Advanced Skills IUD Training

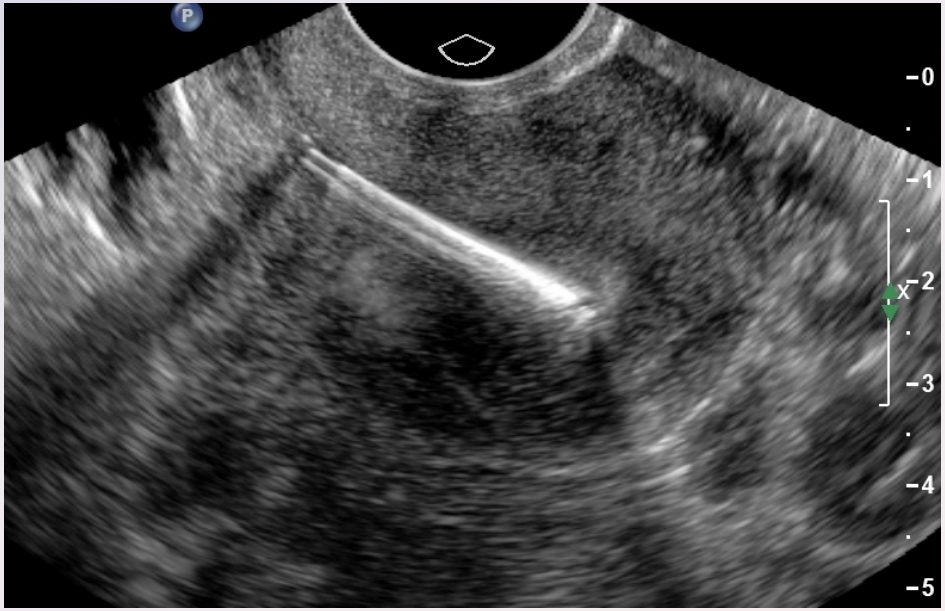
Objectives

- Identify tenaculum and sound techniques for optimizing success with IUD placement
- Display familiarity with use of os finders
- Discuss management of an IUD with missing strings
- Describe counseling for responding to bleeding complaints with IUDs

LARC Use in the USA

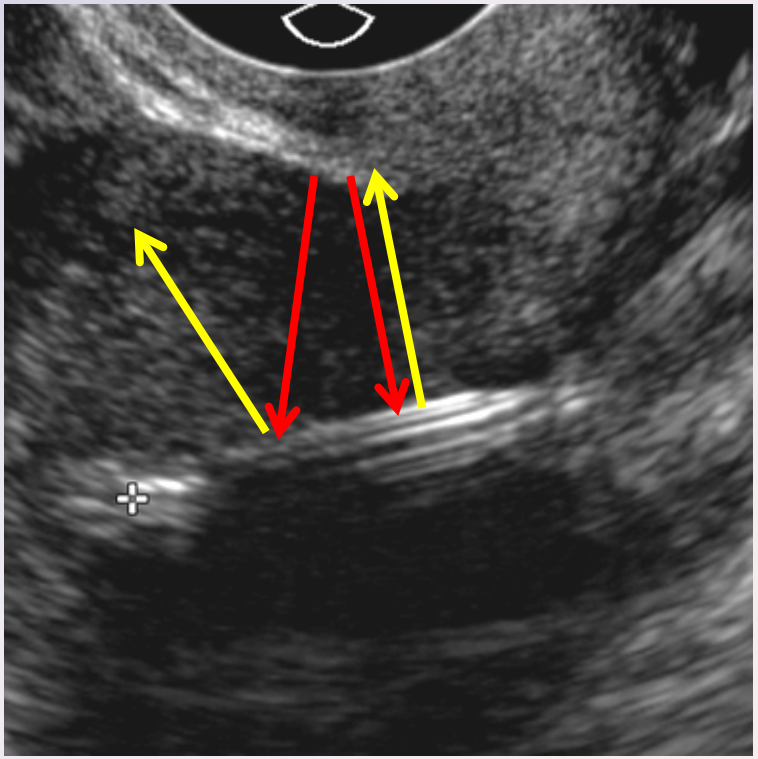
	2007	2008	2012	2014
LARC	4.0%	6.0%	11.6%	14.3%
IUD		5.6%	10.3%	11.8%
IMPLANT		0.5%	1.3%	2.6%
Permanent contraception		37%		28%

(Kavanaugh & Jerman, 2018)



Principles of ultrasound

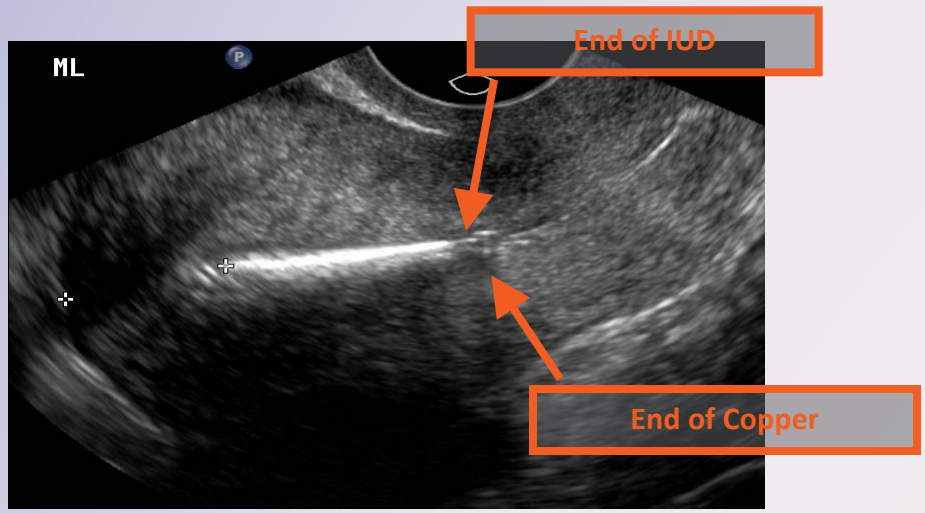
How sound travels: Reflections

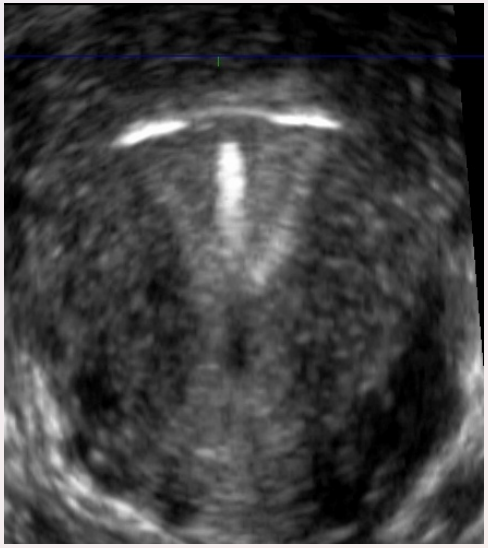


A structure at a right angle to the sounds waves will reflect more sound that the same structure at any other angle

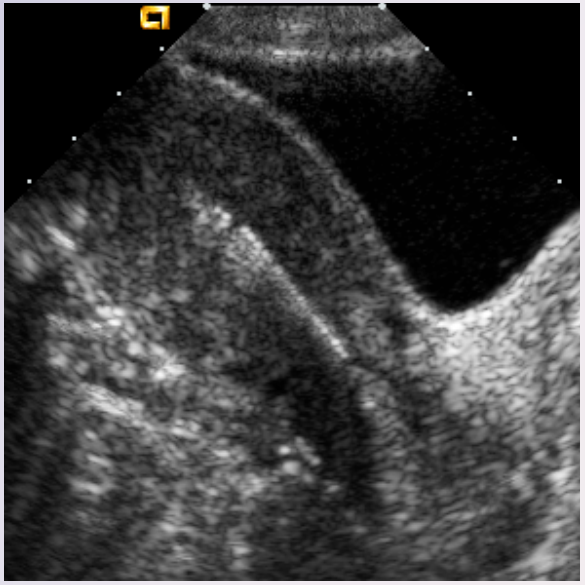
Images courtesy of Matt Reeves MD

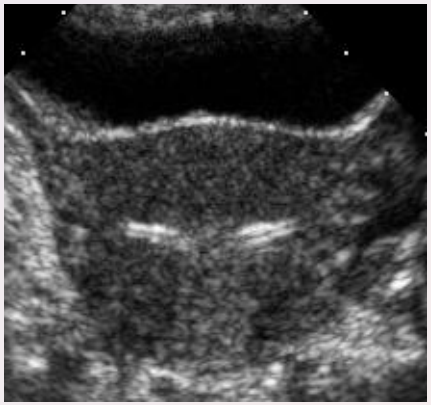
CuT (Paragard) on Ultrasound





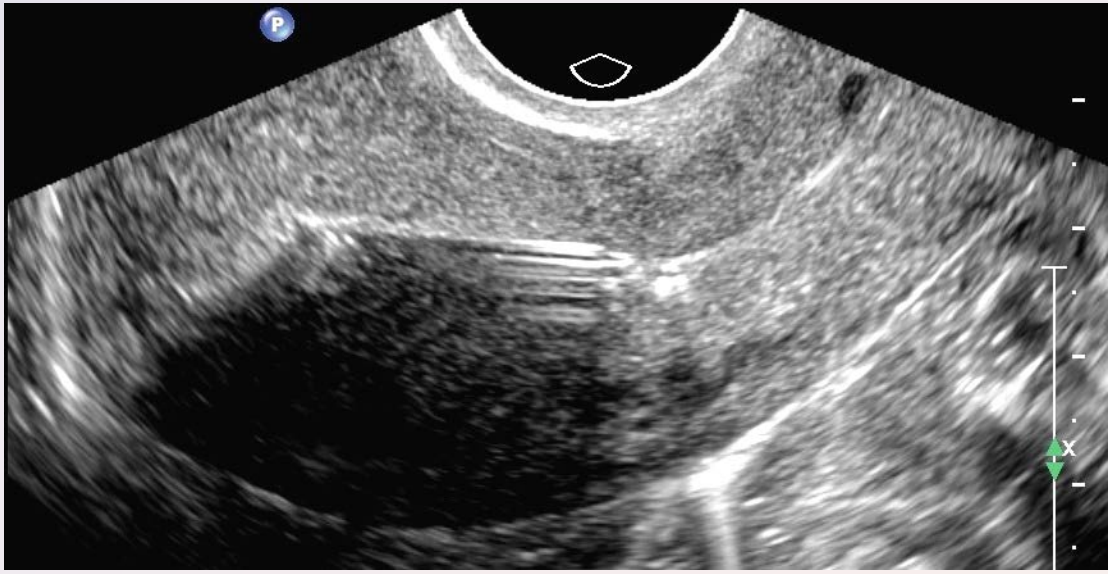
Cu T (Paragard)

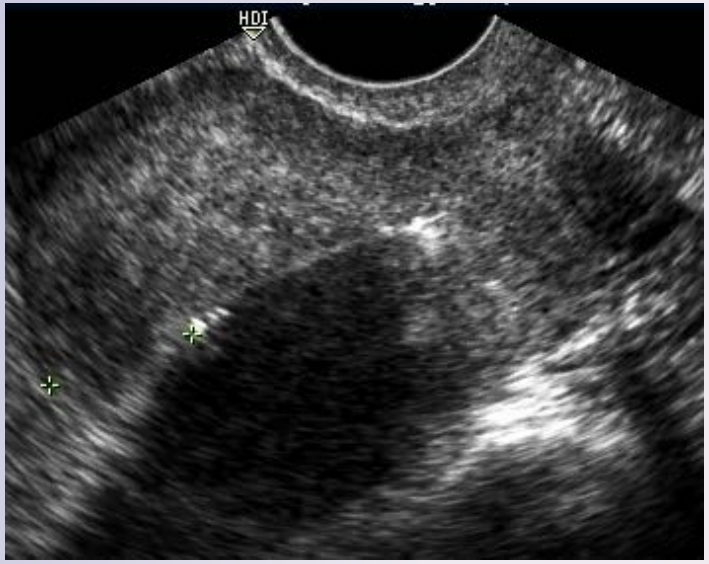




Very echogenic

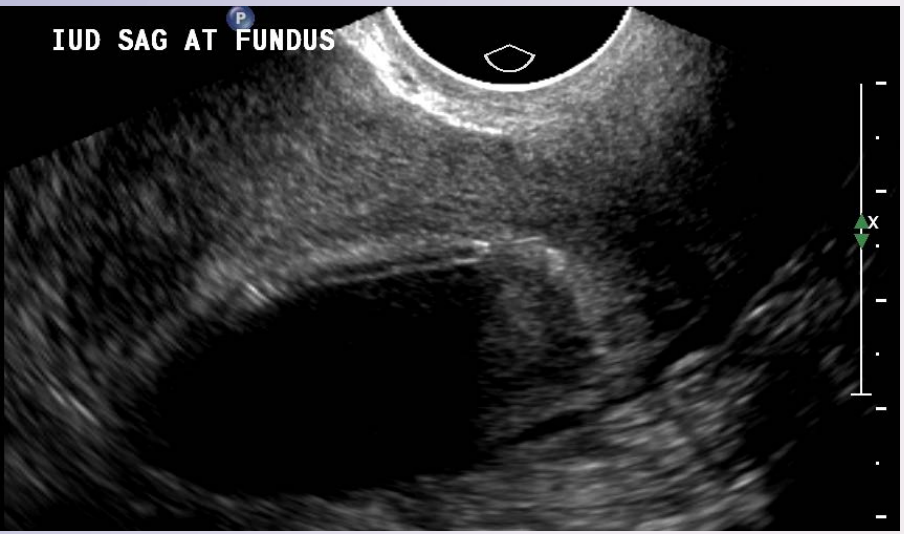
LNG 52 (Mirena) on Ultrasound

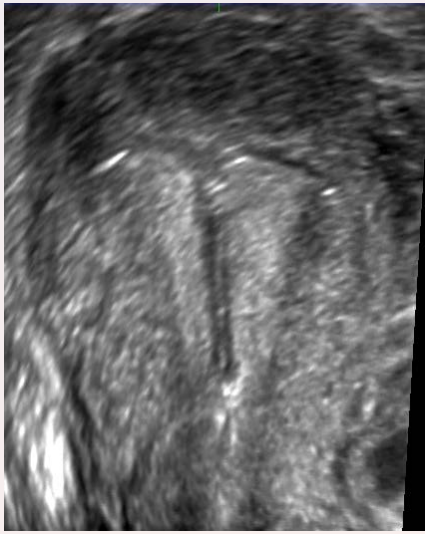




Pronounced shadowing

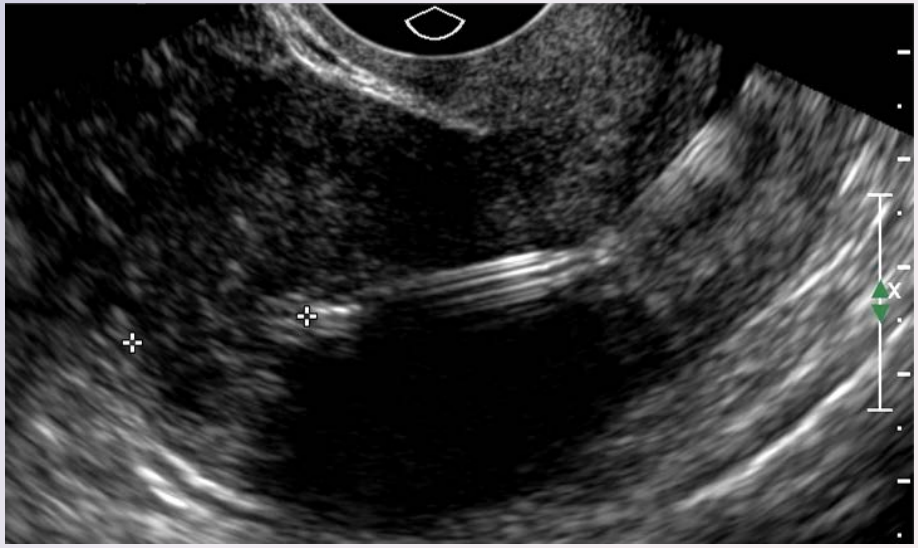
Pronounced Shadowing with LNG 52 (Mirena)





On some machines, the LNG 52 shadows more than others

LNG 52 (Mirena)



Not very echogenic except where perpendicular to the probe

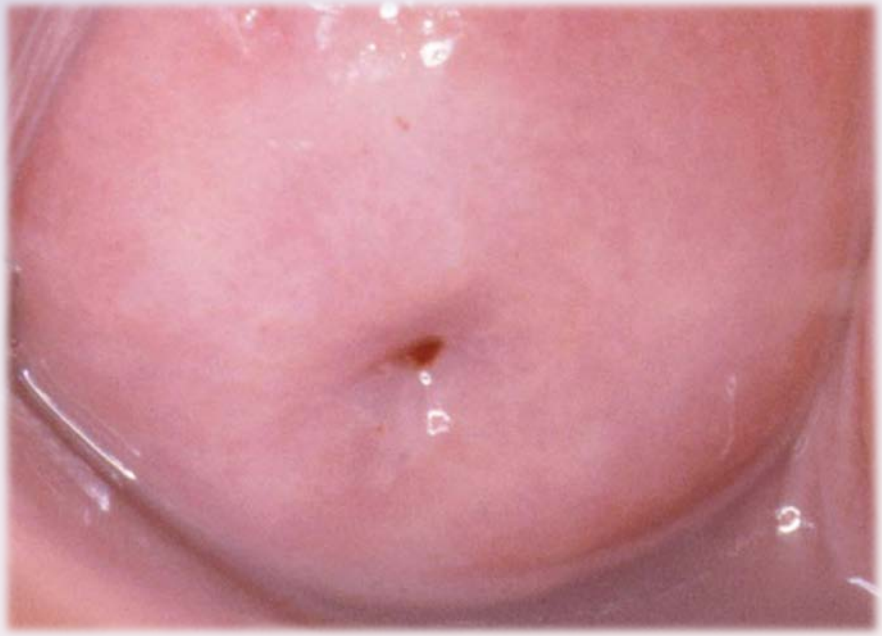
Strings may be as echogenic as the IUD

Summary

Copper devices are usually easy to see

LNG 52 can be hard to see

- Getting the angle right is key
- You can use the TVUS probe to move the uterus to improve visualization
- Silver ring on smaller IUDs (Skyla & Kyleena) clearly visible on ultrasound



Difficulty Passing Through the Os

More Difficult in Nullips or Teens??

