Pelvic Pain in Women

Brett Worly, MD, MBA, FACOG
Clinical Professor
Learning Communities Program Director
Department of Obstetrics & Gynecology
The Ohio State University

MedNet21
Center for Continuing Medical Education

The Ohio State University
Wexner Medical Center

Objectives

- **Understand the diagnosis and management of acute and chronic pelvic pain.**
- **Generate a likely differential diagnosis for women with Acute and Chronic pelvic pain.**
- **Differentiate and treat pelvic pain unrelated to endometriosis.**
- **Develop medical/surgical strategies to diagnose and treat women with endometriosis pain.**

Pelvic Pain

- **Acute- intense, sudden onset, sharp rise, short course Inflammatory, infectious, anoxic or traumatic etiology**
- **Cyclic- Association with the menstrual cycle, Mittleschmerz or dysmenorrhea**
- **Chronic- greater than 6 months duration, located in anatomic pelvis, severe enough to cause functional disability or necessitating medical care**

All of the following factors are barriers to accurate diagnosis of CPP in women except

A. Diagnostic possibilities are broad and imprecise
B. Endometriosis is often present but not the cause of the problem in many women
C. Women with endometriosis typically do not have access to health care
D. Women often have had many previous treatments which can confuse the clinical picture

Prevalence- Chronic pelvic pain

- 5.7-26% of women will have chronic pelvic pain worldwide
- 8-21% have dyspareunia
- 16.8-81% have dysmenorrhea
- Prevalence is for CPP patients with
  - Bladder Pain Syndrome is 11-97%
  - Endometriosis 28-93%
  - IBS 38.5%
  - Musculoskeletal pain in 50-90%

ACOG 2020.
JAMA 2021.

Neurological Modulators of Pain

Adverse Childhood experiences and trauma
Psychological distress, disorders
Neurological, neurohumoral

Neurohumoral	Central- magnifies pain
Prostaglandins	Norepinephrine
Vasoactive Intestinal Peptide	5HT
Substance P	GABA
Endorphins	Endorphins

JAMA 2021.

Objectives

- Understand the diagnosis and management of acute and chronic pelvic pain.
- Generate a likely differential diagnosis for women with Acute and Chronic pelvic pain.
- Differentiate and treat pelvic pain unrelated to endometriosis.
- Develop medical/surgical strategies to diagnose and treat women with endometriosis pain.

Differential Diagnosis of Pelvic Pain

Visceral
- **Obstetric/Gynecologic**- adenomyosis, adnexal mass, chronic PID, endometritis, endometriosis, leiomyoma, ovarian remnant syndrome, adhesive disease, vestibulitis, vulvodynia
- **Gastrointestinal-** Celic disease, colorectal cancer and/or therapy, diverticular colitis, IBS, IBD
- **Urologic**- Bladder cancer and therapy, chronic UTI, Bladder Pain Syndrome, urethral diverticulum

Neuromusculoskeletal - fibromyalgia, myofascial syndromes (coccydynia, musculus levator ani syndrome), postural syndrome, abdominal wall syndromes (muscular injury, trigger point, neurologic (abdominal epilepsy, abdominal migraine, neuralgia, neuropathic pain)

Psychosocial - abuse, depressive disorders, anxiety disorders, somatic symptom disorders, substance use disorders

Evaluation of Chronic Pain

History-

Location: "Put a finger on it"
Radiation
Severity: Visual analog scale, "0-10"
Aggravating/ alleviating factors- meds, stress reduction, heat/ice, position change, activity, menstrual cycle
Effects of menstrual cycle, stress, work, exercise, intercourse, orgasm

Evaluation (Cont.)

- Current and past psychological history with psychosocial focus
- Abuse - physical, sexual, emotional abuse
- History of psychiatric hospitalization, suicide attempts
- Substance Use or Dependency
- Attitude toward pain and resultant behaviors

Evaluation of Chronic Pain (cont.)

