Dysmenorrhea

Diagnosis/Condition:	Dysmenorrhea, menstrual cramps
Discipline:	Integrated
ICD-10 Codes:	N94.6
Origination Date:	2000
Review/Revised Date:	07/2023
Next Review Date:	07/2025

Dysmenorrhea is the most common gynecological disorder in women with estimates as high as 90%.[1] In the absence of any underlying pelvic disease, clinically, the disorder is known as primary dysmenorrhea (PD), which usually occurs near the initial onset of menstrual periods in otherwise healthy women.[2] The prevalence of dysmenorrhea is highest in adolescent women and ~15% report severe symptoms.[3,4,5,6,7] It is the leading cause of recurrent short-term school absenteeism in the United States and may affect activities of daily living (ADLs), work attendance, social life, or exercise regimens. Most adolescents self-medicate with over the counter (OTC) medicines, such as non-steroidal anti-inflammatory drugs (NSAIDs) and few consult a physician about PD.

Primary dysmenorrhea is characterized by recurrent, cramping or throbbing lower abdominal pain. These symptoms are thought to be caused by the release of prostaglandins in the menstrual fluid, causing prolonged uterine contractions that decrease blood flow to the myometrium, resulting in ischemia and pain.[8] Vasopressin, oxytocin, leukotrienes, and prostaglandins may all also play a role by increasing uterine contractility and causing ischemic pain as a result of vasoconstriction and increased uterine sensitivity.[9,10,11] It is hypothesized that mechanical joint dysfunction of the lower spine and pelvis may cause the sympathetic nervous system to constrict the blood vessels supplying pelvic viscera, leading to pain. It is also hypothesized that pain from dysmenorrhea is referred pain from musculoskeletal structures sharing pelvic nerve pathways.

Secondary dysmenorrhea is defined as menstrual pain that is secondary to uterine, ovarian, or other pelvic disorders including endometriosis, adenomyosis, uterine leiomyomata, pelvic floor dysfunction, and chronic pelvic inflammatory disease. This pathway will focus on primary dysmenorrhea (PD), but some of the information is applicable to symptoms of secondary dysmenorrhea.

Subjective Findings and History

- History of painful menses.
- Menses characteristics (quality, length, timing)- Pain starting one to two days before or

with the onset of menstrual bleeding and then gradually diminishing over 12 to 72 hours, recurrent, usually crampy, and intermittently intense, or a continuous dull ache. Usually confined to the lower abdomen and suprapubic area and may be accompanied by severe back and/or thigh pain.

- May be aggravated or relieved by pressure or by temperature. Color, consistency, quantity of blood (red, heavy flow) often with 'clot-like' consistency.
- Accompanying symptoms depending on syndrome differentiation may include restlessness, dizziness, mental depression, palpitations, distending pain in breast, costal or hypochondria region, aversion to cold, pallor, blurred vision, dry skin, nausea, vomiting, diarrhea, fatigue, headache, and a general sense of malaise.
- Increased Risk Factors: presentation at age less than 30 years of age, low body mass index, menarche before 12 years of age, longer cycles/duration of bleeding, irregular or heavy menstrual flow, premenstrual symptoms (PMS), history of pelvic inflammatory disease (PID), sterilization, familial predisposition, history of sexual assault, younger age at first childbirth, and heavy smoking. Dysmenorrhea is now considered a risk factor for fibromyalgia and other chronic pain conditions later in life.
- Reduced Risk: use of oral contraceptives (OCPs), some fish intake, physical exercise, married or in a stable relationship, and higher parity.

Objective Findings

- A complete physical screening including abdominal and pelvic exam may be indicated to rule out other pathology. There is low quality evidence that a pelvic examination should be conducted in sexually active patients or in whom endometriosis is suspected.[12] In many cases, specific objective findings are absent on physical examination unless the condition is caused by secondary pathologies. Palpation may reveal lower abdominal or uterine tenderness.[13]
- Motion palpation may identify lumbosacral and sacroiliac joint (SI) dysfunction. There is a possible correlation between SI joint dysfunction and dysmenorrhea. Soft tissue palpation may identify increased tone and tenderness of the lumbar and pelvic musculature.[14]

Traditional East Asian Medicine

Pain in general is an obstruction of *qi* and *blood*, which in turn may be due to an underlying imbalance of the viscera and bowels (*zang-fu)*. The specific Chinese pattern differentiation of these imbalances is based on the nature and location of the pain, and other secondary symptoms (e.g., headaches, digestive complains, low energy). These symptoms gain clinical significance in the context of the signs presented by the patient, mainly the pulse quality, the characteristics of the tongue and general observation of the patient's demeanor.[15,16] Clinically, acupuncture points are based on the pattern differentiation and are selected primarily on the basis of their relation to the respective viscera and bowels (*zang-fu*), and on their corresponding channels. In addition, two of

the eight Extraordinary Channels (*Chong Mai* and *Ren Mai*), are considered of great importance in the treatment of gynecological conditions, including dysmenorrhea.

