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PRIMARY DYSMENORRHEA: AN OVERVIEW

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ABSTRACT

Dysmenorrhea is a common gynecological condition characterized by painful menstruation, usually presenting with lower abdominal cramps and may be associated with backache, nausea, headache, fatigue, and other systemic symptoms. It can adversely affect daily activities, academic performance, work, and overall quality of life.

KEYWORDS: Dysmenorrhoea, primary, secondary, differential diagnosis.

INTRODUCTION

Dysmenorrhoea is derived from the Greek words *dys* meaning difficult/ painful, *meno* meaning month, and *rrhoea* meaning flow.[1]

It is defined as painful uterine cramps occurring during menstruation and is one of the most common menstrual disorders and causes of pelvic pain.[1,2]

The reported prevalence of primary dysmenorrhoea (PD) varies widely worldwide, ranging from 45%–95%, with higher prevalence among adolescents and young women. Severe pain is reported in approximately 2%–29% of affected females. Although not life-threatening, PD can significantly affect physical, emotional and psychological well-being, quality of life, productivity, and may lead to school or work absenteeism.[2,3]

Let's understand Menstrual cycle

The menstrual cycle is a natural physiological process occurring in females during the reproductive age, resulting from cyclical hormonal changes. It generally begins between 12–15 years of age.[4]

The cycle is calculated from the first day of menstrual bleeding to the first day of bleeding in the subsequent cycle and is broadly divided into **follicular (proliferative)** and **luteal (secretory)** phases.[4,5]

Cycles occurring at intervals of less than 21 days are termed **polymenorrhoea**, while those exceeding 35 days are termed **oligomenorrhoea**. Average menstrual blood loss is approximately 30 mL, while blood loss exceeding 80 mL is considered abnormal.[6]

Menstrual cycles may be irregular around **menarche and menopause**, mainly due to anovulation and inadequate follicular development.[7,8]

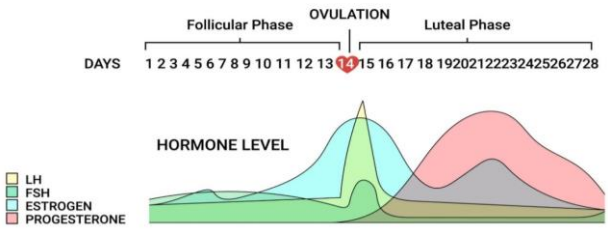


Figure 1: Hormones in Menstrual Cycle.

Source: *Thiyagarajan DK, Basit H, Jeanmonod R. Physiology, Menstrual Cycle [Internet]. PubMed. Treasure Island (FL): StatPearls Publishing; 2022. Available from: https://www.ncbi.nlm.nih.gov/ books/NBK500020/#*

Hormonal regulation in menstrual cycle

The menstrual cycle is regulated by the **hypothalamic–pituitary–ovarian (HPO) axis**. The hypothalamus secretes **gonadotropin-releasing hormone (GnRH)**, which stimulates the

anterior pituitary gland to release **follicle-stimulating hormone (FSH)** and **luteinizing hormone (LH)**. FSH promotes the growth and maturation of ovarian follicles and stimulates estrogen production. LH triggers ovulation and supports the formation and function of the corpus luteum. **Estrogen and progesterone** regulate the hypothalamus and pituitary through feedback mechanisms, thereby controlling hormone secretion and maintaining the menstrual cycle.[9]

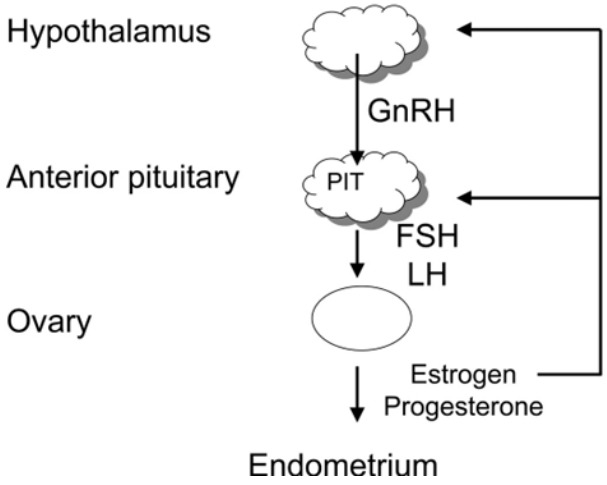


Figure 2: H-P-O Axis of Menstrual Cycle.

