

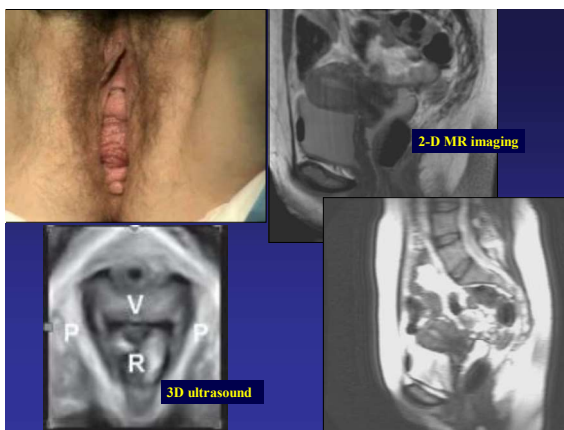


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Objectives and Disclosures

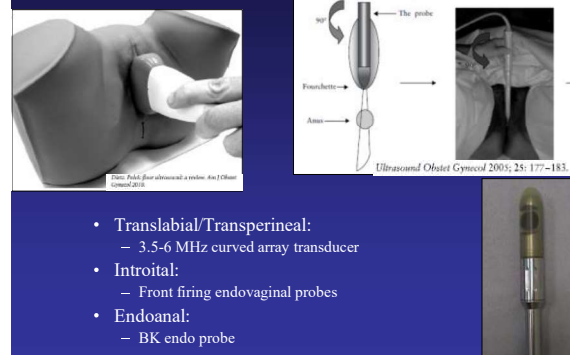
- Objectives
 - Review technique of ultrasound in urogynecology
 - Discuss role of ultrasound in common urogynecologic conditions
- Disclosures: none

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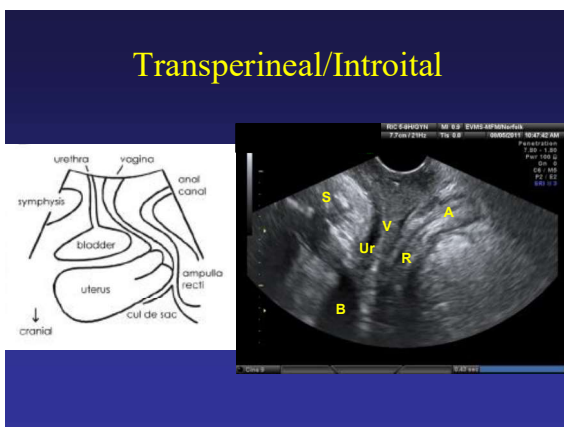
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Technique

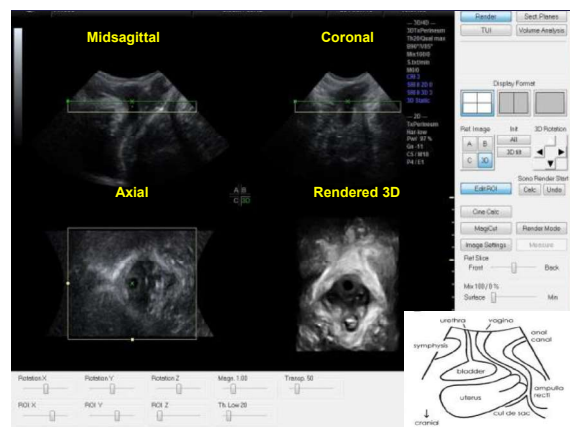


- Translabial/Transperineal:
 - 3.5-6 MHz curved array transducer
- Introital:
 - Front firing endovaginal probes
- Endoanal:
 - BK endo probe

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AIUM/IUGA Practice Parameter for the Performance of Urogynecological Ultrasound Examinations

Accreditation available!

Indications include, but may not be limited to, evaluation of:

1. Urinary incontinence;
2. Recurrent urinary tract infections;
3. Persistent dysuria;
4. Symptoms of voiding dysfunction;
5. Symptoms of pelvic organ prolapse;
6. Obstructed defecation;
7. Anal incontinence;
8. Vaginal discharge or bleeding after pelvic floor surgery;
9. Pelvic or vaginal pain after pelvic floor surgery;
10. Dyspareunia;
11. A vaginal cyst or mass;
12. Synthetic implants (slings, meshes, and bulking agents);

13. Levator ani muscle assessment after childbirth;
14. Obstetric perineal injury;
15. Obstetric anal sphincter injury; and
16. A perineal cyst or mass.

