Urogynecologic Conditions- Other

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Presenter

- No disclosures
Outline / Objectives

• Anatomy Embryology lower GU (CREOG)

• Vulvovaginal masses / cysts
  – Vaginal wall cysts (Gartner/Wolffian, epithelial inclusion cysts,
  – Urethral diverticulum
  – Bartholin, Skene
  – Urethral polyp, caruncle
Fig. 42
Shown is the atrophied mesonephric duct (Wolff) (4) that, however, leaves certain embryonic remnants behind. Out of the paramesonephric duct (Müller) (5) arise on both sides the fallopian tubes and through fusion of both sides the uterus and the upper part of the vagina (blue). The lower part of the vagina (yellow) comes from the urogenital sinus (endoderm). To be noted is also the development of the ligaments and the hymen (6), the middle part of which usually disintegrates at around the time of birth.
Embryology of lower genital tract

Up to the 7th week two canal systems on each side exist in both sexes. In the 8th week the paramesonephric ducts (Müller) fuse in the lower portion after they have crossed medially on both sides of the mesonephric duct (Wolff).

Formation of the utero-vaginal canal through fusion of the lower section of the two paramesonephric ducts (Müller). From the upper section - on both sides - arise the fallopian tubes with their ampullae.
Embryology of lower genital tract

At the end of the 3rd month the separating wall dissolves in the uterus and the vagina. The uterus lengthens in that the solid lower end of the paramesonephric duct stretches in a downward direction and is subsequently canalized. Out of the lower section arises the upper part of the vagina. It joins with the vaginal lamina, which arises from the urogenital sinus and forms the lower portion of the vagina.

The utero-vaginal canal comes up against the urogenital sinus and forms the sinus-vaginal eminence. Urethra and bladder development from urogenital sinus.
Embryology of lower genital tract

This sinu-vaginal eminence becomes thicker due to epithelial proliferation. This also leads to an epithelial proliferation in the SUG epithelium. Together they form the vaginal plate.

In the 5th month the vaginal canal is completely canalized, but the lumen is separated from the SUG by the hymen.
Embryology of lower genital tract

Normally, the hymen tears open at the time of birth. The uterus and the vagina then have a connection to the vaginal vestibule.
Genital Tract Embryology
ref.  www.embryology.ch

- Fig. 42
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SMOOTH MUSCLE > COLLAGEN > ELASTIN

“PUBOCERVICAL FASCIA”
Fig. 1-2 Labium majus: squamous epithelium with a thin granular layer and a slight degree of keratinization (hematoxylin-eosin, ×495).

Fig. 1-3 Labium majus. Within the dermis are eccrine, apocrine, and sebaceous glands (hematoxylin-eosin, ×77).
The Vaginal Wall Mass Evaluation and Management

• Vaginal masses constitute 1% of gynecologic tumors

• Most gynecologic texts do not directly address the topic
  – Recommended reference:
    • Kaufman & Faro- Benign Diseases of the Vulva and Vagina 4th Ed
Classification / Differential Diagnosis of Vaginal Masses

- Epidermal inclusion cyst
- Developmental = Embryologic cysts
  - Gartner (mesonephric=Wolffian) duct cyst
  - Mucous cyst
  - Mullerian (paramesonephric) cysts
- Urethral diverticulum- cystic / solid
- Leiomyoma- solid
- Nephrogenic adenoma- cystic/solid
- Bartholin + Skene gland cysts (vestibular glands)
Classification / Differential Diagnosis of Vaginal Masses

- Solid
- Malignant
- Vagina
- Position
  - Midline
  - Anterior
  - Distal

- Cystic
- Benign
- Vulva
- Position
  - Lateral
  - Posterior
  - Proximal
Cystic Vaginal Tumors

• **Epidermal inclusion cysts** (vulva and vagina)
  – Most common, secondary to trauma, suture line, lined by stratified squamous epithelium
  – Size- usually small (1mm to 4 cm)
  – Appearance- smooth, small, vessels on surface Contents look yellow and purulent, feel solid (keratin)
  – Symptoms- none
  – Treatment- none (enucleate at vag delivery)
Vaginal Cysts

Embryologic origin

Developmental (Embryologic) cysts - vagina

Gartner duct cysts - mesonephric (Wolffian) origin
Mullerian cysts - paramesonephric origin

Mucous cysts - urogenital sinus origin
Cystic Vaginal Tumors- Embryologic

- **Gartner duct cyst**
  - Embryonic origin (mesonephric)
  - Histology- simple cysts, gland lining mucinous, mucous filled.
  - Clinical- antero-lateral vaginal location, unilateral, paracervical ureteral, urethral, bladder displacement
  - Symptoms- usually none, incidental finding usually, coital interference
  - Treatment- usually none, unless symptomatic / large >5cm
Fig. 9-17 Developmental cysts impinging on the bladder and urethra.
Fig. 9-16 Several varieties of developmental cysts of the vagina that were observed by the authors.
Cystic Vaginal Tumors - Embryologic

- Mullerian Cysts
  - Embryologic origin - Mullerian = paramesonephric
  - Histology - endocervical glands lining simple cyst, no thick mucous
  - Location - similar to Gartner duct cyst, proximal-mid vagina antero-lateral, adjacent cervix
  - Symptoms/treatment - excision if symptoms (prolapsing, coital difficulties)
Prolapsing vaginal mass
Large Mullerian Cyst extending into parametrium.
Cystic Vaginal Tumors

• **Mucous cyst** of vagina
  – Embryonic origin (urogenital sinus)
  – Histology- glands mucinous or ciliated
  – Clinical- found in the **vestibule**
  – Symptoms- if large
  – Treatment- none or excision
Nephrogenic adenoma

