Many women’s periods are accompanied by a lot of poop, an alarming lack of poop, or, in some kind of cruel joke, alternating segments of both.

– Susan Rinkunas
“What is this Intestinal Chaos During My Period?”
Tales from the Internet

• “When I was 17 my appendix ruptured because I thought I was having period cramps and didn’t go to the hospital…”

Why We Care

50%-90% of young women

• High potential for daily interference
  – Leading cause of recurrent short-term school absenteeism for adolescent girls
  – 12% lose days of school and work

• Associated Symptoms & increased risk of:
  – Premenstrual syndrome & premenstrual dysphoric disorder
  – Anxiety and depression
  – Decreased quality of life
  – Negative effect on physical and psychosocial functioning

• Long-term sequela
  – Some causes of dysmenorrhea can progress if left untreated
  – Infertility
  – Chronic pelvic pain

ACOG Committee Opinion: Dysmenorrhea and Endometriosis in Adolescents
What Is It?

• Most adolescents have primary dysmenorrhea
  – Painful menstruation in the absence of pelvic pathology

• Secondary dysmenorrhea is painful menses due to pelvic pathology or a recognized medical condition
  – Endometriosis is the leading cause of this

Primary Dysmenorrhea

• Painful spasmodic cramping in the lower abdomen just before and/or during menstruation in the absence of any discernable macroscopic pelvic pathology

• Ovulatory cycles

• Typically occurs in adolescence, at or shortly after menarche
  – 6-24 months

Dawood, 1987, 2006
Etiology/Pathophysiology

• Overproduction of uterine prostaglandins (PGs)
• Withdrawal of progesterone during luteal phase of ovulatory cycle leads to production of prostaglandins
• Released from disintegrating cells during endometrial sloughing
  – Increased myometrial hypercontractility
    • Increased ischemia and hypoxia of uterine muscle & pain
• PGs have a range of biological effects, via conversion to leukotrienes
  – Pain, inflammation, body temperature and sleep regulation
  – Nausea, vomiting, headache, dizziness

STUDY: women with painful cycles have doubled PGF2a activity in their menstrual fluid and higher levels of urinary leukotriene levels.

ACOG Committee Opinion: Dysmenorrhea and Endometriosis in Adolescents
Iacovides, S. et al; “What We know about Primary Dysmenorrhea today” Hum Reprod Upd Vol.21, No.6

Secondary Dysmenorrhea

• Painful menses due to pelvic pathology or a recognized medical condition
  – Most common cause is endometriosis

• Other etiologies:
  – Adenomyosis
  – Infection
  – Myomas
  – Mullerian Anomalies/Obstructive Reproductive Tract Anomalies
  – Ovarian Cysts
Primary Dysmenorrhea Risk Factors

- Smoking
- Early age of menarche
  - < 12yo
- Longer and heavier menstrual flow
- Alcohol consumption
- Family history of dysmenorrhea
  - Genetic vs conditioned behavior
- Age
  - < 30yo
- Nulliparity

Primary Dysmenorrhea Symptoms

- Beginning just before or at the start of menstruation
- Pain typically lasts 8-72h
  - Most severe during 1st or 2nd day of menstruation
  - May radiate to back and thighs

- Systemic symptoms
  - Headache, nausea, vomiting, diarrhea, fatigue, back pain and insomnia

Iacovides, S. et al. “What We know about Primary Dysmenorrhea today” Hum Reprod Update Vol 21, No 6
Iacovides, S. et al; “What We know about Primary Dysmenorrhea today” Hum Reprod Vol.21, No.6

**Initial Evaluation: History Taking**

- Medical
- Gynecologic
- Menstrual
- Family
- Psychosocial

Pelvic exam only if concerns for sexually transmitted infection are present
- External exam:
  - Determines sexual maturity rating, presence of normal perineal opening, signs of trauma
- Speculum exam:
  - Looking for involvement of anatomic conditions
  - Outflow obstruction, vaginal or cervical discharge
- Bimanual exam:
  - Uterine tenderness, mobility, size and texture
  - Masses (uterine, cervical or adnexal)
  - Palpation of adnexa and uterosacral ligaments to assess for tenderness, masses or nodularity

Recto-abdominal exam can provide similar information in a non-sexually active female patient

