Topics in Pediatric & Adolescent Gynecology

- No financial disclosures
- No discussion of off label medications

Objectives
- Illustrate techniques for examining children
- Review common Pedi-Gyn conditions
- Discuss etiology and treatment of AUB in adolescents

Normal Anatomy: baby
**Case 1**

A 4 week old infant has a mass bulging at her introitus. She has no difficulty passing urine or stool.

The family’s medical insurance expires in 2 weeks...

**What would you do?**

A. Schedule hymenotomy in OR  
B. Aspirate fluid to decompress  
C. Reassure parents it will resolve spontaneously  
D. Check chromosomes

**Case 2**

A 4 yr old presents with a 6 wk history of vulvar erythema, itching and scant yellowish discharge on her underwear. Her parents are very concerned.

**Vulvovaginitis**

**History**

- **Detailed description of symptoms**  
  - Duration, color, odor, quantity, bleeding, itching, burning, dysuria, redness

- **Clothing**  
  - Nylon tights, wet bathing suits, close fitting jeans

- **Hygiene habits**  
  - Front to back wiping

- **Systemic illness**  
  - Recent URI or GI illness

- **Chronic illness**  
  - Autoimmune, atopic dermatitis, eczema
Vulvovaginitis

- Medications
- Soaps: Laundry detergents, bubble baths
- Allergies
- Bedwetting
- Pets
- Favorite play activities
- Caretakers: Potential for sexual abuse

She is a healthy little girl without any systemic or dermatologic problems. She has no allergies and takes no medications. She is active in ballet and swimming.

Case 2

Physical Examination

General Principles:
- Maximize exposure for visualization
- Minimize stress
  - Win her confidence
  - Give her a sense of control
  - Never be forceful or hurried

Pediatric Genital Exam

- Supine Frog Leg Position
- Knee Chest Position
Supine labial separation method

Supine labial traction technique

Knee Chest Position
What to look for:

- Discharge
- Foreign Body
- Inflammation
- Stool Contamination
- Trauma

Why does it happen?

- Most common gynecologic problem for pre-pubertal girls
- Accounts for at least half of all visits to pediatric gynecologists
- Anxiety producing for parents

Vulvovaginitis

Contributing factors

- Suboptimal handwashing
- Tight, non-absorbent or wet clothing
- Topical irritants- bubble baths, detergents

Vulvovaginitis

Anatomic Factors

- Small labia minora
- Small hymenal opening prevents outflow of secretions
- Lack of vulvar fat pads
- Short distance between vagina and anus

Vulvovaginitis
Physiologic factors

- Lack of estrogen → atrophic mucosa → neutral pH
- Minimal antibodies in secretions
- Auto-inoculation - eg. Strep URI

Vulvovaginitis -

Etiology:

Non-Specific vs. Specific

Vulvovaginitis

Non-Specific Vulvovaginitis

- 75% of vulvovaginitis cases
- Vaginal culture identifies normal flora
- No infectious etiology found
- Clinically, less discharge and erythema than in cases with infectious etiology

Non-Specific Vulvovaginitis

Treatment:

- Remove tight-fitting clothes and wet bathing suits immediately after use
- Avoid bubble baths and strong detergents
- Cotton underwear
- Desotin, A&D ointment, other emollients
- Short course of a mild topical steroid to reduce itching
A 5 yr old girl presents with a 2 month history of vulvar irritation and a pink, malodorous vaginal discharge. She has mild perineal itching. Her history is otherwise negative.

In frog leg position, the introitus and perineum are erythematous. A pink discharge is visible in the lower vagina.

Vaginal gram stain and cultures show moderate PMN's, RBC's and abundant genital flora including E. coli.

• A 10 day course of amoxicillin resulted in modest improvement in the discharge
• Symptoms and discharge recurred within 2 weeks

What would you do next?

In addition to general measures such as good hygiene and mild soaps, What would you do next?

A. Retreat with Amoxicillin for 30 days
B. Change to a Cephalosporin
C. Perform an exam under anesthesia
D. Apply topical estrogen cream
Detailed history

- Physical examination
- Exam under anesthesia
- Cultures
- Treatment

Vulvovaginitis

Specific Vulvovaginitis

**Infectious Etiologies**

- Respiratory Pathogens
- Enteric Bacteria
- STD’s
- Candida
- Pinworms

Specific Vulvovaginitis

**Gp A Strep Vulvovaginitis**

- **Symptoms (Sx):** Dysuria, vulvar pain, pruritus or burning
- **History (Hx):** Prior URI
- **Physical Exam (PE):** Bright red vulva and introitus
- **Treatment (Tx):** 1st G PCN or cephalosporin x 2-4 wk

**STD’s and Vulvovaginitis**

- Should alert provider to possibility of sexual abuse
- Non-sexual transmission of Chlamydia b/t mother and newborn can persist for up to 1 yr
- Cultures for GC and Chlamydia should be collected from the vagina, not the cervix, in prepubertal girls
Candida Vulvovaginitis

**Sx:** Pruritis, thick white d/c

**Hx:** Rare in prepubertal girls unless recent Abx use, wearing diapers, diabetic or immunocompromised Common in pubertal girls

