Recognizing and Management of Incarcerated Gravid Uterus in the Emergency Department: An Update for Treatment

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Conflict of Interest Disclosure

•I have no actual or potential conflicts of interest.

•I do not have any relationships with companies that manufacture medical devices, pharmaceuticals, biologics, or other companies producing FDA-regulated products.

Objectives

1. Describe common patient complaints consistent with incarcerated gravid uterus (IGU)

2. Identify complications, risks, and diagnostics for incarcerated gravid uterus

3. Discuss modalities for treatment of incarcerated gravid uterus including new treatment strategies

Case Study #1

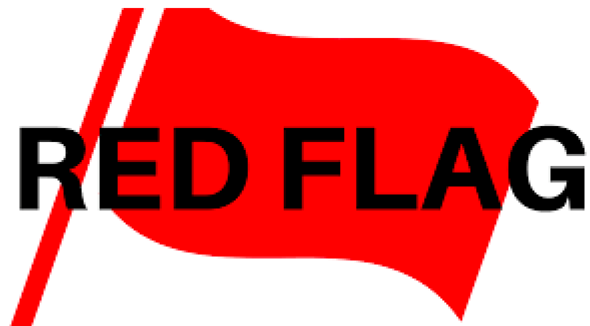
- **33-year-old 12 weeks gestation**
- **G2P1 (gravida: 2, para: 1)**
- **History: Spontaneous abortion 12 weeks**

CC: Urinary retention

PE: pelvic & rectovaginal fullness in posterior cul-de-sac

Bladder catheterization: 1200ml clear yellow urine

ER course: Discarded possibility of UTI patient was discharged



Background

Incarcerated gravid uterus (IGU): entrapment of the gravid uterus between sacral promontory and pubic symphysis

Approximately 15% of females have a retropositioned uterus before pregnancy

1 in 3000 to 10,000 pregnancies

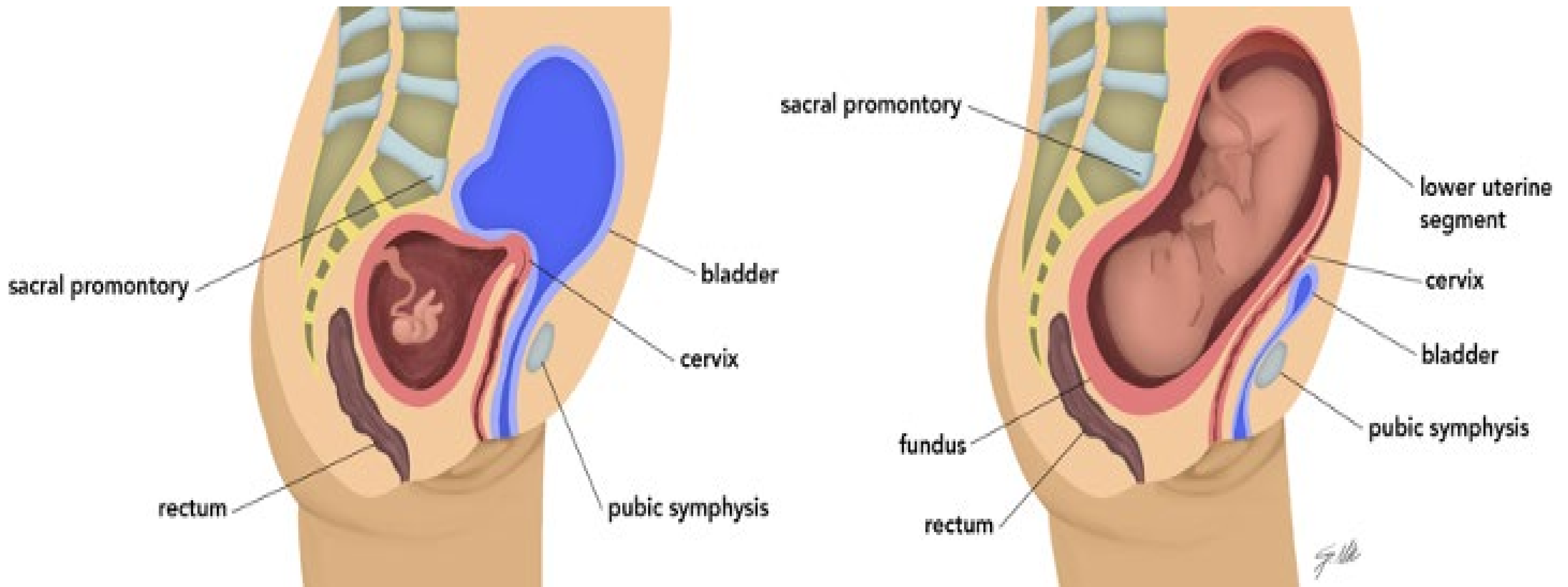
Typically presidents between 12 - 16 weeks