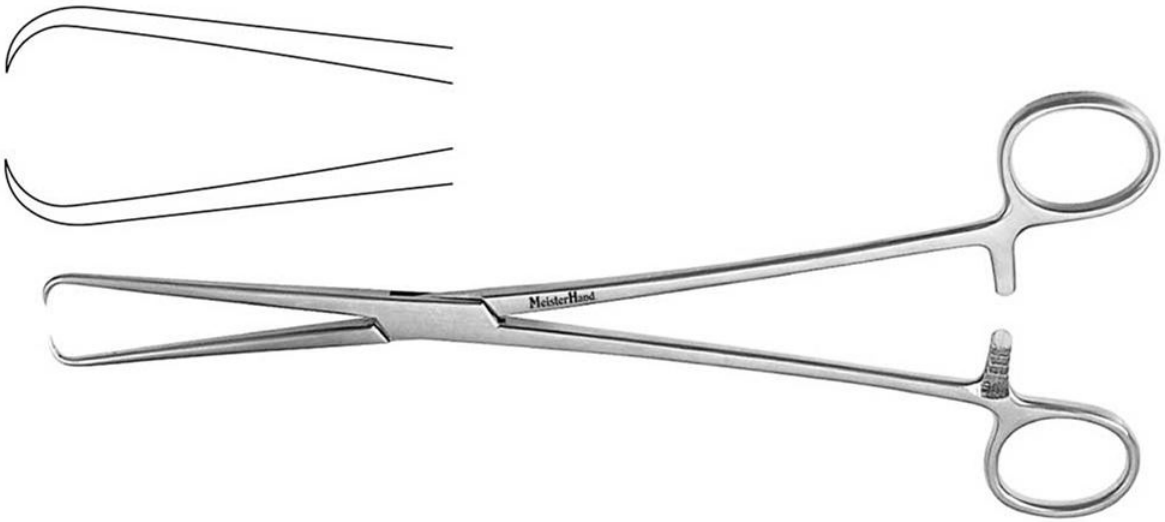
- N= 1,177 aged 13–24 years old
- 59% nulliparous
- First-attempt success rate of 95.5%
- 86% of placements done by advanced practice clinicians
- Complications were rare
- No perforations were reported

(Teal, Romer et al. 2015)

Tenaculum

1. Change the amount of traction
2. Apply traction in different direction

At what point would you recommend or offer a block?



Uterine Sound

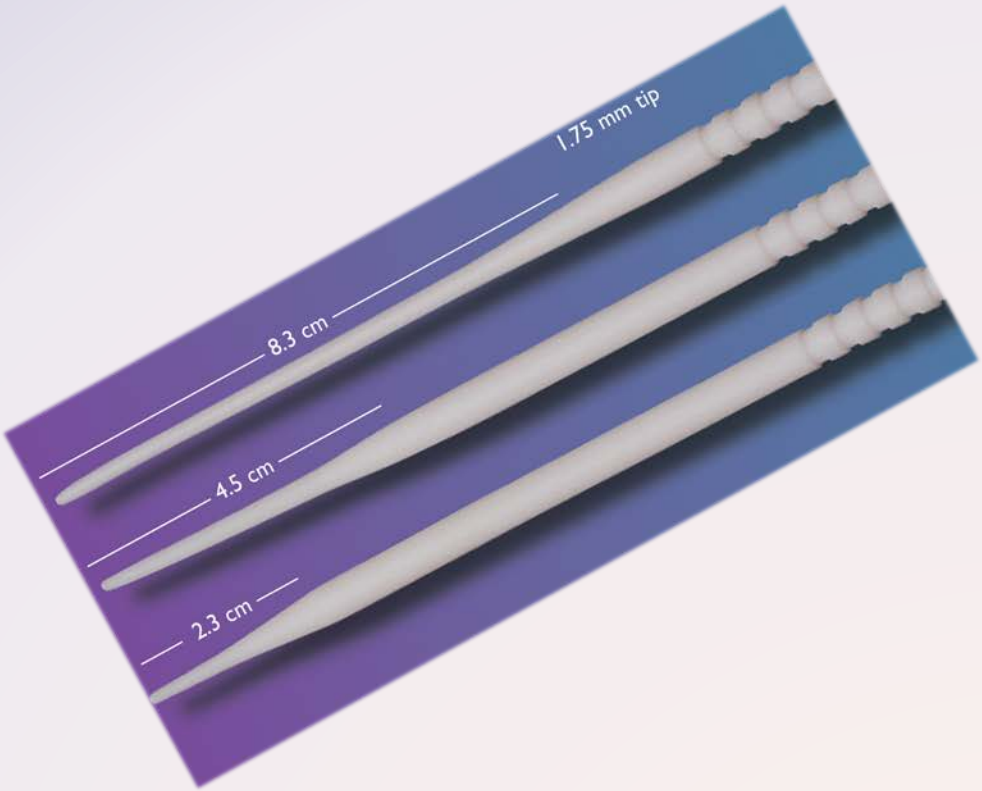
3. Gently hold the sound at the internal os and then wait --to allow the os to yield
4. Change the curvature of the sound (if metal)
5. Apply light pressure at various angles 360^{o} and positions with the sound looking for an opening
6. Approach more anteriorly or posteriorly

Have you used ultrasound guidance?

Still Unable to Pass Through Os?

7. Use of os finder device
8. Use a thinner sound (endometrial sampler)
9. Dilate internal os with small dilator
10. Try a shorter wider speculum
11. Reposition the tenaculum onto a different place or add a second tenaculum

Os Finder Device



Cervical Os Finders (Disposable Box/25)
Cervical Os Finder Set (Reusable Set of 3)

“Failed First Attempt”

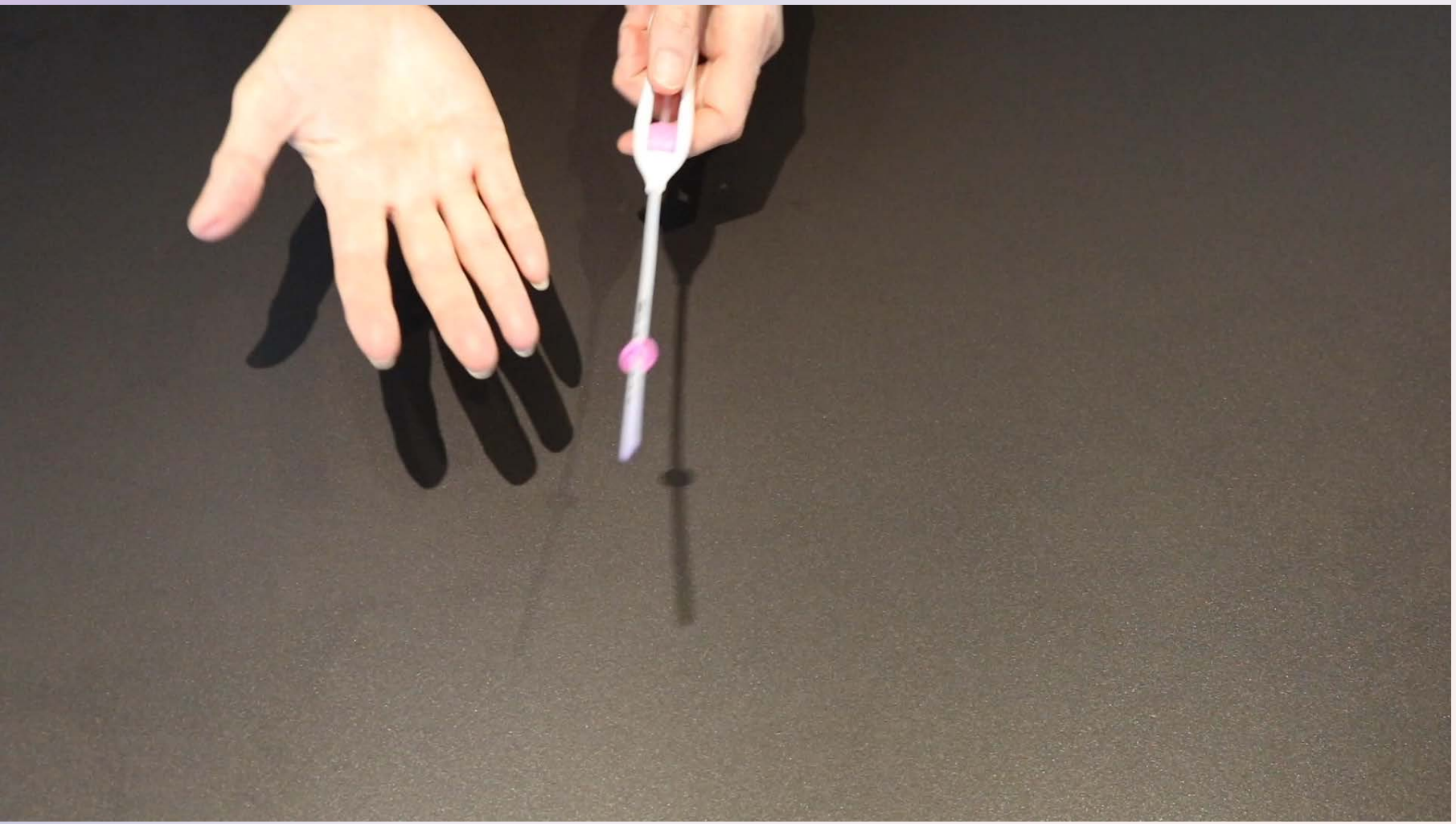
12. Place paracervical *or* intracervical block at any point

13. If unsuccessful, return after misoprostol 200 mg per vagina 10 hours and 4 hours prior to placement

(Bahamondes, Espejo-Arce et al. 2015)

Passed Through with Sound … but not the Device!

1. Choke up on the handle
2. Sterile lubricant on tip
3. Leave the (small) sound in the canal and come alongside the sound with the inserter



Pain Prevention

Prevention and Relief

- Verbicaine
- Slow technique
- Pre-placement NSAIDs
- Paracervical and intracervical block
- Tenaculum and sound technique
- Oral sedation
- Nitrous

Tenaculum: Pain Prevention

- Not too deep or wide
- Close the tenaculum very, very slowly
- 1cc local anesthetic at the site
- Have patient cough or use other distraction

Uterine Sound Pain Reduction

Move slowly and intentionally

- Moving too quickly increases discomfort

Consider endometrial biopsy (EMB) sampler or smaller plastic sound

Touch the fundus once

- Repeated tapping is unnecessarily uncomfortable for the patient

Verbicaine

- Keep the patient talking!
- Calm, soothing vocal tone
- Slow, easy pace
- Utilize whatever works for the patient (ASK)
  - Breathing techniques
  - Mindful mediation
  - Guided imagery

Wonderful Distraction

Heating pad

On abdomen

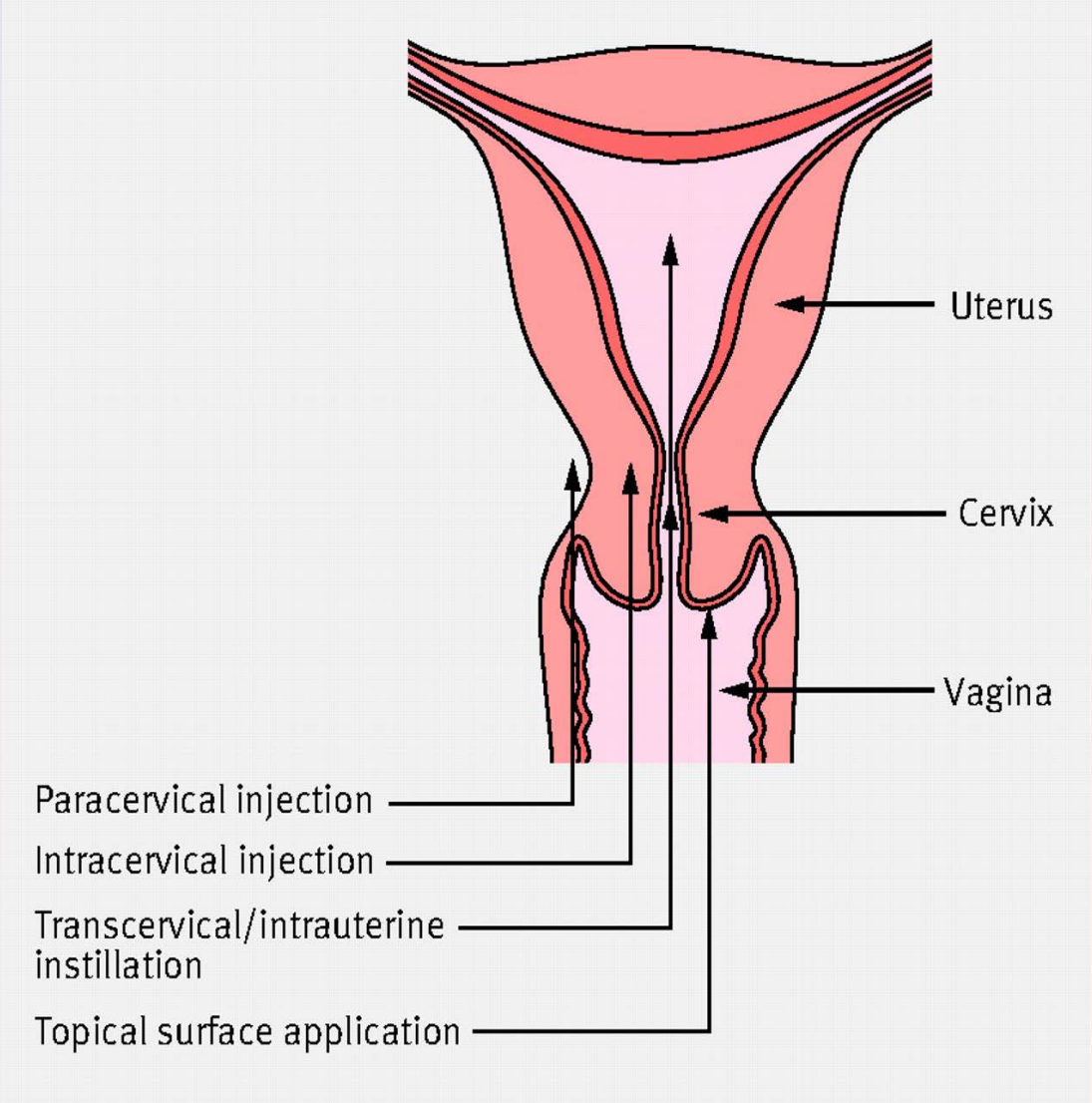
Warm speculum

Medication

- Tramadol and naproxen some reduction in placement pain in specific groups
- Helps with post-placement cramping
- Lidocaine 2% gel or misoprostol did not help reduce pain
- Lidocaine prilocaine gel for 7 minutes
- Benzodiazepine + Acetominophen + opioid

(Lopez, Bernholc et al. 2015)

Cervical Anesthesia



Paracervical Block

- Target is uterosacral ligaments, which contain the cervical and uterine nerves
- Use spinal needle
- **OR** 25g, 1 ½” needle + extender
- Inject at reflection of cervico-vaginal epithelium

Paracervical Block

- 5-10 cc 1% lidocaine (no epinephrine) each side
- Submucosal injection 5mm-1cm deep
- Short speculum allows more movement
- WAIT 1-2 minutes after placing block

BD Spinal Needle

Spinal Needle Quincke Type Point
Aguja Espinal, punta tipo Quincke
Agulha de ponta Quincke
Aiguille Spinale Biseau de Quincke
Spinalkanüle mit Quinckeschliff
Ago Spinale: Punta tipo Quincke
Spinale Naald met Quincke punt
Spinalnål med Quincke slipad spets

CE 0050

STERILE EO

Becton, Dickinson and Company, 1 Becton Drive, Franklin Lakes, NJ 07417 USA
Made in USA

