# Pediatric and Adolescent Gynecology (PAG) 101

## Common Conditions and When to Refer

Date: October 24, 2025 Presented by: Julie Friedman, MD

# Julie Friedman

Assistant Professor

OHSU Department of Obstetrics and Gynecology

Pediatric and Adolescent Gynecology

# Learning Objectives

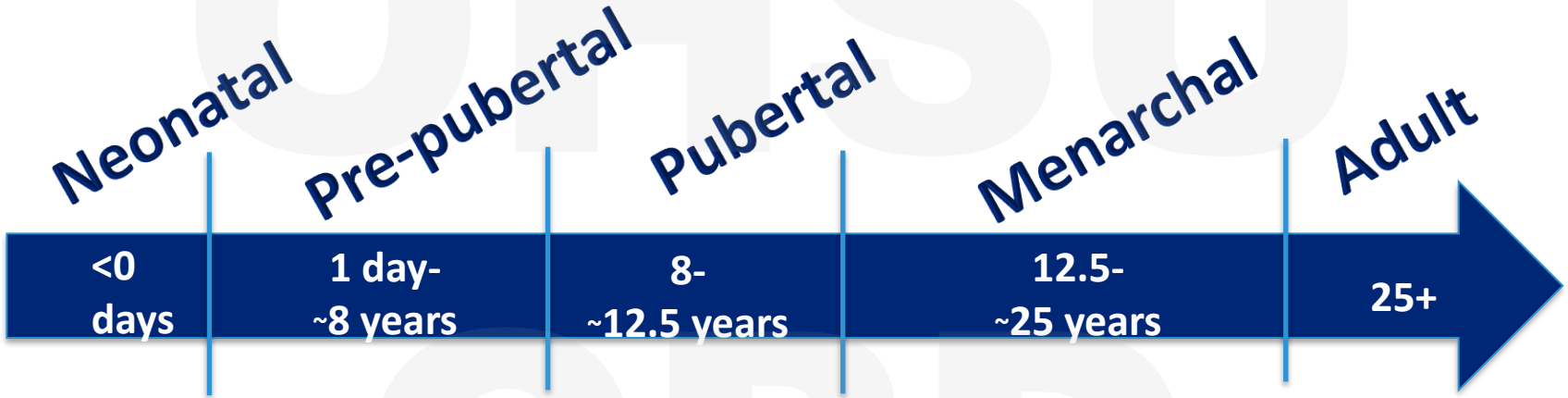
- Review high yield PAG diagnoses and treatments
- Highlight unique tips for the adolescent gynecologic patient
- Discuss when to refer to PAG

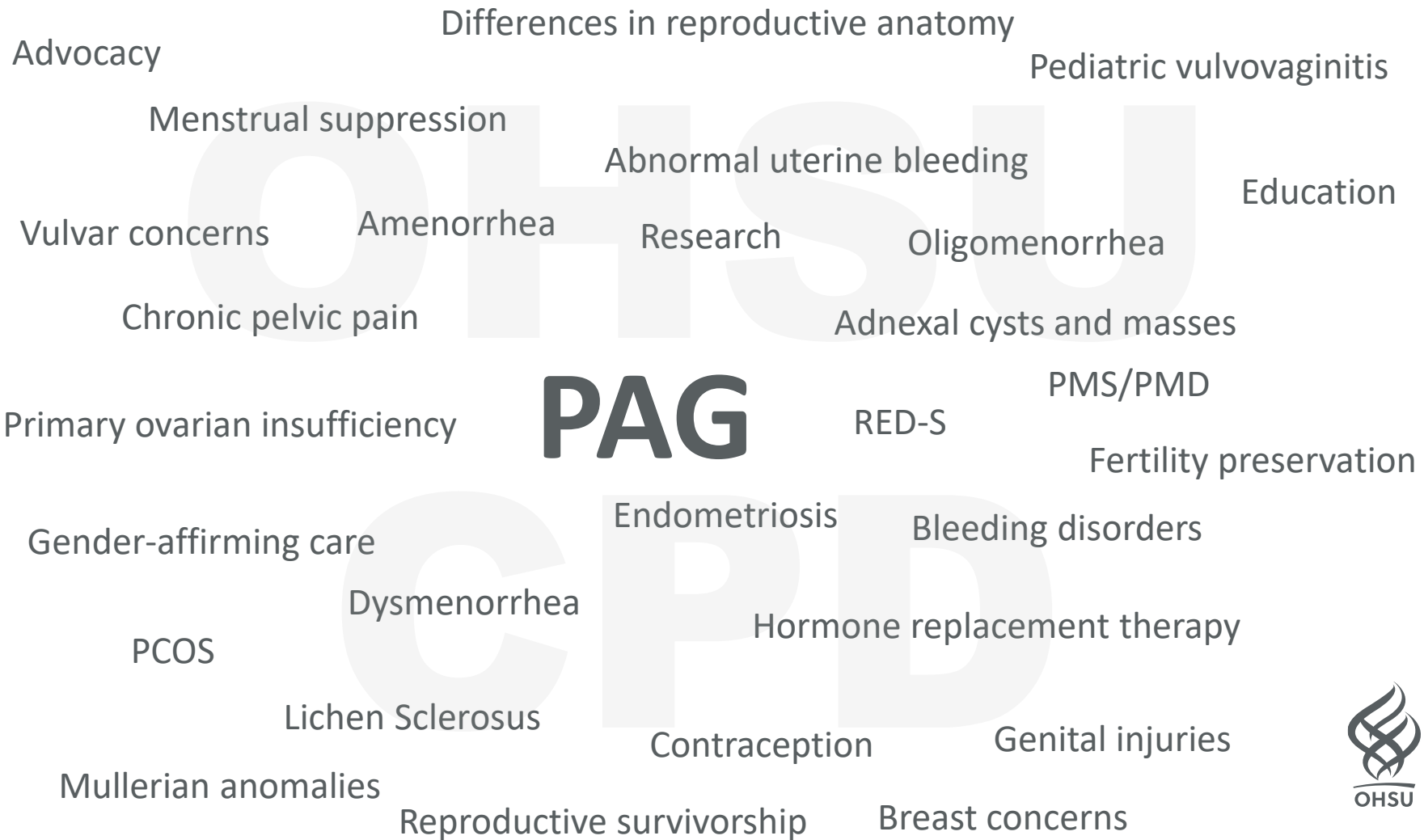
# What is pediatric and adolescent gynecology (PAG)?

**PAG is a gynecologic subspecialty that focuses on care of infants, children, and adolescents through young adulthood.**

- Focuses on development
- Emphasizes multidisciplinary care
- Includes complex medical and surgical evaluation and treatment


18
fellowships
58
countries


Neonatal
<0 days
Pre-pubertal
1 day-~8 years
Pubertal
8-~12.5 years
Menarchal
12.5-~25 years
Adult
25+


Differences in reproductive anatomy
Advocacy
Pediatric vulvovaginitis
Menstrual suppression
Abnormal uterine bleeding
Education
Vulvar concerns
Amenorrhea
Research
Oligomenorrhea
Chronic pelvic pain
Adnexal cysts and masses
PAG
PMS/PMD
Primary ovarian insufficiency
RED-S
Fertility preservation
Endometriosis
Gender-affirming care
Bleeding disorders
Dysmenorrhea
Hormone replacement therapy
PCOS
Lichen Sclerosus
Contraception
Genital injuries
Mullerian anomalies
Reproductive survivorship
Breast concerns
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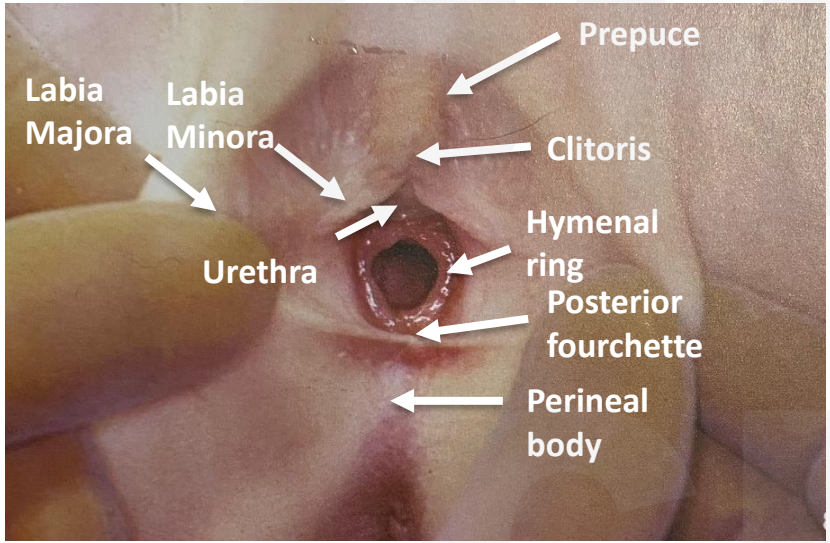
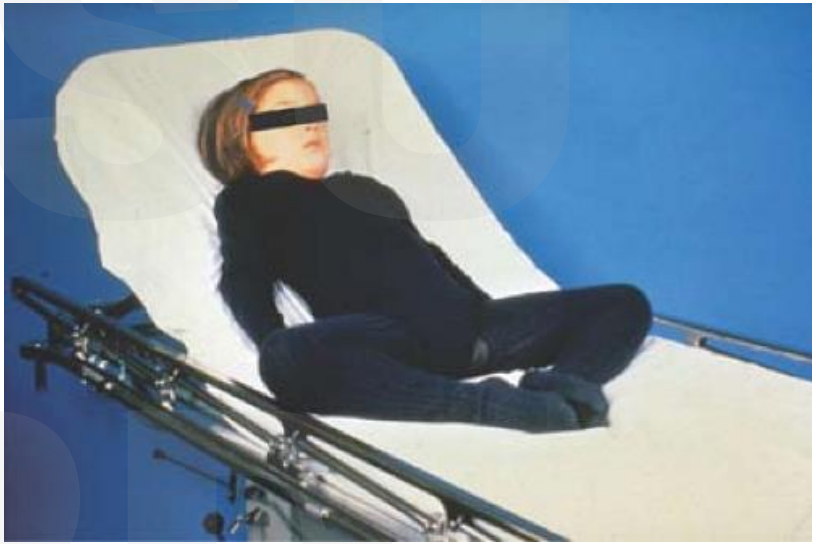
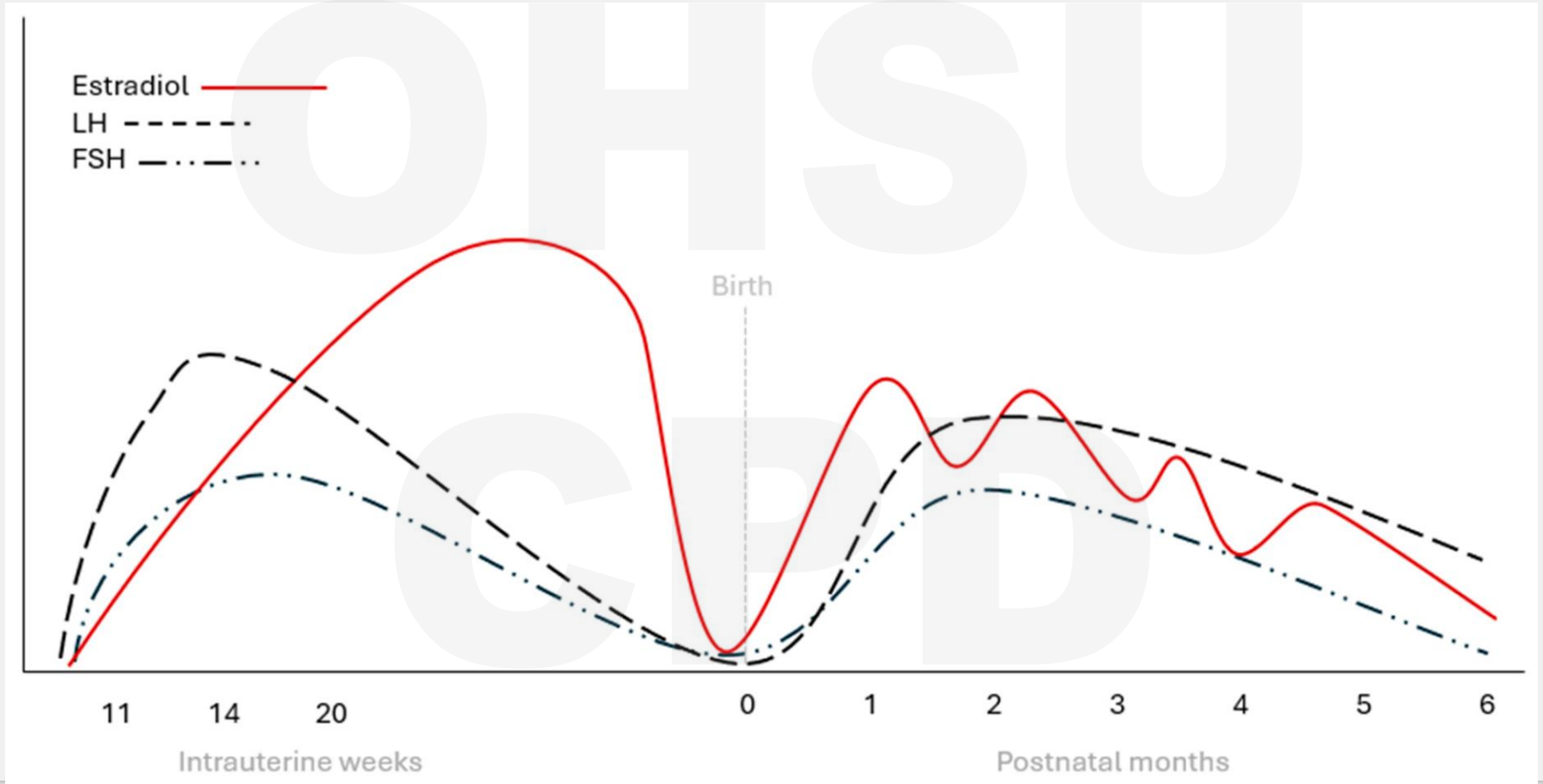
# CASE 1