Gynecologic and Menstrual History

Menstrual History

- Age at menarche
- History & characteristic of menstrual cycles
- Any therapies that may have been used in the past and the response to these
- Family history of dysmenorrhea

Sexual History

- History of sexual activity
- Age of coitarche
- Numbers of prior sexual partners
- History of any sexually transmitted infections
- Presence of dyspareunia
- Contraceptive use, presently and in the past

Review of Systems

Probe for any systemic symptoms or symptoms that may indicate a pathologic cause of menstrual pain

- Generalized systemic symptoms, such as fatigue, dizziness, or premenstrual physical or emotional symptoms
- GI symptoms, such as vomiting, diarrhea, pain on defecation, (these may be present in primary dysmenorrhea or may be seen in endometriosis
- GU symptoms
- Musculoskeletal symptoms, particularly in the him and pelvic area (to rule out possible trauma or tumor as cause of pain
- Psychosocial history (to evaluate for substance abuse, especially tobacco smoking, and stress, anxiety, or history of sexual abuse)

**Initial Evaluation: Cultural Norms**

- Be aware of cultural differences in attitudes regarding menstruation
  - May affect level of comfort adolescent has in discussion of menstrual-related symptoms

- Take note of parental modeling
  - May influence how an adolescent reports and perceives pain as well as her anxiety regarding how pain is experienced

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**Medical History**

- **History of primary dysmenorrhea**
  - No previous diagnosis of pelvic pathology
  - Menstruation-associated cramping in lower abdomen

- **Pain**
  - Onset: 6-24 months after menarche
  - Has a predictable temporal pattern (just before/and or during menstruation)
  - Typically lasts for 8-72 hours
  - May radiate to back and thighs
  - May be accompanied by systemic symptoms eg, diarrhea, vomiting

- **No History of Primary Dysmenorrhea**
  - Pain onset: >2 years after menarche
  - Irregular menstrual cycles
  - Pain during non-menstruation phases of the menstrual cycle
  - May have other symptoms eg, menorrhagia and intermenstrual bleeding

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**Physical Examination**

- **No pelvic pathology**
- **Pelvic Pathology**

- **Primary dysmenorrhea**

- **Secondary dysmenorrhea**

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Iacovides, S. et al; “What We know about Primary Dysmenorrhea today” Hum Repr Upd Vol.21, No.6
Primary Dysmenorrhea Treatment

Goals Include:

- Symptom relief
- Suppression of disease progression
- Protection of future fertility

- Medical, complementary & alternative therapies are options
- Most will respond well to empiric treatment with NSAIDs or hormonal suppression or both

First Line:
Nonsteroidal Antiinflammatory Agents (NSAIDs)

- NSAIDs interrupt cyclooxygenase-mediated prostaglandin production
- NSAIDs are significantly better than nothing in providing pain relief
- Patient education is essential
  - High prevalence of self-directed medication use
  - High potential for sub-therapeutic treatment due to incorrect interval dosage and timing
  - School personnel education is also essential
Which One is Better?

The superiority of any individual NSAID in regard to safety or efficacy has not been demonstrated

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>ibuprofen</td>
<td>800 mg initially, followed by 400-800 mg every 8 hours as needed</td>
</tr>
<tr>
<td>naproxen sodium</td>
<td>440-560 mg initially, followed by 220-560 mg every 12 hours as needed</td>
</tr>
<tr>
<td>meloxicam</td>
<td>50 mg initially, followed by 25 mg every 6 hours as needed</td>
</tr>
</tbody>
</table>

ACOG Committee Opinion: Dysmenorrhea and Endometriosis in Adolescents

Opioids (including tramadol) should not be used

How Long Does it Take?

- Double-blind, placebo controlled, single-dose cross over study
- 18 patients with dysmenorrhea
- The effectiveness of NSAIDs is in tissue concentration
- With NSAIDs: Intrauterine pressure declined 20-56% over 3-4 hours
- With placebo: all parameters increased 6-35%

1987, Roger P. Smith
NSAIDs: How to Take?