J Ultrasound Med 2019; 38:851–864

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How can we use it in Urogynecology?

- Anatomy
 - Pelvic organ support
 - Quantification of prolapse
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 - Anatomy in relationship to mystery surgery
 - Presence or absence of enterocele
 - Levator defects
 - Anal Sphincter Integrity
 - Periurethral/Vaginal cysts (Urethral Diverticulum, Skenes, Gartner's, Inclusion cyst)
 - Incidental findings
- Function
 - Dyssynergic pelvic floor
 - Function of interventions – sling activation, bulking coaptation

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How do you define Pelvic Organ Prolapse on transperineal US?

- Cystocele $\geq 10\text{mm}$ below symphysis pubis
- Uterine position of 15mm above symphysis pubis
- Rectocele $\geq 15\text{mm}$ below symphysis pubis



H. P. DIETZ et al.: Ultrasound assessment of pelvic organ prolapse: the relationship between prolapse severity and symptoms. *Ultrasound Obstet Gynecol* 2001; 28: 688–691
Association between ICS POP-Q coordinates and transabdominal ultrasound findings: implications for definition of normal pelvic organ support *Ultrasound Obstet Gynecol* 2016; 47: 363–368

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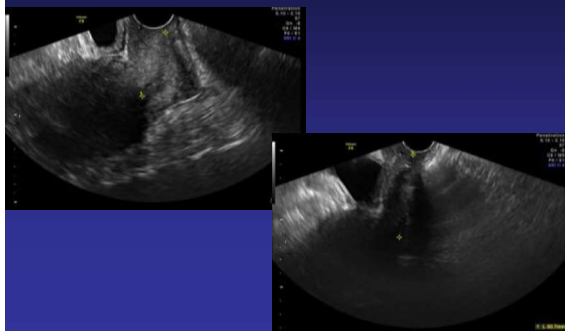
Anatomy: Pelvic Organ Support

- Typically is a clinical diagnosis
- POP-Q is inherently poor at describing rectocele



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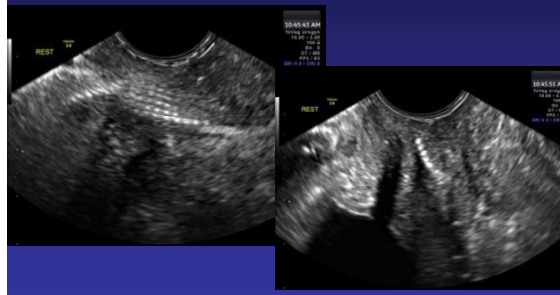
Anatomy: Cervical Elongation



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Anatomy: Relationship to Mesh

- Is there mesh?



