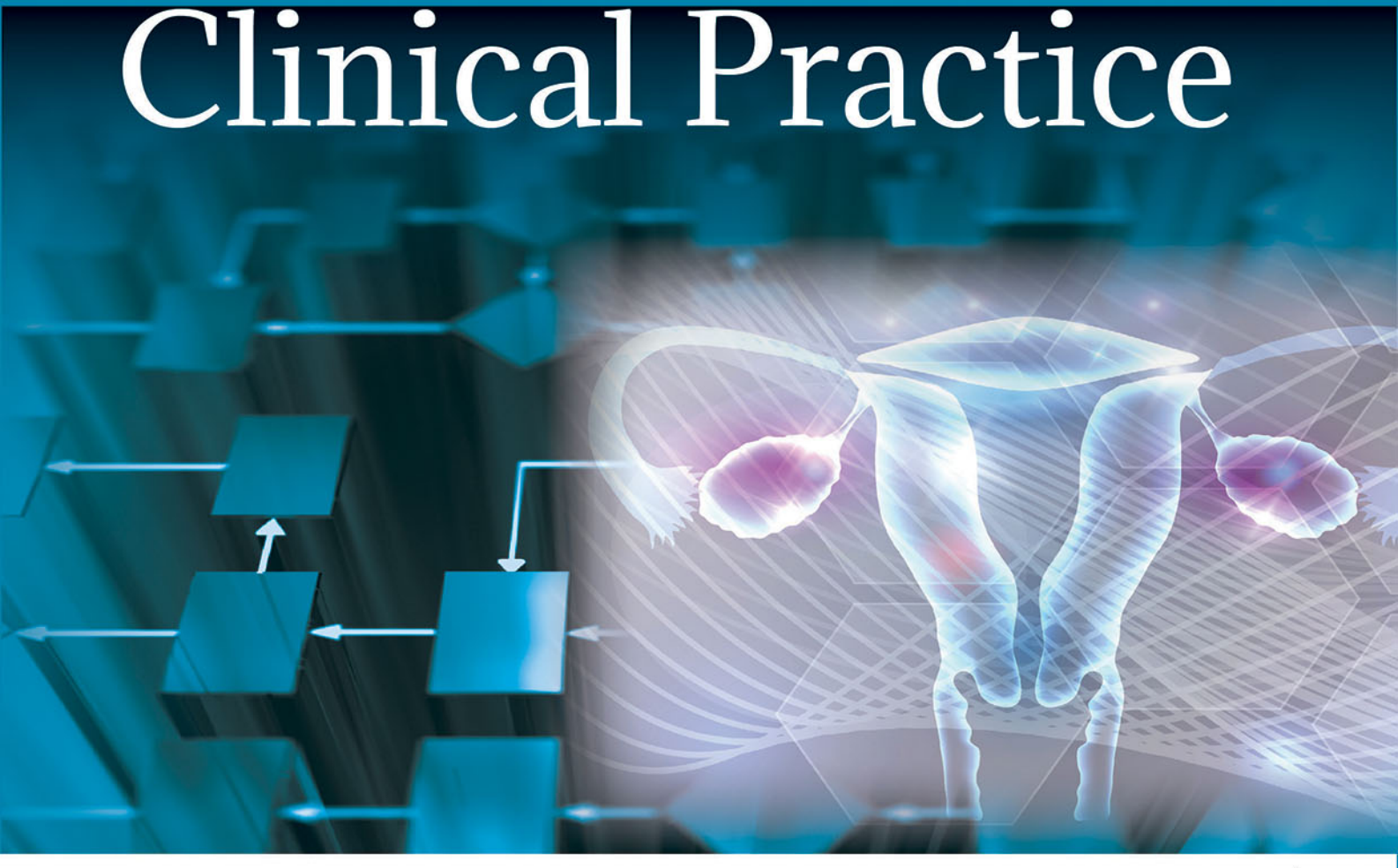
Gynecological Algorithms in Clinical Practice



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Chapter 4

Premenstrual Syndrome, Dysmenorrhea, and Puberty Menorrhagia

Reena Wani, Sachin Paprikar, Kalpana Koli

PREMENSTRUAL SYNDROME[1-3]

Definition

Premenstrual syndrome (PMS) encompasses a vast array of psychological symptoms such as depression, anxiety, irritability, loss of confidence, mood swings, and physical symptoms such as bloatedness and mastalgia. Symptoms must be present during the luteal phase, resolve with the onset of menstruation, followed by a symptom-free week.