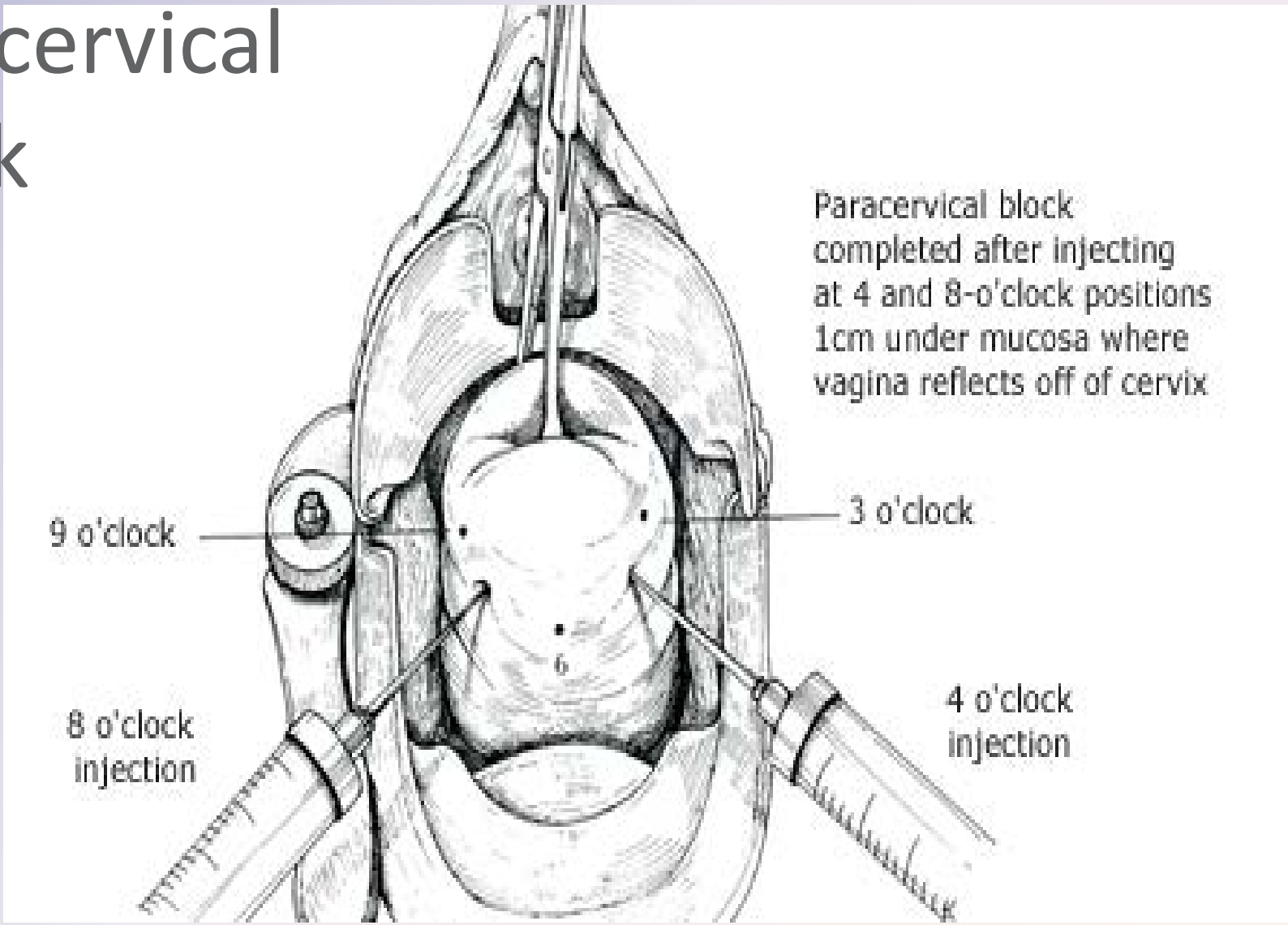
REF 405181

22G x 3.50IN
0.7 mm x 90 mm

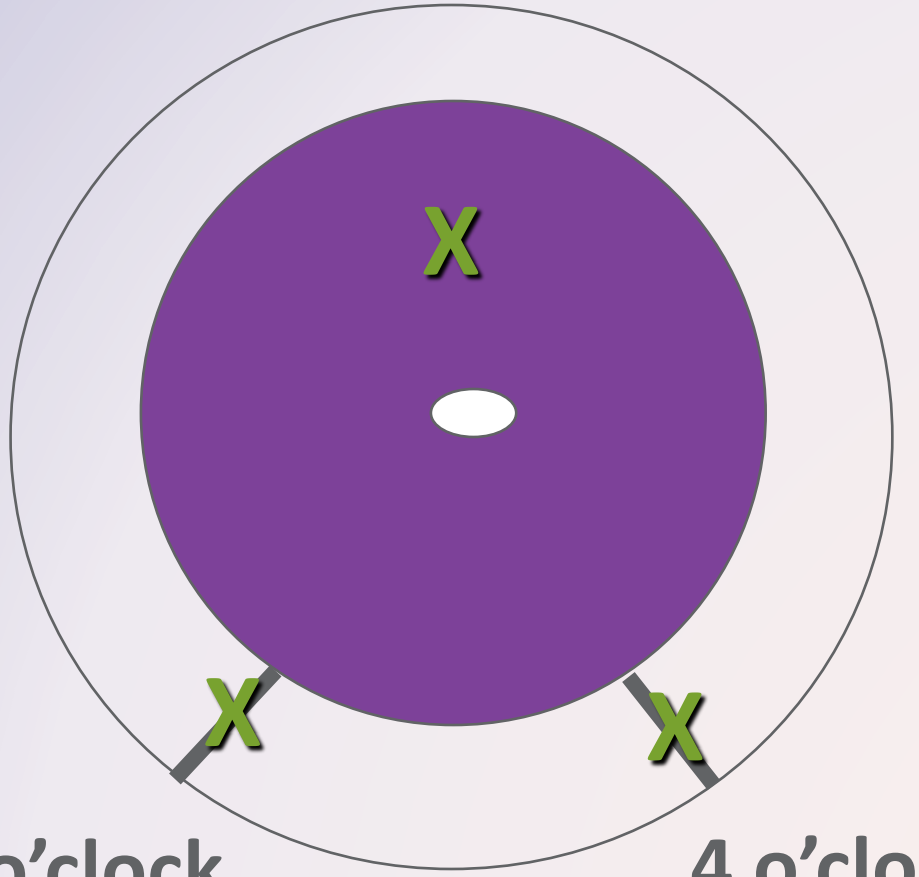
(01)00382904051815

2021-10-31
LOT 6299695

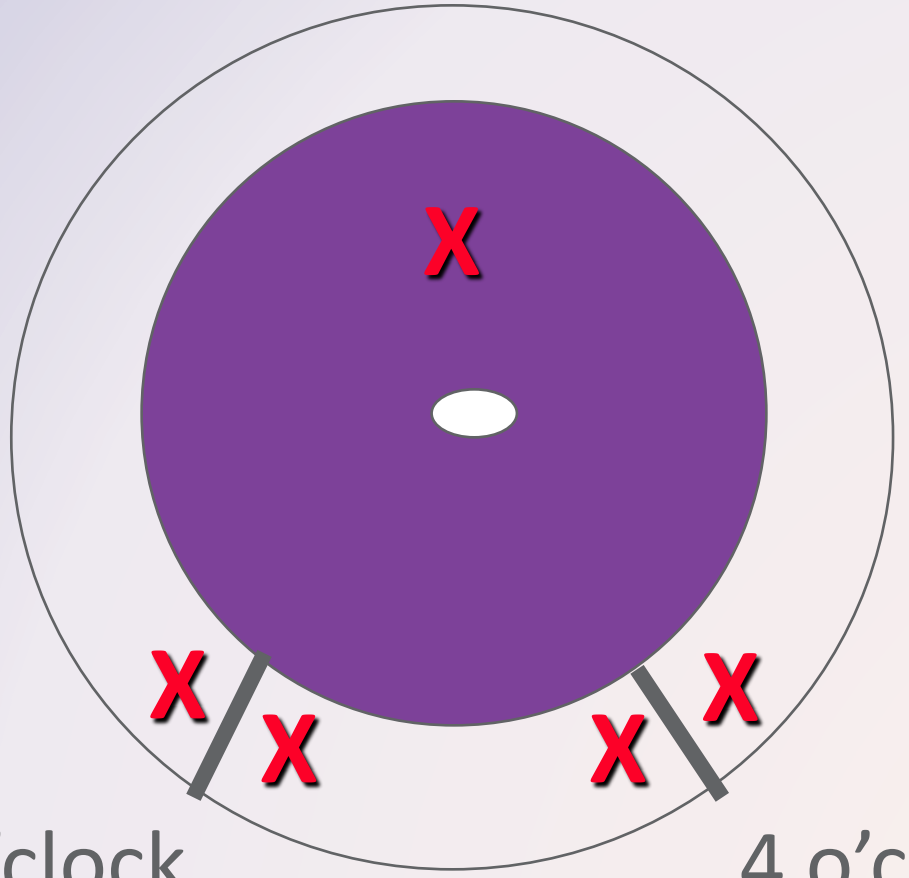
Paracervical Block



Paracervical Block



Paracervical Block



Intracervical Block

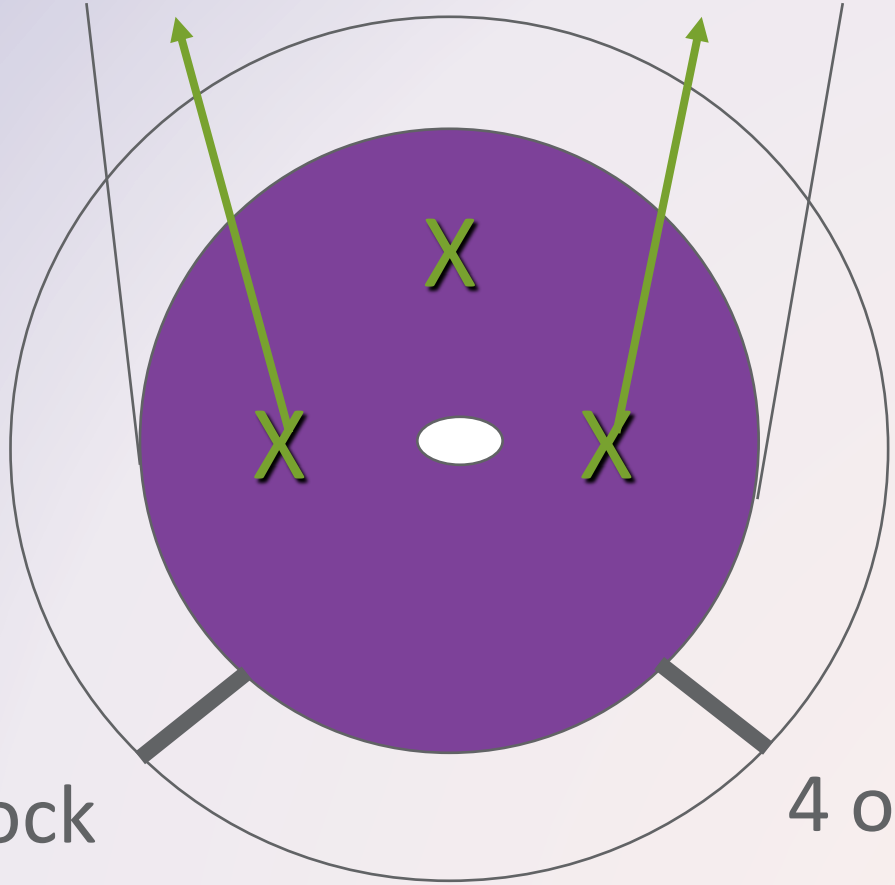
- Targets the paracervical nerve plexus
- 1 ½ inch 25g needle with 12 cc “finger lock” syringe
- Inject ½- 1 cc. at 12 o’clock, then apply tenaculum

Intracervical Block

- Angulate needle at the hub to 45^{o} lateral direction
- At 3 o'clock, insert needle into cervix *to the hub* 1 cm lateral to external os, then aspirate
  - Inject 4 cc of local, then 1 cc while withdrawing
- Rotate barrel 180^{o}, then inject at 9 o'clock


1
2
3
4
5
6
7
8
9
10ml

Intracervical Block



Lidocaine Safety

- Inject in correct spot
- Aspirate to avoid intravascular injection
- Metallic taste is a common side effect

Vasovagal

Vasovagal Response Episode, or Attack

AKA: Non-cardiogenic Syncope

- Mechanism
  - Starts with peripheral vasodilation
  - Bradycardia + drop in B/P
- More likely with dehydration or NPO
  - Pain with cervical manipulation
  - Previous episodes of vaso-vagal fainting

(Grubb, 2005)

Pre-syncopal Signs + Symptoms

- Facial pallor (distinct green hue)
- Diaphoresis, feeling warm or cold
- Sudden need to go to the bathroom
- Nausea
- Yawning
- Pupillary dilatation
- Weakness, light-headedness
- Visual blurring/ tunnel vision

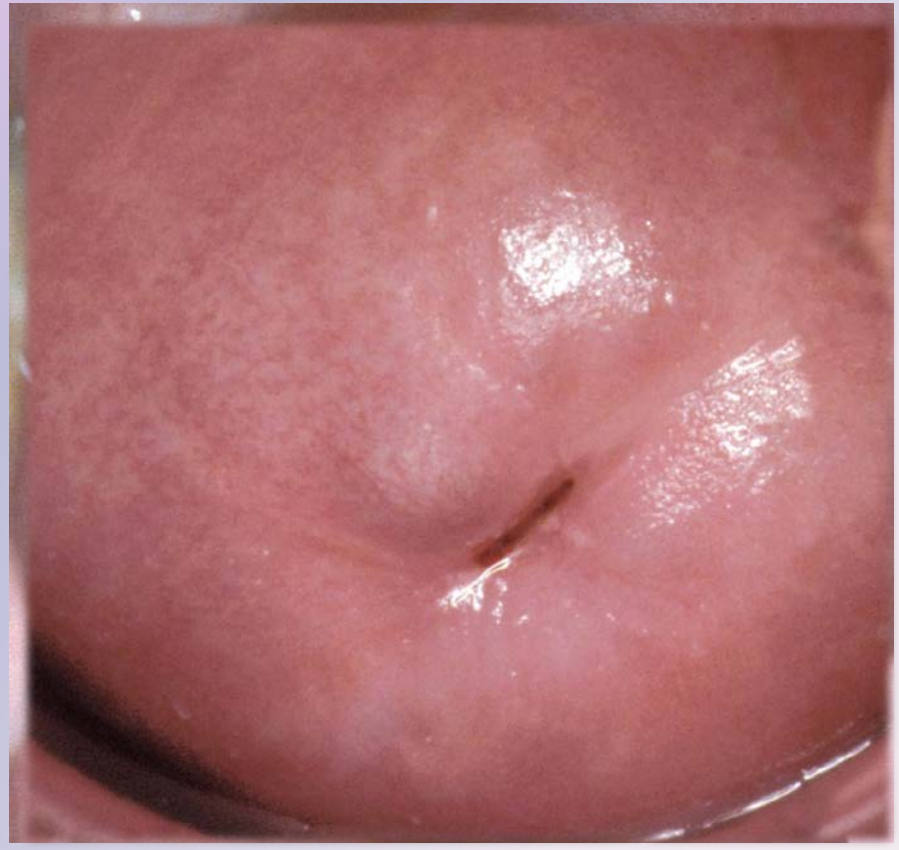
How to Avert Vasovagal Syncope

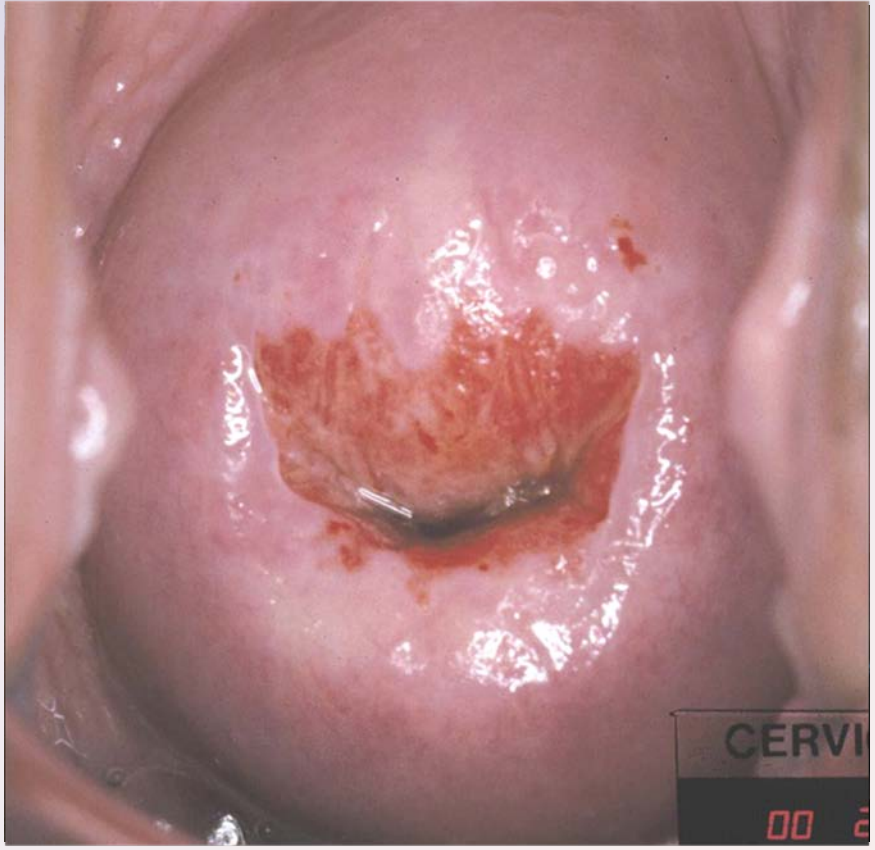
- Isometric contractions of the extremities
- Intense gripping of the arm, hand, leg and foot muscles
- No need to bring the legs together or change position – just tense the muscles

Vasovagal Prevention

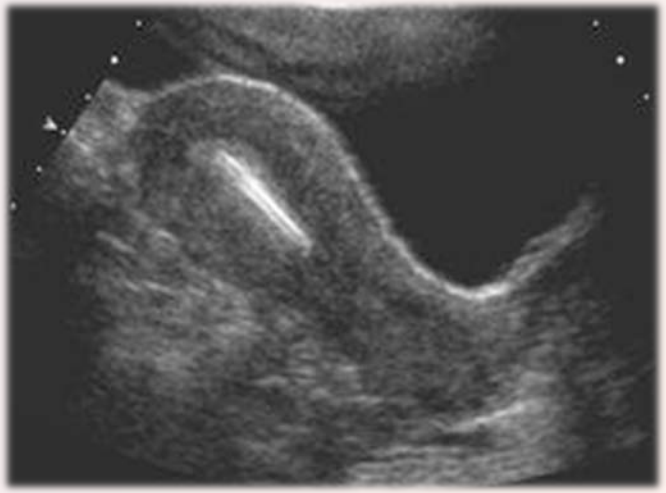
- Anticipatory guidance!
- Good hydration
- Eat before placement
- Prophylactically contract muscles if known history

(Grubb 2005)





Missing strings



Missing String…Possibilities

1. IUD in-situ
   - String coiled in canal or endometrial cavity
   - String short, broken, or severed
2. Unnoticed expulsion
3. Intrauterine pregnancy

Missing String…Possibilities

4. Malpositioned IUD, following perforation or incorrect placement
   - Embedment into the myometrium
   - Translocation into the abdomen or pelvis

Missing String…Possibilities

1. IUD in-situ
   - String coiled in canal or endometrial cavity
   - String short, broken, or severed
2. **Unnoticed expulsion**
3. Intrauterine pregnancy