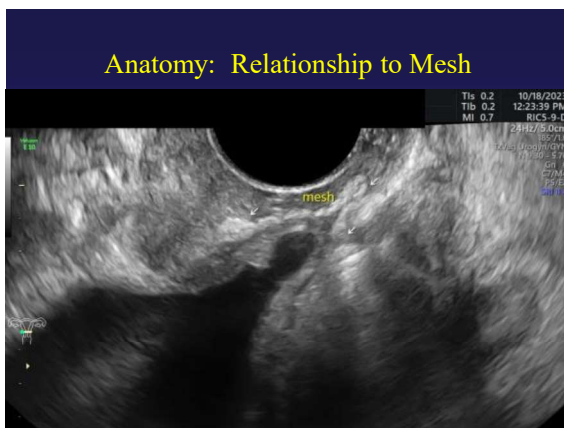
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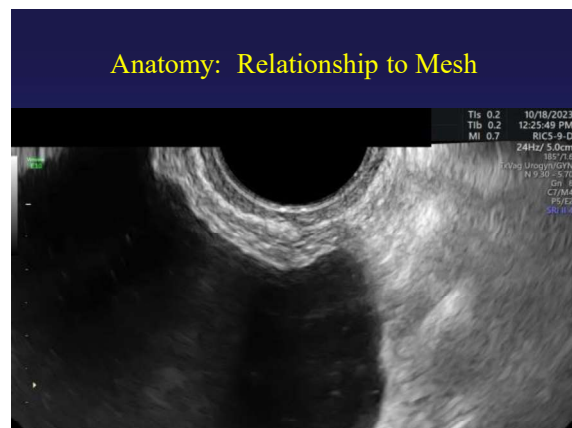
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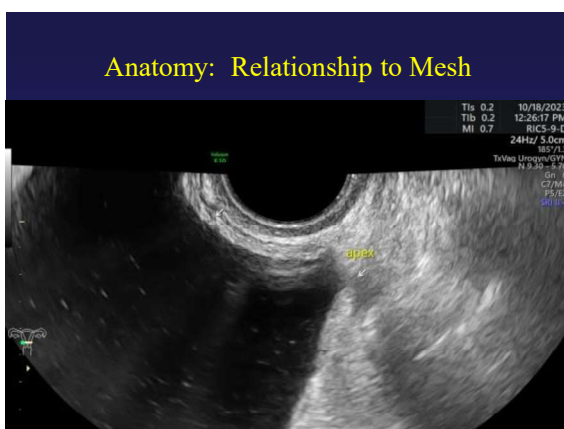
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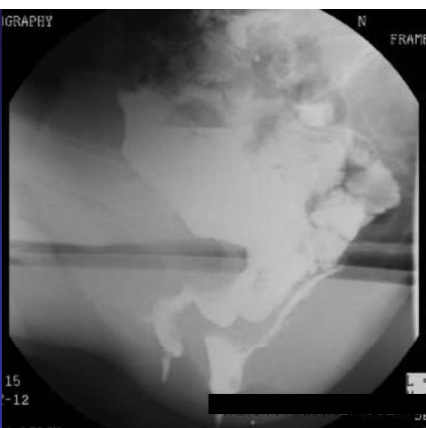
Anatomy: Enterocele or Rectocele?



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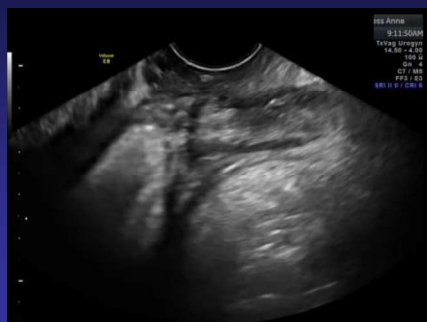
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Cine of Posterior Enterocele



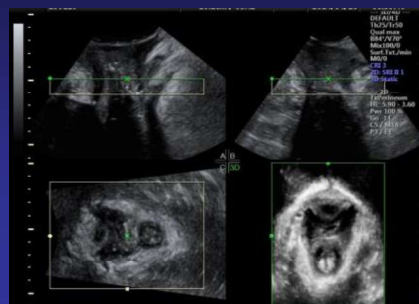
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Enterocele or Rectocele



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Measuring Levator Urethra Gap (LUG) on Transperineal US?



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Why should we measure Levator Urethra Gap (LUG) on Transperineal US?

- Avulsion of the levator ani muscle is a form of pelvic floor muscle trauma that seems to occur exclusively at the time of vaginal delivery
- Prevalence of 10–35%
- Risk factor for pelvic organ prolapse
- Risk factor for prolapse recurrence after surgical treatment
- Sonographic diagnosis of this condition has been standardized through the use of tomographic ultrasound imaging (TUI)
- Highly repeatable and agreement with MRI is high

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Measuring Levator Urethra Gap



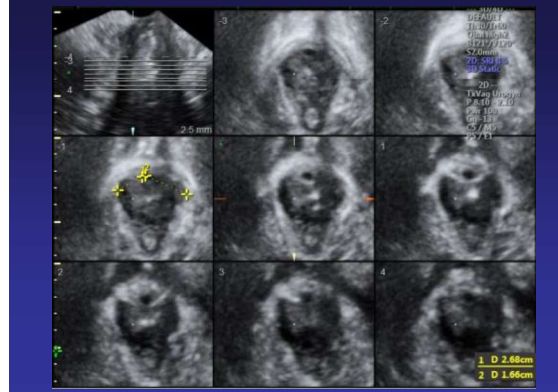
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Normal LUG



