437 Team: Obstetrics and Gynecology

Dysmenorrhea

Objectives:

- Define dysmenorrhea and distinguish primary from secondary dysmenorrhea
- Describe the pathophysiology and identify the etiology
- Discuss the steps in the evaluation and management options

References:

- Kaplan USMLE step 2 CK - Obstetrics and Gynecology
- Online Meded videos
- Team 435

Team members: Balqes alrajhi , layan alwatban .
Team leader: Ahad AlGrain .
Revised by: Sondos Alhawamdeh.

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Editing file link

PRIMARY DYSMENORRHEA

Definition:

Primary dysmenorrhea refers to recurrent, crampy lower abdominal pain, along with nausea, vomiting, and diarrhea that occurs during menstruation **in the absence of pelvic pathology**. It is the **most common gynecologic complaint** among adolescent girls.

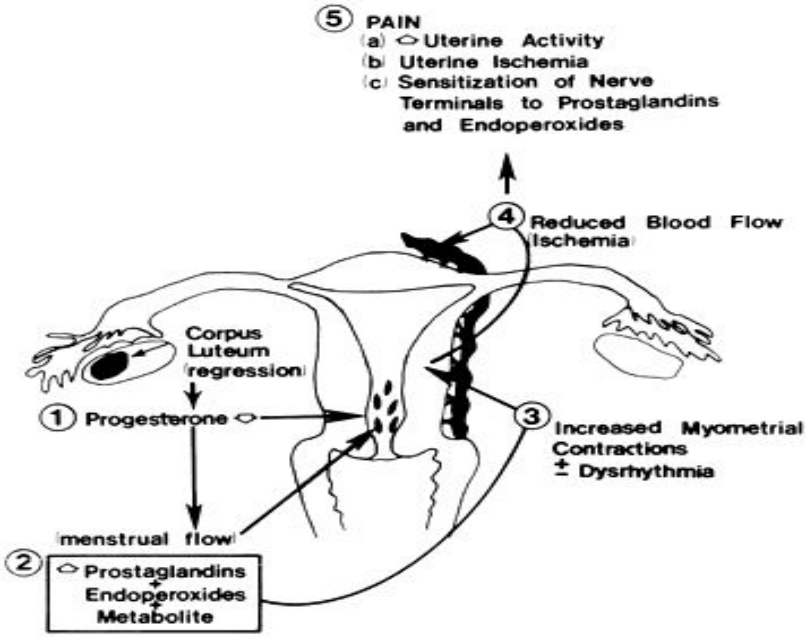
Characteristic:

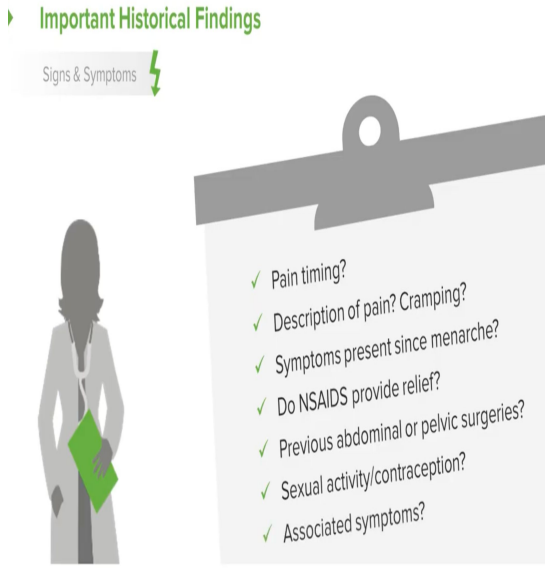
- Onset of pain generally does not occur until ovulatory menstrual cycles are established. Maturation of the hypothalamic-pituitary-gonadal axis leading to ovulation occurs in half of teenagers within 2 years postmenarche, and the majority of the remainder by 5 years postmenarche.
- Symptoms typically begin several hours prior to the onset of menstruation and continue for 1–3 days.
- Severity can be categorized by a grading system based on the degree of menstrual pain, presence of systemic symptoms, and impact on daily activities.

Pathogenesis :

Symptoms appear to be caused by excess production of endometrial **prostaglandin** F2α resulting from the spiral arteriolar constriction and necrosis that follow progesterone withdrawal as the corpus luteum involutes. The prostaglandins cause dysrhythmic uterine contractions, hypercontractility, and increased uterine muscle tone, leading to **uterine ischemia** that causes severe crampy lower abdominal pain.