A uterus that has not transitioned to an abdominal organ after 14 weeks, associated with symptoms ⇨ **incarcerated**

Risk Factors for IGA

- Retropositioned uterus
- Pelvic masses (e.g., leiomyoma, adenomyosis)
- Adhesions between the fundus and pouch of Douglas due to:
- Prior surgeries, pelvic inflammatory disease (PID) Endometriosis
- Multifetal gestation
- Uterine prolapse
- Uterine incarceration in a prior pregnancy

Incarcerated Gravid Uterus



Kantorowska A, Patberg ET, Ali F, Suhag A, Rekawek P, Vintzileos AM, Chavez MR. Am J Obstet Gynecol. 2024.

	Clinical symptoms	Physical exam	US findings
First Trimester	Asymptomatic	Retroverted retroflexed uterus Deep Sacrum Presence of large fibroids	**Retropositioned uterus**
Second Trimester	**Urinary retention** Dysuria Overflow incontinence Rectal Pressure Constipation Tenesmus Pelvic Pain Pelvic Pressure **Pregnancy Loss**	Very anterior and difficult to palpate cervix under symphysis Round bulge (fundus) in posterior cul-de-sac Abdominal fullness Overdistended bladder Difficult to auscultate fetal heart tones	**Retropositioned uterus** **Anteriorly displaced, elongated cervix** **Bladder superior to uterus** **Fundus in posterior cul-de-sac** “Standing up” appearance of fetus
Third Trimester	Asymptomatic Abdominal/low back pain Constipation Bloody discharge Hematuria	Non-palpable anterior cervix Reduced fundal height for gestational age	Thinning of lower uterine segment Fundus in posterior cul-de-sac

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Complications & Risks

Urinary Complications	Gastrointestinal Complications	Adverse Pregnancy Outcomes	Intrapartum Complications
Urinary retention	Constipation	Spontaneous abortion	Uterine rupture
UTI	Obstipation	Recurrent 2nd trimester miscarriage	Uterine wall necrosis
Pyelonephritis	Rectal gangrene	Fetal growth restriction	Surgical injury (bladder, adnexal)
Hydronephrosis		Preterm labor	Postpartum hemorrhage
AKI/ARF		PPROM	
Bladder wall hypertrophy		Intrauterine fetal demise	
Hemorrhagic cystitis			
Bladder rupture			

Kantorowska A, Patberg ET, Ali F, Suhag A, Rekawek P, Vintzileos AM, Chavez MR. Am J Obstet Gynecol. 2024.

Physical Exam

Fundal height is below the expected level

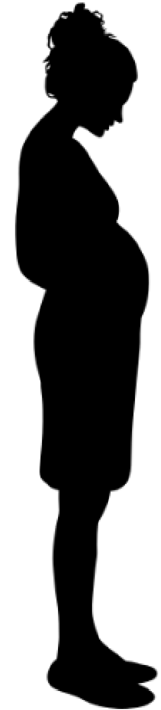
Distended bladder

Pelvic exam (imperative)