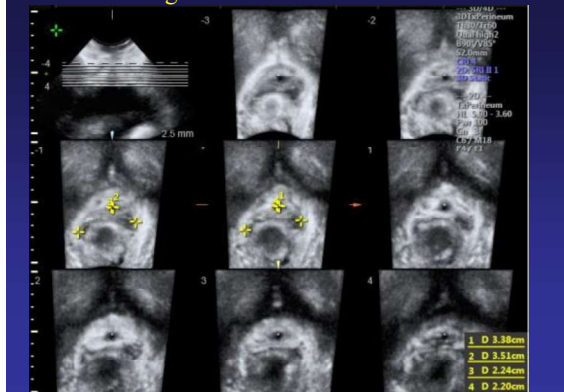
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Left Sided Levator Avulsion



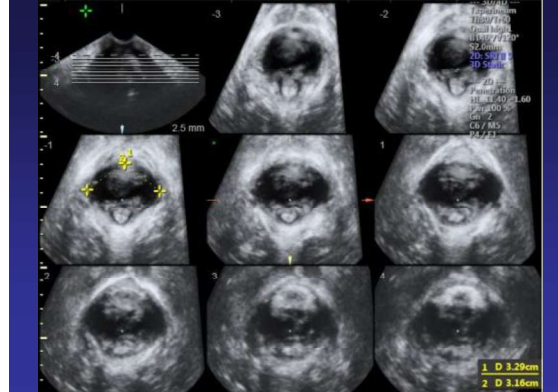
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Right Sided Levator Avulsion



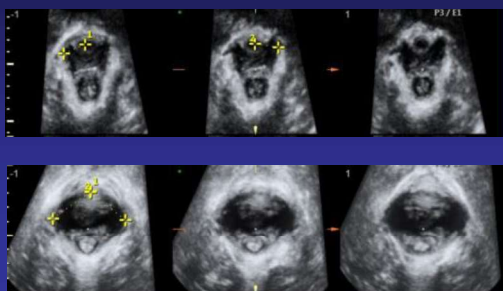
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Bilateral Avulsion



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Normal Attachments vs. Bilateral Avulsion



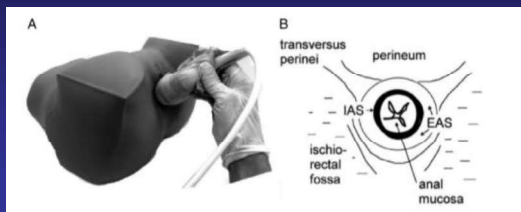
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How can we use it in Urogynecology?

- **Anatomy**
 - Pelvic organ support
 - Quantification of prolapse
 - Cervical length in setting of cervical prolapse
 - Anatomy in relationship to mystery surgery
 - Presence or absence of enterocele
 - Levator defects
 - Anal Sphincter
 - Periurethral/Vaginal cysts (Urethral Diverticulum, Skenes, Gartner's, Inclusion cyst)
 - Incidental findings
- **Function**
 - Dyssynergic pelvic floor
 - Function of interventions – sling activation, bulking coaptation

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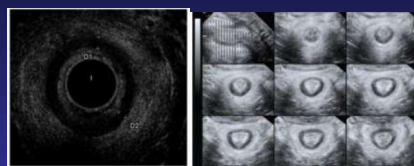
Anatomy: Anal Sphincter



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3D TPUS for Anal Anatomy



- Cohen K
 - EAS: 0.63
 - IAS: 0.78

Oom et al. Dis Colon Rectum 2012 55 (6)

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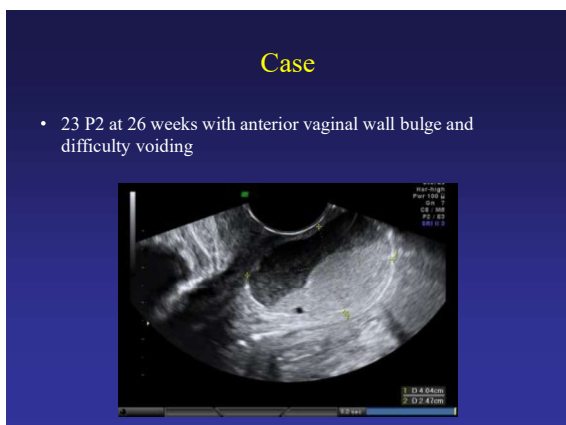
Anatomy: Urethral Diverticulum