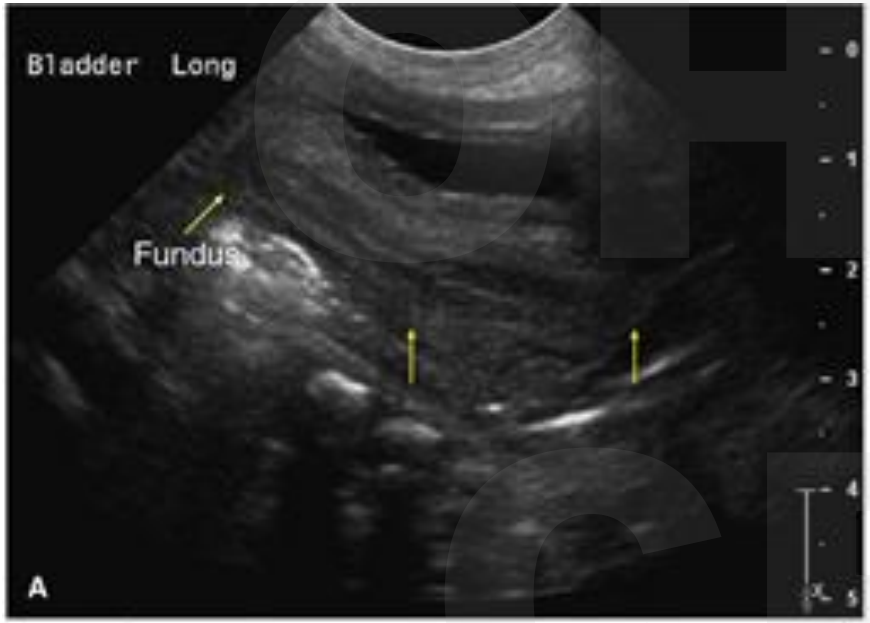
2-year-old with a vulva that “looks abnormal”

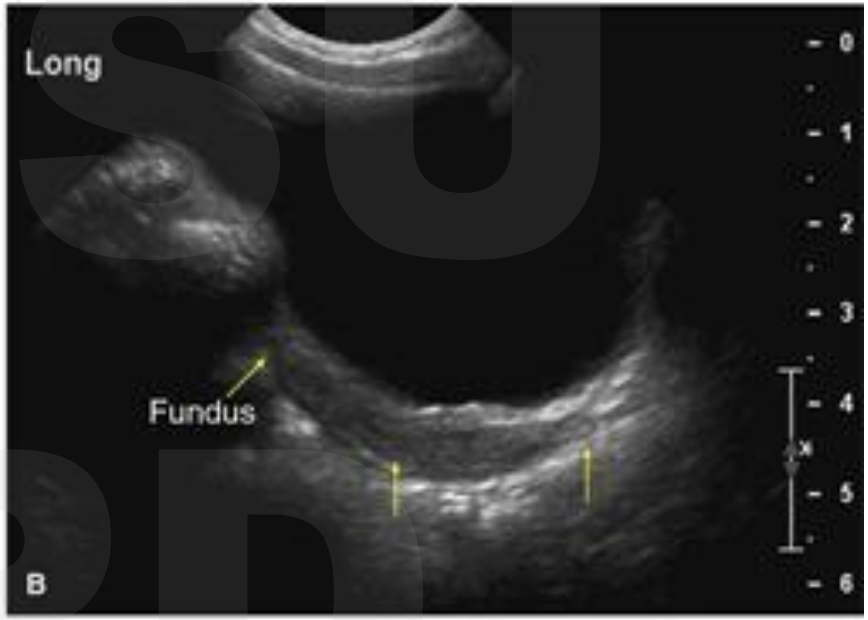

Prepuce
Labia Majora
Labia Minora
Clitoris
Hymenal ring
Urethra
Posterior fourchette
Perineal body



