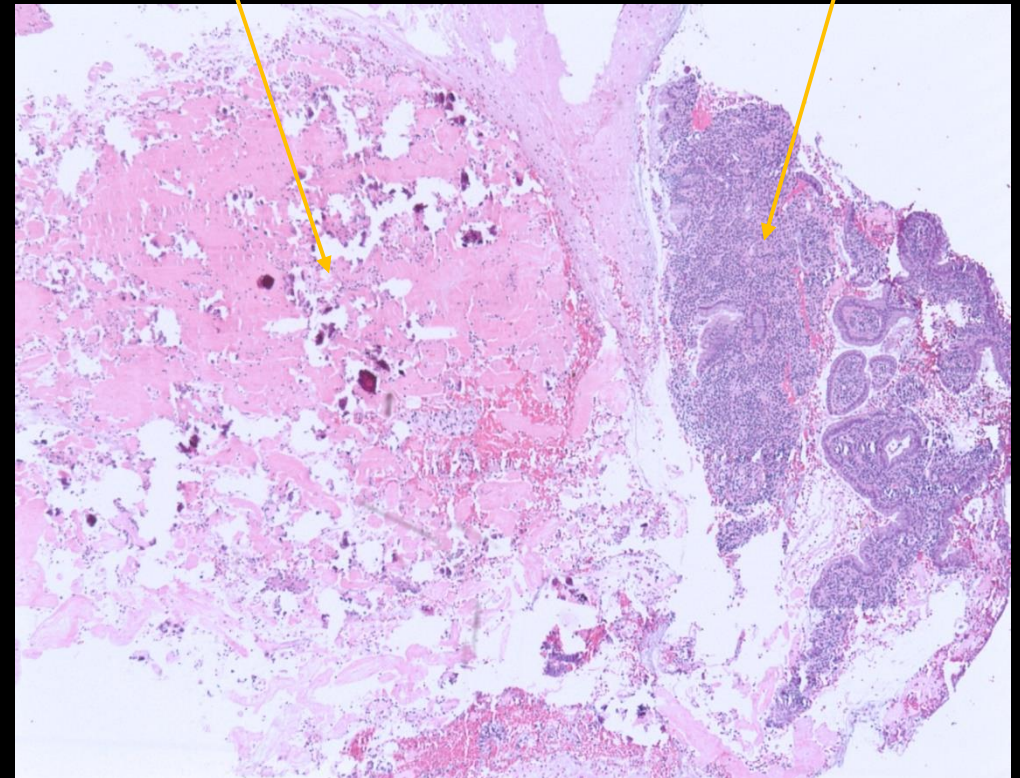
Endocervical tissue



100X, H&E stain: Necrotic chorionic villi admixed with unremarkable endocervical glands and stroma.