- Duration - How long does it last? When did it start? Prior evaluation? Meds, Op Notes or Path reports?
- Characteristics - Cramping, aching, stabbing, burning, tingling, itching
- Social and Occupational context of pain
- Temporal - time of day/menstrual cycle
- Context of pain initiation

Systems Based Questions

- Genital - abnormal vaginal bleeding, discharge, dysmenorrhea, dyspareunia, infertility
- Enterocoelic - constipation, diarrhea, flatulence, hematochezia, relationship with bowel movements
- Musculoskeletal/ Neuropathic- trauma, exercise, postural changes
- Urologic - urgency, frequency, nocturia, dysuria, incontinence, hematuria

Physical Exam

- Gait, posture, mood affect, demeanor, mobility, posture
- Abdominal and lumbosacral areas
- External genitalia- Q tip test
- Carnett test, FABER test
- Standing exam- hernias and prolapse

JAMA 2021

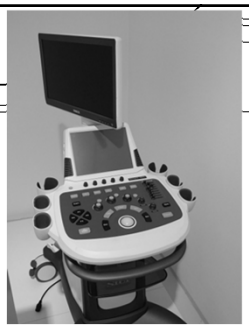
Pelvic exam

- External female genitalia
- Single digit palpation of pelvic floor muscles (levator ani, obturator, and coccygeus)
- Check vaginal walls, uterosacral ligaments, cervix, uterus, adnexa
- If tolerated, speculum exam can be performed to visualize cervix, check for vaginal discharge
- Vaginitis and sexually transmitted infection swabs as indicated

JAMA 2021

Tests/ Labs

- Pregnancy test
- Urinalysis, Urine Culture
- Chlamydia/ gonorrhea
- **Transvaginal ultrasound**
- Pelvic Floor Physical Therapy
- Colonoscopy
- Cystourethroscopy
- Pain diary
- Diagnostic laparoscopy
- Endometrial biopsy



JAMA 2021

Treatment

Hormonal contraceptives, GnRH agonists/ antagonists
Psychology - cognitive behavioral therapy, Sex therapy
Exercise, sleep
Others: SSRI (venlafaxine), SNRIs (duloxetine), tricyclic antidepressants (nortriptyline), gabapentin
Trigger point injections
Surgery - lysis of adhesions (no benefit), removal of endometriosis, hysterectomy, bilateral oophorectomy
Opioids are not recommended

JAMA 2021

Common symptoms associated with Irritable Bowel Syndrome include all of the following except…

A. Blood in the stool
B. Change in the frequency of stool
C. Change in the consistency of stool
D. Relief of pain with defecation

Objectives

- Understand the diagnosis and management of acute and chronic pelvic pain.
- Generate a likely differential diagnosis for women with Acute and Chronic pelvic pain.
- Differentiate and treat pelvic pain unrelated to endometriosis.
- Develop medical/surgical strategies to diagnose and treat women with endometriosis pain.

Irritable Bowel Syndrome

- **Rome IV criteria- Symptoms for at least 6 months, with recurrent abdominal pain on average at least one day per week in the last 3 months, associated with 2 or more:**
  1. **Pain related to defecation**
  2. **Change in stool frequency**
  3. **Change in stool form**

JAMA 2021

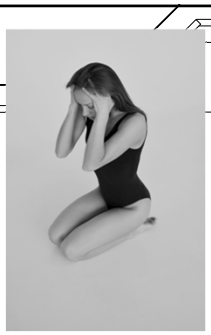
IBS Treatments

- **Behavioral modification - smoking cessation, stop chewing gum, caffeine, soda, lactose, sorbitol, and fructose, stress management, reduce dairy, gas producing, and high-fat foods, probiotics, low-FODMAP diet, CBT**
- **Meds-**
  - **Constipation: Laxatives, fiber, linactolide, lubiprostone, plecanatide**
  - **Diarrhea: loperamide, eluxadoline, bile acid binders**
  - **Other medications: Dicyclomine, TCA, SSRI, antibiotics (rifaximin)**