-forward and superior displacement of cerv

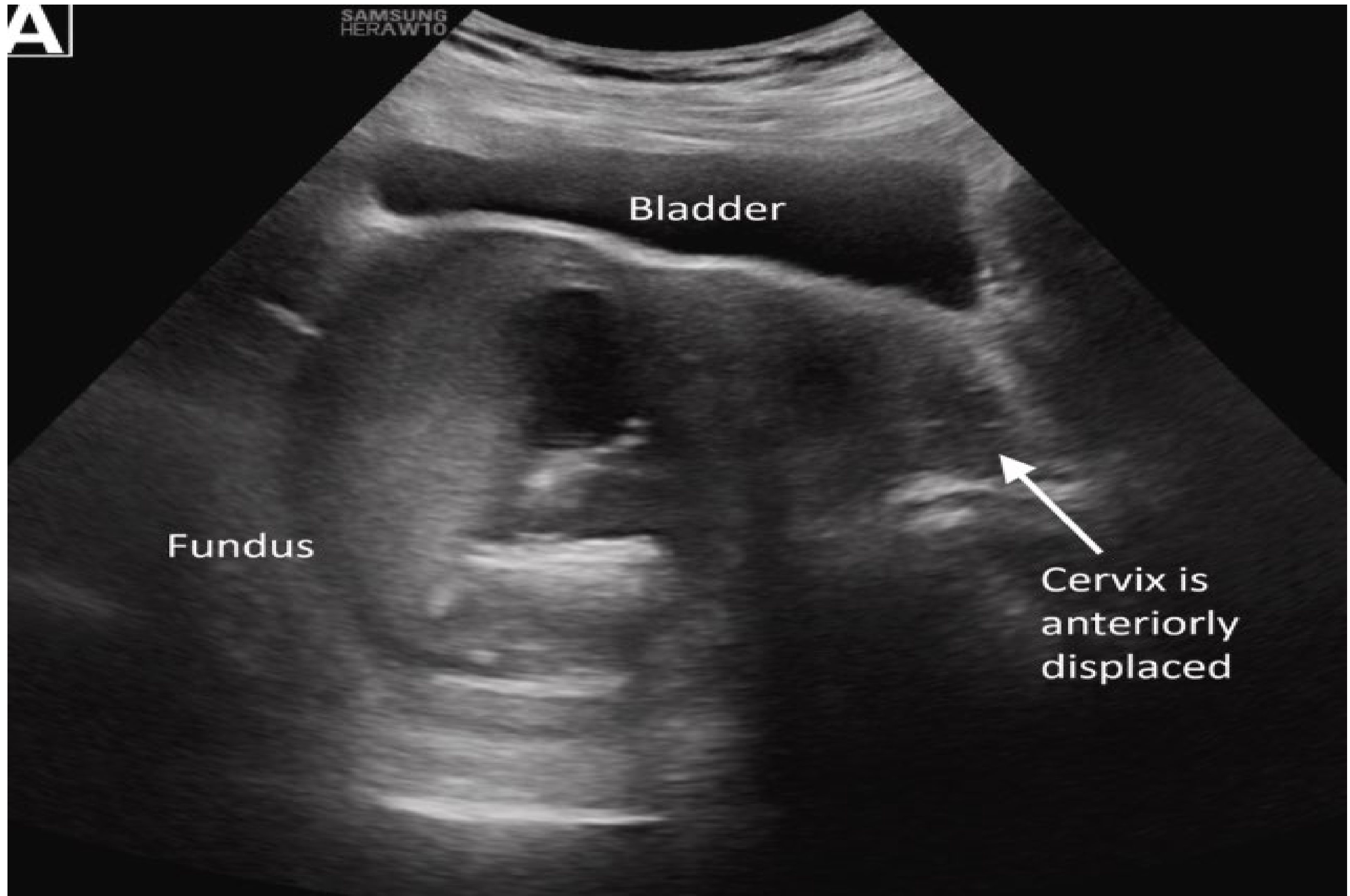
-sacculation of the posterior wall of the vag