- The effect of the prostaglandins on the gastrointestinal smooth muscle also can account for nausea, vomiting, and diarrhea via stimulation of the gastrointestinal tract



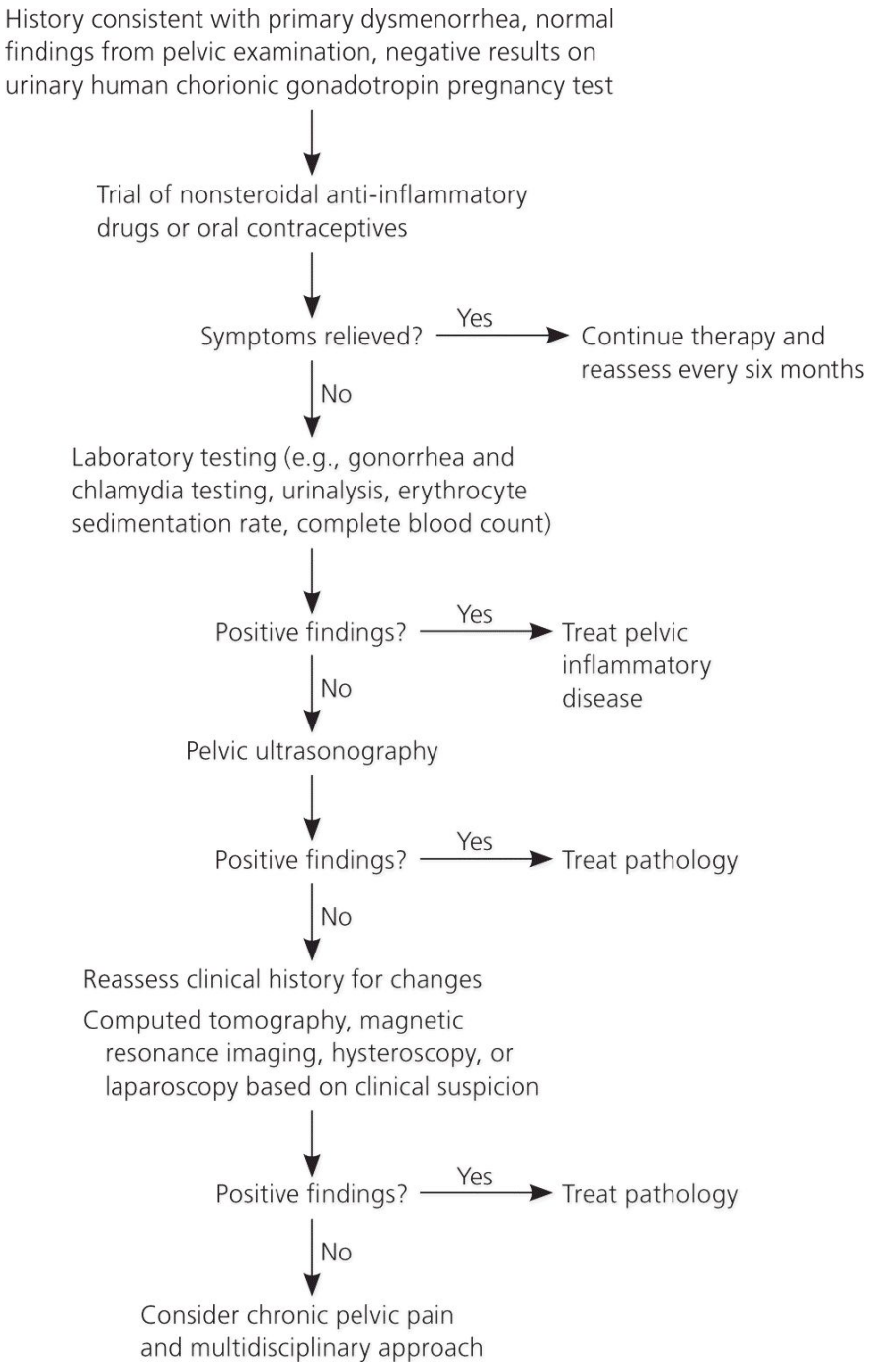


Diagnosis :

- Primary dysmenorrhea is a diagnosis of exclusion; conditions causing secondary dysmenorrhea must be ruled out.