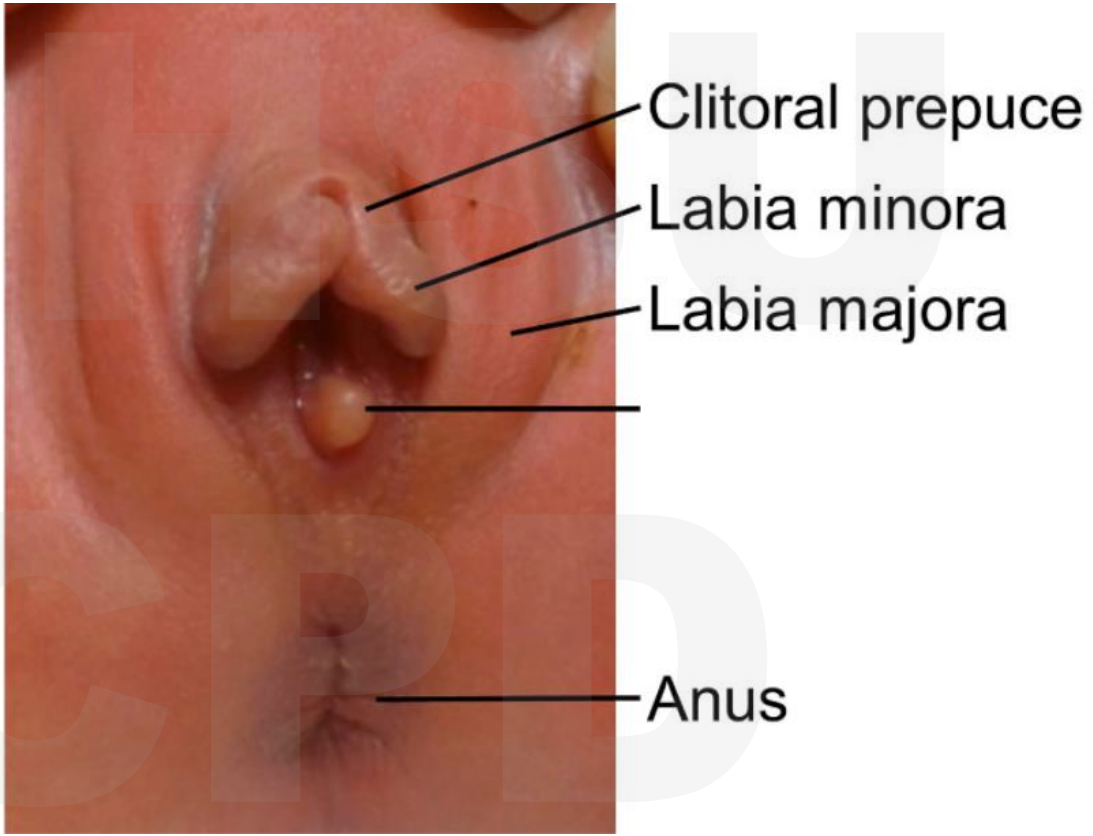
# Mini Puberty

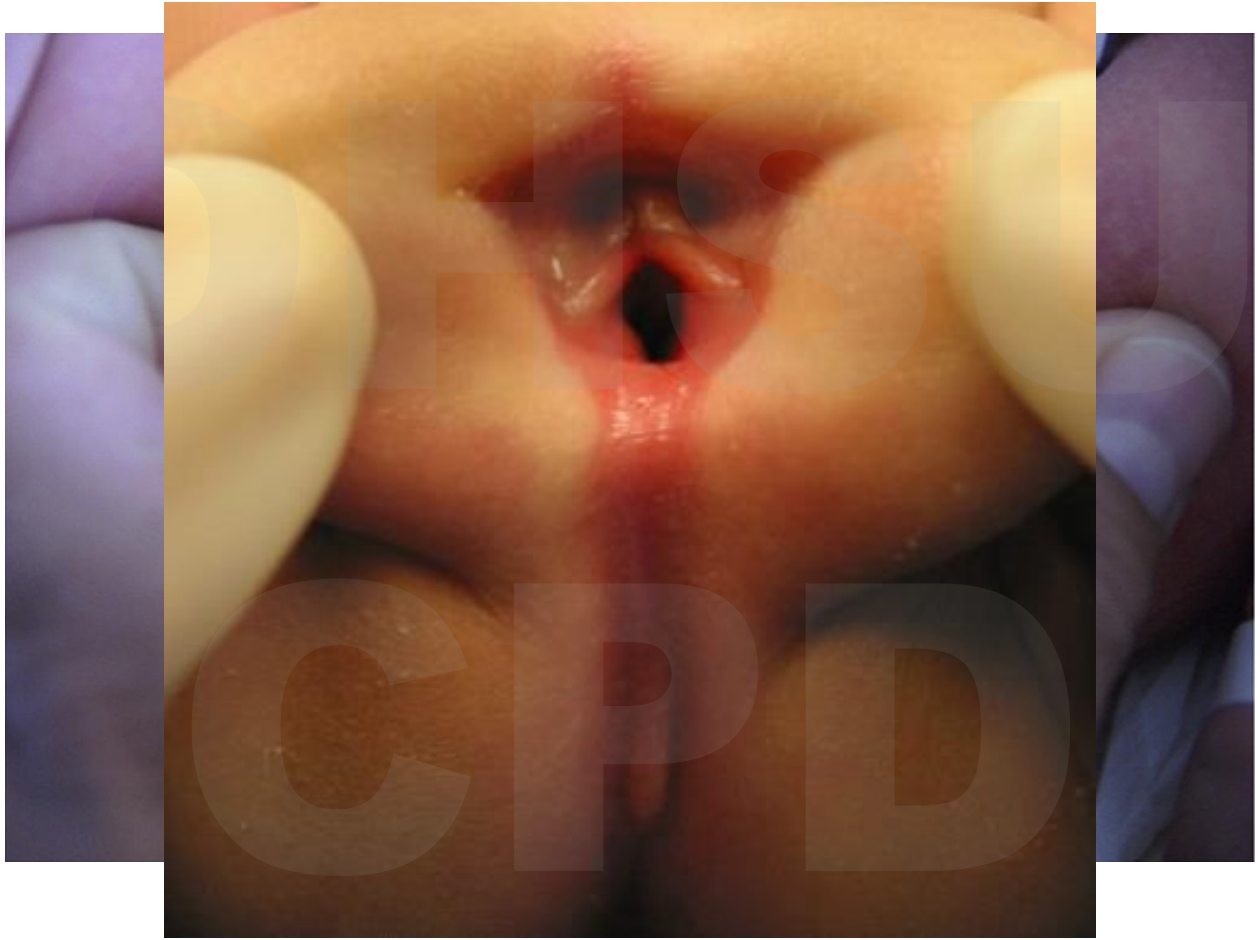




# Anatomic Differences







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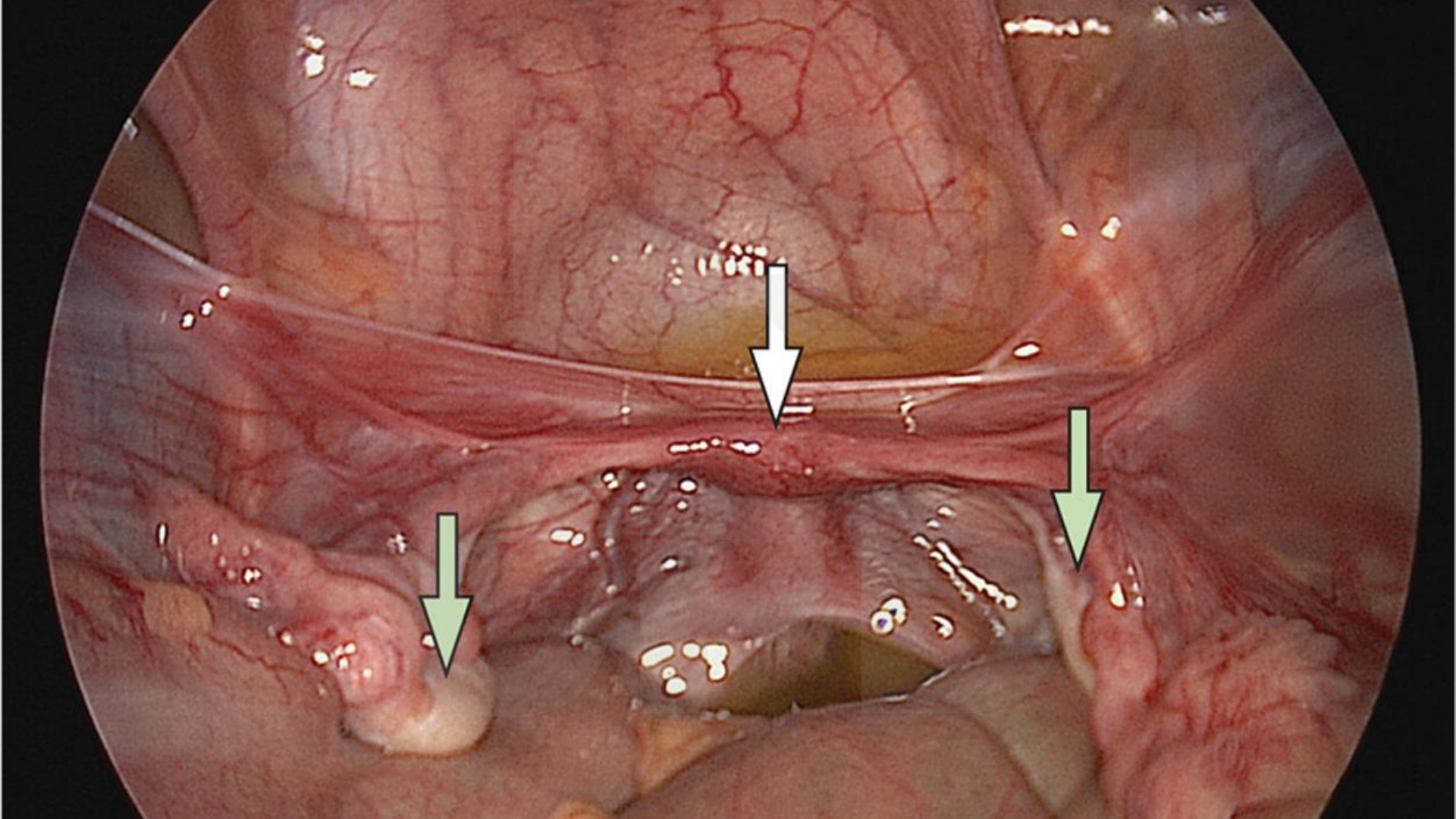
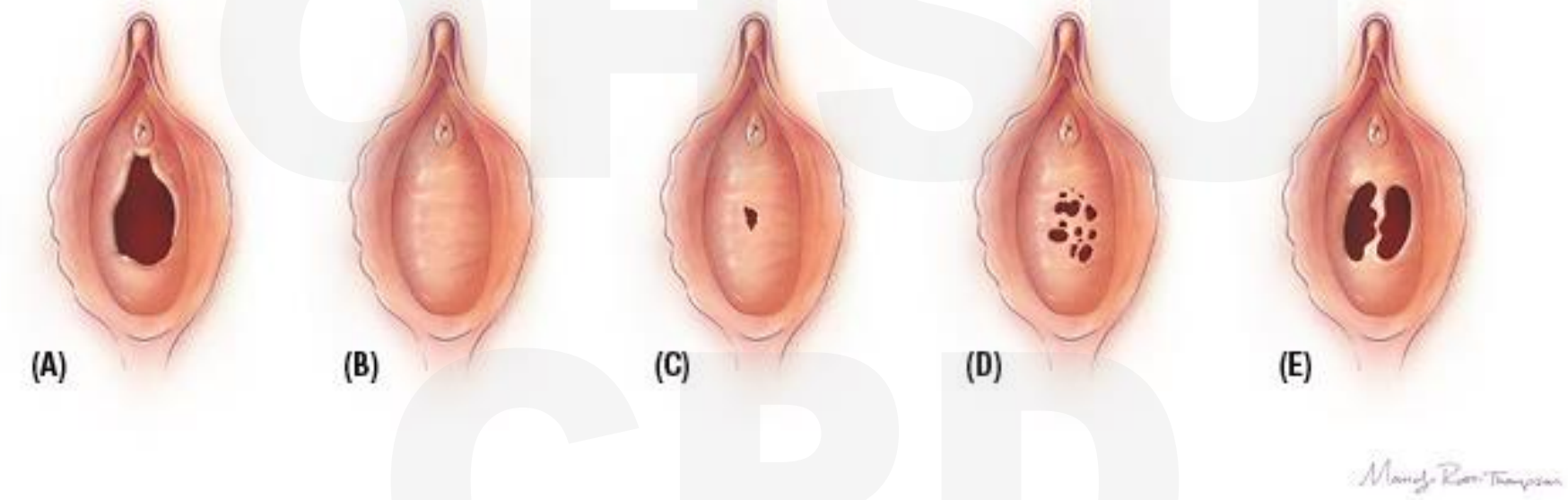
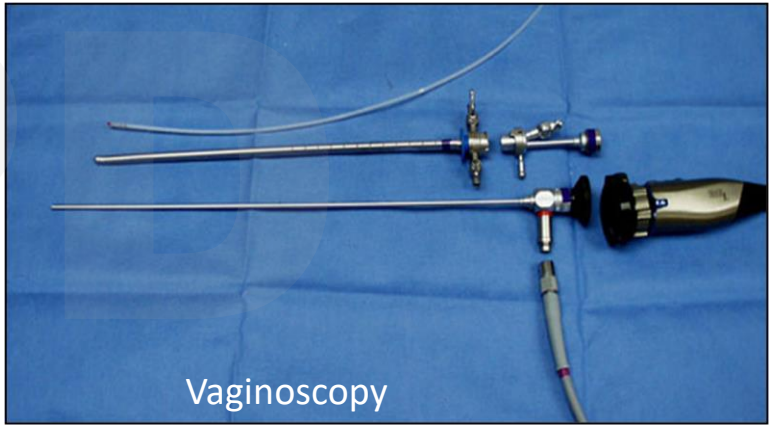





Anatomic variations of the normal hymen. (A) normal, (B) imperforate, (C) microperforate, (D) cribiform, and (E) septate.

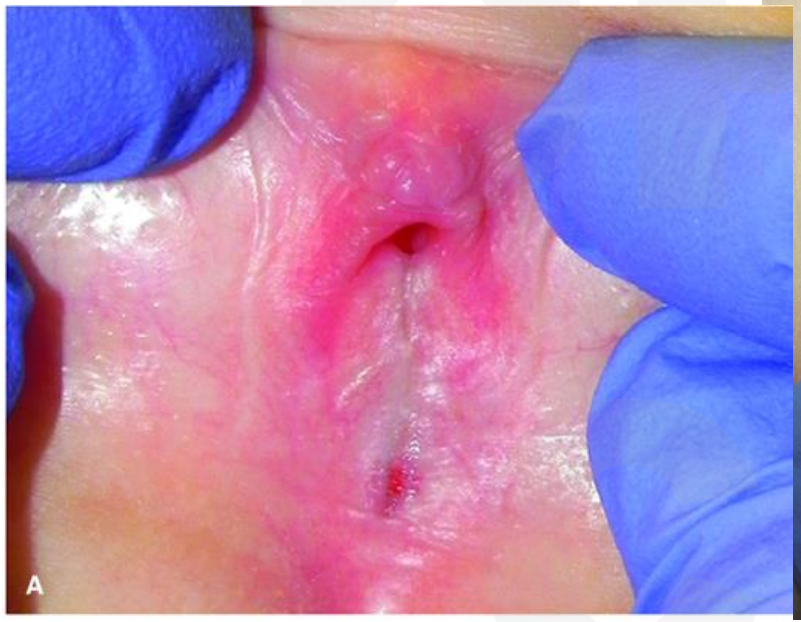
# Vaginal Inspection



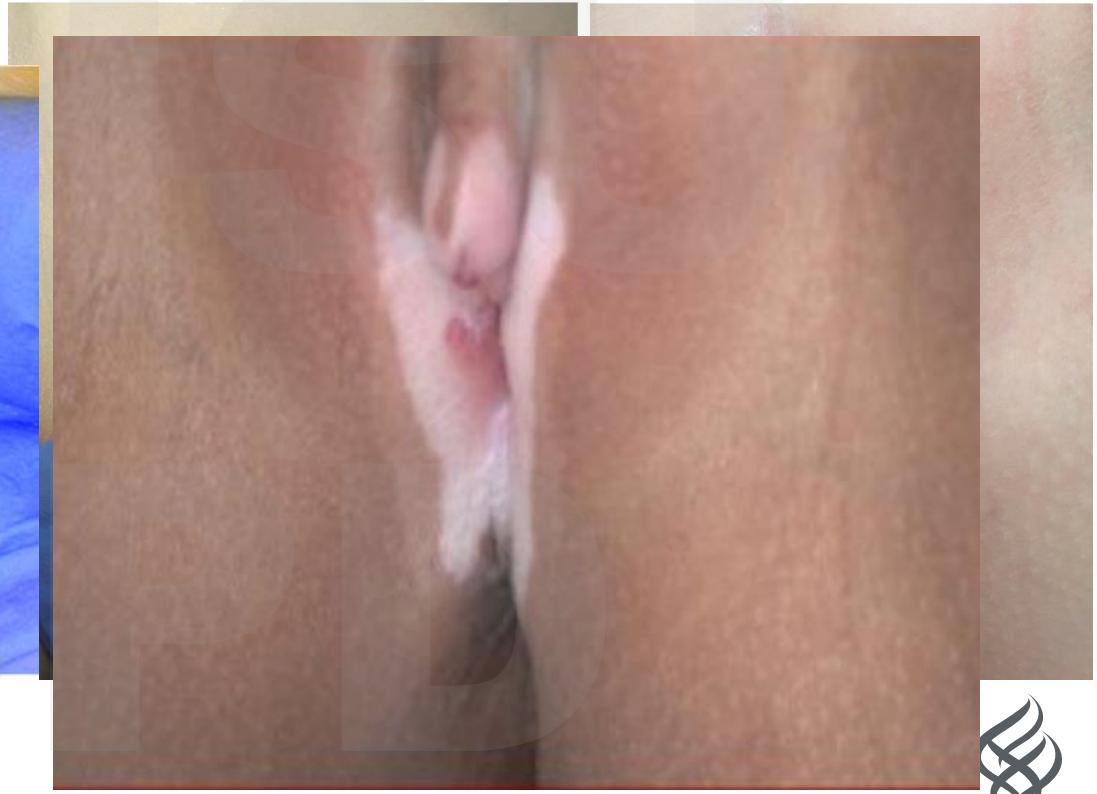
Vaginoscopy

# Back to our case…
# 2yo with vulvar concerns

# Labial Adhesions




# Lichen Sclerosus



# Labial Adhesions
## Management

- Conservative management
- Estradiol 0.01% QD up to 6 weeks
- Betamethasone 0.05% BID up to 6 weeks
- Gentle application and separation
- General skin care and emollients
- Rare need for surgery
- **Refer if no improvement AND symptomatic**

# Lichen Sclerosus
## Management

- Clobetasol 0.05% BID x 2 weeks, QD x2 weeks
- Reassess to ensure improvement
- Lower potency steroid for maintenance
- General vulvar skin care
- Biopsy not indicated
- **Refer if persistent or worsening symptoms**

# CASE 2

6-year-old with vaginal bleeding

# Key Questions

| | | |
|---|---|---|
| Any other pubertal development? | Volume?<br>Frequency?<br>Amount? | Other symptoms? |
| Is it coming from the vagina? | Any concerns for inappropriate touch? | Any injury/fall/ trauma? |

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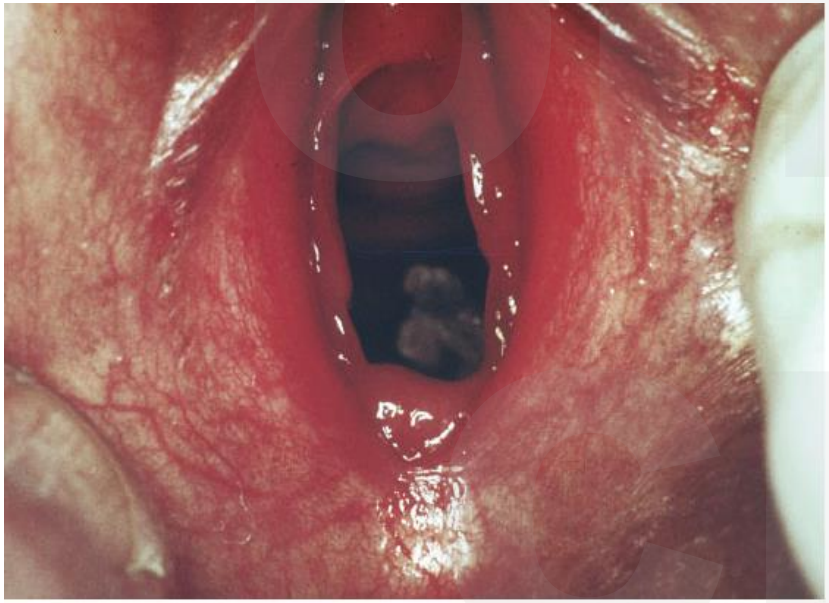
# Foreign Body



# Vulvovaginitis

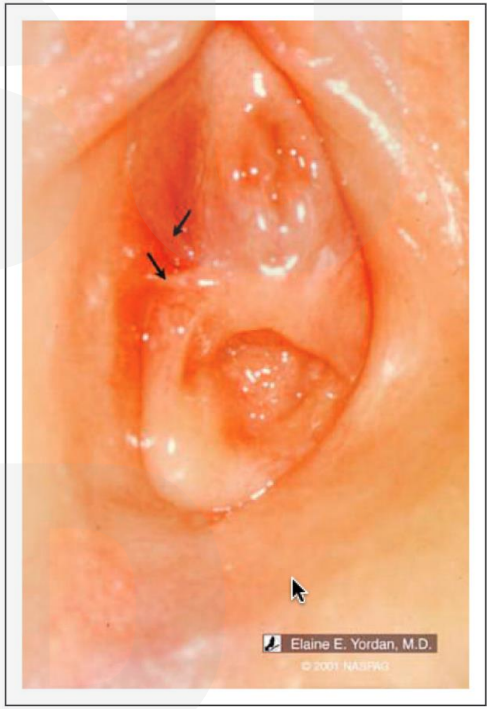



**FIGURE 1.** Vulvovaginitis in a pediatric patient. Arrows indicate area of erythema. Reproduced with permission from North American Society for Pediatric and Adolescent Gynecology Slide set Royal, NJ 2001. Reproduced by courtesy of Elaine E. Yordan, MD [for photograph].