Etiopathogenesis

- Serotonin receptors sensitivity to progesterone and progestogens.
- Reduced levels of allopregnanolone, a progesterone metabolite which modulates gamma-aminobutyric acid (GABA) levels.

Diagnosis

- Self-screening with symptom diaries over at least two consecutive menstrual cycles, before any form of treatment is initiated.
- Symptoms should be recorded prospectively, as retrospective recall of symptoms is unreliable.
- Many patient-rated questionnaires available. However, the Daily Record of Severity of Problems (DRSP) remains the most widely used and is simple for patients to use.

Management

- Women with severe PMS may benefit from being managed by a multidisciplinary team comprising a general practitioner, a gynecologist, a mental health professional (psychiatrist, clinical psychologist, or counselor), and a dietician.
- *Lifestyle modifications:*
  - Exercise
  - Adequate sleep
  - Quit smoking
  - Choose appropriate clothing
  - Calcium, magnesium supplementation
  - Yoga
  - Meditation
- Cognitive behavior therapy
- Vitamin B_6
- *Hormonal:*
  - Combined new generation pill [combined oral contraceptives (COCs)], continuous better than cyclically.
  - First-line: Drospirenone containing COCs
  - Estradiol patches—100 μg + micronized progesterone—100 mg or 200 mg (days 17–28) orally or vaginally or levonorgestrel intrauterine device (LNG-IUD)
  - Micronized progesterone should be considered as first-line progestogens rather than newer progestogens
- *Nonhormonal:*
  - First-line pharmaceutical management in severe PMS: Low dose selective serotonin reuptake inhibitors (SSRIs).
    - Continuously or in luteal phase (days 15–28)
    - Citalopram/escitalopram 10 mg
  - Gonadotropin-releasing hormone (GnRH) analogs: Highly effective in treating severe PMS.
    - When using GnRH analogs for >6 months, add-back hormone therapy should be used.
    - GnRH analogs + add-back hormone replacement therapy (HRT) (continuous combined estrogen + progesterone).

- Example, estradiol patches or estradiol gel combined with micronized progesterone

- *Surgical treatment:*
  - Hysterectomy and bilateral oophorectomy
  - Indications:
    - Failure of medical management
    - Long-term GnRH analog treatment is required
    - Other gynecological conditions requiring surgery.

PUBERTY MENORRHAGIA[2,4-6]

Puberty menorrhagia is defined as excessive bleeding in amount (>80 mL) or duration (>7 days) between menarche and 19 years of age.

Pathophysiology

The majority of cases of puberty menorrhagia are caused by anovulatory cycles caused by hypothalamic-pituitary-ovarian axis immaturity. Because ovulation has not occurred, the endometrium continues to be stimulated by unopposed estrogen, resulting in excessive and prolonged bleeding during menstruation (*see* **Box 1**).

Treatment

Acute Management

- Adolescents who are hemodynamically unstable or actively bleeding heavily should be hospitalized for management.

BOX 1: Causes of puberty menorrhagia.

Immaturity of hypothalamic–pituitary–ovarian axis
Anovulatory cycles
Polycystic ovary syndrome
Organic diseases
- Coagulation defects:
  - Von Willebrand disease
  - Platelet function defects
  - Thrombocytopenia
  - Clotting factor deficiencies
- Estrogen producing tumors
- Arteriovenous malformations of vessels supplying the uterus
- Pelvic tuberculosis
- Endocrine:
  - Diabetes mellitus
  - Thyroid disease
- Renal and hepatic disease

Local causes
- Genital trauma
- Foreign body

- *Volume expansion* with crystalloid.
- *Hormonal therapy:*
  - Available options:
    - Intravenous conjugated estrogen every 4–6 hours.
    - Monophasic combined oral contraceptive pills (OCPs) every 6–8 hours until cessation of bleeding.
    - Progesterone only therapy if estrogens are contraindicated or not tolerated. Oral norethindrone acetate 5–10 mg 6 hourly or medroxyprogesterone 10–20 mg every 6–12 hourly.
- *Hemostatic agents* such as tranexamic acid, aminocaproic acid, and desmopressin.
- *Transfusion:* Hemodynamically unstable patients or those with severe symptoms of anemia.
- *Surgical options:* When there is a lack of response to medical therapy, if the patient is clinically unstable despite initial measures—intrauterine balloon tamponade and suction evacuation or suction curettage.