-unmovable fundus



Diagnostics

Transabdominal US retropositioned IGU 13w6d



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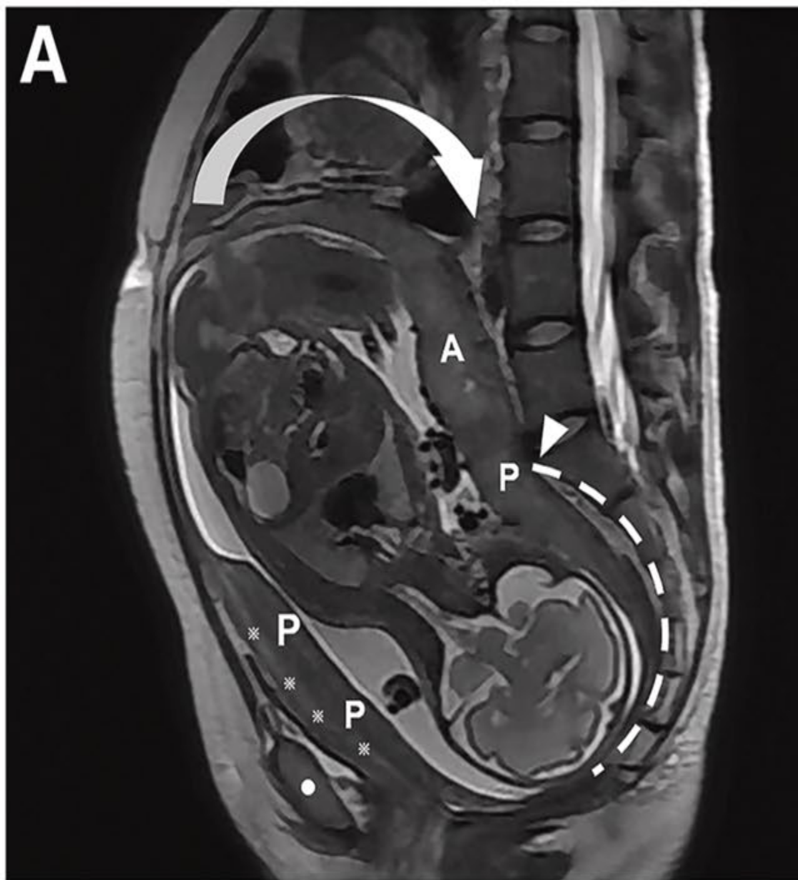
What about MRI?



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Treatment Strategies

Passive maneuvers

Manual replacement

Laparoscopy

Sigmoidoscopy

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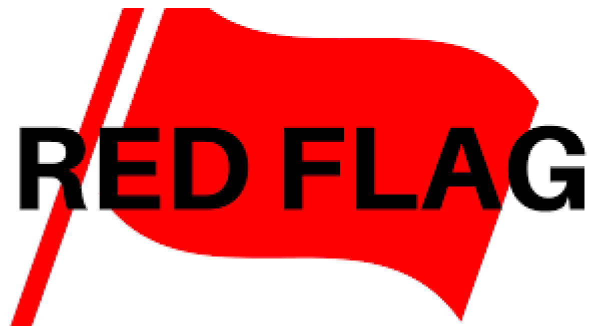


Case Study #1

- **33-year-old 12 weeks gestation**
- **G2P1 (gravida: 2, para: 1)**
- **History: Spontaneous abortion 12 weeks**

Follow up: Patient returns 6 hours later

CC: Acute urinary retention

Bladder catheterization: 800ml clear yellow urine

ER course: Transvaginal US = uterine incarceration, manual reduction completed, patient observed, spontaneous urination

DC: Patient discharged and advised knee-chest position for 2-3 weeks

Outcome: Uneventful pregnancy with SVD @ 39 weeks

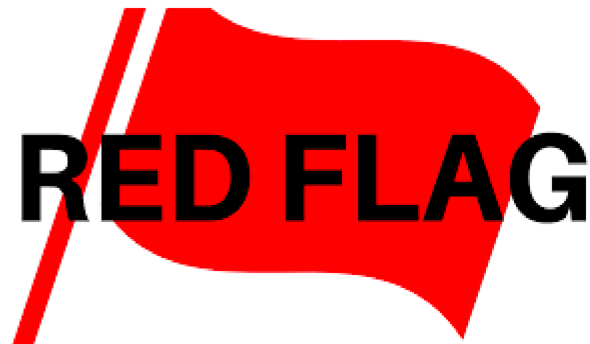
Case Study #2

- **28-year-old 12 weeks gestation**
- **G7P3A3 (gravida: 7, para: 3 Aborted: 3)**
- **History: otherwise unremarkable**

CC: urinary frequency, tenesmus, abdominal pain & vaginal spotting

Evaluation: “evaluated and discharged” with diagnosis of “threatened miscarriage”

Disposition: bleeding precautions given, pelvic rest



Case Study #2

- **28-year-old 12 weeks gestation**
- **G7P3A3 (gravida: 7, para: 3 Aborted: 3)**
- **History: Known Rh negative**