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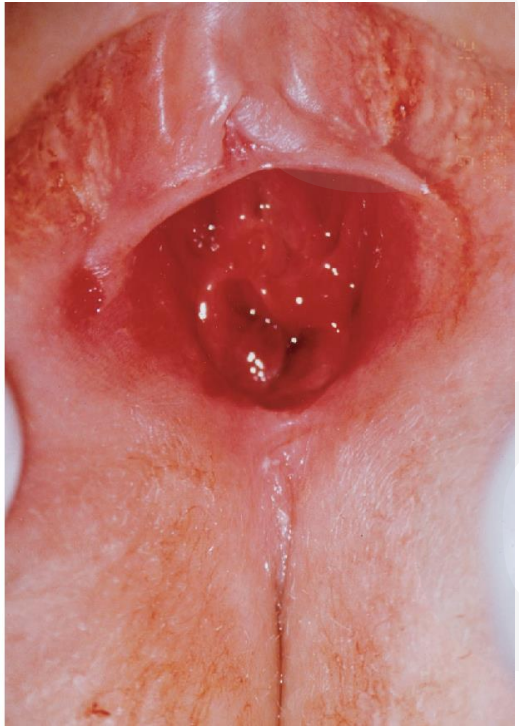
# Foreign Body
## Management

- External exam
- Consider imaging
- Warm water baths
- **Recommend referral for EUA/vaginoscopy**

# Vulvovaginitis
## Management

- External exam
- External bacterial cultures
- No indication for yeast or BV swabs
- Vulvar hygiene
- Emollients
- +/- Antibiotics
- **Refer if no improvement in 4-6 weeks**

# Straddle injury



A straddle injury does not always require a surgical repair

**Conservative Management**

- Warm water soaks
- Over-the-counter pain medication
- Ice packs
- Estrogen cream applied to the vulva

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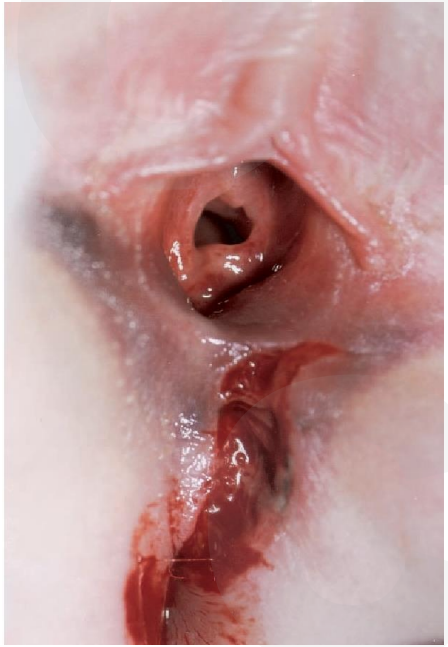
# Straddle injury: when to consult



- Large/deep laceration
- Perineal laceration
- Concern for internal trauma
- Non-hemostatic


Desitin
provides powerful, long-lasting relief
Maximum Strength
NET WT 4 Oz (113 g)
Zinc Oxide Diaper Rash Paste


Vaseline
Original
HEALING JELLY™
Dermatologist Recommended
100% White Petrolatum
Skin Protectant
NET WT 13 OZ (368g)


Aquaphor
HEALING OINTMENT
Baby
Advanced Therapy
For dry, chapped or irritated skin
HYPOALLERGENIC
Fragrance & Preservative Free
Skin Protectant
NET WT 14 OZ. 396g

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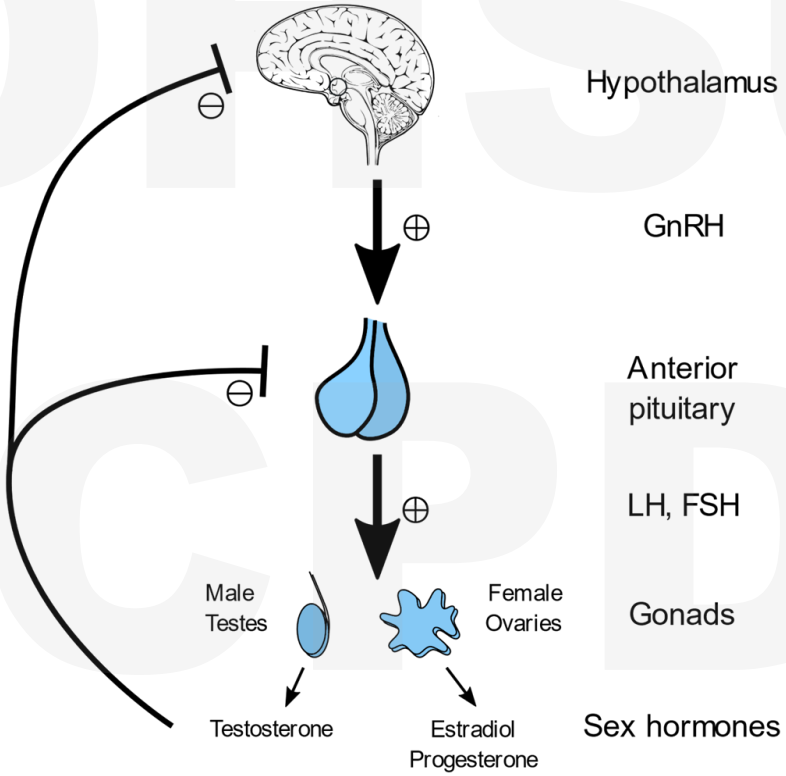
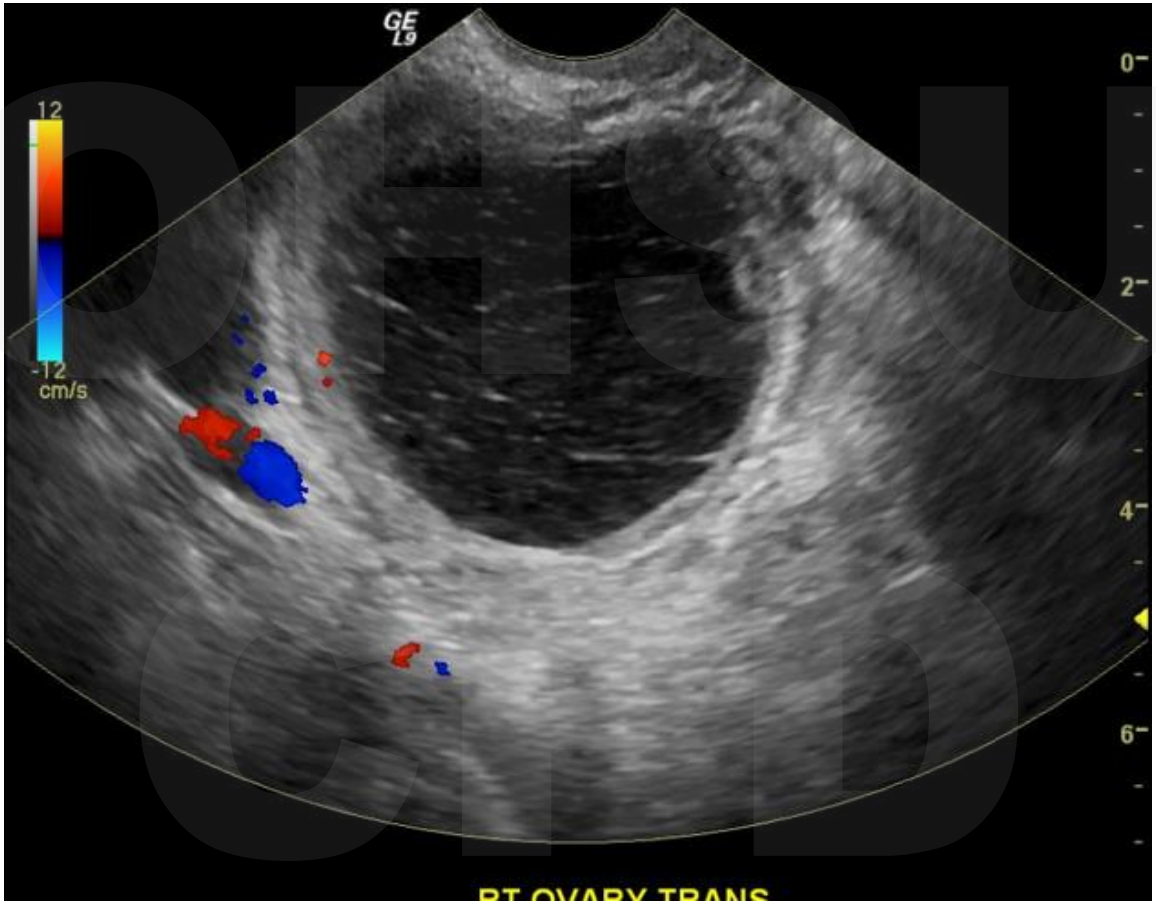
# Pubertal Concerns



# CASE 3

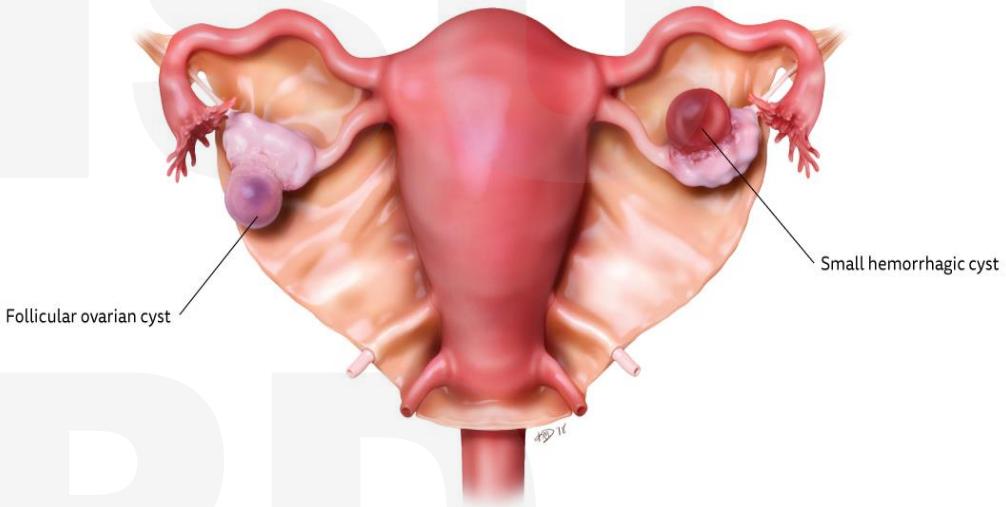
11-year-old presents with 5 days of worsening RLQ pain