An 18 year old woman has had 2 years of chronic pelvic pain that she describes as intermittent left lower quadrant pain often followed by diarrhea. She has occasional problems with constipation. GnRH agonist treatment resulted in a temporary decrease in her symptoms. She most likely has…

A.Endometriosis
B.Irritable Bowel Syndrome
C.Chronic Depression
D.Abdominal wall pain
E.Interstitial Cystitis

Bladder Pain Syndrome or Interstitial Cystitis



Bladder pain syndrome

GAG layer is disrupted by mast cell release
disabling dysuria, frequency, urgency, nocturia, hematuria, pain with full bladder, timing variable, dyspareunia

Treatment options: Diet modification, TCA (amitryptiline), pentosan polysulfate, antihistamines, bladder instillations

JAMA 2021

A 22 year old woman has had 4 years of worsening chronic pelvic pain described as daily sharp suprapubic pain associated with urinary urgency. The pain is worse during menses. When asked she complains of urinary frequency and nocturia 3-4 times per night. She most likely has…

A.Endometriosis
B.Irritable Bowel Syndrome
C.Chronic Depression
D.Abdominal wall pain
E.Interstitial cystitis

A 23 year old woman who weighs 131 kg has experienced 3 years of continued chronic pelvic pain described as daily bilateral lower abdominal cramping that is worse with standing, and worse before and during menses. She most likely has…

A.Endometriosis
B.Irritable Bowel Syndrome
C.Chronic depression
D.Abdominal wall pain
E.Interstitial Cystitis

Neurological/ Musculoskeletal Causes

Nerve Entrapment - Spontaneous or Post-Op, pain is localized at fingertip, better with nerve block.
Myofascial Pain - Trigger points caused by autonomic reflex, dermatomal pain.
Fibromyalgia - Diffuse pain, fatigue, nonrestorative sleep
Lower Back Pain Syndrome - Pain after trauma or physical exertion, with arising or use

Myofascial pain- Trigger points

75% of patients with CPP
Caused by mechanical or postural stressor, psychosocial stress
Burning or needle-like pain
Carnett test
Treat with ice, heat, NSAIDs, PT
Trigger point injections success 52-89%

Management of Chronic Pelvic Pain

Multidisciplinary Approach- OB/GYN, Psychologist, Physical Therapy

Medical Therapy- Low dose TCA, SSRI, SNRI, CBT, weaning pain medication, increasing activity, treating depression appropriately

Surgical Therapy- Destroy endometriosis lesions, lysis of adhesions?, presacral neurectomy and LUNA, hysterectomy

A 15 year old girl comes to your office with pelvic pain that occurs mid-cycle and monthly at the time of her menses. Over the past 3 months, she has noticed rectal pain and constipation. She has become increasingly fatigued and avoids sports because of the pain. She has tried NSAIDs without improvement in symptoms. The next best step in management is…

A. Prescribe anastrozole
B. Prescribe continuous combined oral contraceptives
C. Administer GnRH agonist therapy
D. Perform diagnostic laparoscopy
E. Prescribe danazol

Objectives

- Understand the diagnosis and management of acute and chronic pelvic pain.
- Generate a likely differential diagnosis for women with Acute and Chronic pelvic pain.
- Differentiate and treat pelvic pain unrelated to endometriosis.
- Develop medical/surgical strategies to diagnose and treat women with endometriosis pain.

Endometriosis

Definition - The presence of endometrial tissue outside of the uterus, usually in the pelvic viscera and peritoneum.
Prevalence - 7% of reproductive-aged women in the US
Usually associated with pelvic pain and infertility.

WHAT DO WE KNOW?