Onset of Menses: 1-2 days
Onset of bleeding: 2-3 days

- Take with food and increase fluid intake
- 15% of women will not respond to, or are intolerant of PG-inhibitors

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First Line: Hormonal Agents

- If a trial of NSAIDs has not provided adequate relief
  - NSAIDs can be continued or added
- Prevents endometrial proliferation and ovulation
  - Decreases leukotriene and prostaglandin production
  - Decreases volume of menstrual fluid, PG synthesis and pain
First Line: Hormonal Agents

- Combined oral contraceptives or progesterone only pill
- Contraceptive patch
- Vaginal Ring
- Intramuscular or subcutaneous depot medroxyprogesterone acetate
- Single-rod contraceptive progestin implant
- Levonorgestrel Intrauterine Device

Choosing one method over another should be patient driven.

Cyclic or Continuous?

- Continuous regimens
  - More rapid onset of pain reduction

- Long-term success with both is possible
Continuous:
Combined Hormonal Contraception

**Combination Oral Contraceptive Pills**

1. 42, 63 or 84 days of continuous hormones + 7d hormone-free interval
2. 42, 63 or 84 days of continuous hormones + 7d low dose ethinyl-estradiol-only interval
3. Continuously until bleeding occurs, then begin hormone-free interval
4. Continuously through bleeding


**Transdermal Patch**

- norelgestromin 6mg/ethinyl estradiol 0.75mg
  - For those that find daily pills challenging
  - Use with caution
    - Systemic estrogen levels are 1.6x higher than low dose COC pills
    - 2011 US FDA Black Box Warning: increased VTE risk
  - Rarely a first-line choice for extended cycling


**Vaginal Ring**

- etonogestrel 120 ug/ethinyl estradiol 15 ug
  - The longer the duration of continuous hormones, the greater the unscheduled bleeding
  - 28d vs 49d cycle
    - 3 vs 5d of unscheduled bleeding within the first 3 months
  - For those with poor pill adherence or multiple other medications

van den Heuvel MW, et al. “Comparison of ethinylestradiol pharmacokinetics in three hormonal contraceptive formulations: the vaginal ring, the transdermal patch and an oral contraceptive” Contraception (2005)
### Progesterone Only

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
</table>
| Norethindrone acetate (progesterone only) | 5mg, PO, continuously  
As effective as cyclic combined hormonal contraceptive  
Decreases dysmenorrhea in 18-23yo  
Not approved by US Food and Drug Administration as a contraceptive |

<table>
<thead>
<tr>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Single-rod contraceptive progestin implant</td>
<td>82% with Nexplanon</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Levonorgestrel Intrauterine Device</td>
<td>92% improvement in pain with LNG-IUD</td>
</tr>
</tbody>
</table>

### Complementary and Alternative Therapies

**Promising, though data is limited**
- Exercise and heat treatment  
  - As effective as Ibuprofen and more effective than acetaminophen
- Dietary supplements  
  - Ginger, zinc, vitamin B1, b6, D  
  - Weekly vitamin D to decrease prevalence of dysmenorrhea in 14yo, after 9 weeks of use  
  - Other studies show limited effect

**Not first line, but improvement has been demonstrated**
- Transcutaneous electrical nerve stimulation
- Acupuncture
- Herbal preparations
- Yoga

**Safety and efficacy data on herbal treatments are unclear**

Surgical approaches are NOT recommended for primary dysmenorrhea.

Ablation and hysterectomy should not be considered in adolescents.

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Primary Dysmenorrhea: Follow-Up

• Response to treatment supports the diagnosis

If no improvement within 3-6 months:
  • Evaluate for treatment adherence
    – Conflict with parents regarding medication use
    – Forgetfulness, disorganization, financial costs, pharmacy access
    – Social support and peer relations

• Consider possible secondary causes

When To Refer
Secondary Dysmenorrhea Symptoms

- Pain that originates from a number of identifiable pathological conditions
  - Endometriosis
  - Adenomyosis
  - Fibroids (myomas)
  - Pelvic Inflammatory Disease

- Onset can occur at any time
  - >2yrs post-menarche
  - May be accompanied by other GYN symptoms

- Timing and intensity can be constant or diffuse
  - May not necessarily be associated with menses
When to Suspect Secondary Amenorrhea

- Severe dysmenorrhea immediately after menarche
- Progressively worsening dysmenorrhea
- Abnormal uterine bleeding
- Midcycle or acyclic pain
- Lack of response to empiric medical treatment
- Family history of endometriosis
- Renal anomaly or other congenital anomalies
  - Spine, Cardiac or GI
- Dyspareunia
- Infertility

A more comprehensive evaluation assessing for potential GI, urologic, musculoskeletal and psychologic etiologies of pain should be performed.