Calcifications

Endocervical tissue

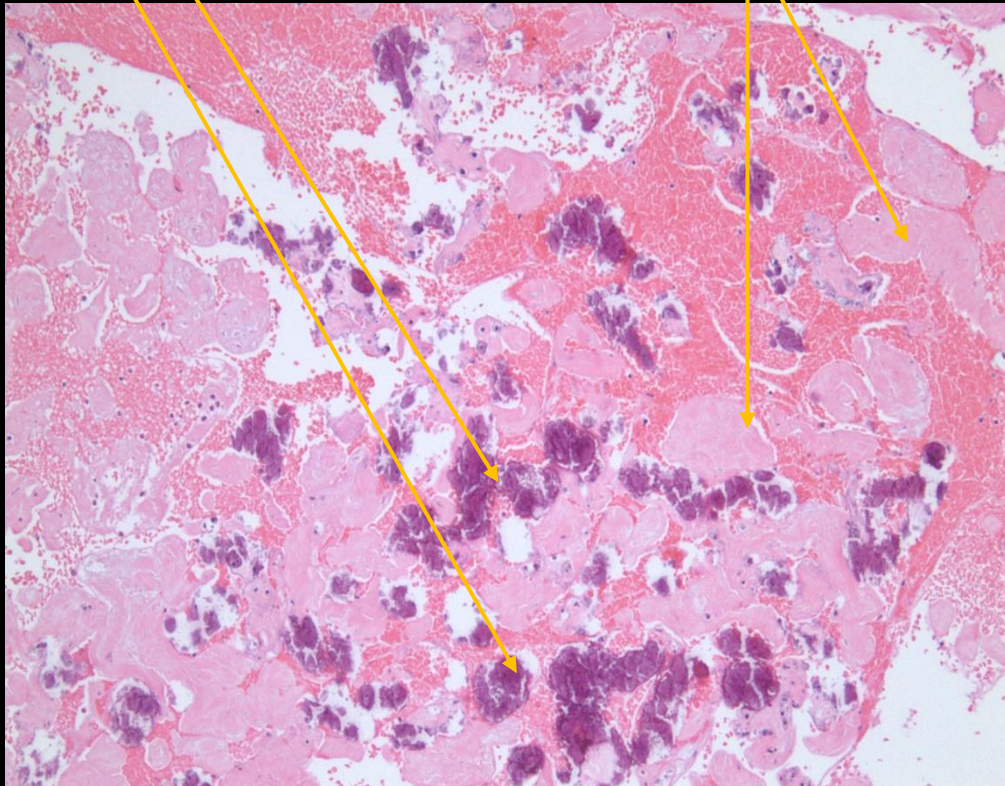


40X, H&E stain: Scattered calcifications were seen in the necrotic villi.

Pathology- Endometrium

Calcifications

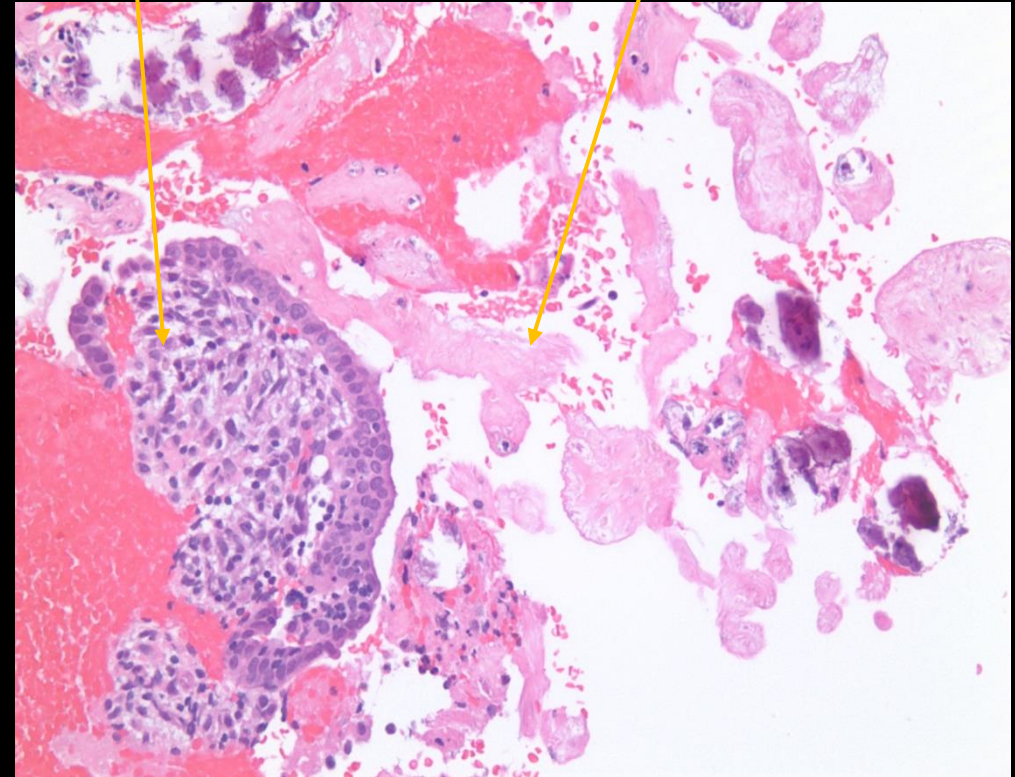
Necrotic villi



40X, H&E stain: Tissue from the endometrium (as seen in the gross image) consisted mainly of necrotic chorionic villi with scattered coarse calcifications. No fetal tissue was identified.

Normal endometrium

Necrotic chorionic villi



200X, H&E stain: Fragment of unremarkable endometrium adjacent to the necrotic placental tissue.