Follow up: Patient returns 10 1/2 hours later

CC: Increased vaginal bleeding and cramping

VS: afebrile, P 76, BP 118/68
+orthostasis P 89, BP 96/55,

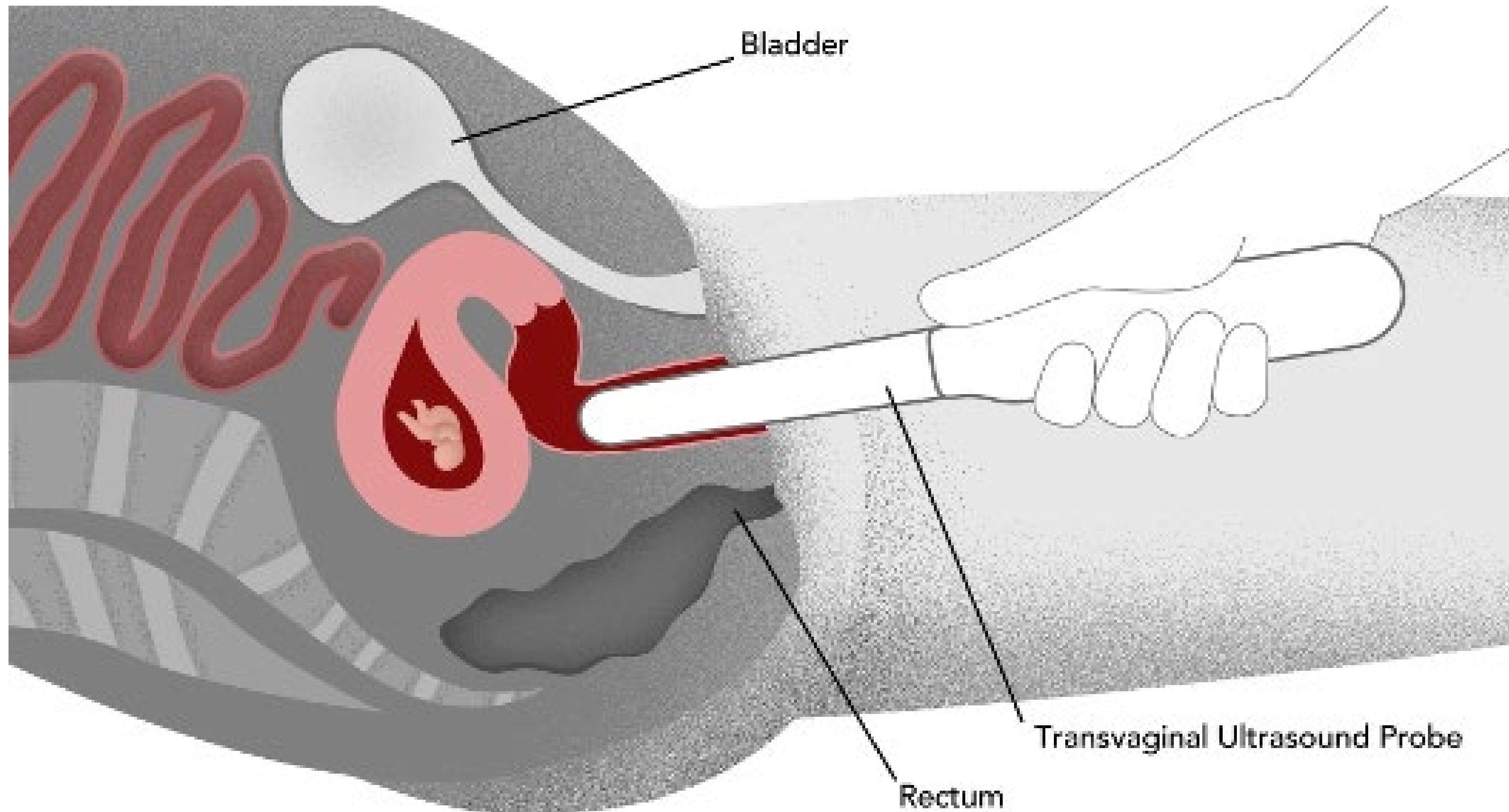
PE: “normal” except pelvic exam “severely retroflexed uterus, anterior cervix & superior displaced urinary bladder”

US: Incarcerated gravid uterus, estimated gestational age 12-13 weeks with fetal demise

Course: IM pain medication, manual reduction = relief of bladder pain/tenesmus however increased vaginal bleeding