Evaluation of Suspected Secondary Dysmenorrhea

Consider pelvic imaging with ultrasonography

Looking for:
- Obstructive reproductive tract anomalies
- Uterine myomas
- Adnexal masses (endometriomas)

Nonovarian endometriotic lesions cannot be seen via ultrasonography.
### Evaluation of Suspected Secondary Dysmenorrhea

<table>
<thead>
<tr>
<th>Condition</th>
<th>Clinical Features</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary dysmenorrhea</td>
<td>• Recurrent, crampy suprapubic pain occurring at start of menses lasting 2-3 days often accompanied by systemic symptoms</td>
<td>• Diagnosis clinical&lt;br&gt;• Should rule out pregnancy</td>
</tr>
<tr>
<td>Endometriosis</td>
<td>• Cyclic (can be noncyclic) pain with menses&lt;br&gt;• Associated with deep dyspareunia, dysuria, dyschezia, and fertility problems&lt;br&gt;• Decreased mobility of uterus on examination, adnexal masses and uterosacral nodularity</td>
<td>• Transvaginal and pelvic ultrasound highly accurate for bowel and ovarian endometriomas&lt;br&gt;• MRI may be indicated for deep infiltrating endometriomas&lt;br&gt;• Laparoscopy with biopsy is preferred diagnostic test</td>
</tr>
<tr>
<td>Pelvic inflammatory disease</td>
<td>• Lower abdominal pain in sexually active female&lt;br&gt;• Abnormal findings on examination: cervical motion tenderness, uterine and adnexal tenderness, cervical or vaginal mucopurulent discharge&lt;br&gt;• May have systemic signs, temperature &gt;38.3°C</td>
<td>• Cervical infection with Chlamydia trachomatis or Neisseria gonorrhoeae confirmatory&lt;br&gt;• May have elevated erythrocyte sedimentation rate or C-reactive protein&lt;br&gt;• Transvaginal ultrasound usually not indicated</td>
</tr>
<tr>
<td>Adenomyosis</td>
<td>• Usually associated with menorrhagia and intermenstrual bleeding&lt;br&gt;• Enlarged, tender, boggy uterus on examination</td>
<td>• Transvaginal ultrasound or MRI will detect endometrial tissue within the endometrium</td>
</tr>
</tbody>
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### Evaluation of Suspected Secondary Dysmenorrhea

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<tbody>
<tr>
<td>Leiomyomata</td>
<td>• Cyclic pelvic pain usually with menorrhagia&lt;br&gt;• Occasional dyspareunia</td>
<td>• Transvaginal ultrasound will detect fibroids</td>
</tr>
<tr>
<td>Ectopic pregnancy</td>
<td>• History of preceding amenorrhea, abnormal uterine bleeding&lt;br&gt;• Acute, severe lower abdominal pain&lt;br&gt;• Cramping on affected side&lt;br&gt;• May present with blood loss, hypovolemia</td>
<td>• Positive urine human chorionic gonadotropin pregnancy test&lt;br&gt;• Pelvic or transvaginal ultrasound will show lack of intrauterine gestational sac or extrauterine gestational sac</td>
</tr>
<tr>
<td>Interstitial cystitis</td>
<td>• Suprapubic pain, usually noncyclic, with urinary symptoms (frequency, urgency)&lt;br&gt;• Radiation of pain to groin and rectum&lt;br&gt;• Normal pelvic examination</td>
<td>• Urinalysis&lt;br&gt;• Cystoscopy with biopsy showing bladder wall mucosal irritation</td>
</tr>
<tr>
<td>Chronic pelvic pain</td>
<td>• History of noncyclic pain for at least 6 months&lt;br&gt;• May radiate toward vagina or rectum&lt;br&gt;• May be worsened by anxiety; often associated with dyspareunia, pain on defecation&lt;br&gt;• Burning pain unilaterally on rectal examination may suggest pudendal nerve entrapment</td>
<td>• Pelvic MRI along pudendal nerve to assess nerve and surrounding structures&lt;br&gt;• With negative workup, diagnosis may be based on clinical history</td>
</tr>
</tbody>
</table>

i bleed
every month.
but
do not die.
how am i
not
magic.

– the lie

Nayyirah Waheed “Salt”