Management :

- NSAIDs "first line"
- Oral contraceptives is the second choice.
- Heating pads
- Exercise
- Psychotherapy



SECONDARY DYSMENORRHEA

Definition:

Secondary dysmenorrhea refers to painful menstruation in the presence of pelvic pathology. It is more common among women in decades 4 and 5.

Causes:

- **Endometriosis (most common)**
- **Pelvic inflammatory disease (PID)**
- Intrauterine device (IUD)
- Uterine leiomyoma
- Adenomyosis
- Psychological factors
- Congenital mullerian anomaly
- Adhesion
- Ovarian cyst
- Uterine fibroid

The underlined dx are the one mentioned in the video

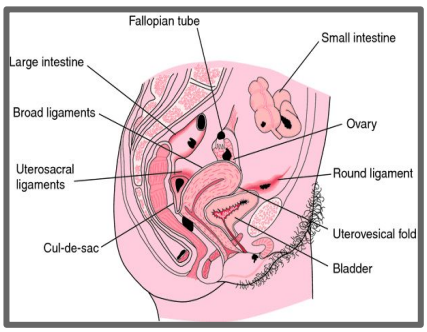
Management:

Treat the **underlying cause and** Symptomatic relief same as primary dysmenorrhea

ENDOMETRIOSIS:

Definition:

Endometriosis is a benign condition in which endometrial glands and stroma are seen outside the endometrial cavity. Although the etiology is not known, the most accepted theory of explanation is that of Sampson, which is **retrograde menstruation**.



- It is associated with increased risks of epithelial ovarian carcinoma, it is not a premalignant condition.
- The **most common site** of endometriosis is the **ovary**; because this is functioning endometrium, it bleeds on a monthly basis and can create adnexal enlargements known as endometriomas, also known as a chocolate cyst.A **chocolate cyst** is an ovarian **cyst** filled with old blood.
- The **second most common site** of endometriosis is the **cul-de-sac(**rectouterine pouch (the pouch of Douglas)),

Symptoms :

Pelvic-abdominal pain,Painful intercourse (**dyspareunia**) is often experienced along with painful bowel movements (dyschezia).

Examination:

- Pelvic tenderness is common.
- A fixed, retroverted uterus is often caused by cul-de-sac adhesions.
- Uterosacral ligament nodularity is characteristic.
- Enlarged adnexa may be found if an endometrioma is present.

Labs :

- WBC and erythrocyte sedimentation rate (ESR) are normal.
- CA-125 may be elevated.
- Sonogram will show an endometrioma if present.

Diagnosis:

Diagnosis of endometriosis is made by laparoscopy. There is a suspicion of the disease based on history and physical exam; however, laparoscopic identification of endometriotic nodules or endometriomas is definitive.

Management:

seeks to prevent shedding of the ectopic endometrial tissue, thus decreasing adhesion formation and pain.

SECONDARY DYSMENORRHEA II

Suspected condition	Physical examination findings	Investigations required
Endometriosis: *deep dyspareunia, dysuria, dyschezia, and subfertility*	fixed or retroverted uterus or reduced uterine mobility, adnexal masses, and uterosacral nodularity.	▪ Transvaginal and pelvic ultrasonography ▪ laparoscopy with biopsy and histology is the preferred diagnostic test
Pelvic inflammatory disease: *History of lower abdominal pain in sexually active patients*	cervical motion tenderness, uterine tenderness, and/or adnexal tenderness, fever and abnormal cervical or vaginal mucopurulent discharge.	▪ Saline microscopy of vaginal fluid may show organism. ▪ elevated inflammatory markers

Approach for dysmenorrhea

History:

Ask questions about the pain

Site: lower abdominal, suprapubic

Associated Symptoms:

fatigue, lower back pain, headache

Severity:

how much it interferes with daily activity?

Physical exam :

- Fibroids: irregular enlargement of the uterus
- Adenomyosis: enlarged, boggy* uterus
- Endometriosis: painful uterosacral nodules, restricted motion of the uterus
- Screening for infection – Gonorrhea,Chlamydia

if appropriate treatment fails to relieve symptoms within 3 months, pelvic exam and additional evaluation (such as ultrasound, hysteroscopy or laparoscopy) is needed to rule out a secondary cause such as endometriosis.