Outcome: Bleeding and fetal demise mandated D&C, RhoGam and subsequent discharge

New minimally-invasive technique



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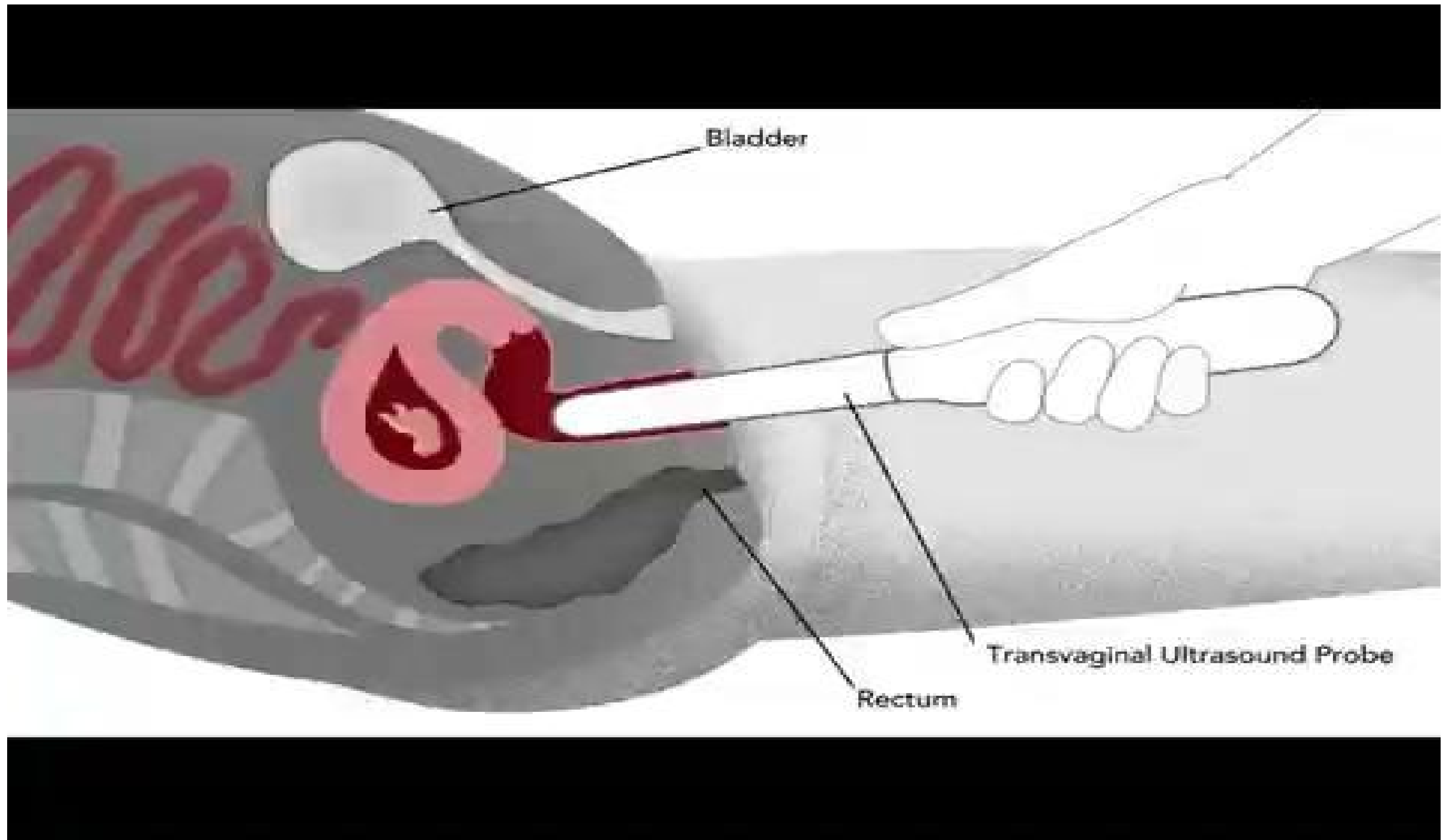
New minimally-invasive technique