- Fluid filled mass, anterolateral vagina, communicates with urethra
- 3%, usually 30-60 years
- **Etiology:**
 - congenital
 - Acquired: trauma, infection, stones
- **Symptoms:**
 - can be asymptomatic
 - UTI symptoms
 - voiding issues: difficulty voiding, postvoid dribbling, UI, hematuria
 - tender protruding mass
- **Diagnosis:** VCUG, MRI, Cysto

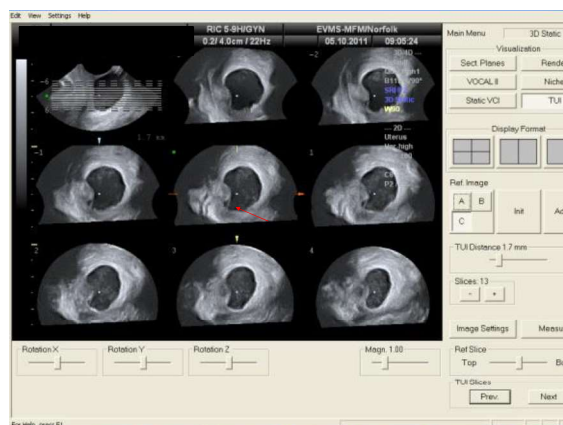


Lester Walters and Korman

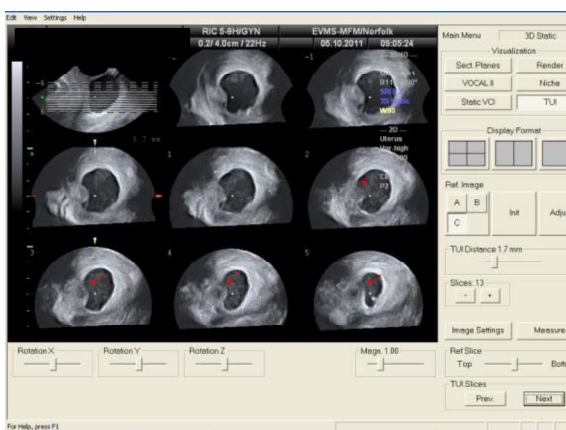
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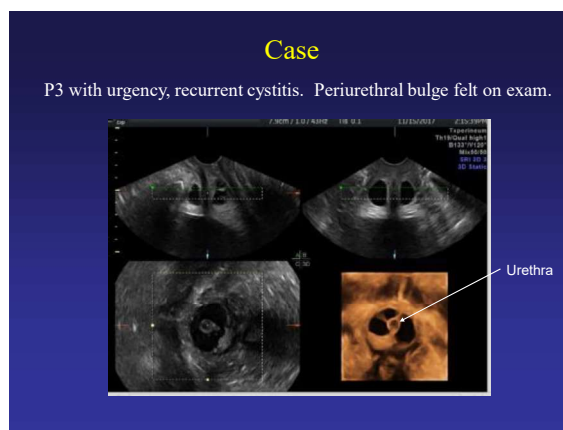
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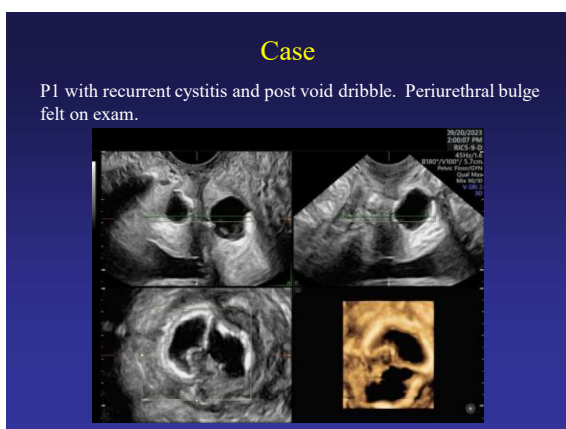
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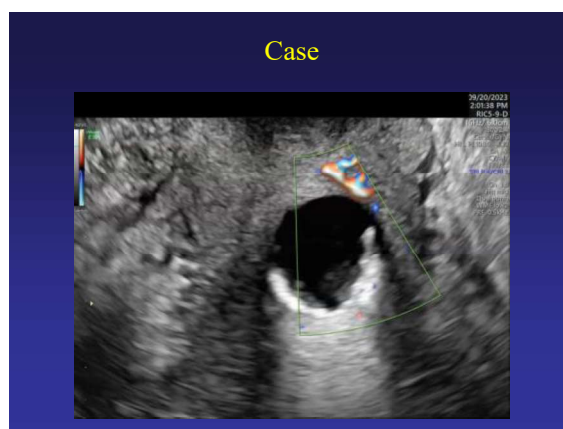
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Case