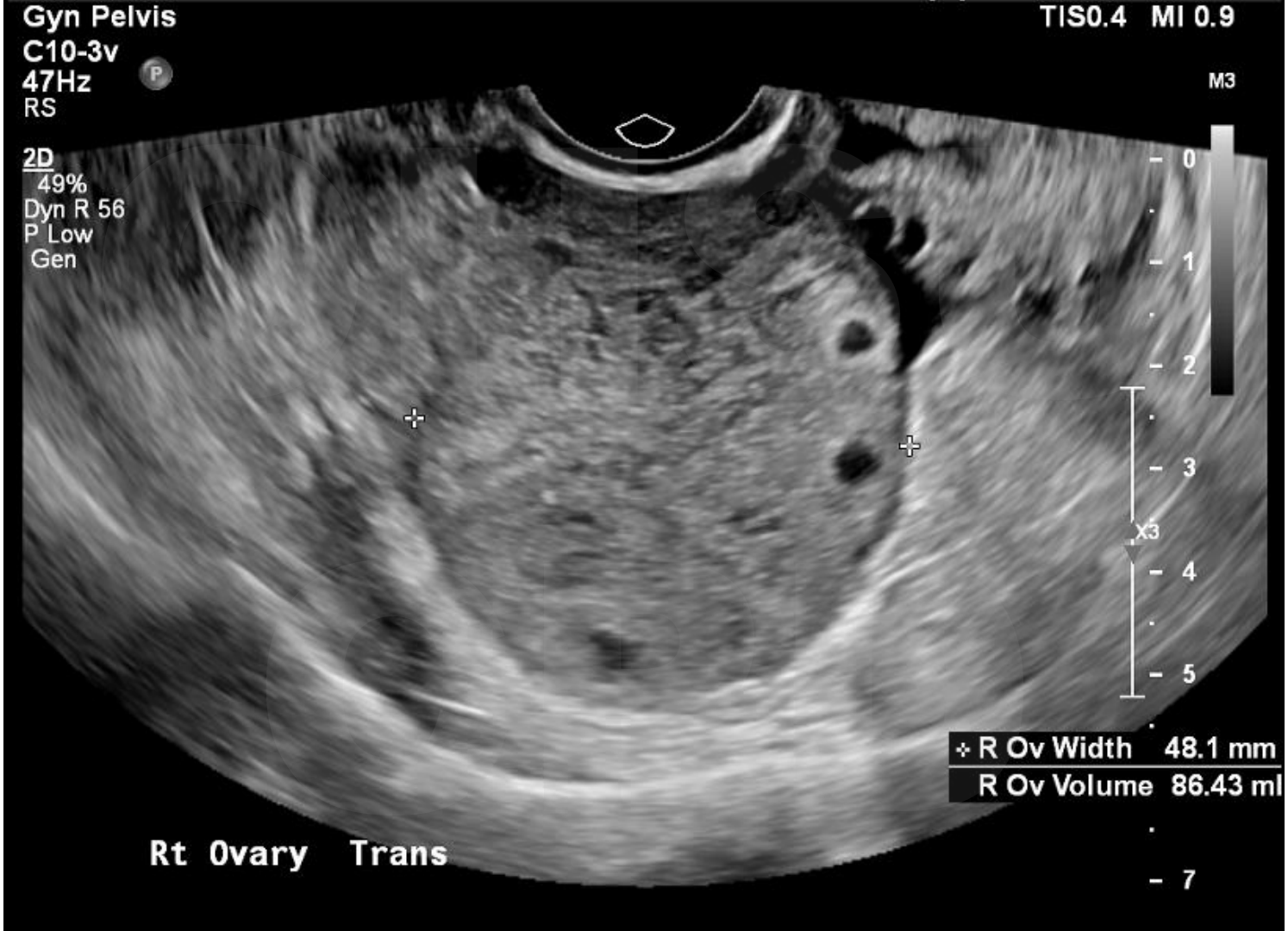

GE
L9
12
-12
cm/s
0
2
4
6
RT OVARY TRANS

# Functional Cyst Management

- Repeat ultrasound in 6-8 weeks to confirm resolution of cyst

- Consider starting hormonal ovulation suppression




Gyn Pelvis
C10-3v
47Hz
RS
2D
49%
Dyn R 56
P Low
Gen
TIS0.4 MI 0.9
M3
0
1
2
3
X3
4
5
7
R Ov Width 48.1 mm
R Ov Volume 86.43 ml
Rt Ovary Trans

# Ovarian Torsion

**- Gynecologic emergency**

- 30% of all torsion cases occur < 20 years

- Patients present with acute onset abdominal pain, nausea/vomiting

- Most common lesions are teratomas, tubal cysts, functional cysts, cystadenomas

* Only 0.8% - 1.8% are associated with malignancy

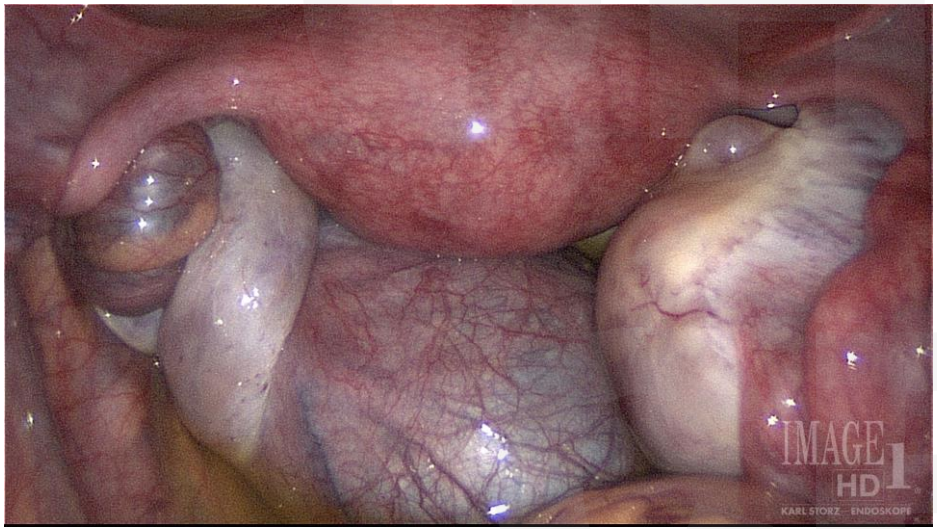


IMAGE 1 HD
KARL STORZ – ENDOSKOPE

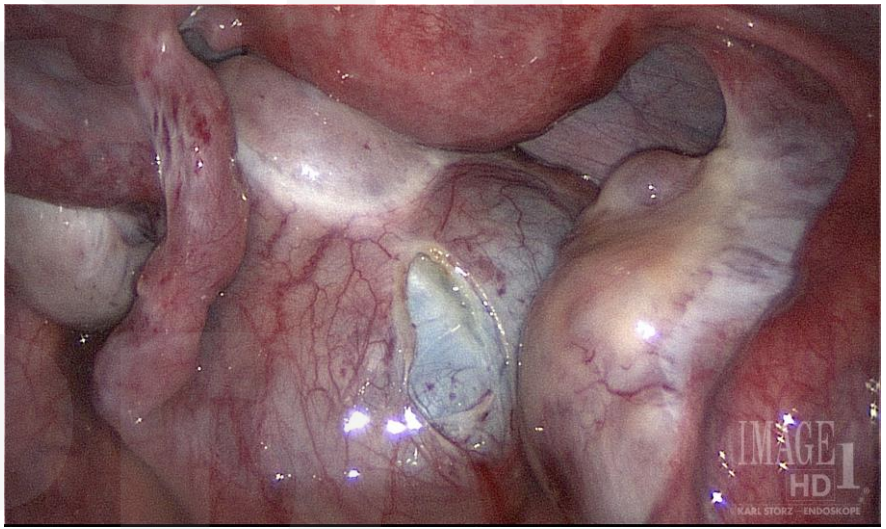
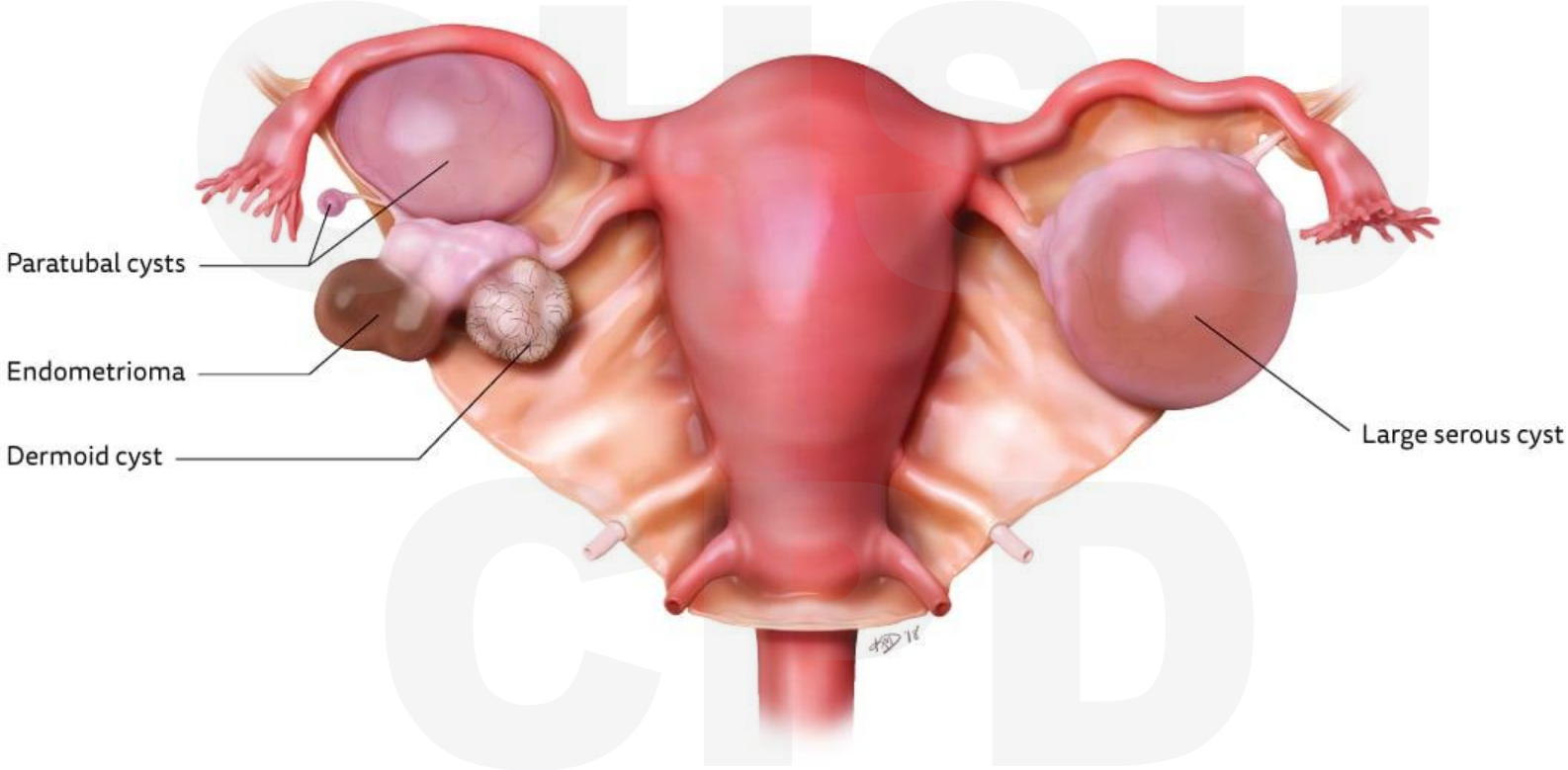