- Solid or cystic
- Benign, rare, usually small
- Urothelial tract origin
- Etiology - trauma, stones, transplant
- Most commonly seen in bladder > urethra
- Histologically –reactive metaplasia urothelium
Urethral Diverticula

- Prevalence: 0.6-6% of population
- Age: 20s-50s
- Urethra = 3-5cm epithelium lined muscular tube surrounded by glands posterior communicating to lumen
- Risk factors = recurring infection UTI, ob trauma, urethral trauma or instrumentation, Black race, prior urethral injectables.
- “Classic triad” sxs = dysuria, dypareunia, dribbling is uncommon.
- Symptoms = stress incontinence (60%), recurrent UTIs (40%), dysuria (20%), urge/freq (18%)
Urethral Diverticula Symptoms

- Frequency: 66%
- Burning: 53%
- Recurring UTI: 38%
- Incontinence: 37%
- Dysuria: 30%
- Urgency: 28%
- Urethral pain: 28%
- Dyspareunia: 15%
- Hematuria: 15%
- Voiding dysfunction: 20%
- Urinary retention: 8%
PROPOSED PATHOPHYSIOLOGY OF FEMALE URETHRAL DIVERTICULUM

OUTLET OBSTRUCTION

RETENTION CYST

ABSCESS

RUPTURE INTO URETHRAL LUMEN

SPONTANEOUS RESOLUTION

INFECTION

Tsivian, et al Int Urogynecol J 2009
Diagnostic tests for urethral diverticula

Positive Pressure Urethrography

• Uncomfortable for patient—due to forcing high pressure into urethra
• Difficult to perform
• Up to 90% accurate in skilled hands
Diagnostic tests for urethral diverticula

Voiding cystourethrogram (VCUG)

- Positives - inexpensive
- Negatives - voiding required, radiation, may miss small diverticula
Diagnostic tests for urethral diverticula

Ultrasonography

- Positives- inexpensive, differentiates solid v. cystic, no radiation
- Negative- may misdiagnose other cystic lesions, poor sensitivity?
Diagnostic tests for urethral diverticula

**Cystourethroscopy**

- **Advantages** - direct visualization of urethral lumen
- **Disadvantages**
  - Misses 30-40% of diverticula
  - Can miss anterior diverticula
Diagnostic tests for urethral diverticula

MRI

- **Positives** - very accurate, anatomic detail, able to dx small non-communicating diverticula, no radiation, endo-luminal coil increases accuracy
- **Negatives** - special expertise to read, expensive
Urethral Diverticulum
Diagnostic Summary

• More than one diagnostic test may be required to make the diagnosis
Imaging methods for Urethral diverticulum

• Positive pressure urethrography- Don’t do this!
• VCUG- Don’t do this either!
• Urethral profilometry- No!
• Cystourethroscopy- Will miss 1/3, do it.
• U/S (Sonography)- pretty good if looking
• CT- not bad
• MRI- Best
Urethral Diverticulum Treatment
Refer

Tricky
All different
Meticulous - don’t be in hurry
Use imaging studies for surgical planning
Urethral Diverticulum
Surgical treatment complications

• De novo Stress incontinence
  – With preop SUI = 23% get sling
  – Without preop SUI = 10% get sling
• Urethrovaginal fistula- 4% (infection, poor healing)
• Cystotomy (proximal diverticulum)
• Recurrence of diverticulum = 10%
  – Infection
  – difficult dissection, suture line tension
  – multiple diverticuli
  – proximal location
  – previous vag/urethral procedures
• Urethral stricture
• Dyspareunia
• Persistent irritative voiding
Horseshoe, multifocal, stones-urethral diverticulum.
Urethral Diverticulum

Can be Cancer = 5%
Adenocarcinoma most common
Urethral Diverticulum
management in pregnancy

• Conservative
  – Antibiotics
  – Analgesics
  – Antimuscarinics

• I+D for acute painful abscess - correct later PP
Differential Diagnosis
vaginal mass

- Epidermal inclusion cysts
- Embryologic cysts
- Nephrogenic adenoma (tubular adenomatous metaplasia)
- Urethral diverticulum
- Leiomyoma
- Endometriosis
- Urethral caruncle/ Urethral carcinoma
- Bartholin gland cyst
- Skene gland cyst
- Other
Suburethral-vaginal leiomyoma
Endometriosis – vagina/perineum

- Occurs perineum, episiotomy scar (posterior)
- Cyclic pain
- Rare
Urethral Caruncles

- Common in late menopausal women
- Usually asymptomatic
- Excision if bleeding, painful, enlarging - r/o CA
- Topical estrogen may be helpful
Vestibular Glands
Bartholin’s / Skene’s

• Skene gland
  – Anterior
  – Lateral to urethral meatus
  – Cysts
  – Abscess
  – Complete excision, may need distal urethral repair.

• Bartholin gland
  – Posterior
  – Lateral just at vaginal perineal junction
  – Cysts
  – Abscess
  – Treatment- I + prolonged D (Word catheter), marsupialization, complete excision (bloody)
Hart’s Line- “… of demarcation between the skin and mucous membrane as running along the base of the inner aspect of each labia minora, passing into the fossa navicularis separating the skin boundary of the fourchette from the mucous membrane of hymen.”
Differential Diagnosis
vaginal mass

• Urethral diverticulum
• Embryologic cysts
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• Leiomyoma
• Endometriosis
• Urethral caruncle/ Urethral carcinoma
• Bartholin gland cyst
• Skene gland cyst
• OTHER !!!!!! (Transverse and longitudinal vaginal septum
THE END