Source: *HPO AXIS FOR DYSMENORRHOEA ARTICLE - Bing [Internet]. Bing. 2025 [cited 2026 Jun 2].*

Types of dysmenorrhoea

According to the **ICD-10-CM**, dysmenorrhoea is classified into **primary (N94.4)** and **secondary (N94.5)** dysmenorrhoea. Primary dysmenorrhoea occurs without an underlying pelvic pathology and is mainly associated with increased prostaglandin production, causing excessive uterine contractions and reduced uterine blood flow. It commonly begins after menarche and is associated with symptoms such as nausea, vomiting, diarrhoea and headache. Secondary dysmenorrhoea occurs due to an underlying pelvic pathology, such as **endometriosis, uterine fibroids or pelvic inflammatory disease**.[10,11]

Primary dysmenorrhoea

Characterized by **cramping lower abdominal pain occurring shortly before or at the beginning of menstruation, in the absence of pelvic pathology**.[12]

Epidemiology

The prevalence of PD varies considerably between countries and populations due to differences in pain perception, cultural and social factors, definitions and assessment methods, and under-reporting. Worldwide prevalence ranges from **45%–95%**, with severe pain reported in **2%–29%** and prevalence of approximately **70%–90% among adolescents and young women**.(29) In developing countries, reported prevalence ranges from **45%–97%**, with severe pain occurring in up to 20%.[13,14]

In India, reported prevalence ranges from **33%–79.67%**, although the true prevalence is not clearly established. Dysmenorrhoea is associated with **28%–48% sickness absenteeism** and reduced quality of life among adolescent girls.(31) Studies have reported a prevalence of **70% in Hyderabad**, 70% among patients attending a gynaecological OPD in Jammu and Kashmir, and **60% among adolescent girls in Sirohi, Rajasthan**.(8),(32),(33) In another Rajasthan study, prevalence was **81.5% in rural and 76% in urban school-going adolescent girls**.[16]

Impact on Quality of Life

- PD can adversely affect **physical, psychological, social and academic functioning**. Common effects include stress, irritability, anxiety, low mood, depressive symptoms, fatigue, nausea, headache and backache. These symptoms may interfere with daily activities, school/work attendance and academic performance.[17]

Risk Factors

- Important risk factors include **early menarche, menorrhagia, positive family history of PD, sedentary lifestyle, unhealthy dietary habits, frequent consumption of caffeinated beverages and junk food, smoking, poor sleep, abnormal BMI, nulliparity, stress, anxiety and depression**.[17]

Clinical Features

- The main symptom is **lower abdominal or pelvic cramping pain**, which may occur around menstruation. Associated **physical symptoms** include headache, fatigue, sleep disturbances, breast tenderness, backache, myalgia, arthralgia, leg pain, nausea, vomiting, bloating, constipation, diarrhoea, altered appetite, frequent urination and sweating. **Psychological symptoms** may include anxiety, depression, irritability and nervousness.[18]

Pathophysiology

The exact pathophysiology of PD is not completely understood. Increased production of **prostaglandins, particularly $PGF_2\alpha$ and PGE_2** , during endometrial shedding is considered a major mechanism. Following regression of the corpus luteum, progesterone levels decline, causing endometrial breakdown and activation of the arachidonic acid–cyclooxygenase (COX) pathway. Increased prostaglandin production causes **uterine hypercontractility and vasoconstriction**, resulting in uterine ischemia, sensitization of pain fibres and pelvic pain. Prostaglandins may also contribute to associated symptoms such as **nausea and diarrhoea**. Prostaglandin levels are highest during the early menstrual period and decline as menstruation progresses, resulting in reduction of pain.[19]