- Mechanisms: Etiology and production of symptoms
- Prevalence: 5% of general population, 25% of women undergoing laparoscopy, 50% of women undergoing surgery for infertility
- Manifestations: Patients may experience severe symptoms but can be symptom free
- Endometriosis has a significant impact on quality of life

Etiology

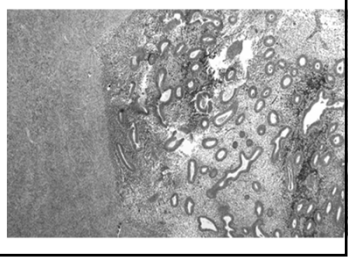
- Ectopic transplantation of endometrial tissue
- Coelemic metaplasia
- Induction theory

The mechanisms of symptoms in women with endometriosis include all of the following except:

A.Changes in corticosteroid hormone and receptor expression
B.Cyclooxygenase-2 and prostaglandin production
C.Increased peritoneal secretion of interleukins
D.Decreased angiogenesis and neuronal proliferation

Endometriosis Histology

Endometriotic implants consist of endometrial glands and stroma, with or without hemosiderin-laden macrophages. Microscopic endometriosis can occur in a macroscopically normal pelvic peritoneum.

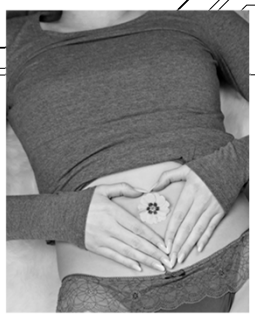


Epidemiology of Endometriosis

- **Genetic effects**
- **Immunologic effects**
- **Environmental factors**
- **Prevalence - Usually reproductive aged women, 20-90% of women with pelvic pain or infertility**

Most Frequent Sites of Endometriosis

- **Cul de sac : 33%**
- **Ovary : 45%**
- **Bladder : 33%**



Diagnosis of Endometriosis

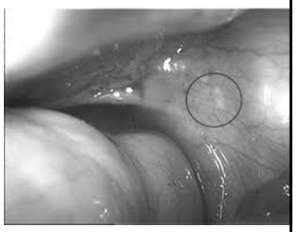
High index of suspicion in women with subfertility, dysmenorrhea, dyspareunia, or chronic pelvic pain. Endometriosis may be asymptomatic.
Risk factors - short cycle length, heavier menstruation, longer flow duration, taller, lower BMI

Endometriosis Symptoms

- Abdominal pain or cyclic pain outside of the pelvis
- Nausea/ vomiting
- Early satiety
- Bloating and distention
- Altered bowel habits
- Secondary dysmenorrhea
- Subfertility
- Dyspareunia

Endometriosis-Physical Exam

- Careful inspection of external genitalia
- Uterosacral or cul-de-sac nodularity
- Lateral cervical displacement caused by scarring
- Tender rectovaginal septum
- Unilateral ovarian cyst
- Fixed retroverted uterus or immobile structures

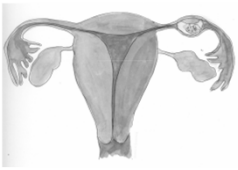


Treatment of Endometriosis

- Surgery
- Empiric medical treatment
- Hormonal treatment
- Infertility Treatments

ENDOMETRIOSIS AND PAIN: MEDICAL ALTERNATIVES

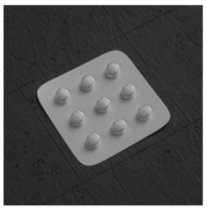
- NSAID's
- Progestin (85-90% improved)
- OCP's (75-85% improved)
- Danazol (85-95% improved)
- GnRH analogs (85-95% improved)
- Anti-estrogens
- SPRM's
- Progestin IUD



Progestins

Progestins cause decidualization of endometriotic implants, decreased gonadotropins (lower E_2)

The main side effects include irregular vaginal bleeding, depression, breast tenderness, moodiness, weight gain



Danazol

- Danazol exhibit some androgen effects and reduces ovarian hormonal production by affect on FSH/LH secretion
- Most women will stop ovulating and menstruating when they are on Danazol
- *Endometrial lesions will shrink and become inactive*
- The main side effects of Danazol are weight gain, decrease in breast size, acne, oily skin, male-pattern hair growth, and deepening of the voice.