	Primary dysmenorrhea	Endometriosis	Adenomyosis	Endometritis	Endometrial hyperplasia/carcinoma	Uterine leiomyoma

Clinical features	• Spasmodic, **crampy pain** in the lower abdominal and/or **pelvic midline**	• **Chronic pelvic pain** that worsens **before** the onset of menses
		• **Dyspareunia**
		• Infertility
		• Rectovaginal tenderness and palpable adnexal masses (**chocolate cysts**) on palpation
			• Dysmenorrhea
			• **Menorrhagia**
			• Chronic pelvic pain
			• **Uniformly enlarged uterus**
				• Lower abdominal/pelvic pain
				• **Abnormal bleeding**
				• **Fever** (if peritonitis or pelvic abscesses develop)
				• Infertility
					• **Abnormal uterine bleeding**
					  • Postmenopausal: any vaginal bleeding, including spotting or staining
					  • Perimenopausal/premenopausal: metrorrhagia, menometrorrhagia
						• **Hypermenorrhea, menorrhagia, metrorrhagia, dysmenorrhea**
						• **Back/pelvic pain**
						• Urinary tract or bowel symptoms
						• Dyspareunia
						• Infertility

Treatment	• Symptomatic: NSAIDs, topical heat
	• Hormonal contraceptives (e.g., combined oral contraceptive pill, IUD with progestogen)
		• Pharmacologic
		  • Combination oral contraceptive pills (first-line)
		  • GnRH analogs, danazol, NSAIDs, progestins
		• Surgical
		  • Conservative: excision, cauterization, and ablation of lesions; removal of adhesions
		  • Definitive: total abdominal hysterectomy (TAH)/bilateral salpingo-oophorectomy (BSO)
			• Pharmacologic
			  • NSAIDs (first-line)
			  • Oral contraceptive pills, progestins
			• Surgical
			  • Conservative: hysteroscopy → endometrial ablation/resection
			  • Definitive: hysterectomy
				• Mild to moderate cases (outpatient treatment): IM ceftriaxone (single dose) + PO doxycycline (for 14 days)
				• Severe cases (inpatient treatment)
				  • First-line: IV clindamycin + IV gentamicin
				  • Alternative: IV ampicillin-sulbactam + PO doxycycline
					• Surgical
					  • Total hysterectomy with bilateral salpingo-oophorectomy (TAH/BSO)
					  • Additional advanced radical hysterectomy and removal of the upper vagina (according to Wertheim-Meigs)
					• Medical
					  • Progestins: in early stage endometrial carcinoma
					  • Radiotherapy and/or chemotherapy
						• Treat only if symptomatic
						• Pharmacologic
						  • GnRH agonists, progestins, levonorgestrel-releasing IUD
						  • NSAIDs
						  • Antifibrinolytics
						  • Androgenic agonists (e.g., danazol)

Teaching case (video case)

A 14 year-old G0 female presents with severe dysmenorrhea for the past six months. She began menstruating 10 months ago. Her first two periods were pain-free and 2 months apart. Since then, she has menstruated every 28 days,and has associated nausea, diarrhea and headaches. She misses school due to the pain. She says that she gets partial relief by using 3-4 Advil, two or three times a day during her period. You speak to the patient without her mother about the possibility of sexual activity, which she denies. She is a good student, is involved in sports and afterschool programs. She denies use of drugs or alcohol. The review of systems, past medical history and social history are noncontributory. The patient's mother has endometriosis. Physical examination: She is afebrile. Abdominal exam is benign. Because the patient is virginal, pelvic examination is deferred. Abdominal pelvic ultrasound reveals a normal size anteflexed uterus and normal sized ovaries with multiple small subcentimeter follicles. There are no adnexal masses or tenderness. Laboratory: Urinalysis is negative for blood, nitrites and leukocytes.

Questions

1. Define and distinguish between primary and secondary dysmenorrhea.

-Primary dysmenorrhea: Recurrent, crampy lower abdominal pain, along with nausea, vomiting, and diarrhea that occurs during menstruation in the absence of pelvic pathology.