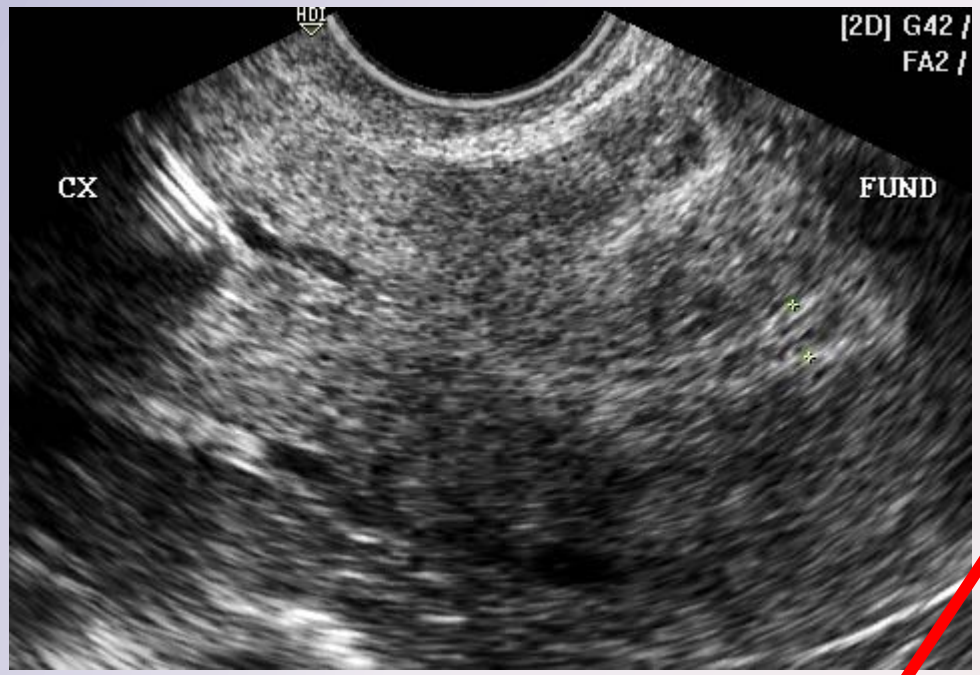
IUD Expulsion

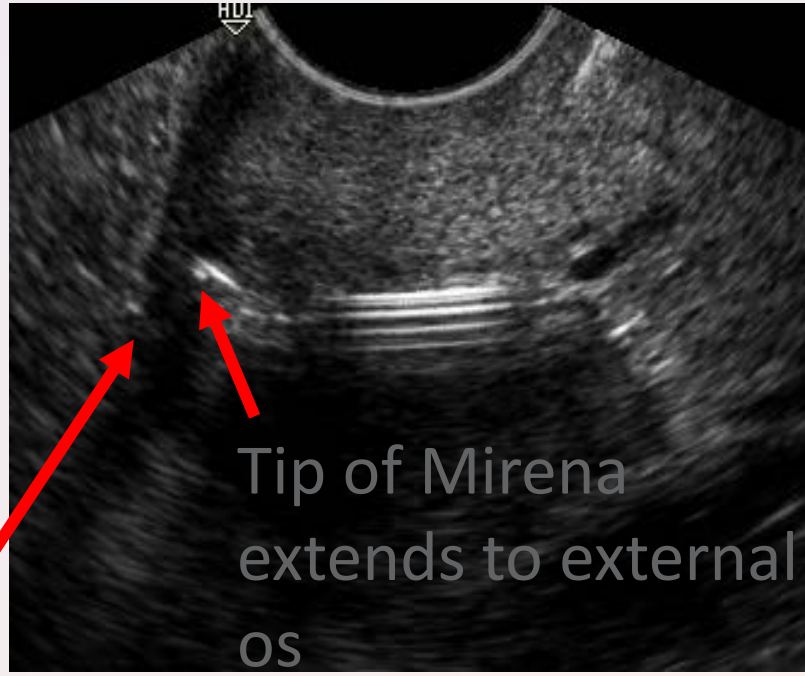
- Occurs in 2-10% IUD insertions within first year
- Risk of expulsion related to:
  - Technique to insure fundal placement
  - Uterine configuration
  - Time since placement
  - Timing of placement (with menses, post 2nd tri abortion, post-placenta)

IUD Expulsion

- Unnoticed expulsion may present with pregnancy
- Partial expulsion may present with
  - Pelvic pain, cramps, intermenstrual bleeding
  - IUD string longer than previously

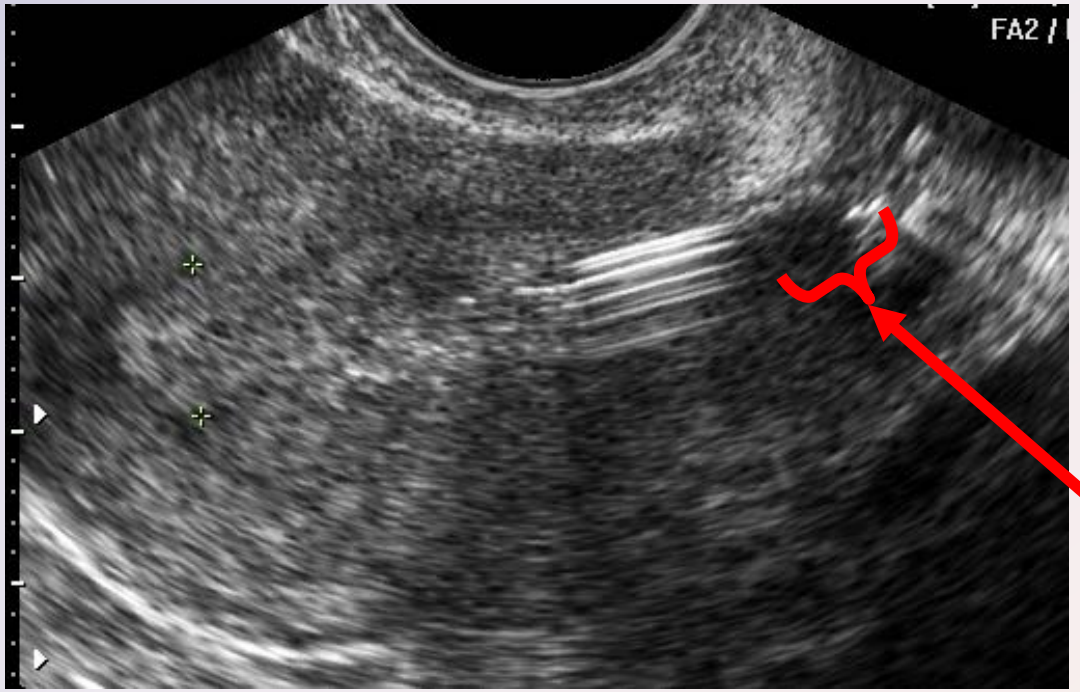
LNG 52 (Mirena) in the Cervix





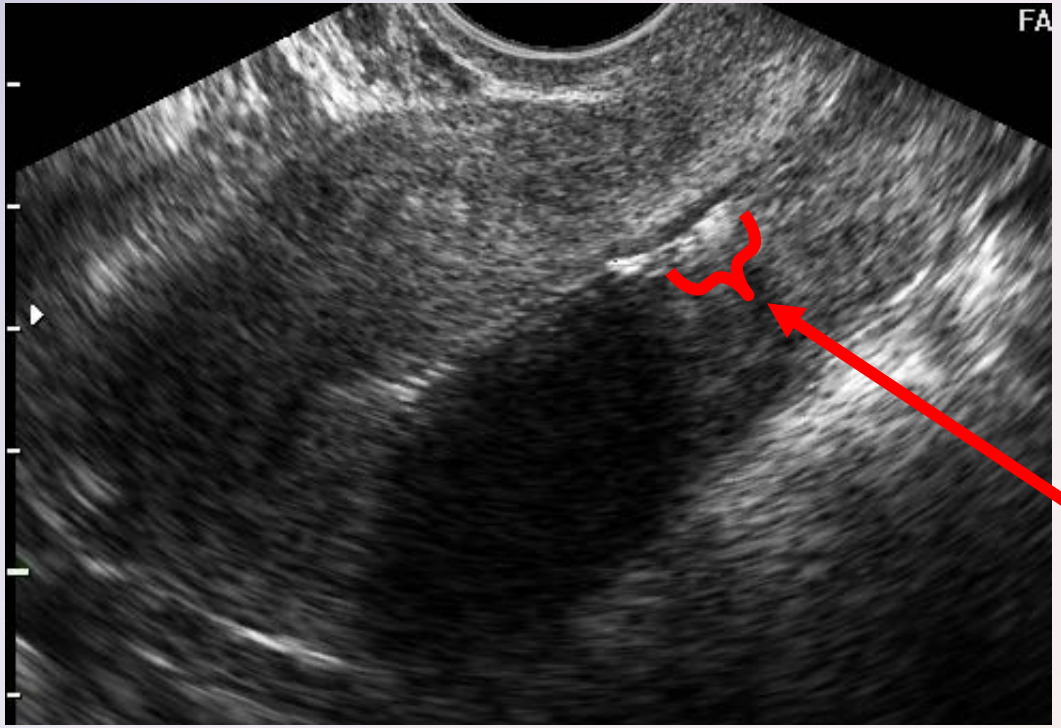
Anterior vaginal wall

What is Too Low?



Tip of LNG IUD extends below internal os

What Is **Not** Too Low?



Tip of LNG IUD well above internal os

Missing String…Possibilities

1. IUD in-situ
   - String coiled in canal or endometrial cavity
   - String short, broken, or severed
2. Unnoticed expulsion
3. **Intrauterine pregnancy**

Outcomes of Pregnancy with IUD in Situ

- Retrospective review of all pregnancies beyond 22 weeks 1998 -2007
- If retained IUD, increased rates of SAB, septic abortion, abruption, previa, cesarean delivery, preterm delivery, LBW infants, and chorioamnionitis vs. without an IUD

(Ganer, Levy et al. 2009)

Pregnancy Outcomes

People who became pregnant with an IUD in place, but whose IUD was removed had outcomes that were intermediate between the group that retained the IUD and the group who became pregnant without an IUD in place

(Ganer, Levy et al. 2009)

Pregnancy with IUD in Situ

Determine site of pregnancy (IUP or ectopic)

If IUP, and planning to continue pregnancy

- Informed consent
- **Removal is strongly recommended** when strings are visible

(Brahmi, Steenland et al. 2012)

Pregnancy with IUD in Situ

Missing String:

- If continuing IUP and strings are *not* visible, do not attempt removal
- Counsel regarding the increased risks
- Increase surveillance during antenatal care (Brahmi, Steenland et al. 2012; Foreman, Stadel et al. 1981)

Pregnancy With IUD In Situ

- If termination planned
  - The IUD can be removed or wait until procedure to avoid triggering miscarriage
  - The IUD should be removed before medication abortion

(Atrash et al. 1994; Foreman, Stadel et al. 1981; UK Family Planning Research Network 1989)

Pregnancy With IUD in Situ

Continued pregnancy with IUD:

- No greater risk of birth defects with CuT, since IUD is outside of the amniotic sac
- Insufficient evidence re: negative fetal effects with small exposure to LNG during gestation

(Brahmi, Steenland et al. 2012; Foreman, Stadel et al. 1981)

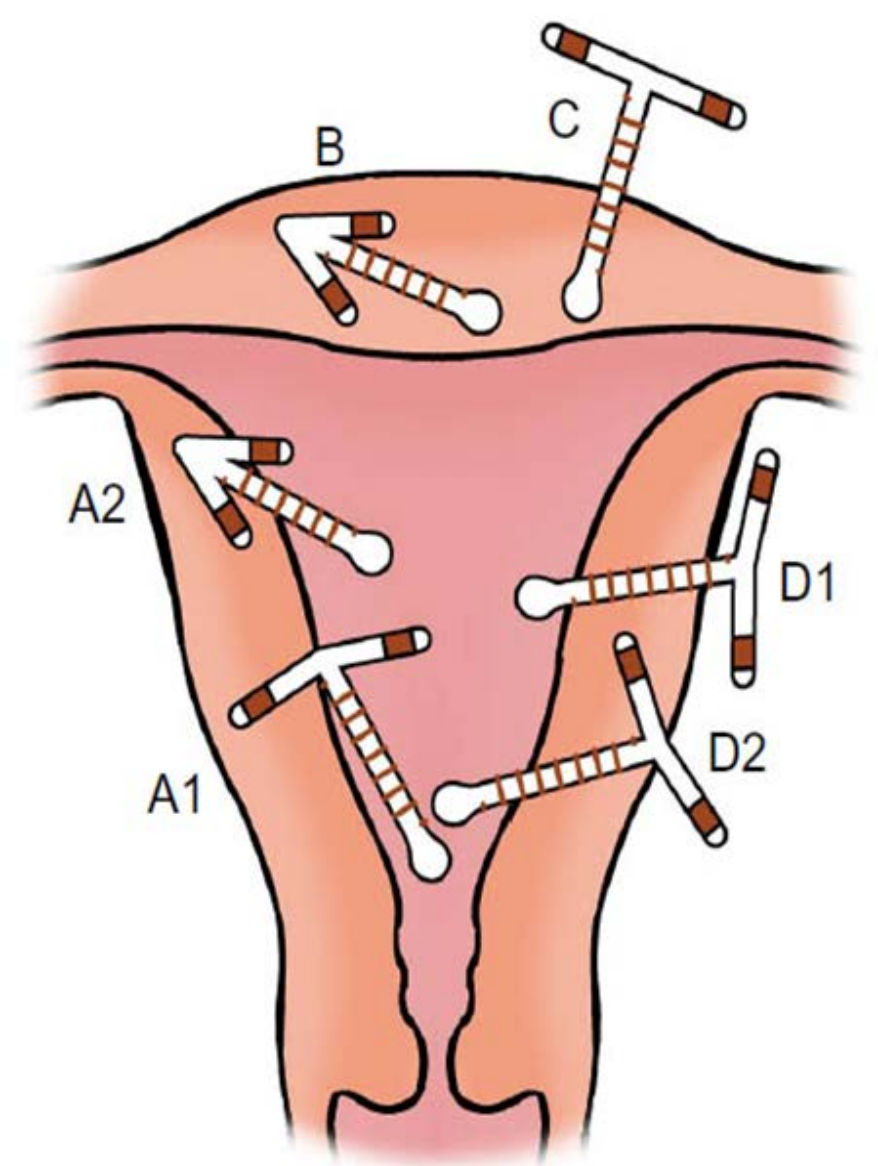
Missing String…Possibilities

4. Malpositioned IUD, following perforation or incorrect placement
   - Embedment into the myometrium
   - Translocation into the abdomen or pelvis

Embedment

- Diagnosed at failed attempt at extraction or imaging
- Remove when diagnosed, as embedment may progress to translocation
- Advanced imaging (3-D ultrasound or pelvic CT) is critical, as it is used to direct treatment to hysteroscopy, laparoscopy, or laparotomy