GnRH Agonists

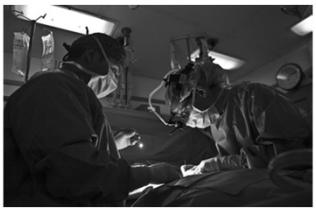
- Cause down-regulation and desensitization of GnRH receptors
- Results in profound hypoestrogenic state
- The main *side effects* of menopausal syndromes are hot flashes, cold sweat, insomnia, vaginal dryness, loss of sexual interest, and depression

The primary advantage of depot medroxyprogesterone acetate, as compared with a GnRH analog is:

A.Less bone mineral density loss
B.Lower rate of unwanted bleeding
C.Lower weight gain
D.Higher response rate

Laparoscopic Findings

Laparoscopy/ tissue diagnosis
- **Gunshot or Powder-burn lesions on serosa**
- **Black, dark brown, or blue lesions caused by hemorrhage surrounded by fibrosis**
- **Red implants with petechiae, vesicles, polyps, hemorrhagic, or flamelike**
- **Serous or clear vesicles**
- **White plaques or scarring**



Natural Course of Endometriosis

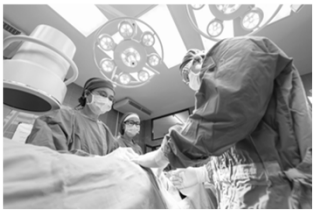
- **Endometriosis is a progressive disease in 30-60% of patients.**
- **Progression occurs in 29-64%, improvement occurs in 23-30%, and no change occurs in 9-42% over 6-12 months.**
- **Endometriosis gets worse during first trimester, then better.**

Among reproductive age women in the US, endometriosis occurs in

A.6-10%
B.20-50%
C.51-70%
D.71-87%

Surgical Options for Endometriosis

- Expectations
- High Recurrence Rate
- Clear goals- fertility and pelvic pain



ENDOMETRIOSIS-- HYSTERECTOMY

138 women, 1979-1991, mean 58 month follow up
109 bilateral oophorectomy
10% recurrent symptoms
3.7% required reoperation
29 ovarian tissue preserved
62% recurrent symptoms
31% required reoperation
RR for pain 6.1, reoperation 8.1

Adapted from Namnoun et al, Fertil Steril 64:898-902, 1995

A 40 year old woman has had 10 years of increasingly severe dysmenorrhea and dyspareunia. Three years ago she was treated laparoscopically for severe endometriosis. Since then, she has been treated with two six month courses of GnRH agonist with limited success, and now requests definitive surgical therapy. Prior to an abdominal hysterectomy, you counsel her that the greatest risk of ovarian preservation is…

A.Breast cancer
B.Ovarian cancer
C.Colon cancer
D.Recurrent pain

Objectives

- Understand the diagnosis and management of acute and chronic pelvic pain.
- Generate a likely differential diagnosis for women with Acute and Chronic pelvic pain.
- Differentiate and treat pelvic pain unrelated to endometriosis.
- Develop medical/surgical strategies to diagnose and treat women with endometriosis pain.

Works Cited

Speroff and Fritz. Clinical Gynecologic Endocrinology and Infertility, Seventh Edition. Lippincott Williams & Wilkins.
Berek and Novak. Gynecology, Fourteenth Edition. Lippincott Williams & Wilkins.
Daniels, et al. Laparoscopic Uterosacral Nerve Ablation for Alleviating Chronic Pelvic Pain. JAMA 2009.
Serachiolli et al. Oral Contraceptives in painful endometriosis recurrence. Fertility and Sterility, 2009.
Broach, et al. The effect of combined surgical-medical intervention on the progression of endometriosis in an adolescent and young adult population. Journal of Pediatric Adolescent Gynecology, 2009.
Chronic Pelvic Pain: ACOG Practice Bulletin. Journal of Obstetrics & Gynecology, 2020.
Lanmvu, Carrillo, Ouyang, Rapkin. Chronic Pelvic Pain in Women. JAMA, 2021.