IMAGE 1 HD
KARL STORZ – ENDOSKOPE

# Surgical Cysts



# CASE 4

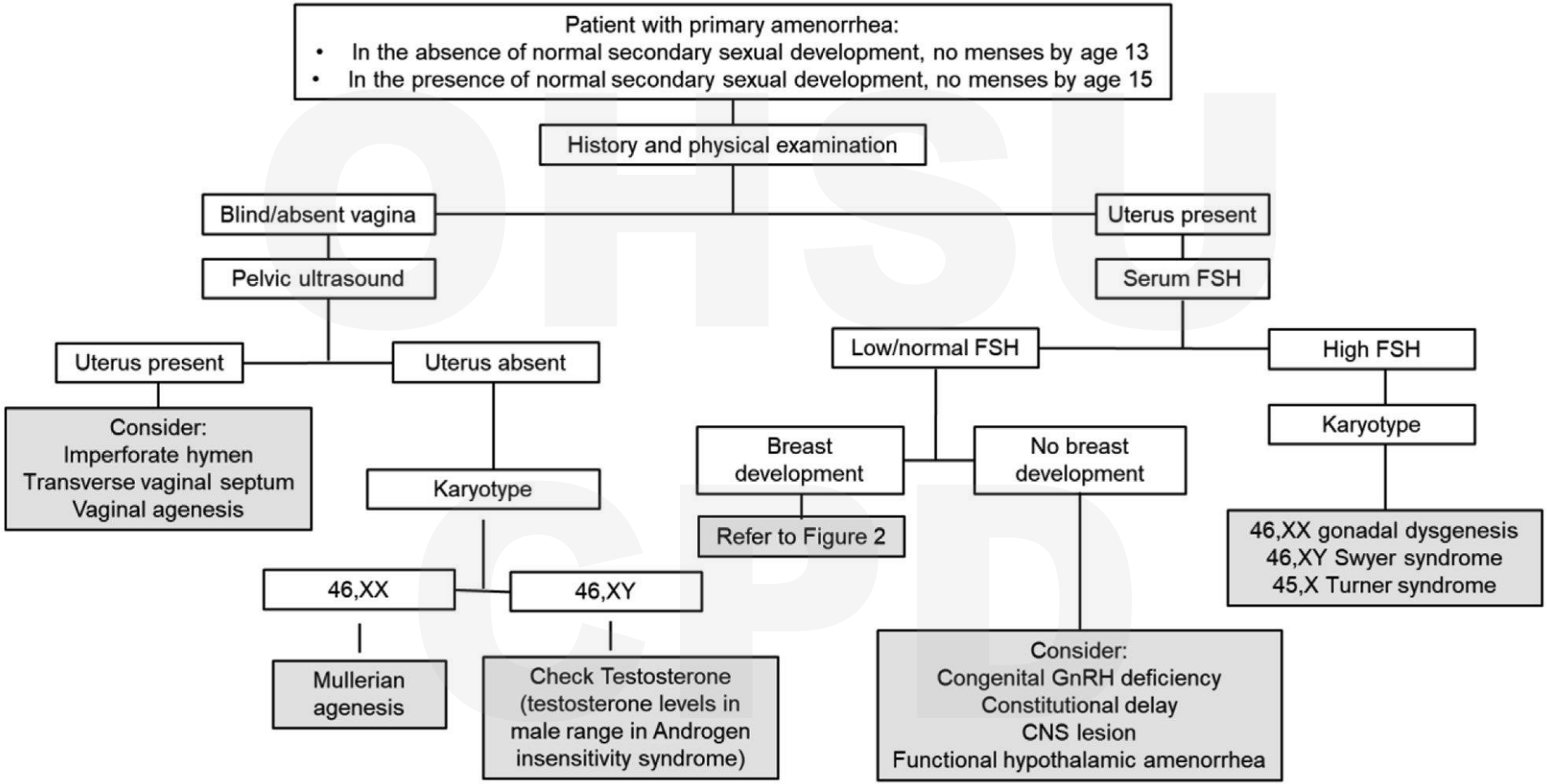
15-year-old presents with amenorrhea

# When to evaluate delayed puberty?

No development of secondary sexual characteristics by age 13

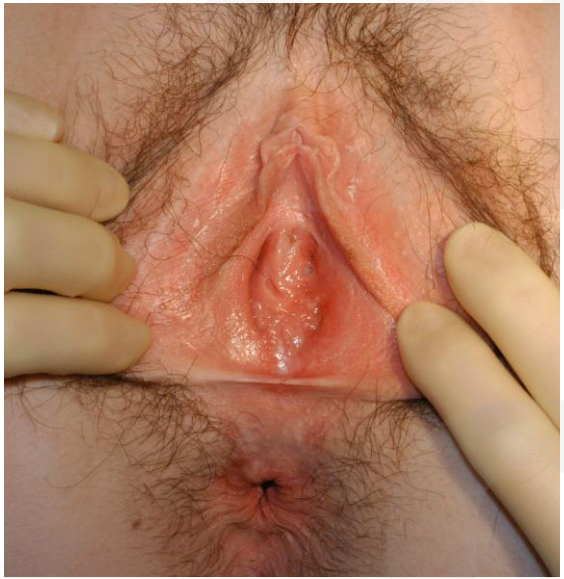
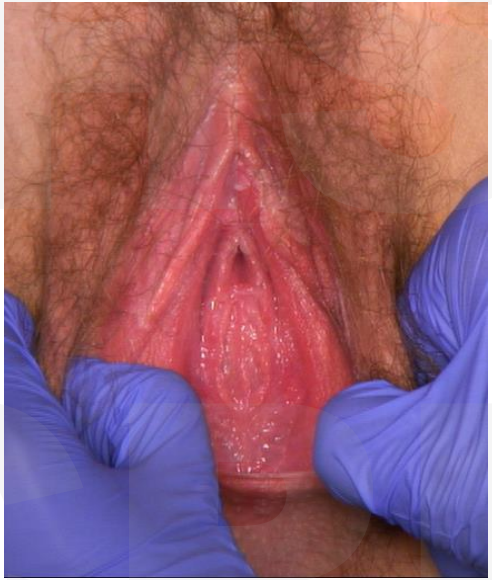
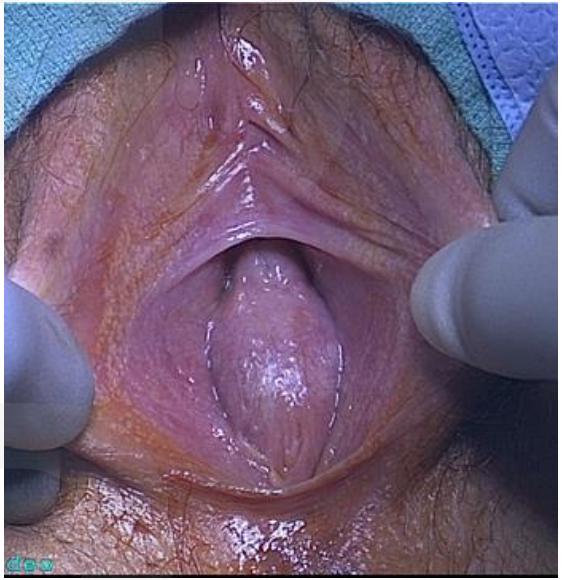
No menses within 3 years of onset of secondary sexual characteristics

No menses by age 15 regardless of development of secondary sexual characteristics


Patient with primary amenorrhea:
• In the absence of normal secondary sexual development, no menses by age 13
• In the presence of normal secondary sexual development, no menses by age 15
History and physical examination
Blind/absent vagina
Uterus present
Pelvic ultrasound
Serum FSH
Uterus present
Uterus absent
Low/normal FSH
High FSH
Consider:
Imperforate hymen
Transverse vaginal septum
Vaginal agenesis
Karyotype
Breast development
No breast development
Karyotype
Refer to Figure 2
46,XX gonadal dysgenesis
46,XY Swyer syndrome
45,X Turner syndrome
46,XX
46,XY
Mullerian agenesis
Check Testosterone (testosterone levels in male range in Androgen insensitivity syndrome)
Consider:
Congenital GnRH deficiency
Constitutional delay
CNS lesion
Functional hypothalamic amenorrhea

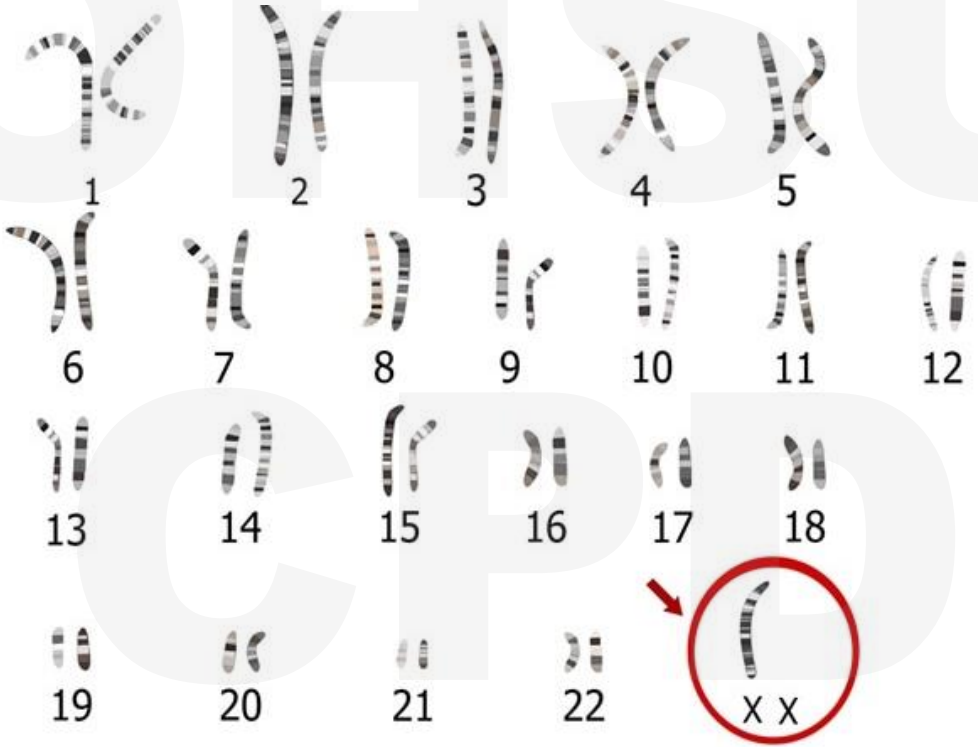
# Primary Amenorrhea Evaluation

- Exam: outflow tract present/open
- Labs: HCG, FSH, LH, Estradiol, TSH w/ T4, Prolactin, Free/total Testosterone
- Other androgens: DHEA-s, 17-OHP
- Imaging: **Transabdominal** Pelvic US, bone age
- Progestin challenge
- Genetics: Karyotype, FMRP gene expansion

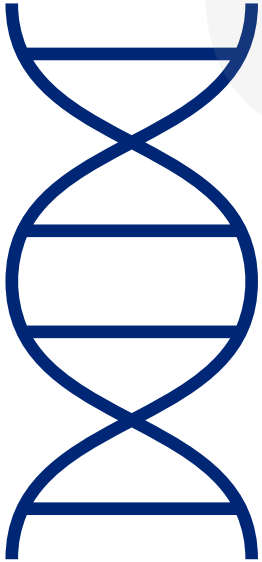




# Obstructive vaginal anomalies

# What if instead the karyotype showed this:



# Turner Syndrome



- Varying karyotypes (45,X,45,X/46,XY mosaic,45,X/46,XX mosaic)
- Differing pubertal presentations based on karyotype
- Recommend multidisciplinary and longitudinal care

Learn more about my study!

# CASE 5

13-year-old presents with painful and irregular menses

# Dysmenorrhea

***Primary dysmenorrhea*** ▫ painful menstruation in the absence of pelvic pathology

***Secondary dysmenorrhea*** ▫ painful menstruation due to pelvic pathology

- #1 etiology = Endometriosis
- Other = Ovarian cysts, PID/TOA, obstructive reproductive tract anomalies

# NSAIDs for Dysmenorrhea

12+ years AND >96lbs

| DRUG | DOSAGE |
|---|---|
| Ibuprofen | 800mg loading dose, followed by 400-800mg every 8 hours |
| Naproxen sodium | 440-550mg loading dose, followed by 220-550mg every 12 hours |
| Mefenamic acid | 500mg loading dose, followed by 250mg every 6 hours |
| Celecoxib (age > 18) | 400mg loading dose, followed by 200mg every 12 hours |

**Most effective when started 1-2 days before menses onset and continued through the first 2-3 days of bleeding**

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| Treatment Choice | How to Use | What to expect after the first 3-6 months |
|---|---|---|
| **Norethindrone Acetate (NETA)**  | Take 1 pill every day. | + Usually no periods when taken every day.<br>+ Less or no bleeding, less cramping and pain. |
| **Pill**  | Take 1 pill every day. | + Regular and lighter periods.<br>+ Can be used to have no periods at all.<br>+ Less cramping and less pain.<br>+ Clearer skin.<br>+ No weight gain. |
| **Skin Patch**  | Change every week. | |
| **Vaginal Ring**  | Change every month. | |
| **Depo-Provera**  | Shot every 3 months. | + Lighter or no periods after 6-9 months of use.<br>+ Less cramping and less pain.<br>+ May cause increased appetite |
| **Progestin IUD**  | Doctor places inside the uterus during pelvic exam. The IUD works fo 8 years. | + Lighter or no periods.<br>+ Less cramping and less pain.<br>+ Less blood loss so increased iron levels with use.<br>+ No weight gain. |
| **Implant**  | Doctor places under skin of arm. Implant works for 3 years. | + May have no periods, or irregular bleeding.<br>+ Less cramping and less pain.<br>+ No weight gain. |
| **Progesterone-Only Pill (POP)** | | |
| **Norethindrone POP**  | Take 1 pill every day. | + May have no bleeding, regular periods, or irregular bleeding. |
| **Drospirenone POP**  | | + Regular and lighter periods, less cramping.<br>+ Can be used to have no periods at all. |

## Many hormonal options!

- There is no ‘one size fits all’
- Pros and cons and side affects with each method
- Up to the patient to pick what works best for them