CT or 3-D Ultrasound



A: Hysteroscopy

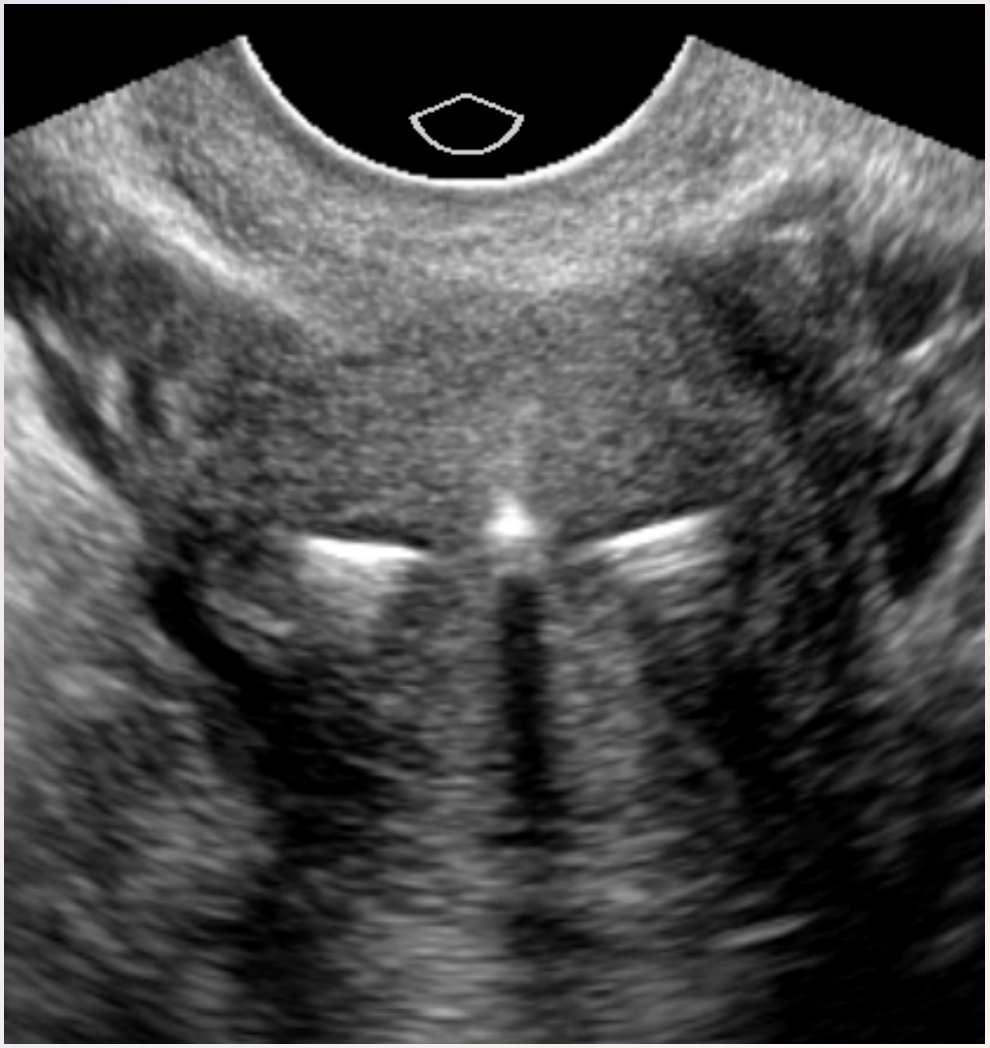
B: Laparotomy

C: Laparoscopy

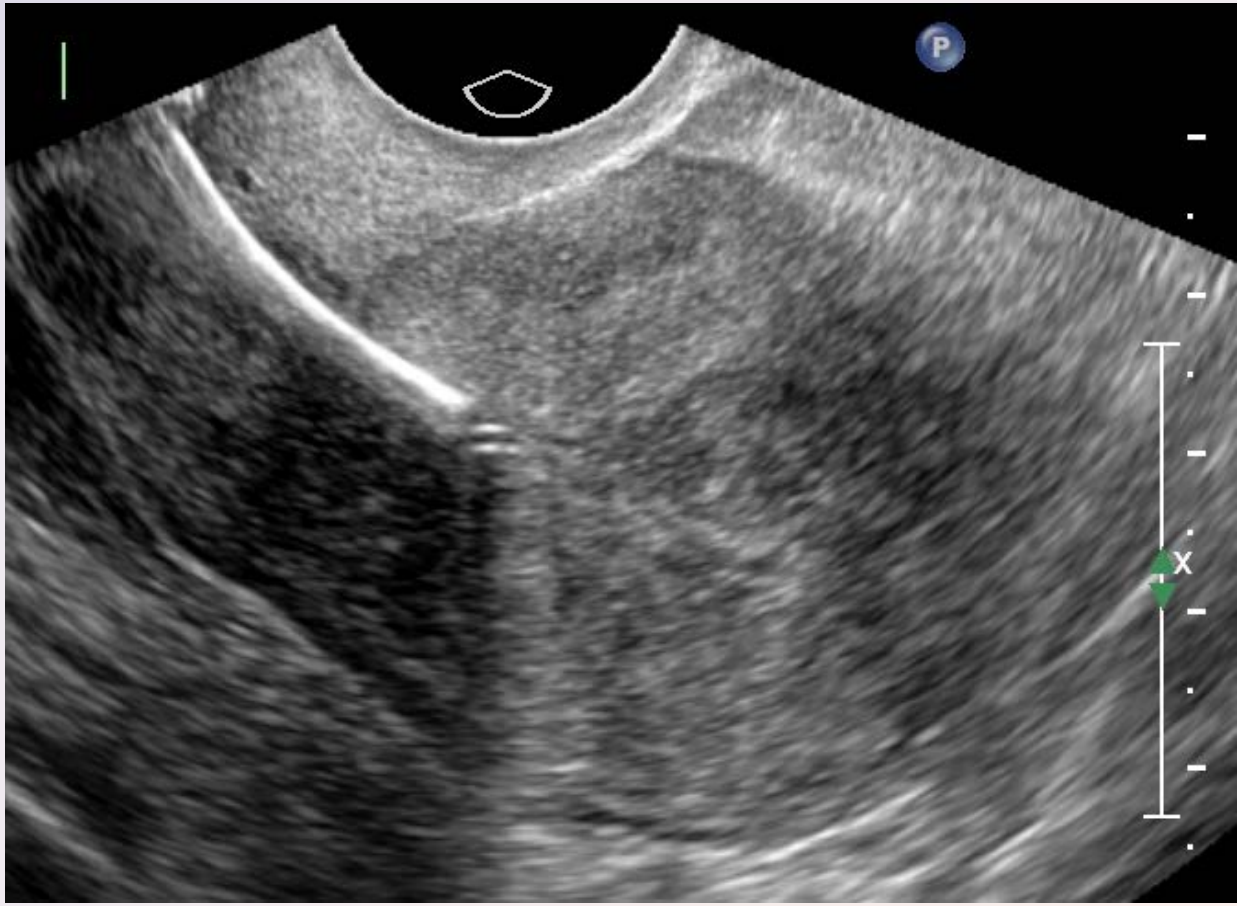
D_1: Laparoscopy

D_2: Hysteroscopy

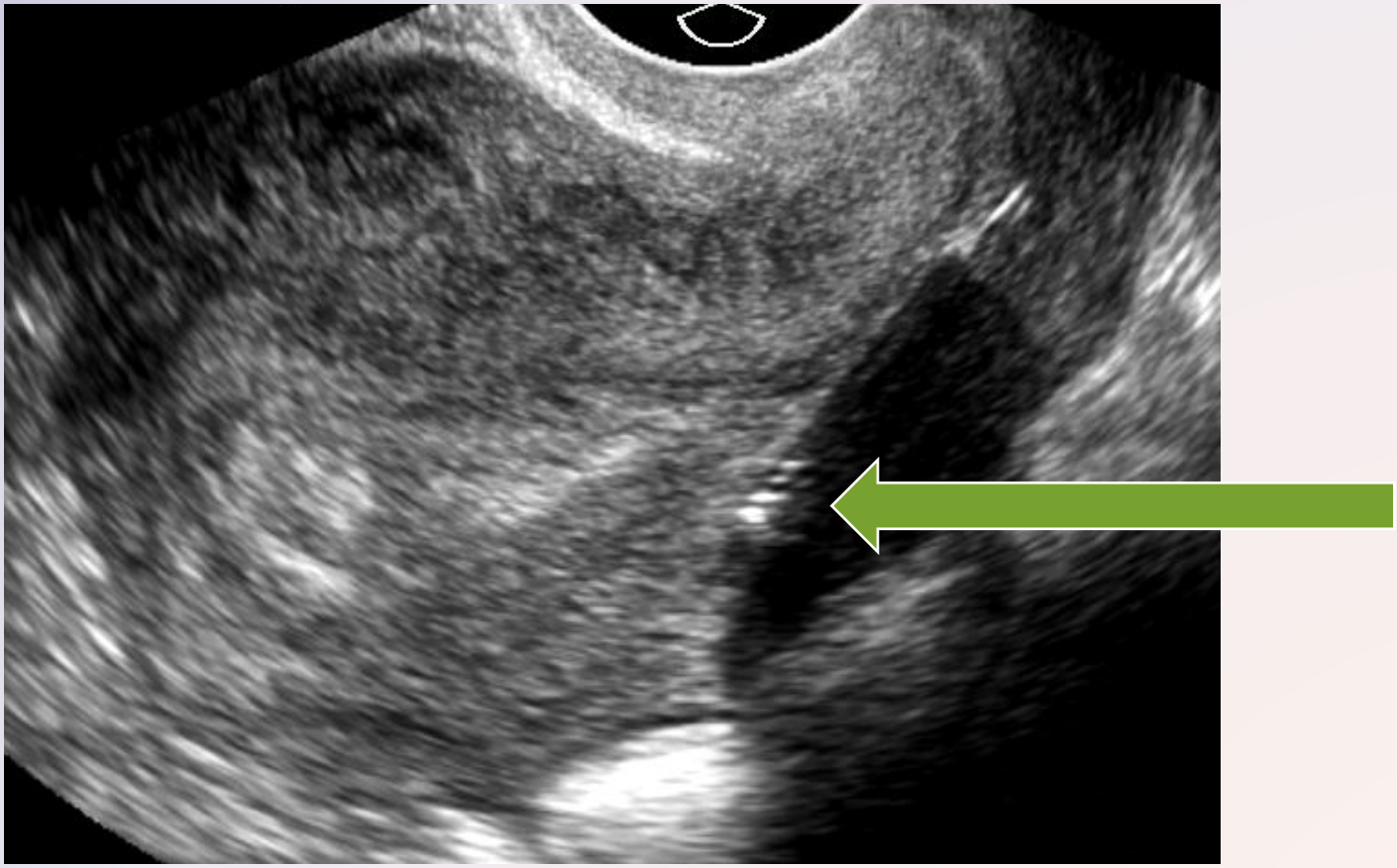
Paragard

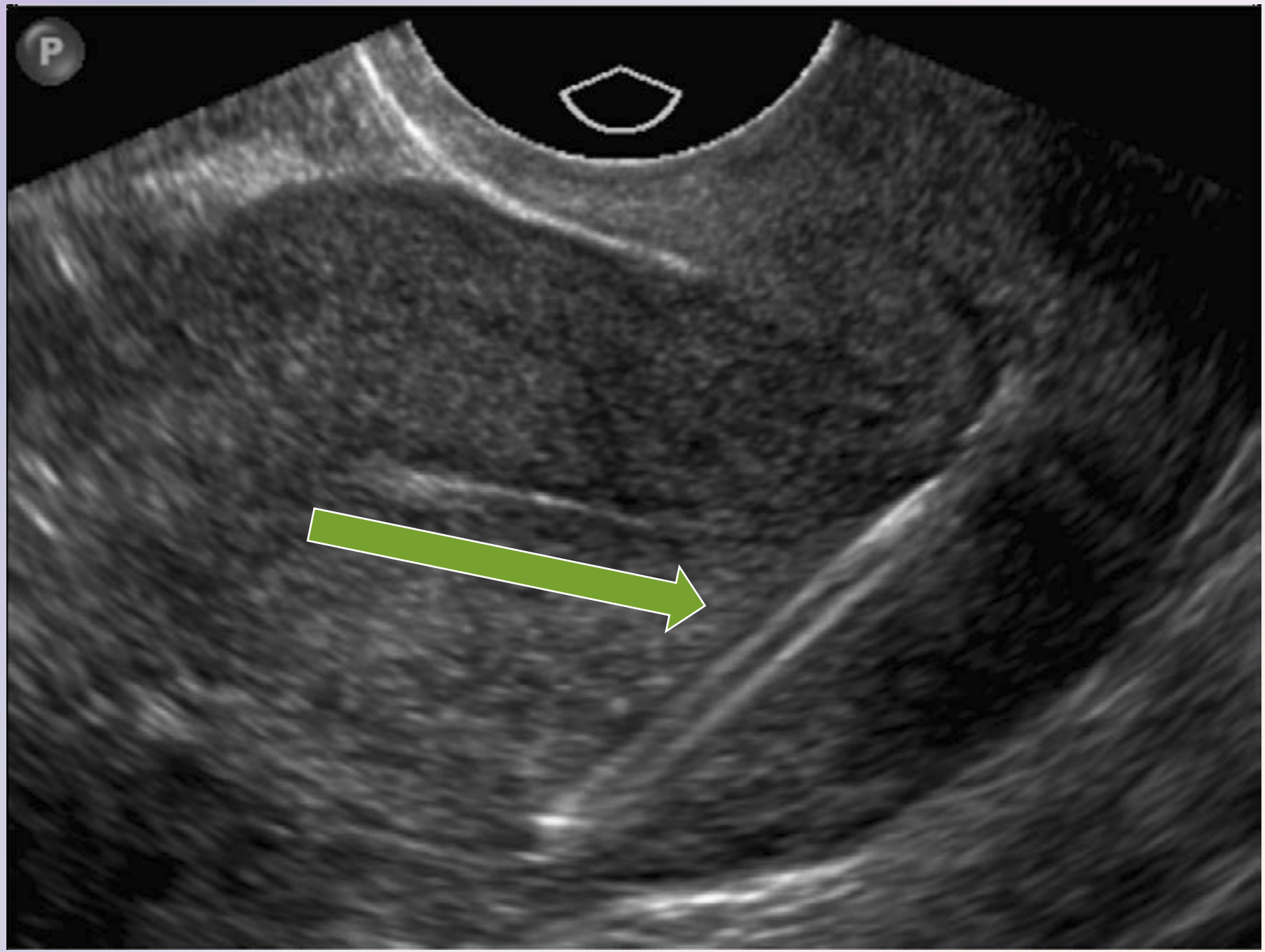


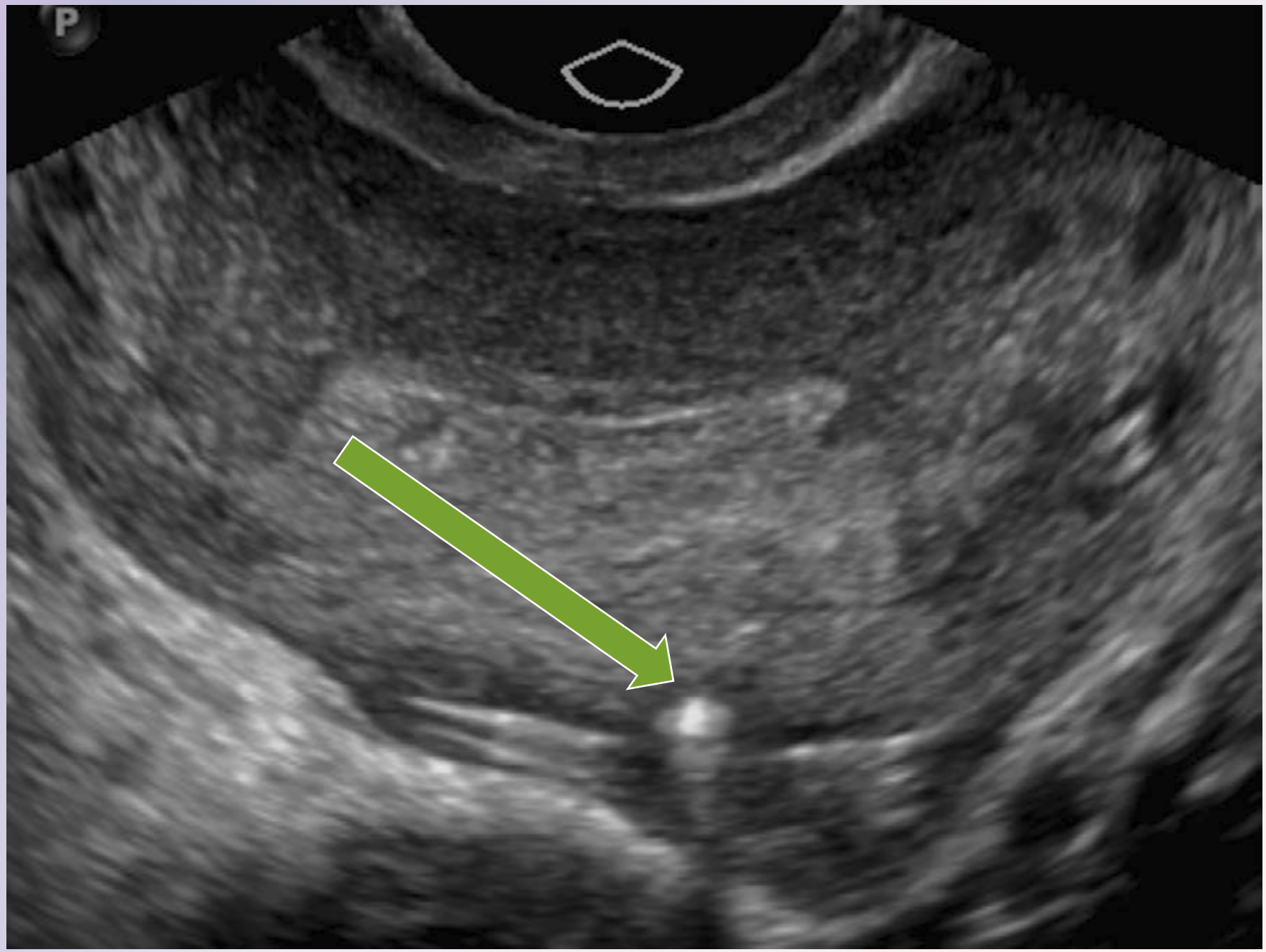
Paragard



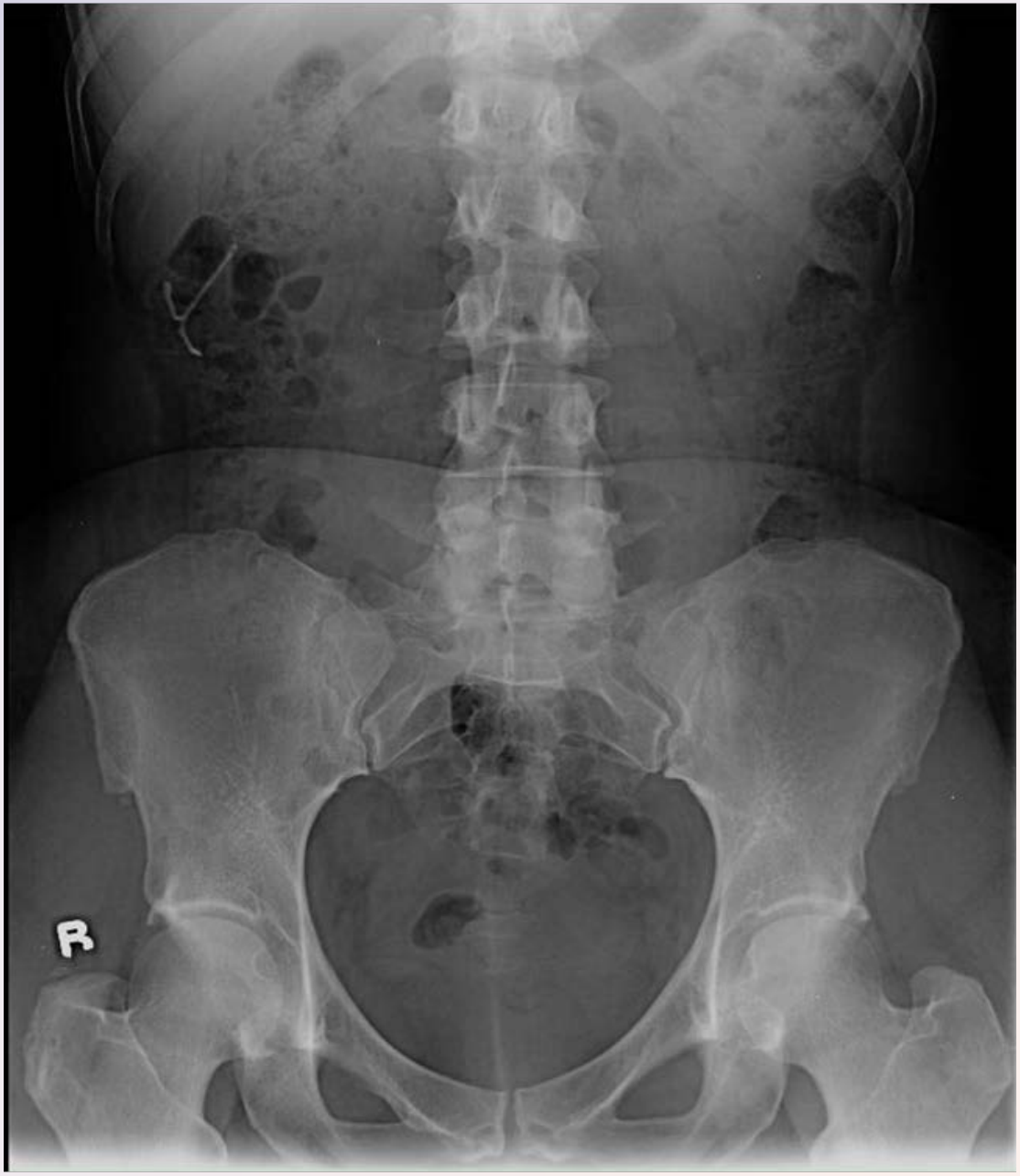
Where is the Mirena?