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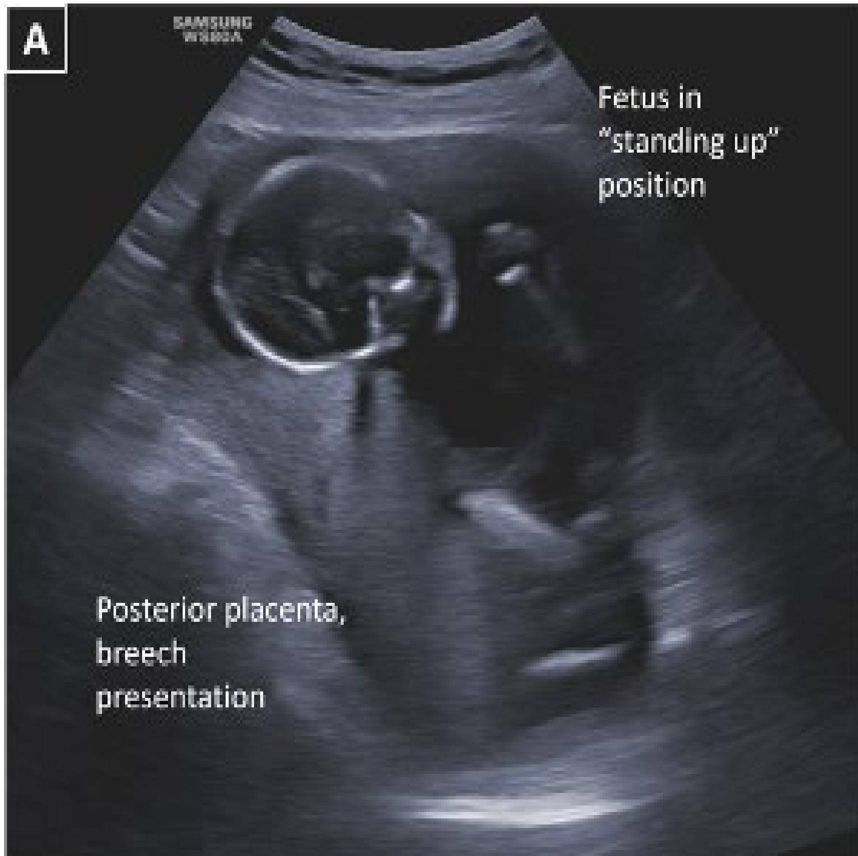
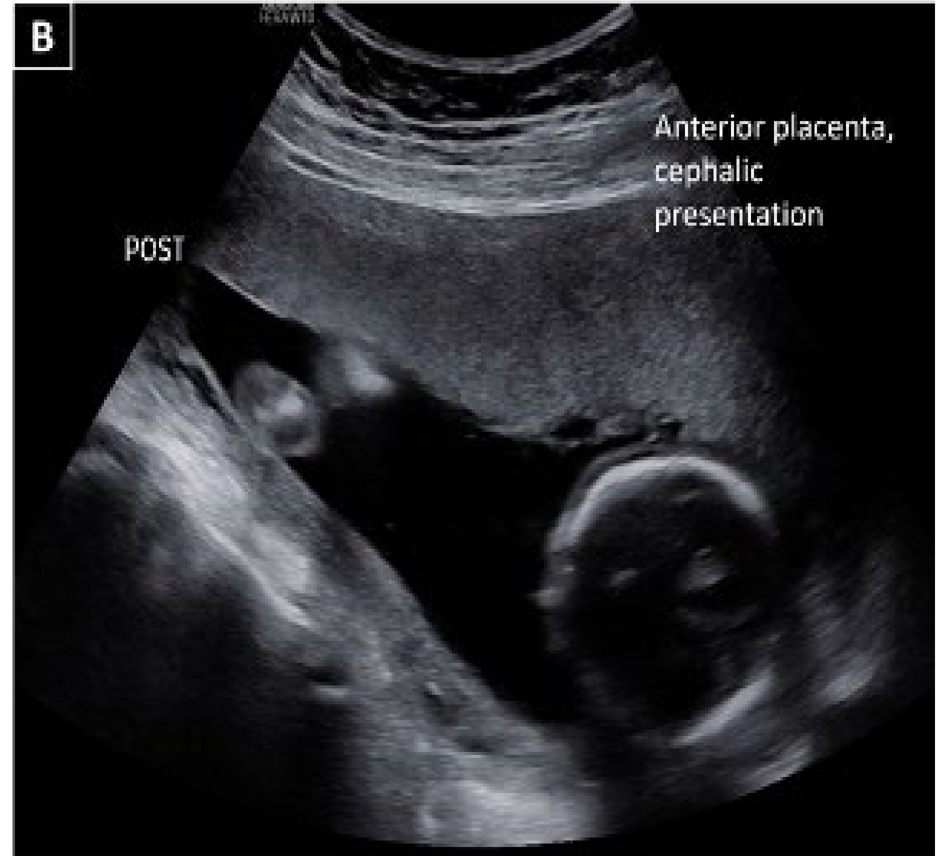
IGU 18w0d before/after