**PE:** Bright red vulva and satellite lesions

**Tx:** Topical antifungal

Pinworm (Enterobius vermicularis)

**Sx:** Intense vulvar or perianal pruritis, esp at night

**Hx:** Siblings with similar sxns

**PE:** Scotch tape test in am, affix to slide, observe for eggs

**Tx:** Mebendazole 100 mg PO x 1

Specific Vulvovaginitis

Non-Infectious Etiologies

- Foreign Body
- Systemic Illness
- Kawasaki disease
- Mononucleosis
- Crohn's disease

Vaginal Foreign Body

**Sx:** Purulent, foul smelling, often bloody vaginal discharge

**PE:** Vulvovaginal erythema

**Tx:** EUA, vaginoscopy
Vaginal Foreign Bodies

All cases of foreign body presented with bloody or brown discharge

In Summary:
- Pre-pubertal vulvovaginitis is common and relatively easily managed
- Familiarity with potential causes and treatments will improve outcomes
- Majority will resolve with better hygiene, skin protection, emollients and reassurance

A 2 yr old is brought in for evaluation of changes in her previously normal external genitalia.

You make the diagnosis of agglutination of the labia minora Case 4

- Occurs primarily in girls age 3 m to 6 yr
- May be caused by poor hygiene and vulvar irritation

Typical picture of labial fusion

Normal picture

[Diagram showing typical and normal pictures of labial fusion]
Labial Agglutination

What would you recommend?
A. Await spontaneous resolution
B. Apply topical estrogen cream x 6 wk
C. Perform a manual separation in the office
D. Incise the adhesion in the OR

Teenagers and Abnormal Uterine Bleeding

Case 5

A 15 yr old presents for evaluation of irregular cycles and prolonged, heavy bleeding. She had menarche at age 14 and has never had regular cycles. She runs track and has a BMI of 19. She denies sexual activity.
**AUB**

- What is it?
  - Irregular cycles
  - Prolonged periods (> 7d)
  - Heavy bleeding (1-2 pads/hr)

- Who does it affect?
  - Transcends ethnic and geographic boundaries

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**What is the impact of AUB?**

- Adversely affects academic, athletic and social activities

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**Why do teens have AUB?**

A. Underlying bleeding disorders
B. Anovulatory cycles
C. Endocrine abnormalities
D. Eating disorders

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**The Menstrual Cycle**
Anovulatory Cycles

- Due to an immature H-P-O axis
  - Malfunctioning + and – feedback loops

- 1 yr after menarche: 85%
- 4 yr after menarche: 44%

- Earlier menarche assoc’d w/ faster normalization of H-P-O axis than later menarche

### Hospitalized adolescents and risk for coagulation disorders

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<th>Claesson, 1981</th>
<th>Falcone, 1994</th>
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<tr>
<td>N=59</td>
<td>N=61</td>
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<tr>
<td>Coagulation Disorder: Total group= 20%</td>
<td>Coagulation disorder: Total group= 3%</td>
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<tr>
<td>Requires bx= 33%</td>
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<tr>
<td>Presenting at menarche= 50%</td>
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Hormonal = Oligo- or Anovulation
AUB Work-up

History
- Detailed menstrual history
- Family hx of bleeding disorders

Physical exam
- Limited value in pelvic exam

Imaging
- If abdominal mass palpated

Laboratory
- CBC, PT, PTT, TSH, Factor VII, VWF ristocetin cofactor and antigen
- Urine for HCG, GC, Chlamydia

AUB Management

<table>
<thead>
<tr>
<th>Anovulation Bleeding Disorder</th>
<th>Tranexamic Acid</th>
<th>DDAVP</th>
<th>NSAIDS</th>
<th>CDC’s, ring, patch</th>
<th>LNG-IUS</th>
<th>Cyclic Progestins</th>
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<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Bleeding Disorder</td>
<td>X</td>
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- Tranexamic Acid
  - 40-50% less blood loss
  - FDA approved in 2009
  - Anti-fibrinolytic
  - 1300 mg TID x 5 d

- NSAIDS
  - Less Blood Loss

- CDC’s, ring, patch
  - Less Pain

- LNG-IUS
  - Reliable and safe contraceptives

- Cyclic Progestins
  - No effect on bone density
  - No effect on future fertility
  - Cycle regulation
Take home points:

Minimize emotional trauma and physical discomfort for children having a genital exam by knowing examination techniques and the appearance of normal anatomy

- When necessary, examine under anesthesia

Take home points:

- Be familiar with common causes and interventions for vulvovaginitis
  - Remove vulvar irritants
  - Improve hygiene
  - Treat with organism-specific antimicrobials

- Leave labial agglutination to resolve spontaneously
  - Unless inability to void or recurrent UTI’s.

Take home points:

- AUB in adolescents is common and almost always due to anovulatory cycles

- Anticipate that parents may be reluctant to start teens on birth control pills

- Remember bleeding disorders, especially in a teen who is hospitalized, transfused or presents during her first period

Thank You