P


P

On X-ray



Uterine Perforation Rates

- >60,000 people in 6 countries
  - 70.1% LNG; 29.9% copper (30 types)
- 81 perforations
  - LNG: 1.4/1,000
  - Copper: 1.1/1,000
- Partial (20%); translocated (80%)
- 50% diagnosed first 2 months

(Heinemann, Reed et al. 2015)

Uterine Perforation Rates Postpartum Breastfeeding

- Breastfeeding 6/1000
- 63/81
  - Breastfeeding
  - Postpartum
- **No serious injury** to intraperitoneal or pelvic structures

(Heinemann, Reed et al. 2015)

Factors That Did Not Affect Perforation Risk: European Active IUD Surveillance Study

- Cervical dilation at time of placement
- Use of anesthesia
- History of cesarean section
- Last delivery by cesarean section

(Heinemann, Reed et al. 2015)

Prevention of Perforation

- Careful assessment of uterine position
- Bend the sound to mimic uterine flexion
- Exert adequate traction with the tenaculum to straighten the axis of the uterus
- Use only finger or wrist action- no elbow or shoulder motion
- Brace fingertips on speculum to control force while advancing the sound

Prevention of Perforation

- Once you have passed through the internal os—***STOP*** *and pause for a second*
- Then intentionally proceed to the fundus in a controlled fashion
- SLOW movements
- Avoid momentum

Prevention of Perforation

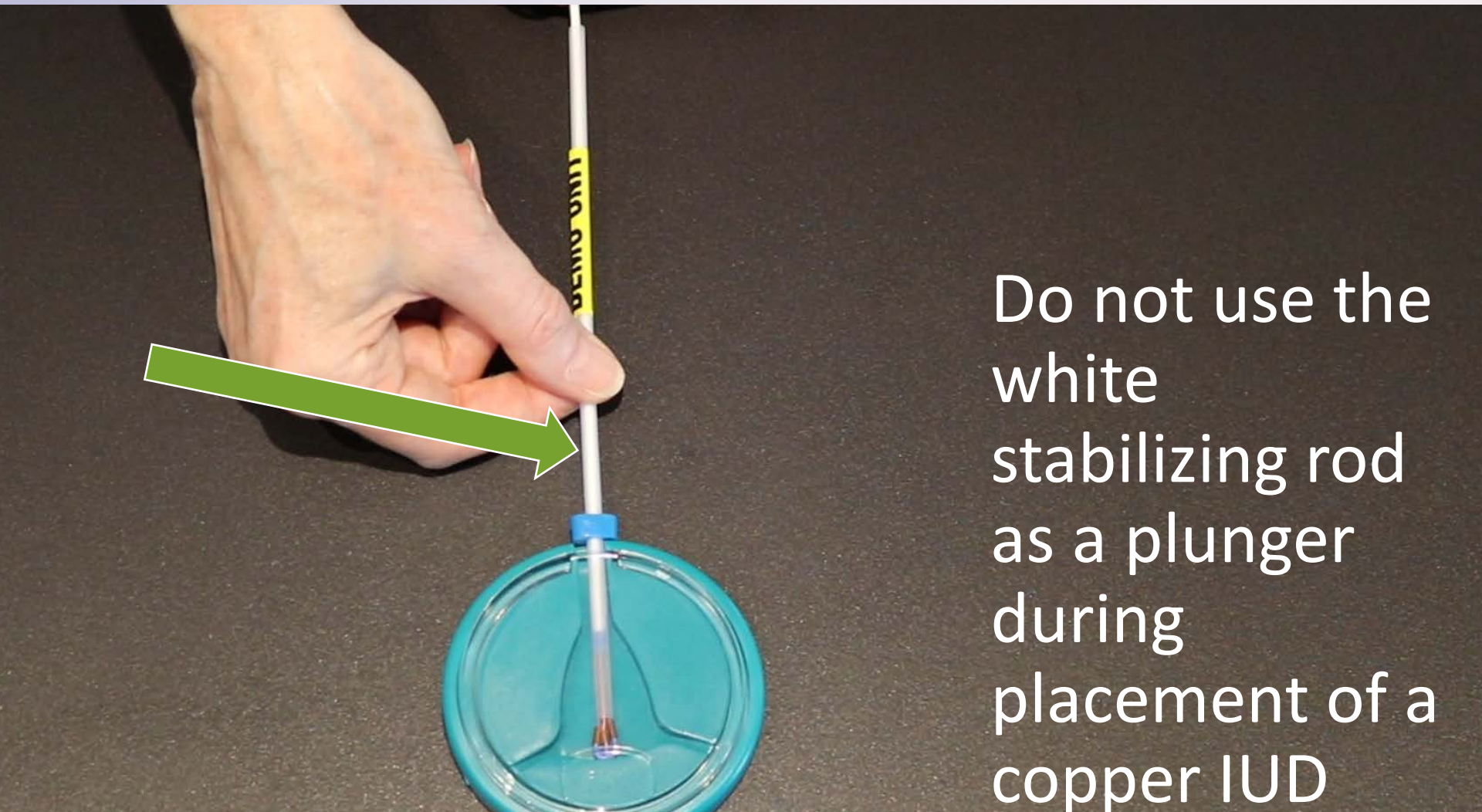
“Fundal feel," or resistance should be a signal to STOP advancing

- Do not push beyond fundal resistance even if the flange is not yet at the external os
- Flange or fundal feel- STOP whichever comes first

Prevention of Perforation

- Plastic sound or EMB device may have less risk of perforation than metal
- Place cervical block and dilate cervix if resistance is encountered in order to *avoid excessive force* during sounding and placement

Prevention of Perforation Copper IUD



Do not use the white stabilizing rod as a plunger during placement of a copper IUD

Diagnosis of Uterine Perforation

- Perforation often asymptomatic
- Suspect if sounding is much deeper than expected or if ↑ resistance followed by none at fundus
- Can be confirmed by real-time office ultrasound, if available

Management of Perforation

- If *before* placement of IUD, stop procedure
- If *during* placement of IUD, remove IUD
- Monitor BP, pulse, bleeding, and pain for 30-60 minutes
- Provide alternative contraception
- Can place another device in 1 month

Translocation

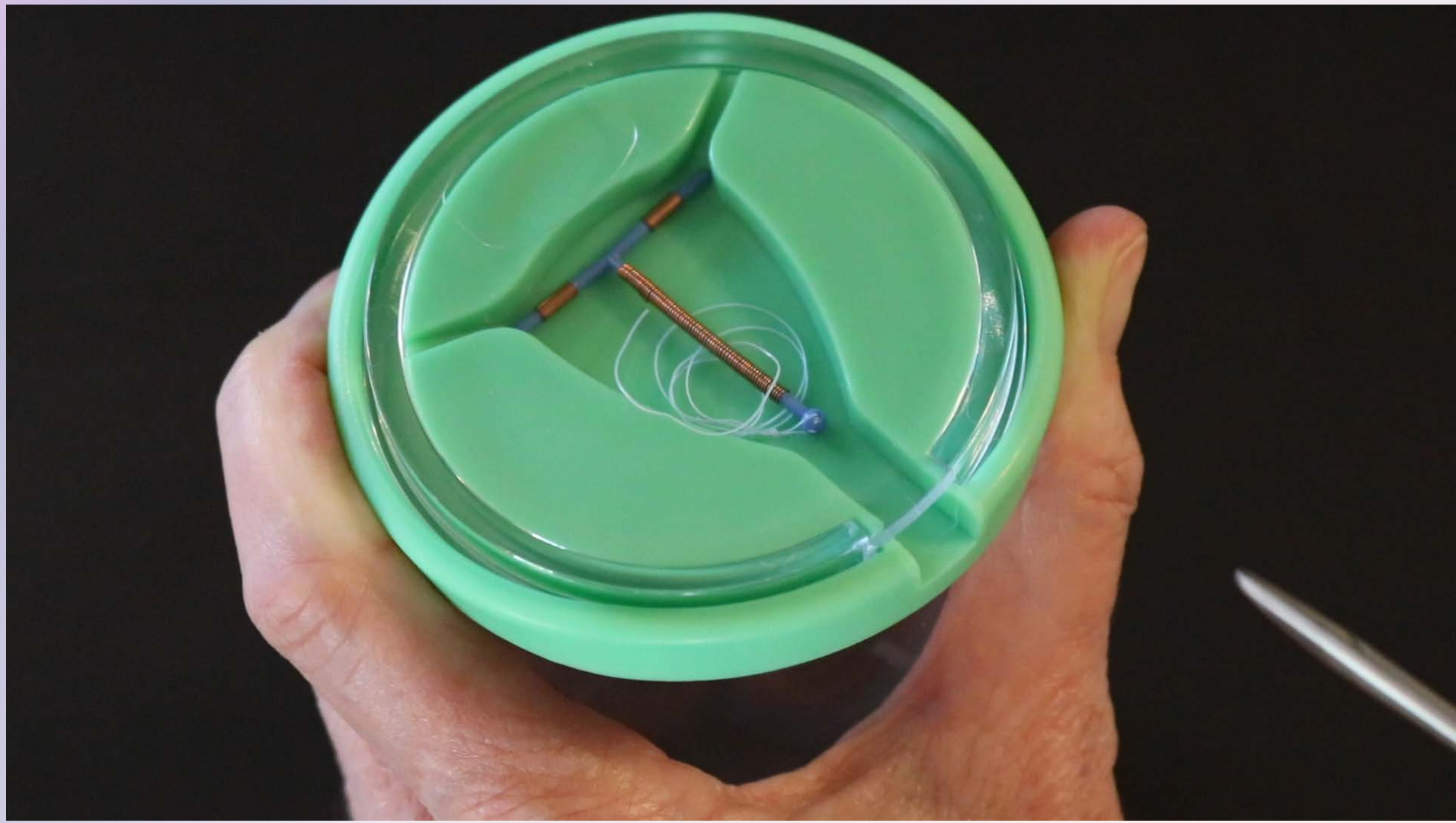
- Copper IUD can cause adhesions, so extract promptly via laparoscopy
- LNG-IUS is less reactive, but still recommend laparoscopic removal

IUD Extraction Without Visible Strings

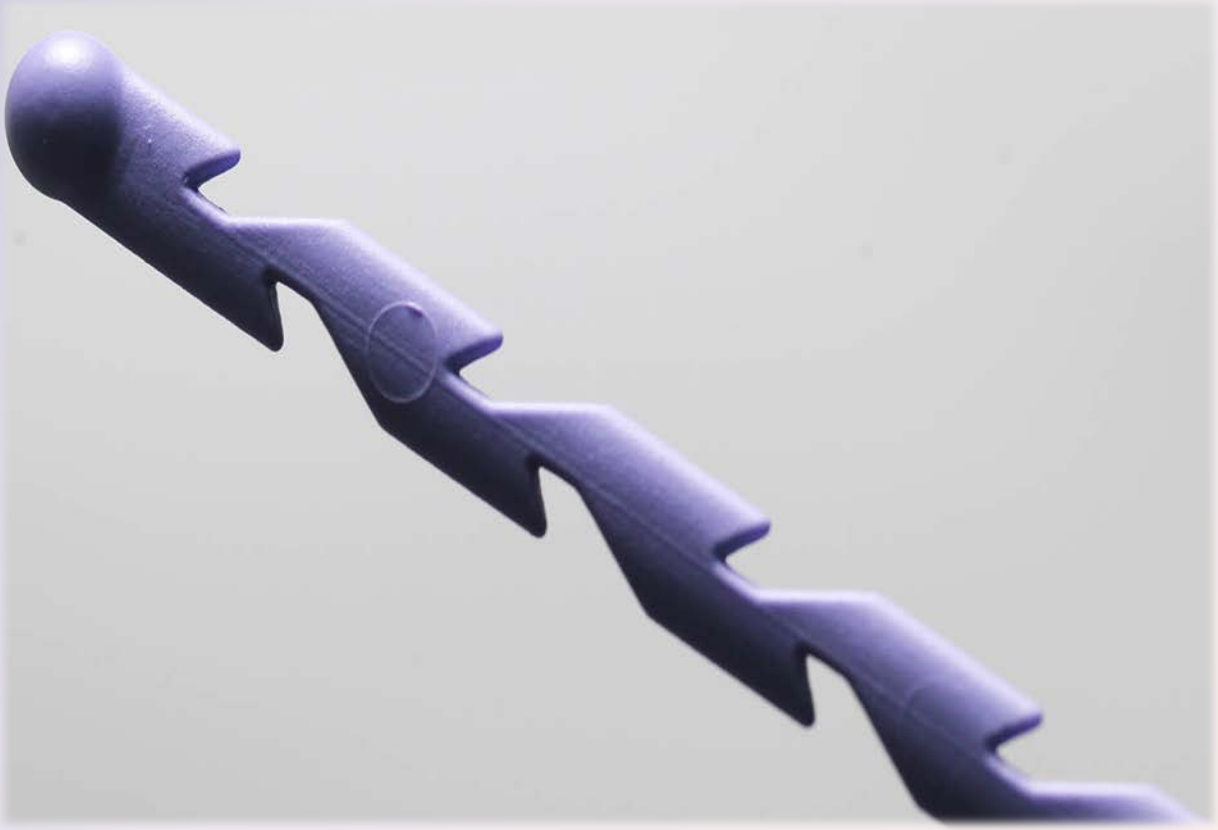
(Prabhakaran, Chuang 2011)

IUD Extraction Without Visible Strings

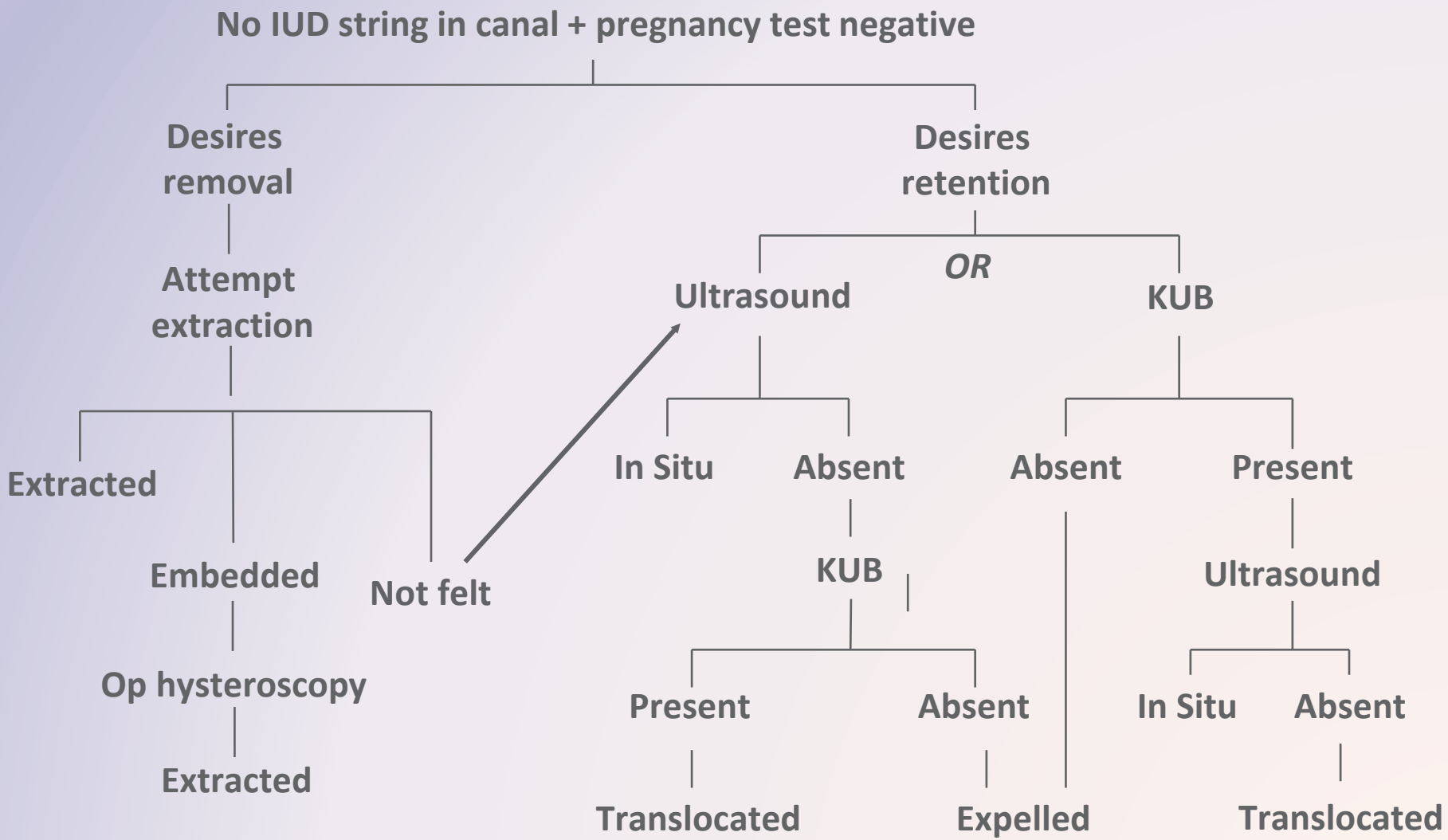
- Gently open/close ¼ turn forceps at progressive depths/angles until “purchase” of stem or string
- Ultrasound guidance may help- not required
- Maneuver hook along anterior, then posterior, uterine wall from fundus to canal
- No cervical dilation necessary
- If embedment suspected, evaluate with 3-D ultrasound or pelvic CT with contrast