- Begins with the onset of ovulation
- Present in up to 90% of teenagers.
- Due to an excess of prostaglandin F2Alpha (PGF2a) production in the endometrium This potent smooth-muscle stimulant causes intense uterine contractions and resulting pain.
- Systemic effects include nausea, fatigue, irritability, dizziness, diarrhea and headache in up to 45% of patients.
- There are no abnormal physical findings in the gynecological exam for primary dysmenorrhea.

-Secondary dysmenorrhea: painful menstruation in the presence of pelvic pathology.

- Extrauterine causes:

Endometriosis (endometrial glands outside the uterus), Tumors (benign or malignant) or cysts, Pelvic Inflammatory Infection, Adhesions, Psychogenic (rare).

- Intramural causes: Adenomyosis (endometrial glands in the wall of the uterus), Leiomyomata (fibroids/benign tumors in the wall of the uterus), Intrauterine causes, Leiomyomata, Polyps, Endometritis, Cervical stenosis.

You can distinguish by Hx, PE, and investigation.
No Hx of PID, sexual activity. She's a young girl so less likely to have fibroids and adenomyosis.
PE: vital signs, examine the abdomen to make sure its soft, no tenderness, no masses.
Then complete with blood investigation to make sure it's normal then go to pelvis ultrasound to make sure there are no signs of secondary causes like: fixed uterus, chocolate cyst (blood collection), etc.. . This all would be in favor of primary dysmenorrhea.

2. What is the differential diagnosis and most likely diagnosis?

DDx:. Divide it into:
gynecological: Endometriosis, fibroid, PID. "which we excluded by PE"
non-gynecological: pelvic pain due to UTI, IBD, etc..

-Primary dysmenorrhea is most likely; based on the onset of pain and associated systemic symptoms as well as the partial response to NSAIDs, and the absence of secondary dysmenorrhea risk factors (except for family Hx of endometriosis) and signs.

-Secondary dysmenorrhea with underlying endometriosis is less likely; based on the normal physical examination, and the short interval since menarche. However, the patient may have an increased risk of endometriosis due to her mother's history. Most causes of secondary dysmenorrhea increase with age such as structural abnormalities (i.e. leiomyomata, polyps).

3. What additional evaluation is needed?

First of all we did all the simple/ non-invasive test (CBC, US) and we excluded secondary dysmenorrhea at this stage but If treatment failed for 3 months further/invasive investigation (in this case laparoscopy) should be ordered to exclude secondary causes that could be the reason of treatment failure.
Laparoscopy: looking for endometrial spots.

4. How would you manage the diagnoses in #1 above?

-Primary dysmenorrhea:

- (NSAIDs) are first line treatment. NSAIDs are prostaglandin-synthetase inhibitors.

"Heat pads and exercises help"

- Combination hormonal contraceptives (pills, ring or patch) or progesterone-only contraceptives (progesterone injection or implant) provide effective contraception and improve symptoms of dysmenorrhea by inhibiting ovulation and progesterone stimulation of prostaglandin production.Within three months 90% of women experience improvement.

"Works By stabilizing estrogen and progesterone levels preventing shooting levels, therefore prostaglandins will not be produced excessively in response to excessive progesterone".

-Secondary dysmenorrhea:
Pain management and treating underlying cause.

- One of the most common causes of secondary dysmenorrhea is endometriosis, found in at least 10% of premenopausal women and 71-87% of women with chronic pelvic pain.
- Treatment includes continuous combined hormonal contraception (see primary), medical induction of menopause with a GnRH agonist (leuprolide), laparoscopic surgery for removal of endometriosis, fibroids or adhesions, or hysterectomy.

Q1.How to Dx :

- **PID**

- cervical swab
-urethral/vaginal swab
-rectal swab
-lastly laparoscopy for any fluid collection, dilated tubes, abscess (acute PID).

- **Fibroids?**

By seeing the fibroid by US

- **Adenomyosis?**

Also by seeing it by US

Q2.Do we go for laparoscopy (after doing an US) for every patient?

No, unless ultrasound showed abnormality eg; collections.
If US was normal then go for simple measures like NSAIDs +- heat pads, exercises.
If it fails you then go ahead with a laparoscope looking for a secondary cause that wasn't apparent in Hx, PE, and investigations including US.

Q3 .What will happen if you missed endometriosis dx?

infertility due to severe adhesions hence, blocked tubes (extra: hence ectopic pregnancy).(primary dysmenorrhea is a Dx of **exclusion**)

Extra notes From DR