**with sedation**



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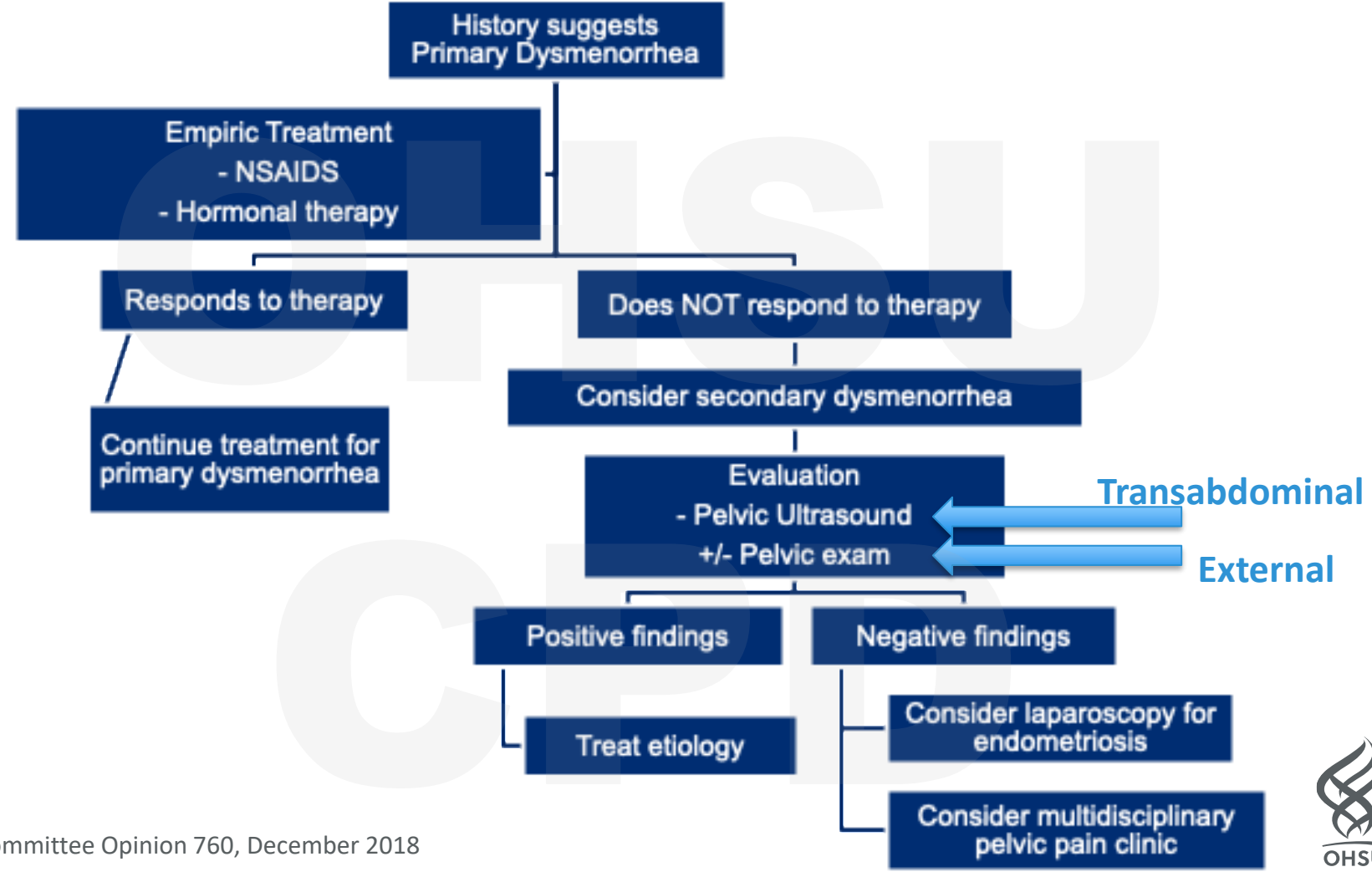
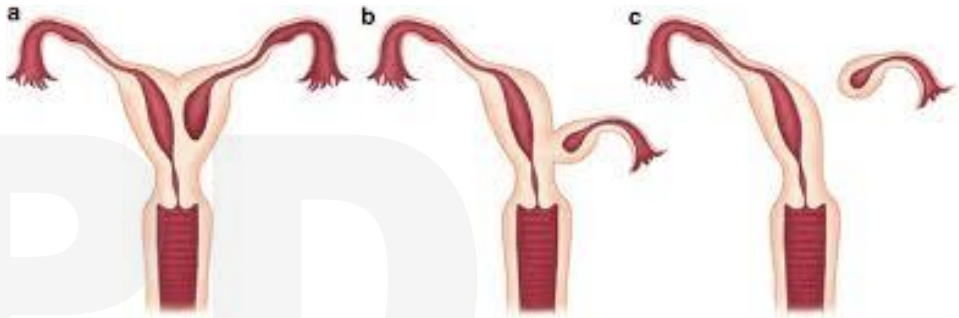



ACOG Committee Opinion 760, December 2018

# Secondary dysmenorrhea

**Differential diagnosis**

- Endometriosis
- Congenital obstructive Mullerian malformations
- Hemorrhagic cysts
- Pelvic inflammatory disease
- Pelvic adhesions
- Uterine polyps
- Uterine leiomyomata
- Adenomyosis



# Endometriosis

- Leading cause of secondary dysmenorrhea in adolescents

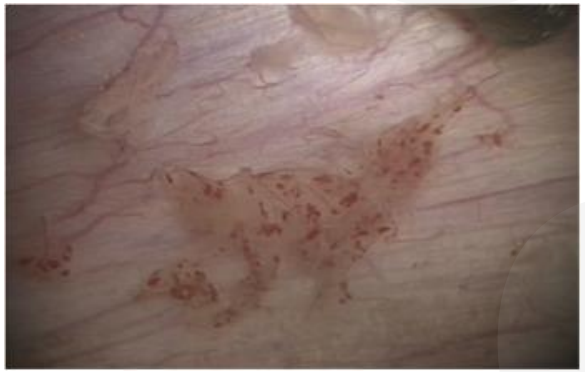
- First degree relative with endometriosis = 7x increased risk of having endometriosis

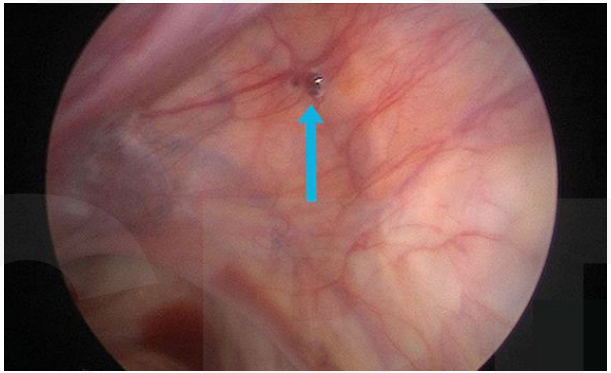
***50-75% of teens with dysmenorrhea unresponsive to NSAIDs and hormonal therapies will be diagnosed with endometriosis at laparoscopy***

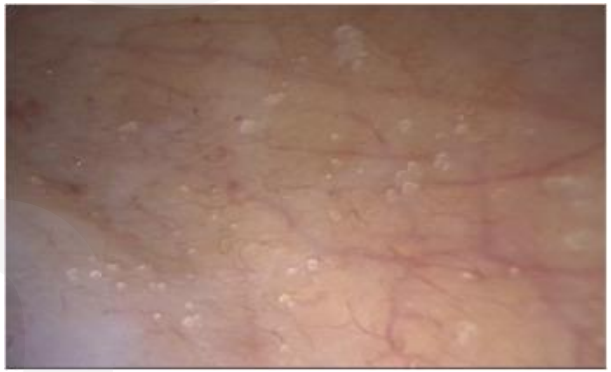
Laufer, *JPAG* April 2020

# Diagnosis of endometriosis

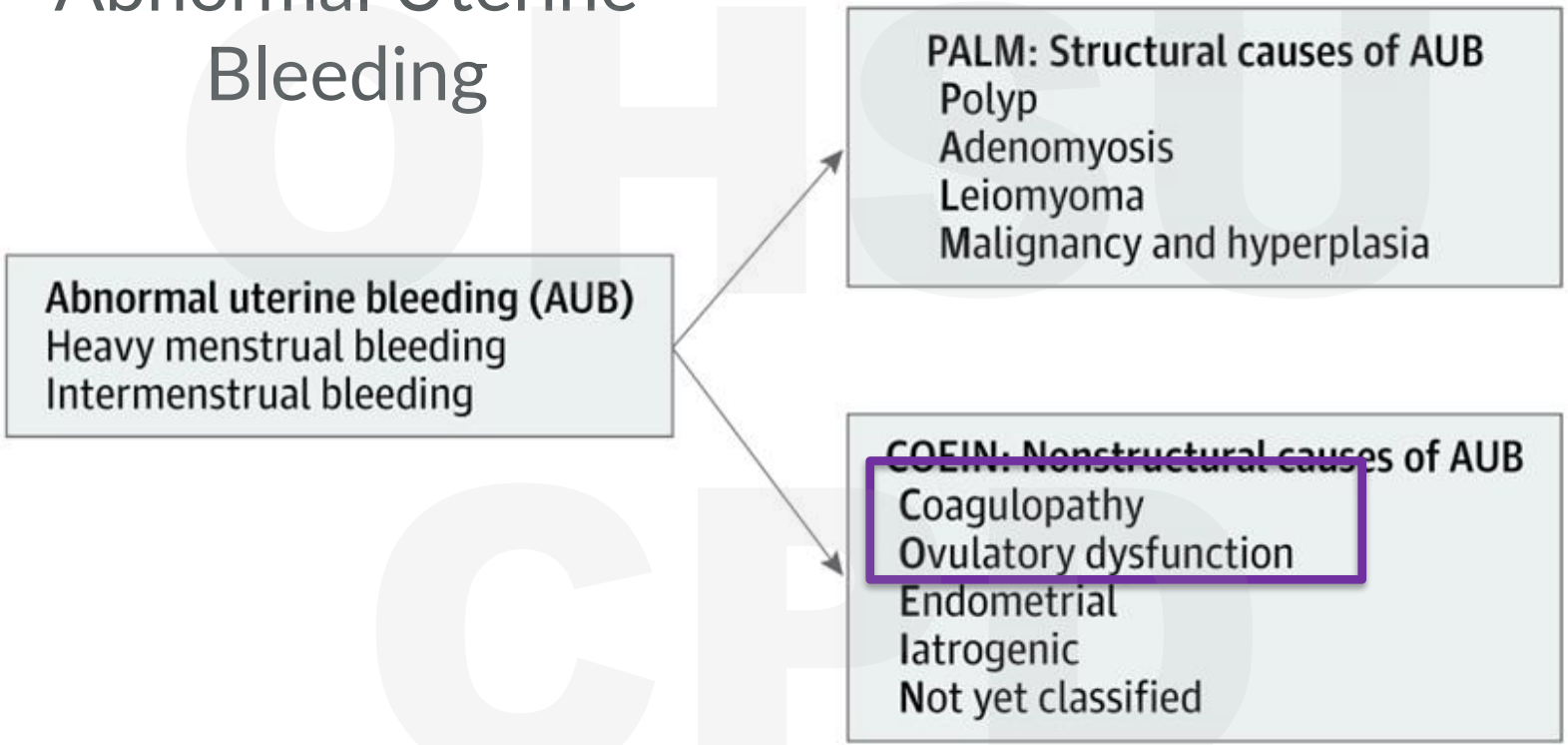
- Laparoscopy is both diagnostic and therapeutic
- Will offer a procedure after 3-6 months of failed medical therapy







# Abnormal Uterine Bleeding




FIGO Classification System for AUB, Munro 2011



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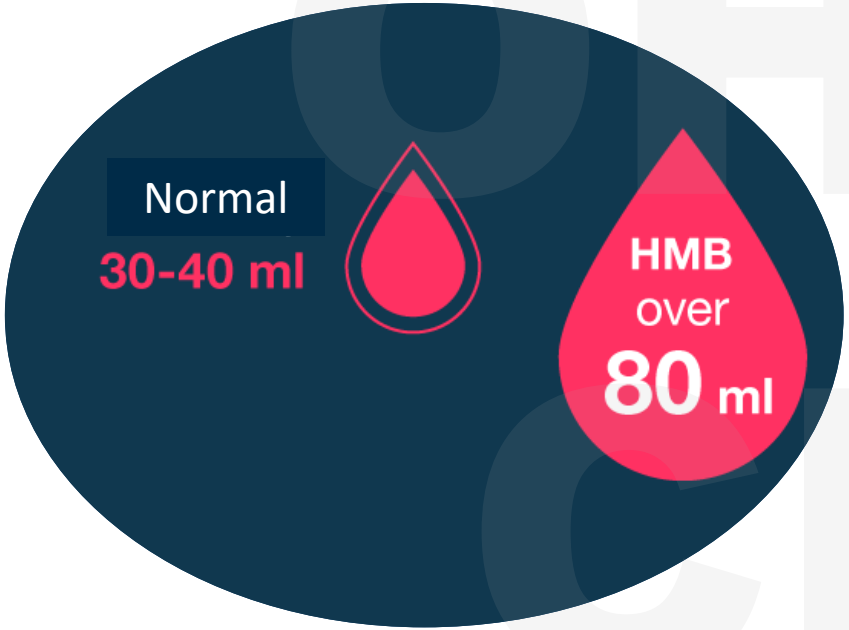
# Defining HMB




**ACOG, FIGO, and UK National Institutes of Health and Care Excellence:**

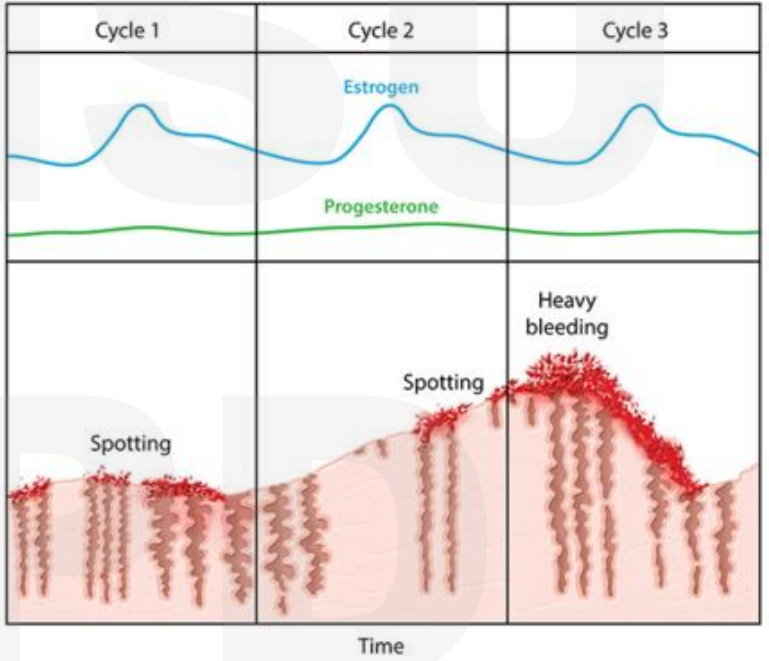
*"Excessive menstrual blood loss which interferes with a woman's physical, emotional, social and material quality of life, and which can occur alone or in combination with other symptoms."*