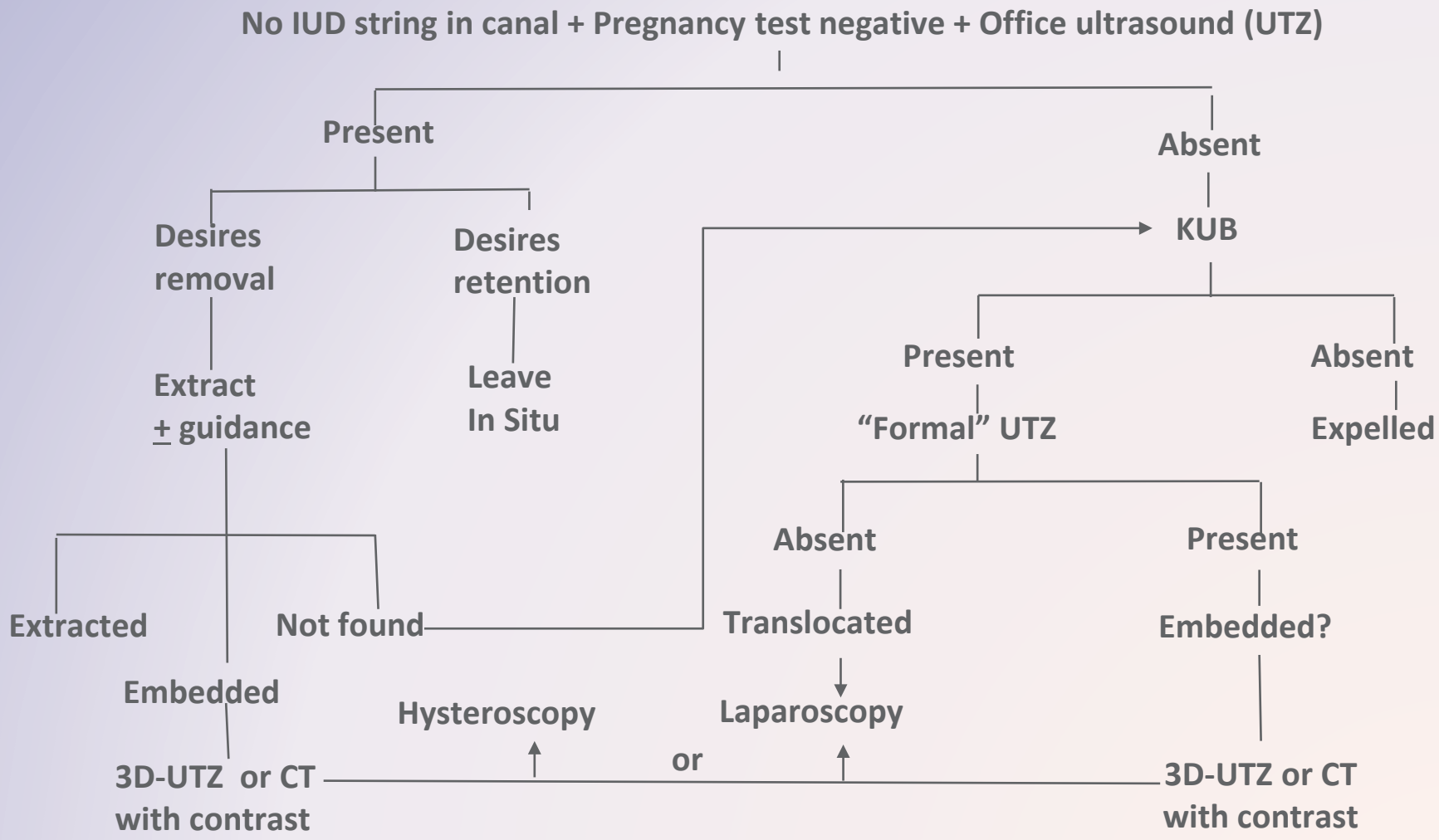
Thread Retriever



No Office Ultrasound



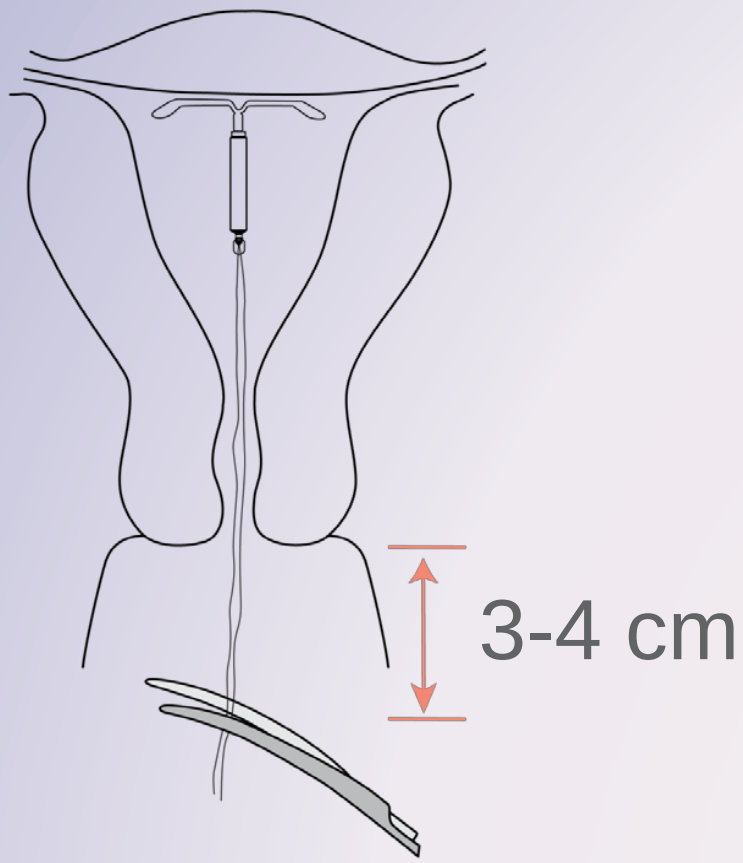
Missing String: Office Ultrasound



Partner Bothered by Strings

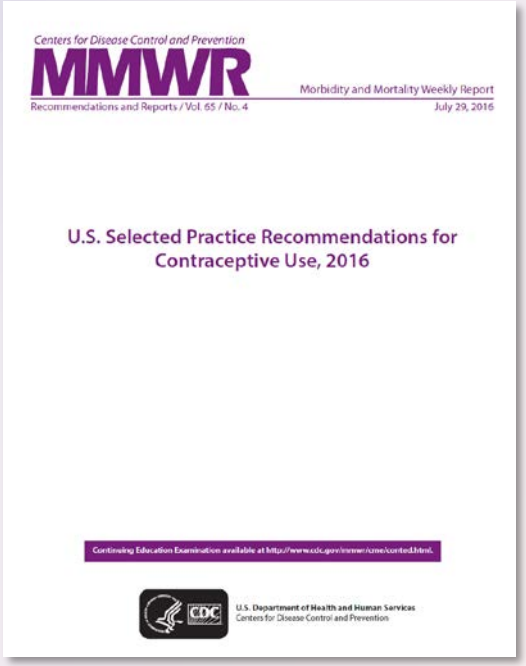
Use scissors that are:

- Sharp
- Blunt-tipped
- Long
- Curved

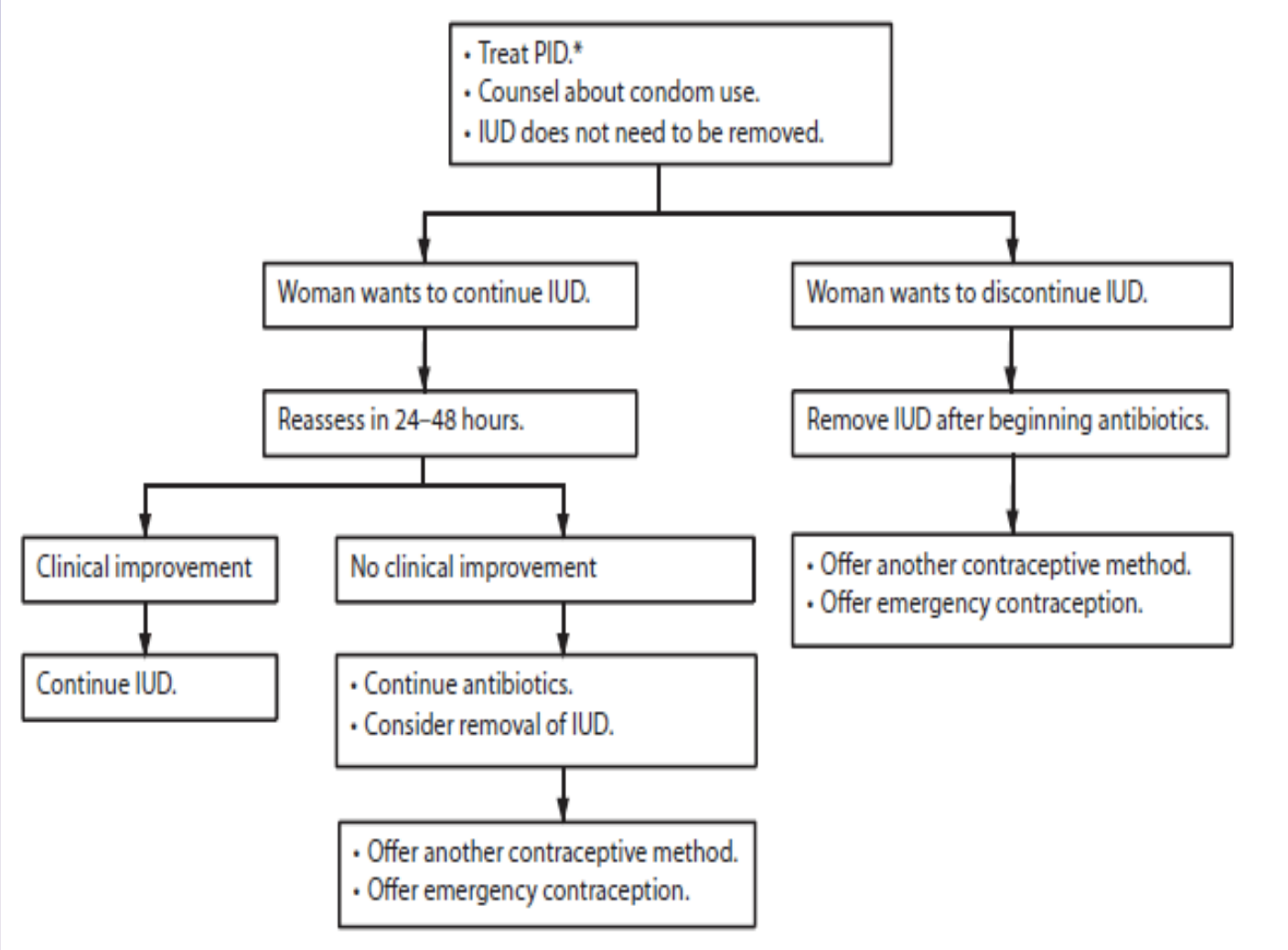


- Cut the threads perpendicular *(cutting at an angle may leave sharp ends)*
- Longer is better to wrap around posterior lip
- Don’t pull on the threads or “crimp” rather than cut them

Genital Tract Infection



Genital Tract Infection



Genital Tract Infection

If cervical or vaginal infection diagnosed

Treat infection ***IUD removal not necessary***

If PID diagnosed

- ***IUD removal usually not necessary***
- Treat infection
- Consider removal if no improvement 48-72 hours after starting treatment

(Penney, Brechin et al. 2004; CDC Selected Practice Recommendations for Contraceptive Use 2016)

Actinomyces-Like Organisms on Pap

- *Actinomyces israelii* has characteristics of both bacteria and fungus; part of normal GI flora
- May asymptomatically colonize the frame of the IUD
- *Pelvic actinomycosis is the only concern* and it presents as severe PID

Actinomyces-Like Organisms (ALO)

- Patients with ALO on Pap test
- Should be examined to exclude PID however it is likely that the patient was already examined at time of cytology testing
- If no PID, don’t treat actinomyces or remove IUD

Use of IUDS with Uterine fibroids

IUD Use and Fibroids

- Off-label use; may violate precaution regarding cavity depth and distortion of uterine cavity
- Reasonable to attempt treatment of bleeding with LNG 52; effective 50% of the time
- No data on efficacy, but probably not compromised with LNG IUD or with copper IUD if fundal placement

IUD Placement with Fibroids

Determine fibroid location by ultrasound

- Fundal fibroids (intramural, sub-serous) do not preclude IUD use if the uterine cavity is not distorted
- Large sub-mucous fibroids, especially in lower uterine segment, contraindicate use
- Evaluate for other pathology, e.g., polyp
- Real time ultrasound during placement -- safer and helps insure fundal placement

Menopause and IUDs

Hormone Therapy Post Menopause

- LNG 52 IUD can be placed or left in place during and after transition

- Provides excellent protection from endometrial hyperplasia if patient is using systemic estrogen

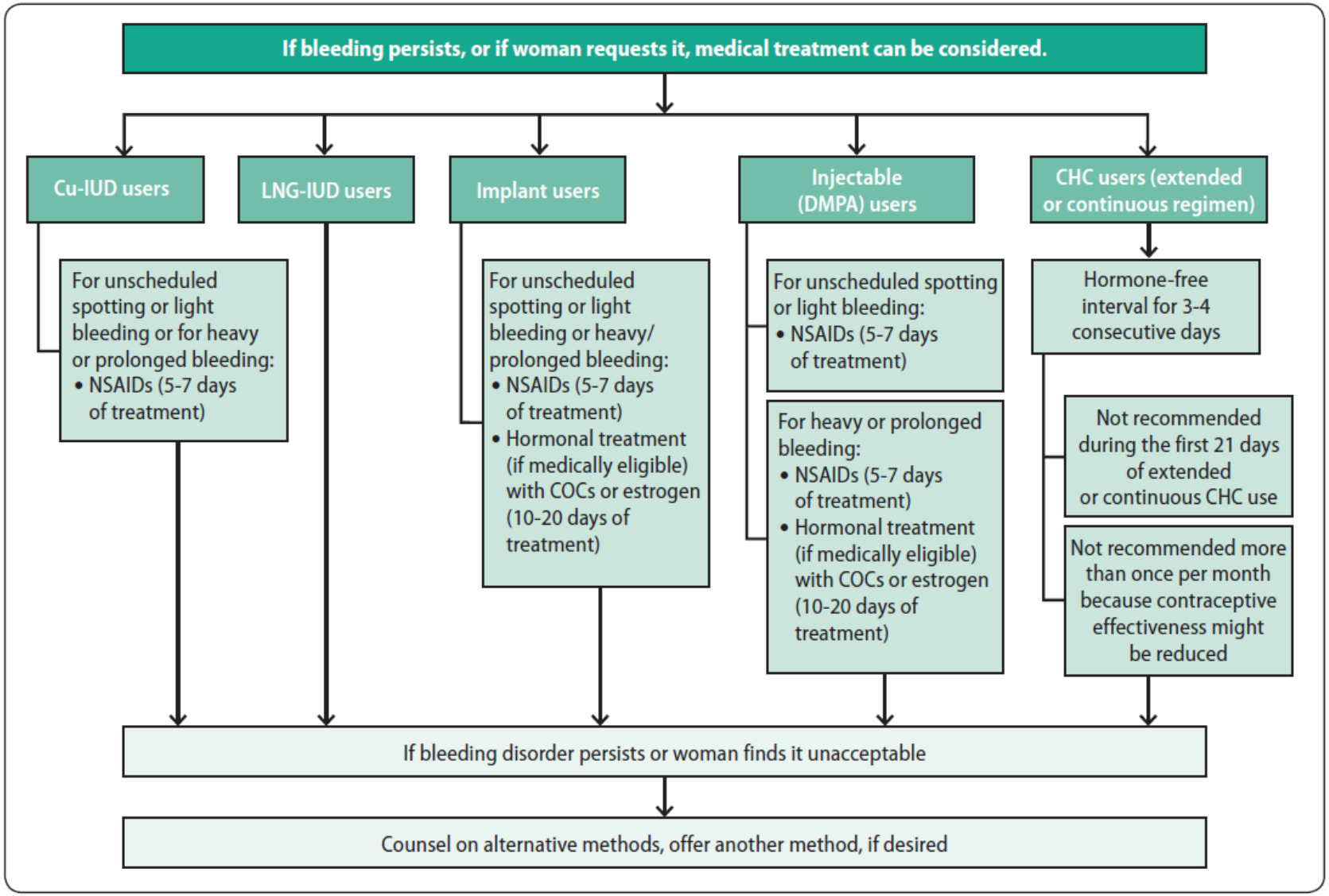
(Long, ME. 2015. Sitruk-Ware R. 2007)

Removal Post Menopause

- Strings seen: remove
- No strings visible…weigh risks
  - Hazards of continuation (post-menopausal bleeding, ? pelvic actinomycosis)
  - Hazards of removal (pain, perforation)
- Tail-less IUD (e.g., Chinese stainless steel coil ring) should not be removed unless requested

Patient Counseling & Bleeding Management

Management of Women with Bleeding Irregularities While Using Contraception*



* If clinically warranted, evaluate for underlying condition. Treat the condition or refer for care. Heavy or prolonged bleeding, either unscheduled or menstrual, is uncommon among LNG-IUD users and implant users.

Abbreviations: CHC = combined hormonal contraceptive; COC = combined oral contraceptive; Cu-IUD = copper-containing intrauterine device; DMPA = depot medroxyprogesterone acetate; LNG-IUD = levonorgestrel-releasing intrauterine device; NSAIDs = nonsteroidal anti-inflammatory drugs.

Source: For full recommendations and updates, see the U.S. Selected Practice Recommendations for Contraceptive Use webpage at http://www.cdc.gov/reproductivehealth/unintendedpregnancy/usspr.htm.

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

LNG 52 IUDs: Menstrual Effects

- Initially users may have spotting and irregular bleeding
- Usually resolves after 3-6 months
- Menses become increasingly light
- Amenorrhea 20-80%

(Bachmann, Korner 2009; Backman, Huhtala et al. 2002; Gemzell-Danielsson, Schellschmidt et al. 2012; Hidalgo, bahamondes et al. 2002; Mansour, 2012)

Levonorgestrel 19.5 and 13.5 IUDs Menstrual Effects

- Less data about bleeding profile
- Initially some people have frequent spotting and irregular bleeding
- Usually have light, regular menses--become increasingly light
- Less amenorrhea than LNG 52

(Gemzell-Danielsson, Schellschmidt et al. 2012; Nelson, Apter et al. 2013)

It Just Gets Better and Better…

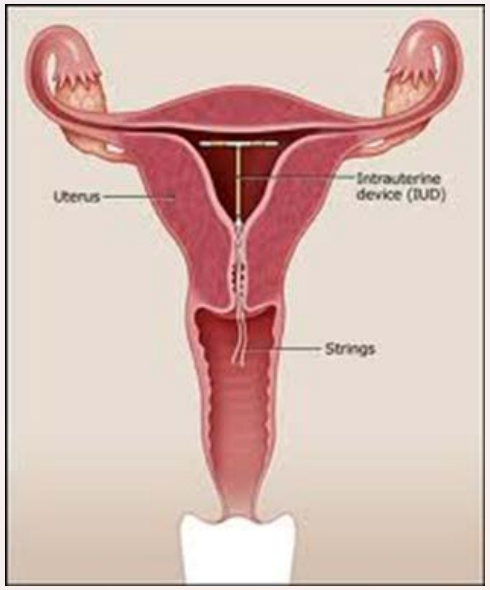
Decreased bleeding with placement of subsequent LNG IUD

(Heikinheimo, Inki et al. 2014)

Reduce Bleeding with Copper IUD

Longer/heavier menses/dysmenorrhea

- Gets better with time
- NSAIDs prophylactically WITH FOOD
  - Pre-emptive use: 1st 3 cycles
  - Start before onset of menses for anti-prostaglandin effect
    - ✓ Naproxen sodium 220mg x2 BID (max 1100mg/day)
    - ✓ Ibuprofen 600-800mg TID (max 2400mg/day)



(Godfrey, Folger et al. 2013; Grimes, Hubacher et al. 2006; Hubacher, Chen et al. 2009)

Addressing Unscheduled Bleeding

- Anticipatory guidance
- Ask **what concerns them**
- Normal side effect, not dangerous, doesn't indicate reduced effectiveness
- Any concomitant medications that may reduce effectiveness of progestin

Work up of unscheduled bleeding

Work up in context of other symptoms (pain, vaginal discharge, postcoital bleeding)

Consider:

- Pregnancy test
- Speculum and bimanual exam
- Cervical cancer screening
- GC/CT
- Pelvic ultrasound
- EMB

NSAIDs for Unscheduled Bleeding

Inhibit prostaglandin synthesis which is increased in the endometrium of users with abnormal bleeding

- Most effective when bleeding is “heavier”

Options

- Naproxen sodium 220 mg PO BID
- Ibuprofen 800mg PO TID
- Mefanamic acid 500 mg PO TID

(Zigler, McNicholas 2017)

Treatment for Bleeding with LNG IUD in the First 90 days

- Naproxen sodium may work – if bleeding is heavy
- Progestin-only pill (POP)
  - no data
- Transdermal E2 and tranexamic acid not likely to work

(Madden, Proehl et al. 2012; Sordal, Inki et al. 2013; Varma, Sinha et al. 2016)

Not Useful, Not Practical or Still Experimental:

- Doxycycline
- Mifepristone
- Tamoxifen

(Zigler, McNicholas 2017)

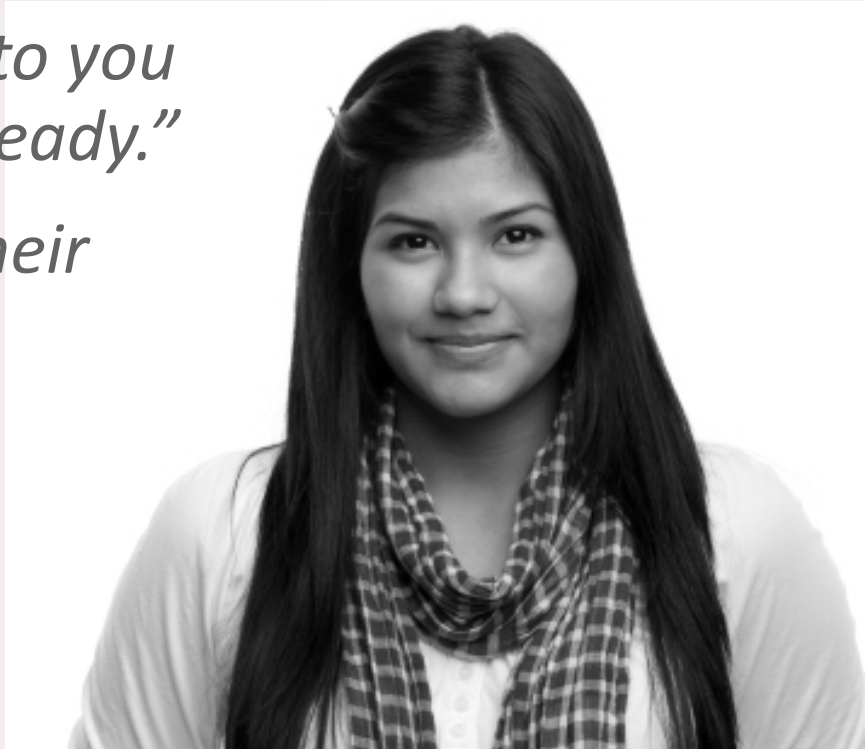
Concern About Amenorrhea

"What is it about not getting your period that is concerning to you?"