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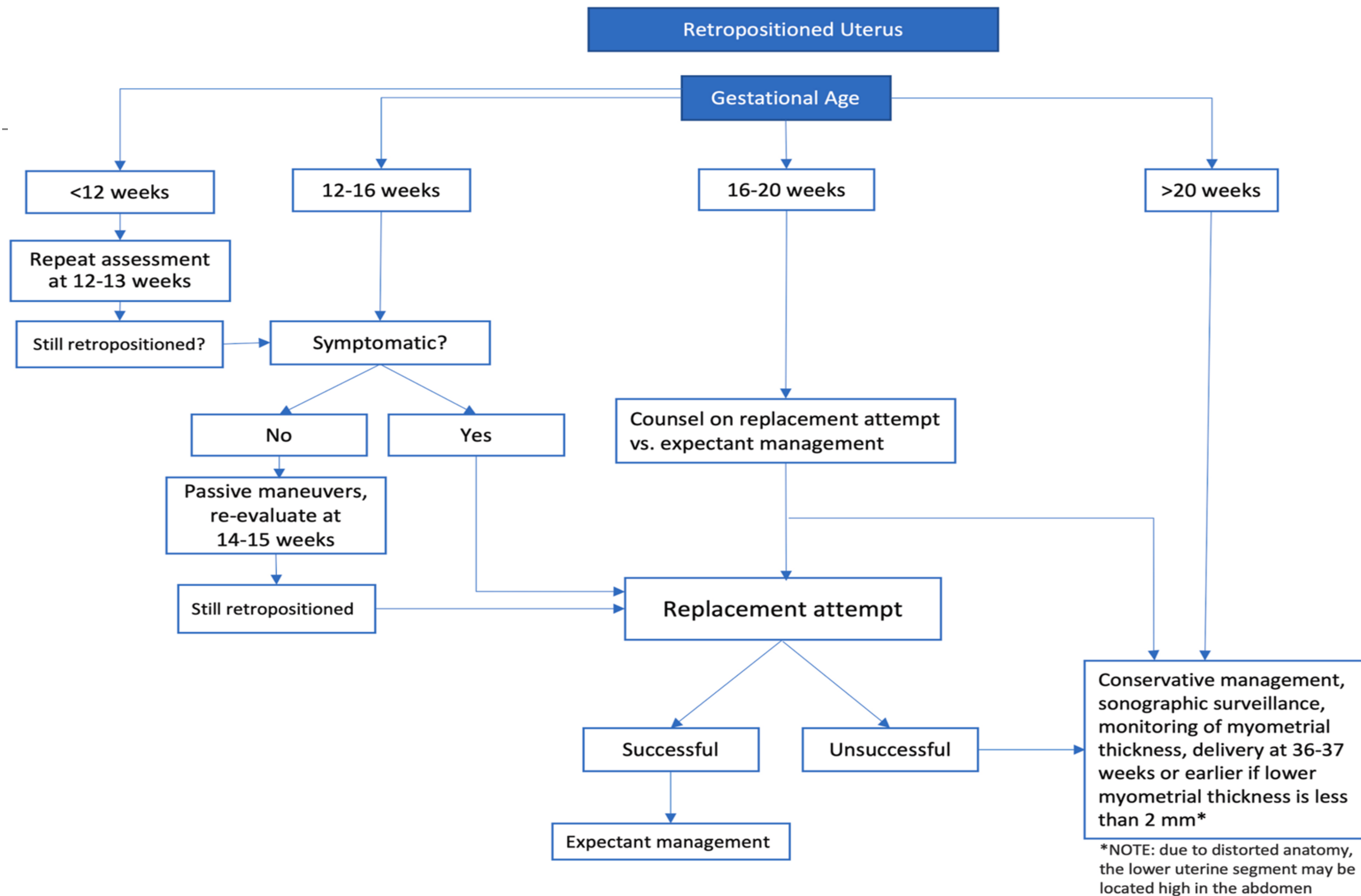
Algorithm for Management



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Conclusion

Emergency clinicians should consider IGU in pregnant patients presenting with urinary retention, constipation or pelvic pressure

Utilize the published algorithm for management

Reduce the incidence of fetal mortality and gestational complications

Questions?