P2 with prior mesh midurthral sling and anterior prolapse mesh presenting with vaginal bulge



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Vaginal Cysts



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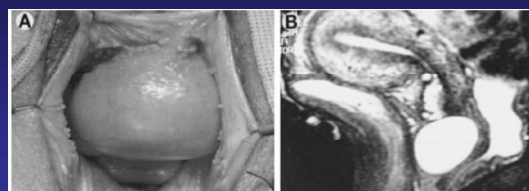


Similar on clinical exam



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Gartner's Duct Cyst



Siegel et al. *Am J Roentgenol* 1998;170:1269-74.
Vargas-Serrano B, et al. *J Clin Ultrasound* 1997;25:21-8.
Wang AC, *J Reprod Med* 2000;45:377-82.
Jacoby K, *J Urol* 1999;162:2066-9.
Blander DS, et al. *Urology* 2001;57:660-5.

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Gartner's Duct Cyst



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Vaginal Inclusion Cyst



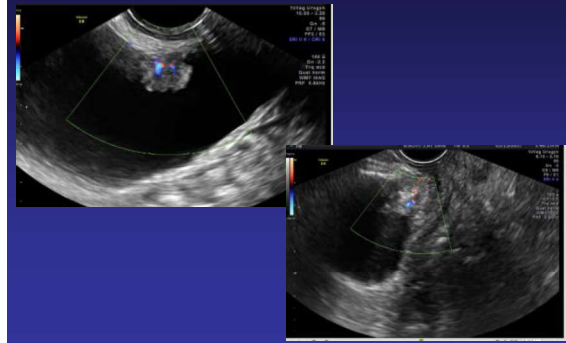
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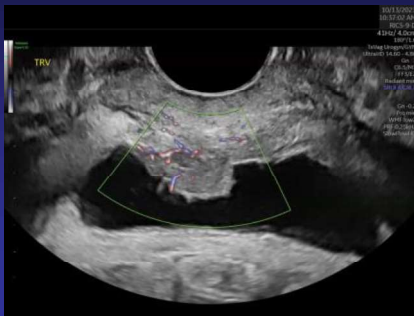
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Anatomy: Incidental Findings - Tumor



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Anatomy: Incidental Findings - Tumor



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Anatomy: Incidental Findings - Diverticulum



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Anatomy: Incidental Findings - Papillation



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Anatomy: Incidental Findings - Ureterocele



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Anatomy: Incidental Findings - Ureterocele



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Anatomy: Incidental Findings - Stone



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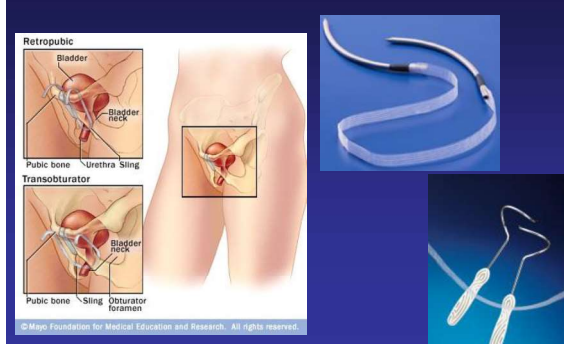
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Function: Dyssynergia