"I would always worry that I might be pregnant."

"I can see that it's very important to you not to get pregnant until you are ready."

"Many of my patients like to get their period every month because they feel like it lets them know they aren't pregnant."



Amenorrhea

Don't …

- Assume you know why the person objects to amenorrhea
- Ask them "why"

Do …

- Ask what about not getting their period is concerning to them
- Let them know many people feel that way

YES!....and…

"Interestingly, many people still bleed in the beginning of a pregnancy..."

"Pregnancy tests at the 99 cent store are plentiful and can be very reassuring!"

“My mom said it’s not healthy not to get my period.”

*“Your mother is completely right!.... when you are **not** using birth control that has hormones, it is important to get your period. It’s great that you know that!”*

“I wish all of my patients knew that when they are not on birth control with hormones and they miss their period they need to come in so we can see what’s up!”

“My mom said it’s not healthy not to get my period”

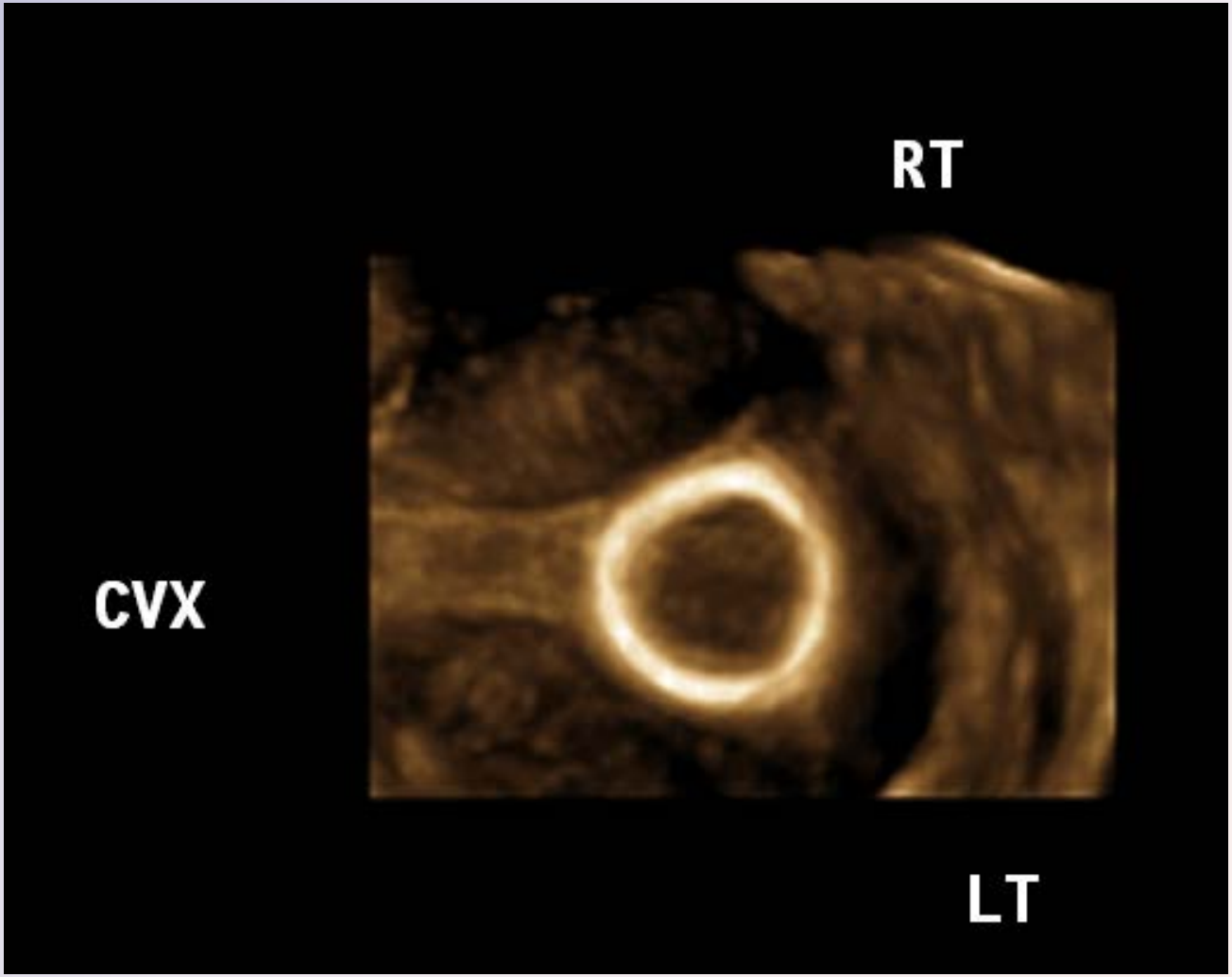
“Interestingly, if someone is using contraceptive hormones it keeps their uterus very healthy and thin. It actually prevents cancer of the uterus.” (Show a picture)

Knowing that, how would it be for you if you didn’t get your period while you’re using this IUD?”

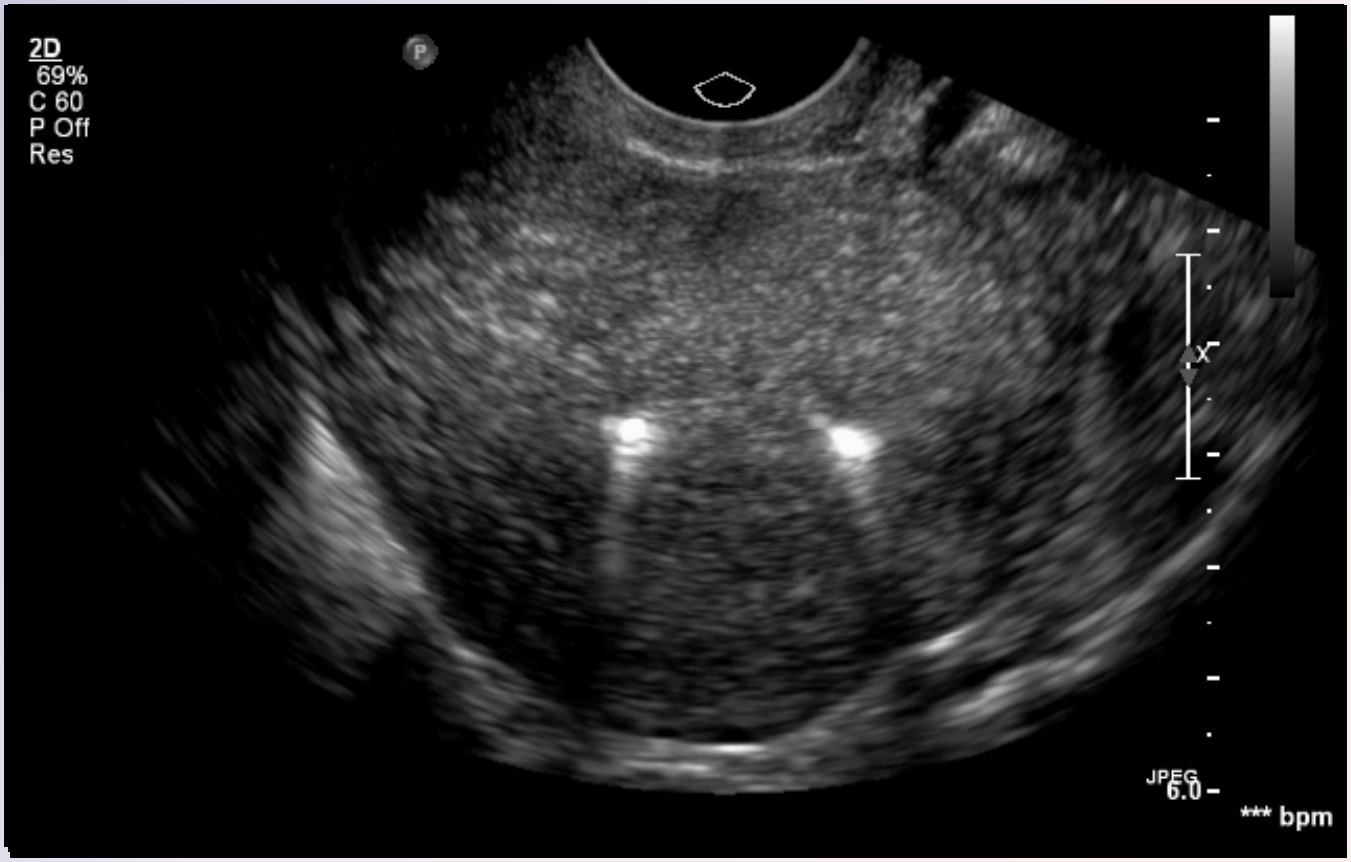
Questions to Ask AFTER Giving Information

- How would that be for you?
- Knowing that, how would it be for you…?
- Has it ever happened before?
- How would you manage it?

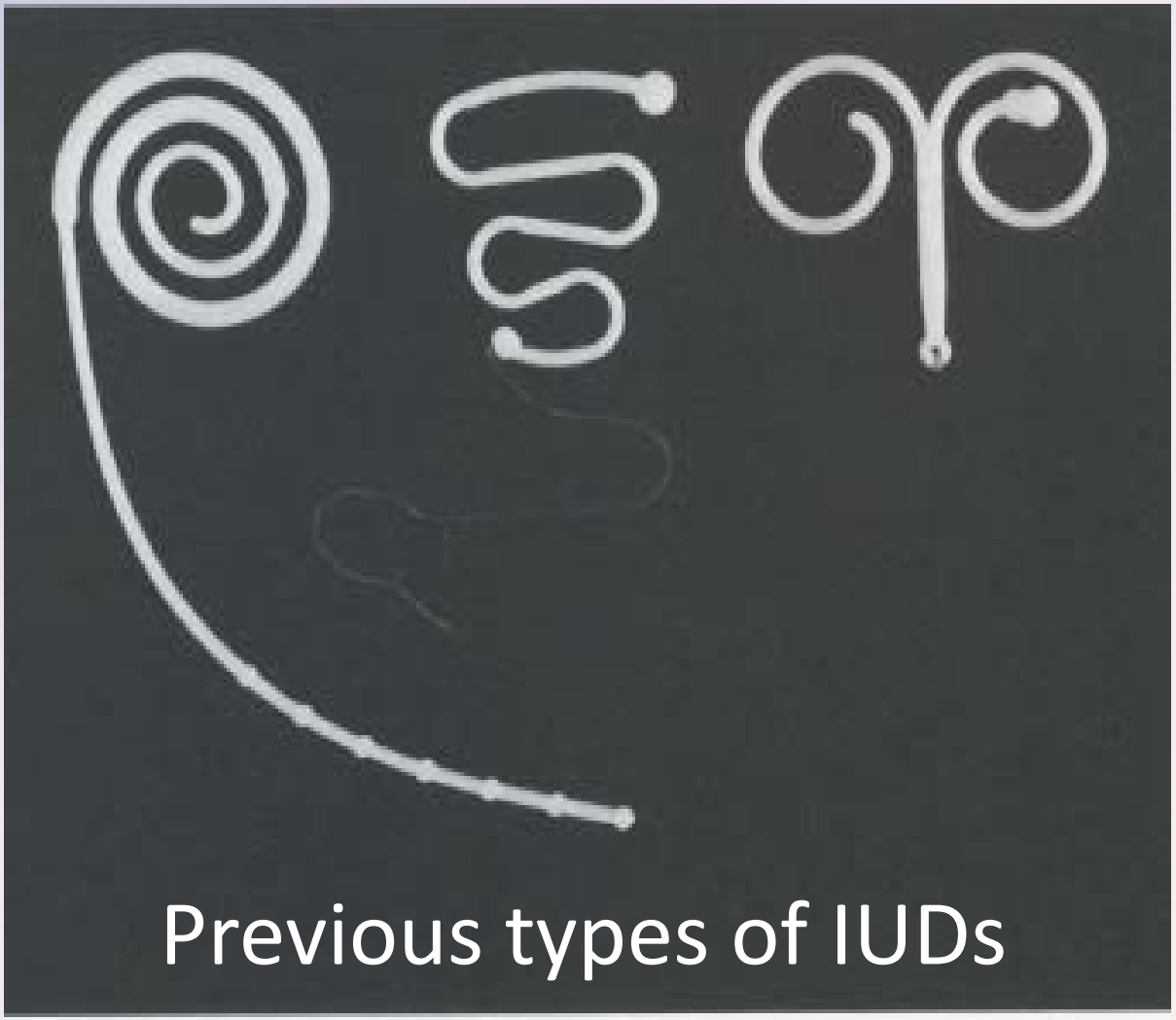
Steel Ring (China)



Steel Ring (China)



Inert Plastic

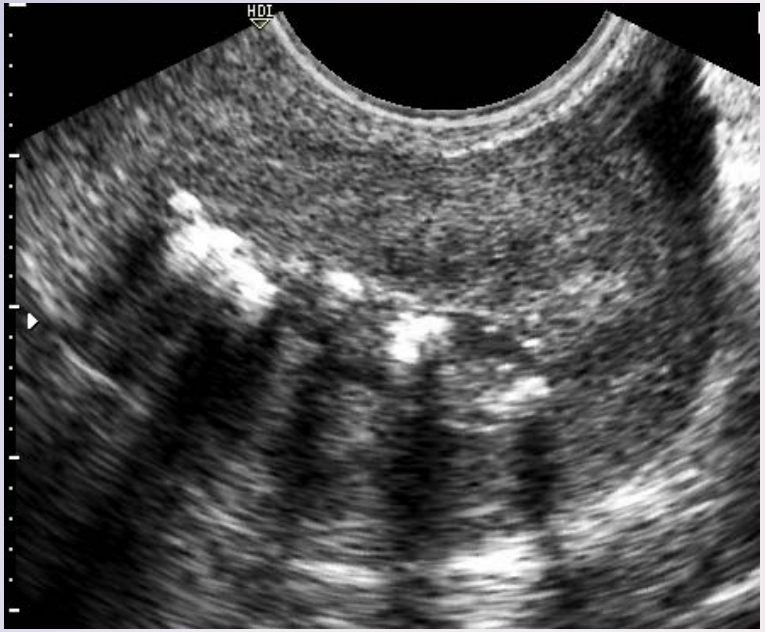


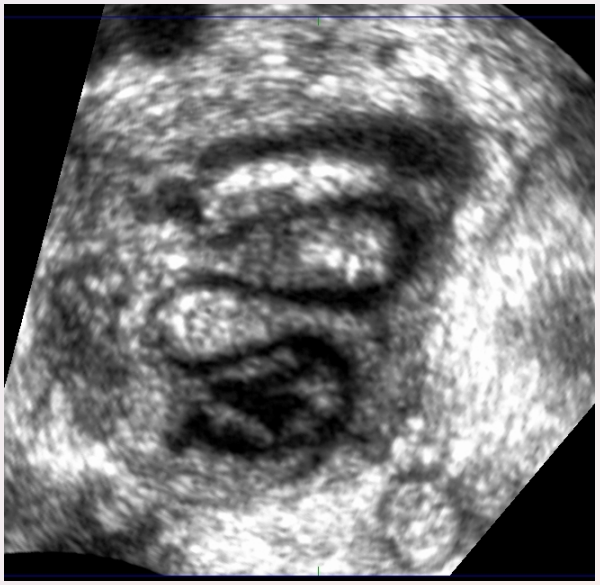
Previous types of IUDs

Fig. 1.3: The Margulies Spiral, the Lippes Loop and the Saf-T-Coil.

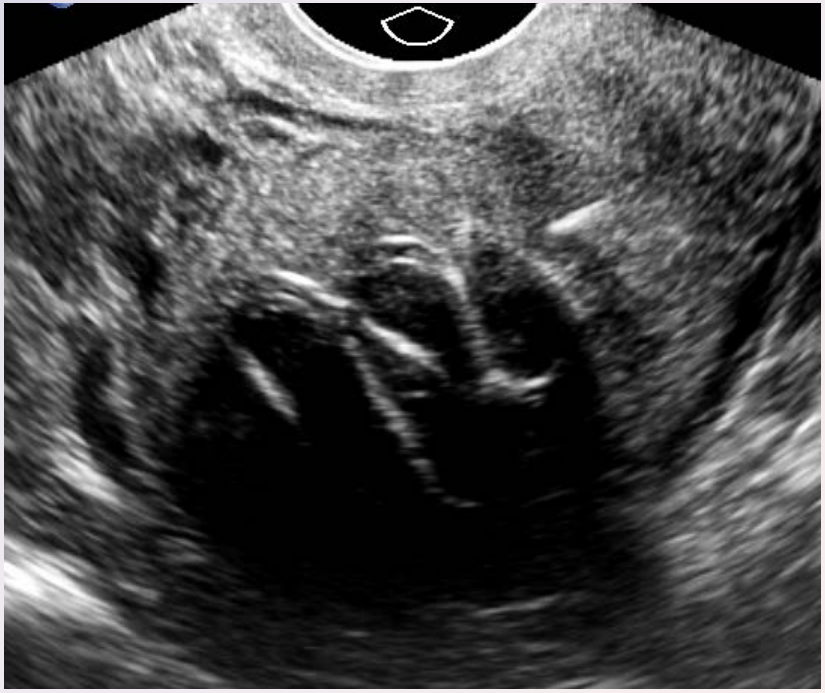
(Edelman 1979)

Lippes Loop





Lippes Loop



Saf-T-Coil