# Ovulatory Dysfunction in Adolescents

Year 1: 85%

Year 2: 59%

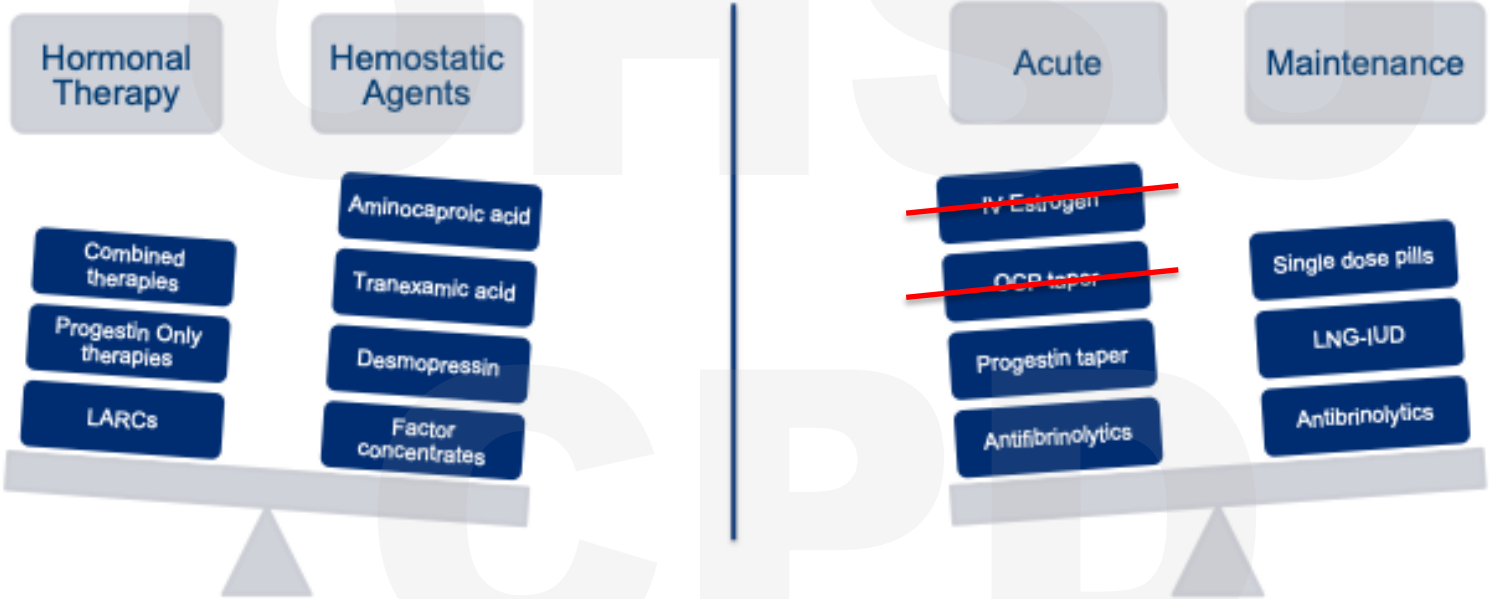
Year 3: 20-40%



# Basic Evaluation

- - Menstrual history is key!
- - UPT, TSH, CBC, Ferritin
- - Consider Androgens when appropriate
- **** Pelvic US rarely indicated***

# Treatment Approach



# When should I refer to PAG?

# PAG Referral Guide

- If you are uncertain about initial diagnosis (eConsult with picture)
- Patient is unresponsive to standard or initial therapy

**<u>Certain conditions</u>**

- MRKH or diagnosed mullerian anomalies
- Primary amenorrhea with abnormal results
- Concern for differences of sex development
- Concern for malignancy
- Need for multidisciplinary care

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- Referral is required after initial evaluation and management
- Referrals are reviewed centrally and will be sent to the soonest appointment for the specific problem
- May be re-routed to other subspecialties if applicable
  eConsults: Internal referral and External eConsult (EpicCare Link Portal)

# PAG at OHSU

- Painful periods, including endometriosis
- Heavy menstrual periods, including inherited blood disorders
- PCOS
- RED-S
- Differences of sexual development and anorectal malformations
- Ovarian cysts and masses
- Reproductive tract anomalies
- Hormone replacement therapy
- Pediatric vulvovaginal
- Breast
- And more…

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# Questions?

friedmanj@ohsu.edu


# Thank You

# References


- https://www.naspag.org/index.php?option=com_dailyplanetblog&view=entry&category=history&id=45:history-of-naspag-the-early-years-of-pag-1800-s-united-states-
- Yordan EE, Yordan RA. The early historical roots of pediatric and adolescent gynecology. J Pediatr Adolesc Gynecol. 1997 Nov;10(4):183-91. doi: 10.1016/s1083-3188(97)70083-4. PMID: 9391900.
- https://ifepag.hk/approved-centers/https://naspag.memberclicks.net/PAGFellowshi
- https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/10/the-initial-reproductive-health-visit
- De Silva, N., & Tyson, N. A. (2024). *Essentials of Pediatric and Adolescent Gynecology-E-Book*. Elsevier Health Sciences
- Serbis A, Kosmeri C, Atzemoglou N, Lampropoulou K-M, Giaprou L-E, Rallis D, Giapros V. Decoding Mini-Puberty and Its Clinical Significance: A Narrative Review. *Endocrines*. 2025; 6(2):28. https://doi.org/10.3390/endocrines602002
- Lucaccioni L, Trevisani V, Boncompagni A, Marrozzini L, Berardi A, Iughetti L. Minipuberty: Looking Back to Understand Moving Forward. Front Pediatr. 2021 Jan 18;8:612235. doi: 10.3389/fped.2020.612235. PMID: 33537266; PMCID: PMC7848193
- Mitani-Konno Marie , Saito Reiko , Narumi-Wakayama Hiroko , Sakai Yuki , Suzuki Shuichi , Satoh Hiroyuki , Hasegawa Yukihiro . Clitoral preputial edema can be mistaken for clitoromegaly: a clinical analysis of ten cases. JOURNAL=Frontiers in Endocrinology. VOLUME=Volume 14 – 2023. YEAR=2023..DOI=10.3389/fendo.2023.1175611
- Irtan S, Orbach D, Helfre S, Sarnacki S. Ovarian transposition in prepubescent and adolescent girls with cancer. Lancet Oncol. 2013 Dec;14(13):e601-8. doi: 10.1016/S1470-2045(13)70288-2. PMID: 24275133.
- https://www.childrenscolorado.org/conditions-and-advice/conditions-and-symptoms/conditions/imperforate-hymen/
- Appelbaum H. Perioperative and Operative Considerations for Minimally Invasive Surgery in Pediatric and Adolescent Gynecology. J Pediatr Adolesc Gynecol. 2025 Feb;38(1):18-25. doi: 10.1016/j.jpag.2024.07.006. Epub 2024 Aug 2. PMID: 39098547.
- Sergio Manzano, Aaron Vunda, Franck Schneider, et al. Catheterization of the Urethra in Girls. The New England Journal of Medicine Jul 10, 2014. https://www.nejm.org/doi/10.1056/NEJMvcm1105612
- https://obgynkey.com/wp-content/uploads/2016/06/m_p9780071849081-ch014_f007.png
- Dinh H, Purcell SM, Chung C, Zaenglein AL. Pediatric Lichen Sclerosus: A Review of the Literature and Management Recommendations. J Clin Aesthet Dermatol. 2016 Sep;9(9):49-54. Epub 2016 Sep 1. PMID: 27878062; PMCID: PMC5110329.
- Orszulak D, Dulska A, Niziński K, Skowronek K, Bodziony J, Stojko R, Drosdzol-Cop A. Pediatric Vulvar Lichen Sclerosus-A Review of the Literature. Int J Environ Res Public Health. 2021 Jul 4;18(13):7153. doi: 10.3390/ijerph18137153. PMID: 34281089; PMCID: PMC8297112
- Dennin MH, Stein SL, Rosenblatt AE. Vitiligoid variant of lichen sclerosus in young girls with darker skin types. Pediatr Dermatol. 2018 Mar;35(2):198-201. doi: 10.1111/pde.13399. Epub 2018 Jan 4. PMID: 29314207.


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# References


- *Toilet paper within the vagina of a prepubertal child. (Reported in: Emans SJ, et al. Emans, Laufer, Goldstein's Pediatric & Adolescent Gynecology. 7th ed. Figure 14-5, page 185, Philadelphia, Wolters Kluwer, 2020)*
- Vilano, S. & Robbins, C. (2016). Common prepubertal vulvar conditions. *Current Opinion in Obstetrics and Gynecology, 28* (5), 359-365. doi: 10.1097/GCO.0000000000000309.
- https://www.contemporaryobgyn.net/view/how-to-identify-common-pediatric-vulvar-conditions
- Radswiki T, Walizai T, Rizk M, et al. Hemorrhagic ovarian cyst. Reference article, Radiopaedia.org (Accessed on 22 Sep 2025) https://doi.org/10.53347/rID-13081
- Dixon A, Le L, Silverstone L, et al. Adnexal torsion. Reference article, Radiopaedia.org (Accessed on 22 Sep 2025) https://doi.org/10.53347/rID-954
- Ayke J. Hermans, Kirsten B. Kluivers, Laura M. Janssen, Albert G. Siebers, Marc H.W.A. Wijnen, Johan Bulten, Leon F.A.G. Massuger, Sjors F.P.J. Coppus, Adnexal masses in children, adolescents and women of reproductive age in the Netherlands: A nationwide population-based cohort study,
- Gynecologic Oncology,Volume 143, Issue 1, 2016, Pages 93-97, ISSN 0090-8258, https://doi.org/10.1016/j.ygyno.2016.07.096.
- Adnexal Torsion in Adolescents: ACOG Committee Opinion No, 783. Obstet Gynecol. 2019 Aug;134(2):e56-e63. doi: 10.1097/AOG.0000000000003373. PMID: 31348225
- Amy E. Lawrence, Mary E. Fallat, Geri Hewitt, Paige Hertweck, Amanda Onwuka, Amin Afrazi, Christina Bence, Robert C. Burns, Kristine S. Corkum, Patrick A. Dillon, Peter F. Ehrlich, Jason D. Fraser, Dani O. Gonzalez, Julia E. Grabowski, Rashmi Kabre, Dave R. Lal, Matthew P. Landman, Charles M. Leys, Grace Z. Mak, R. Elliott Overman, Brooks L. Rademacher, Manish T. Raiji, Thomas T. Sato, Madeline Scannell, Joseph A. Sujka, Tiffany Wright, Peter C. Minneci, Katherine J. Deans, Jennifer H. Aldrink,. Understanding the Value of Tumor Markers in Pediatric Ovarian Neoplasms,Journal of Pediatric Surgery,Volume 55, Issue 1,2020,Pages 122-125,ISSN 0022-3468,https://doi.org/10.1016/j.jpedsurg.2019.09.062.
- Dasgupta R, Renaud E, Goldin AB, Baird R, Cameron DB, Arnold MA, Diefenbach KA, Gosain A, Grabowski J, Guner YS, Jancelewicz T, Kawaguchi A, Lal DR, Oyetunji TA, Ricca RL, Shelton J, Somme S, Williams RF, Downard CD. Ovarian torsion in pediatric and adolescent patients: A systematic review. J Pediatr Surg. 2018 Jul;53(7):1387-1391. doi: 10.1016/j.jpedsurg.2017.10.053. Epub 2017 Nov 16. PMID: 29153467
- ACOG Committee Opinion No. 760: Dysmenorrhea and Endometriosis in the Adolescent. Obstet Gynecol. 2018 Dec;132(6):e249-e258. doi: 10.1097/AOG.0000000000002978. PMID: 30461694.
- Jessica Y. Shim, Marc R. Laufer, Adolescent Endometriosis: An Update, Journal of Pediatric and Adolescent Gynecology, Volume 33, Issue 2, 2020 Pages 112-119, ISSN 1083-3188,https://doi.org/10.1016/j.jpag.2019.11.011.
- Shim, J. , Laufer, M. , King, C. , Lee, T. , Einarsson, J. & Tyson, N. (2024). Evaluation and Management of Endometriosis in the Adolescent. *Obstetrics & Gynecology, 143* (1), 44-51. doi: 10.1097/AOG.0000000000005448.
- Maslyanskaya S, Talib HJ, Northridge JL, Jacobs AM, Coble C, Coupey SM. Polycystic Ovary Syndrome: An Under-recognized Cause of Abnormal Uterine Bleeding in Adolescents Admitted to a Children's Hospital. J Pediatr Adolesc Gynecol. 2017 Jun;30(3):349-355. doi: 10.1016/j.jpag.2016.11.009. Epub 2016 Nov 27. PMID: 27903446.


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