Laboratory Studies/Imaging

Laboratory tests contribute little to the evaluation of women with primary dysmenorrhea but can uncover pathology associated with secondary dysmenorrhea. Hemoglobin and hematocrit may be decreased in patients with anemia associated with heavy bleeding during menstruation. Other tests include trans-vaginal pelvic sonography, CA-125, and sexually transmitted infection (STI/STD) testing.

Plan

Acupuncture:

- The evidence is promising to suggest benefit from acupuncture for the treatment of primary dysmenorrhea, but more research is required to draw definitive conclusions.[17,18,19]
    - The most recent SR & meta-analysis (2022; n=9; 323 participants) suggests acupuncture is more effective than controls (short term).[25]
    - A 2018 SR & meta-analysis (n=49; 5,901 participants) suggests acupuncture is more effective than NSAIDs or no treatment (short term).[24]
    - A 2106 Cochrane Review (n=42; 4,640 participants) suggests there is insufficient evidence to determine the effects of acupuncture.[23]
- The evidence suggests the cost effectiveness of acupuncture for the treatment of primary dysmenorrhea. A pragmatic large-scale trial (largest to date; n=637) suggests benefits and demonstrated that acupuncture is cost effective as an adjunctive (add-on) therapy to usual care.[20]
- An earlier (2012) systematic review[21] and subsequent clinical trials[22,23,24] suggests that acupressure reduces pain and offer benefit for women with primary dysmenorrhea.
- A 2018 RCT from Germany (n=221) suggests that a smartphone app-delivered self-acupressure protocol was effective compared to usual care. [25]

Herbal Medicine (TEAM):

- Five recent systematic reviews (2016-2020) suggest positive effects, each assessed a differing TCM herbal formula.[26,27,28,29,30]
    - Each suggest benefit compared to usual care (either alone or in conjunction, however, each also caution interpreting results due to low quality trials. Formula assessed include:
        - Dang gui Shao yao San
        - Shao fu Zhu yu tang
        - Si Wu Tang (& variants)
        - Wen jing tang
        - Xue fu Zhu yu tang
- Point injection of vitamin K.[31,32,33,34]

- Lifestyle:
    - Rest if Xu Syndrome or heavy bleeding.
    - Diet modifications according to Syndrome.
        - e.g., No cold foods or drink during menses.
    - Limit exposure to cold/damp environment.

Herbal Medicine (Western):
- Ginger (Zingiber officinale).[35,36,37]
- Salix.[38]
- French maritime pine bark extract (Pycnogenol).[39]
- Fennel (Foeniculum vulgare).[40,41]
- Eryngium caucasicum.[42]
- Cinnamon.[43]
- Bromelain (2,000 mcu/g), 300-500 mg, TID-QID on empty stomach (acute treatment).
- Herbal analgesics and anti-spasmodics.
- Lavender essential oil.[44]

Pharmaceuticals:
- Nonsteroidal anti-inflammatory agents (NSAIDs), such as phenylproprionic acid derivatives or fenamates and hormonal oral contraceptive pills (OCPs) represent the mainstays of pharmacologic therapy, with low-dose naproxen and ibuprofen being recommended as the most effective treatments.[45, 46,47] Current guidelines suggest NSAIDs as first line therapy for dysmenorrhea, with a usual course consisting of a loading dose followed by regular maintenance dosing for three menstrual cycles.[48]
- Injectable depot medroxyprogesterone injections (DMPA) and levonorgestrel-releasing intrauterine device (LNG-IUS), such as the Mirena IUD are also effectively used.[49, 50]
- Metformin.[51]
- Prostaglandin synthetase inhibitors.[52,53]
- Ovulation can be delayed in some women taking NSAIDs and alternatives may be sought if they are seeking pregnancy.[54]
- Newer pharmacological therapies are under investigation and include selective progesterone receptor modulators, tumor necrosis factor-α inhibitors, and estrogen receptor agonists.[55]

Soft Tissue Therapies:
- Application of heat to lower abdomen.[56,57]
- Massage with aromatic essential oils.[58,59]
- Rhythmical massage.[60]
- Hot-hip bath.[61]
- Reflexology.[62]
- Massage Therapy.[63,64,65]