Final Dx:

Retained products of conception

Case Discussion – Postpartum bleeding

- Primary (early) hemorrhage- occurring within the first 24 hours after delivery
- Secondary (late)- any significant blood loss occurring anywhere between 24 hours and 12 weeks after delivery
- Early postpartum hemorrhage defined as 1 L total blood loss or less than 1 L coinciding with signs of hypovolemia, within 24 hours after delivery
- Only 0.2-2.5% of women experience secondary postpartum hemorrhage in high income countries

LOCHIA- NORMAL POSTPARTUM DISCHARGE

LOCHIA RUBRA

- First stage, lochia is dark red in color
- ~4 days duration

LOCHIA SEROSA

- Second stage, lochia is pinkish in color
- ~10 days duration

LOCHIA ALBA

- Third stage, lochia is whitish in color
- ~10-14 days duration

The 4 T's – Most common causes of postpartum hemorrhage

1. uterine atony
2. Trauma
3. retained Tissue
4. coagulopathy- Thrombin

Normal endometrium on ultrasound

Endometrial Stripe

- To measure, find the echogenic central region, measure from one basilar side to the other

Premenopausal women

- during menstruation: 2-4 mm
- early proliferative phase: 5-7 mm
- late proliferative / preovulatory phase: up to 11 mm
- secretory phase: 7-16 mm

A thickened endometrial stripe on ultrasound was found to have a sensitivity of 80-93.8% and specificity of 20-64% for detecting retained products of conception, whereas doppler characteristics had a sensitivity of 66.6-96% and a specificity of 69.2%.⁴

Retained Products of Conception (RPOC)

Retained tissue prevents uterus from contracting, resulting in atony

Risk factors for RPOC include:

- Failure to progress during labor
- Placenta accreta
- Instrumentation during delivery

Symptoms of RPOC:

- Persistent bleeding after delivery
- Uterine tenderness/pain
- Fever

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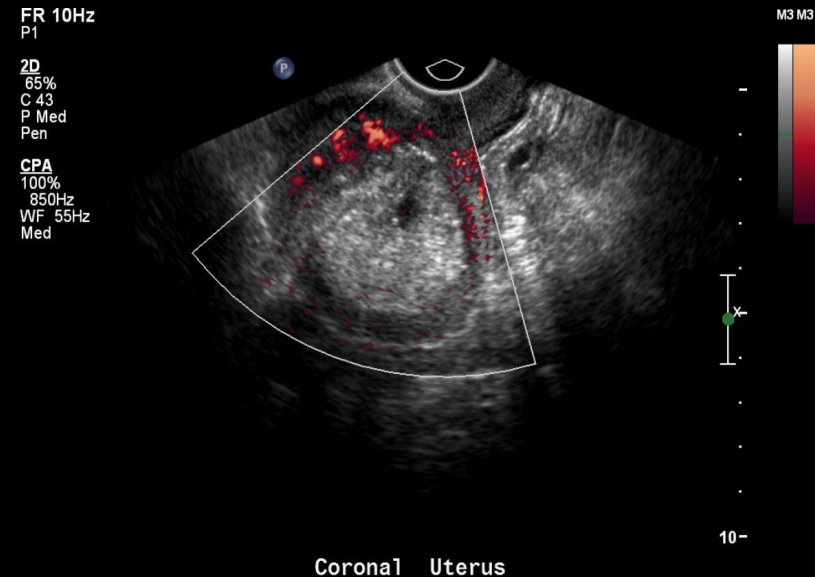
Retained Products of Conception (RPOC)

Ultrasound appearance:

- Vascular- High velocity, low resistance arterial flow differentiates RPOC from hematoma
- Solid echogenic mass that extends from the uterine cavity to the endometrium
- Endometrial stripe thickened >1 cm

Management involves dilation and curettage (D&C), preferably with ultrasound guidance

- Selective arterial embolization in high-risk patients



References:

1. Sellmyer MA, Desser TS, Maturen KE, Jeffrey Jr. RB, and Kamaya, A. [Physiologic, Histologic, and Imaging Features of Retained Products of Conception](#). RadioGraphics 2013; 33(3): 781-796
2. Bellfort MA. Secondary (Late) Postpartum Hemorrhage. UpToDate 2021; section Retained Products of Conception. (accessed on 28 Sep 2021) <https://www.uptodate.com>
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4. ACR Appropriateness Criteria. <https://acsearch.acr.org/>
5. De Winter J, De Raedemaeker H, Muys J, Jacquemyn Y. The value of postpartum ultrasound for the diagnosis of retained products of conception: A systematic review. *Facts Views Vis Obgyn*. 2017;9(4):207-216.
6. Gupta A, Desai A, Bhatt S. Imaging of the Endometrium: Physiologic Changes and Diseases: *Women's Imaging. Radiographics Fundamentals*. 2017; 37(7).