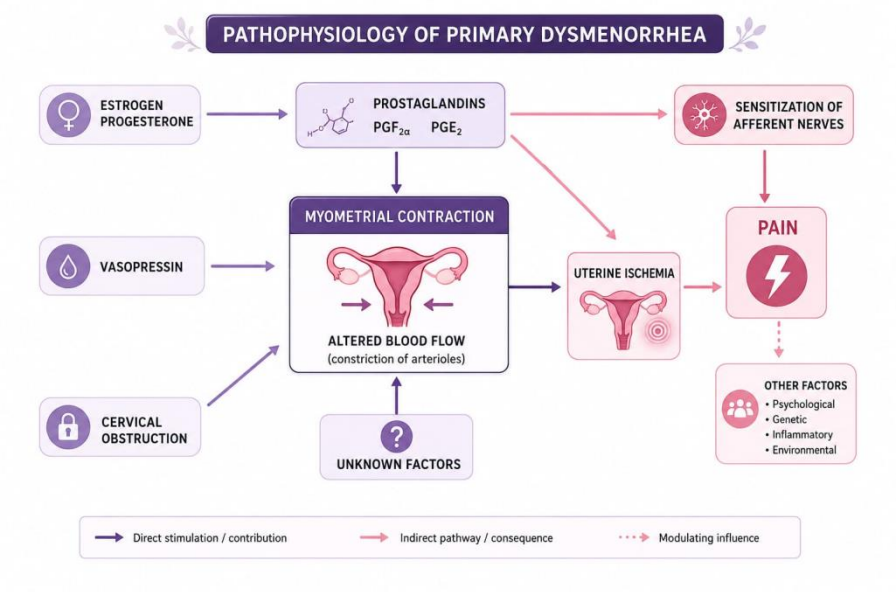


Figure 3: Pathophysiology of PD.

Source: *Itani R, Soubra L, Karout S, Rahme D, Karout L, Khojah HMJ. Primary Dysmenorrhoea: Pathophysiology, Diagnosis, And Treatment Updates. Korean Journal Of Family Medicine [Internet]. 2022 Mar 17;43(2):101–8. Available From: Https://Www.Ncbi.Nlm.Nih.Gov/Pmc/ Articles/PMC8943241/*

Diagnosis

Diagnosis is primarily based on a **detailed clinical history and physical examination**. Important factors include age at menarche, menstrual pattern, cycle duration, onset and duration of pain, relationship of symptoms to menstruation, pain location, associated symptoms, vaginal discharge, sexual history and history of sexually transmitted infections. In

patients with typical features of PD, diagnosis can often be made clinically. **Pelvic examination and imaging such as ultrasonography or MRI** may be used when secondary causes or underlying pathology are suspected.[20]

Treatment

The main goals of treatment are **pain relief, improvement in quality of life and daily functioning, and reduction of absenteeism**.

- **Non-pharmacological measures** include
- Heat application
- Regular exercise
- Dietary modification

Pharmacological treatment includes

- **NSAIDs:** First-line treatment; inhibit COX enzymes and reduce prostaglandin production.
- **Acetaminophen:** Alternative analgesic for patients unable to use NSAIDs.
- **Hormonal contraception:** Estrogen- and progesterone-containing pills, patches or vaginal rings may reduce menstrual pain.
- **Vasodilators:** Promote uterine smooth muscle relaxation.
- **Calcium channel blockers:** Reduce uterine contractions.
- **Antispasmodics:** Relieve uterine muscle spasms.
- **Magnesium:** May reduce pain through muscle-relaxing and vasodilatory effects.(20)

Advantages, Disadvantages and Complications

- **NSAIDs** do not interfere with ovulation but may cause gastrointestinal adverse effects, including GI bleeding, and renal dysfunction; they are contraindicated or require caution in conditions such as renal insufficiency, peptic ulcer disease, gastritis and aspirin hypersensitivity. **Oral contraceptive pills (OCPs)** may provide menstrual regularity, reduced bleeding and contraception. Misdiagnosis or inappropriate management may contribute to complications such as psychological distress and delayed identification of underlying causes.[20]
- **Prognosis**

  Primary dysmenorrhoea generally responds well to treatment, with anti-prostaglandin therapy reported to provide approximately **80% pain relief** in some studies.

- **Recent Advancement**

  Sildenafil citrate, a phosphodiesterase-5 inhibitor and vasodilator, has also been reported as a potential treatment for primary dysmenorrhoea.

Differential Diagnosis of Dysmenorrhoea

1. Endometriosis

Clinical Presentation

- Cyclic pelvic pain associated with menstruation.
- Pain may sometimes be non-cyclic.
- Deep dyspareunia.
- Dysuria.
- Dyschezia.
- Subfertility/infertility.