Movement and Exercise:

- Yoga.[66,67,68]
- Increased physical activity (aerobic exercise (e.g., Zumba), and stretching).[69,70,71,72,73,74]
- Functional lumbar stabilization has been shown to improve pain, disability, and kinesiophobia during menstrual LBP.[75]
- Physiotherapeutic interventions may reduce pain and improve quality of life.[76]

Physical Modalities (Western):

- Microwave diathermy.[77]
- Transcutaneous electrical nerve stimulation (TENS).[78,79]

Diet:

- Low-fat and/or vegetarian diet.[80,81]
- Avoidance of alcohol.
- Gluten-free diet.[82]

Supplements and Nutrients:

- Antioxidants.[83]
- Vitamin E (small trial: 500 units per day or 200 units bid, beginning two days before menses and continuing through the first three days of bleeding).[84,85]
- Vitamin B1.[86,87]
- Vitamin D (mixed results). [88,89]
- Niacin, 100 mg q 2-3 hours (acute treatment). Addition of vitamin C and flavonoids may enhance the effectiveness of niacin.
- Zinc.[90]
- Magnesium.[91,92]
- Omega-3 oils (Fish oil).[93]
- Krill oil or Fish oil (small trial: 1080 mg eicosapentaenoic acid (EPA), 720 mg docosahexaenoic acid (DHA) qd).[91,94]
- I.V. Therapy (Magnesium and B6) or Meyer's Cocktail.
- Alpha lipoic acid 600 mg alone or in combination with mefenamic acid 250 mg.[95]

Mind-Body Therapies:

- Behavioral interventions (desensitization-based procedures: hypnotherapy, imagery; coping strategies and attempts at modification of pain response: biofeedback, electromyographic training, Lamaze exercises, and relaxation training).[96]
- Psychological assessment should be initiated when psychological disorders including depression, anxiety, stress, substance abuse or somatic disorders are suspected with a diagnosis of primary dysmenorrhea. Psychological disorders should not be presumed or treated without assessment.[97]
- Support groups.[98]
- Homeopathy.[99]

Manual Adjustments/Manipulation:

- Chiropractic manipulation of the lumbosacral and sacroiliac joints is correlated with reduced self-reported abdominal and lower back pain from dysmenorrhea during the course of treatment.[100]
- Manipulation can be a safe, effective non-pharmacological alternative for the relief of pain and distress from primary dysmenorrhea.[101]
- A significant reduction in plasma levels of a prostaglandin metabolite occurred in patients that received spinal manipulation and a sham manipulation, suggesting benefit from a placebo effect associated with the intervention.[102]
- Spinal manipulation reduces activity of lumbar erector spinae muscles that coincides with reduced low back pain and menstrual cramps.[103]
- Global pelvic manipulation technique may increase serotonin levels and lead to improvements in pain perception.[104]
- Foot reflexology and connective tissue manipulation.[105]
- Osteopathic manipulation and other manipulation therapy.[106]

Outcomes Assessment Tools

Since dysmenorrhea is a functional pain condition, the following OATs can be useful to assess the outcomes of treatment:

- Visual analogue or numeric pain rating scale (VAS or NRS)
- Patient-specific Functional Scale
- Short Form Menstrual Distress Questionnaire (SF-MPQ)

Referral Criteria

- Primary Dysmenorrhea - If patient worsens or does not improve with treatment within three cycles and is not considered an acute emergency (such as PID or acute abdomen) refer to specialist (gynecologist) for further testing/differentiation (e.g., laparoscopy).
- Secondary Dysmenorrhea treat in conjunction with OBGYN/PCP for secondary diagnostic criteria. If the patient worsens or does not improve with co-treatment; within 3 cycles and is not considered acute emergency, consult with or refer to additional specialist for further testing/ differentiation.

Resources for Clinicians

Smith RP, Kaunitz AM. Treatment of primary dysmenorrhea in adult women *Up To Date*. Updated March 8,2017. Available at: www.uptodate.com

Osayande AS, Mehulic S. Diagnosis and initial management of dysmenorrhea. *Am Fam Physician.* 2014 Mar 1;89(5):341-6.

Ryan SA. The Treatment of Dysmenorrhea. *Pediatr Clin North Am*. 2017;64(2):331-342.

Society for Acupuncture Research. Acupuncture for the Treatment of Dysmenorrhea. July 2023. www.AcupunctureResearch.org.

Resources for Patients

The American College of Obstetricians and Gynecologists. Dysmenorrhea: Painful Periods. FAQ. Available at:
http://www.acog.org/Patients/FAQs/Dysmenorrhea-Painful-Periods

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