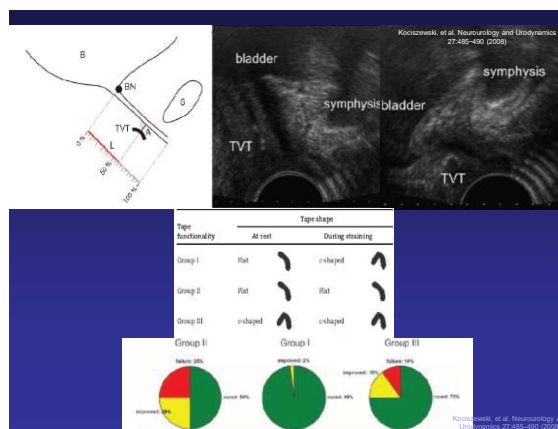


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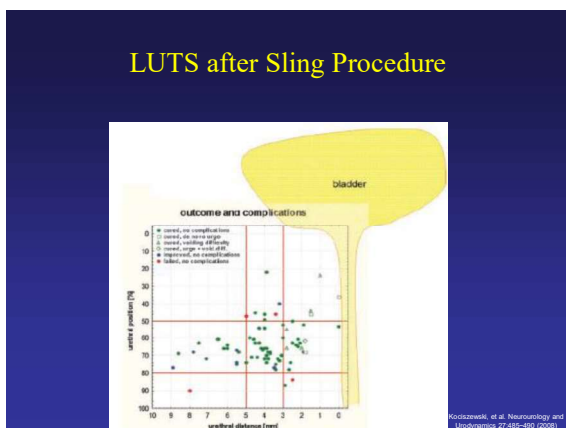
Function: Mid-Urethral Sling



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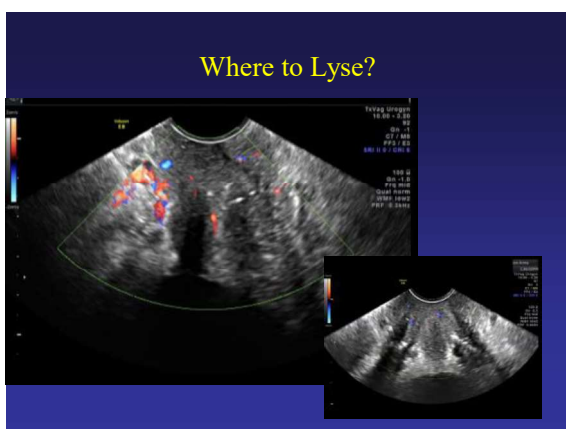
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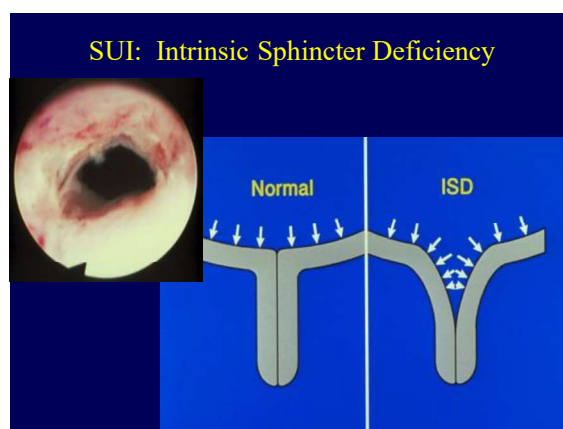
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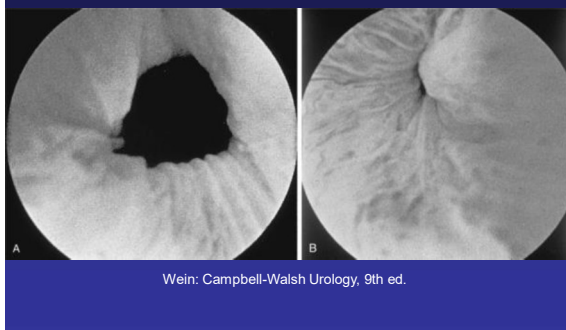


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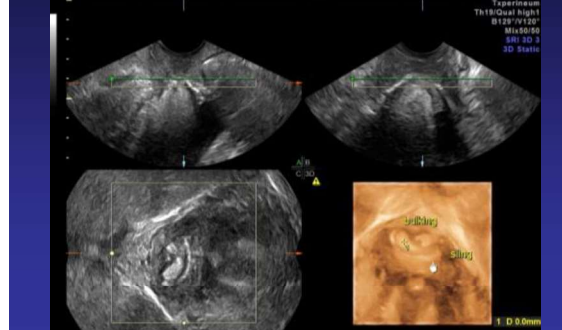
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Urethral bulking agents



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Localization of Coaptite



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Ultrasound Applications In Urogynecology

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Eastern Virginia Medical School

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