Diagnostic Evaluation

- Transvaginal ultrasonography.
- Pelvic ultrasonography.
- Laparoscopy with biopsy and histopathology is the preferred diagnostic test.

2. Pelvic Inflammatory Disease (PID)

Clinical Presentation

- Lower abdominal/pelvic pain in sexually active patients.
- Cervical motion tenderness.
- Uterine tenderness.
- Adnexal tenderness.
- Fever, usually >101°F (38.3°C).
- Abnormal mucopurulent cervical or vaginal discharge.

Diagnostic Evaluation

- Saline microscopy of vaginal fluid may demonstrate organisms.
- Elevated ESR or C-reactive protein (CRP) suggests infection.
- Laboratory confirmation of Neisseria gonorrhoeae or Chlamydia trachomatis supports the diagnosis.

3. Adenomyosis

Clinical Presentation

- Usually associated with menorrhagia.
- Intermenstrual bleeding may occur.
- Enlarged uterus.
- Tender, boggy uterus on examination.

Diagnostic Evaluation

- Transvaginal ultrasonography.

4. Leiomyomata (Fibroids)

Clinical Presentation

- Cyclic pelvic pain.
- Menorrhagia.
- Occasionally dyspareunia.
- Dyspareunia may be more common with anterior and fundal fibroids.

Diagnostic Evaluation

- Transvaginal ultrasonography can identify uterine fibroids.

5. Ectopic Pregnancy

Clinical Presentation

- History of amenorrhea.
- Abnormal uterine bleeding.
- Severe, sharp lower abdominal pain.
- Unilateral pelvic pain or cramping.
- Severe cases may present with hypotension or shock.

Diagnostic Evaluation

- Positive pregnancy test.
- Pelvic/transvaginal ultrasonography.
- Extrauterine gestational sac on ultrasound is suggestive of ectopic pregnancy.[21]

Homoeopathic Approach to dysmenorrhoea

1. **Belladonna -** Symptoms that are very intense and come and go suddenly, accompanied by a feeling of heat, often indicate a need for this remedy. The menstrual flow is typically

bright red, profuse, and may have begun too early. Pain and cramping are worse from jarring and from touch, yet applying steady pressure often brings relief. Walking or bending over can make things worse, and sitting may be the most tolerable position. A woman who needs this remedy may feel restless and flushed, with pulsing or pounding sensations, and eyes that are sensitive to light.

2. **Chamomilla**- This remedy is indicated when the person's mood and nerves are so sensitive that pains seem almost unbearable. Anger and irritability may be extreme (or pain and cramping may come on after the woman has been angry). The menstrual flow can be heavy, and the blood may look dark or clotted. Pain often extends from the pelvic area into the thighs, and may be worse at night. Heating pads or exposure to wind can aggravate the symptoms. Vigorous walking or moving around in other ways may help relieve the pain.
3. **Cimicifuga (also called Actaea Racemosa)**- Cramping and pain that get worse as the flow increases, back and neck pain with muscle tension, and sharp pains like shocks that shoot upward, down the thighs, or across the pelvis, are all indications for this remedy. The woman is likely to be nervous, enthusiastic, and talkative by nature, yet feel pessimistic and fearful when unwell.
4. **Bovista**-Women needing this remedy tend to have problems with puffiness and edema during times of menstrual stress, and can feel very awkward and clumsy. Pain may be felt in the pelvic region, often with soreness near the pubic bone. Menstrual flow increases at night (and may even be absent during the day). Diarrhea occurring at the time of the menstrual period is a strong indication for this remedy.
5. **Caulophyllum thalictroides**- This remedy relieves menstrual cramps occurring at the onset of periods, with scanty flow.
6. **Colocynthis** - This remedy relieves abdominal and menstrual cramps improved by bending over, strong pressure and heat.
7. **Ipecac** - This relieves heavy menstruation with many clots, associated with cramps and nausea.
8. **Lachesis** - Women who have intense discomfort and tension before the menstrual period begins and feel much better when the flow is established may benefit from this remedy. Symptoms include a bearing-down sensation in the pelvis, flushes of heat, headache, and an inability to tolerate the touch of clothing around the waist or neck. A person who needs this remedy may feel "like a pressure cooker": intense and passionate, needing an outlet both physically and emotionally.[22]

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