Long-term Management (see Box 2)

- *First-line therapy:* COC
  - Monophasic pills with 30–50 μg of ethinylestradiol and second-generation progesterone.
  - Regimen: One pill twice or thrice a day until the bleeding stops, then one pill a day for at least 21 days; treatment is continued for 3–6 months.
- *Second-line therapy:* Progestin therapy, if estrogen-containing therapy is not tolerated is contraindicated. Available options:
  - Micronized progesterone (200 mg/day)
  - Medroxyprogesterone (10 mg/day)
  - Norethindrone acetate (2.5–5 mg/day)
  - Depot medroxyprogesterone acetate (DMPA)
  - Levonorgestrel-releasing intrauterine device (less preferred)
- *Treatment for iron deficiency anemia*: Oral iron supplementation along with dietary counseling to increase iron intake.

DYSMENORRHEA[6-10]

Greek, dys—difficult/painful/abnormal; meno—month; and rrhea—flow.

Types

Dysmenorrhea is classified as primary or secondary *on the basis of associated anatomic pathology.*

BOX 2: Evaluation of cases.

Severity classification

Mild: Longer menses (>7 days) or shorter cycles (<3 weeks) for 2 months in succession, with slightly or moderately increased bleeding, a usually normal (≥12 g/dL) or mildly decreased hemoglobin (Hb) (10–12 g/dL)

Moderate: Moderately prolonged or frequent (every 1–3 weeks) menses, with moderate to heavy bleeding and a hemoglobin level of ≥10 g/dL

Severe: Heavy bleeding with a hemoglobin level of <10 g/dL

Evaluation

History:
- Detailed menstrual history
- Sexual history
- History of prolonged bleeding after surgery or tooth extraction
- Epistaxis
- Bleeding gums
- Easy bruising
- Family history of coagulation disorders

Physical examination:
- Hemodynamic stability
- Dermatologic signs of anemia and bleeding disorders: Pallor, presence of bruises, and petechiae
- Abdominal examination: Tenderness, distention, hepatosplenomegaly, or masses
- Vaginal examination is rarely indicated in an adolescent
- Evidence of injuries which may point toward sexual assault

Laboratory investigations:
- Urine pregnancy test
- Complete blood count
- Peripheral blood smear
- Blood group
- Prothrombin time
- Activated partial thromboplastin time
- Fibrinogen
- Von Willebrand panel: Plasma for Von Willebrand factor (vWF) antigen, functional tests for vWF, factor VIII activity

Pelvic ultrasound:
- If bleeding accompanied by palpable mass
- Pregnancy and pregnancy related conditions are suspected
- Patients who do not respond to initial management

- *Primary dysmenorrhea* is defined as menstrual pain in the absence of pelvic pathology.
- *Secondary dysmenorrhea* is defined as painful menses associated with underlying pathology.

Clinical Varieties

- *Spasmodic dysmenorrhea:* Cramping pain, generally most pronounced on the first and second day.

BOX 3: Causes of secondary dysmenorrhea.

- *Common:*
  - Endometriosis
  - Chronic pelvic inflammatory disease
  - Adenomyosis
  - Intrauterine polyps
  - Submucosal fibroids
  - Intrauterine contraceptive devices syndrome
- *Less common:*
  - Congenital uterine abnormalities
  - Cervical stenosis
  - Asherman syndrome
  - Uterine retroversion
  - Pelvic congestion
  - Ovarian cysts

- *Congestive dysmenorrhea:* Increasing pelvic discomfort and pain a few days before menses begin, with relief in symptoms after the onset of menses.
- *Membranous dysmenorrhea:* Special group in which the endometrium is shed as a cast during menses accompanied by painful uterine cramps.

Pathophysiology

- Pathophysiologically, prostaglandins are implicated in dysmenorrhea.
- As the progesterone levels begin to decline in the late luteal phase, lytic enzymatic actions begin. These trigger various pathways [including the cyclooxygenase (COX) pathway] resulting in the release of prostaglandins as menstruation begins.
- Higher levels of prostaglandins in dysmenorrheic females result in higher uterine tone, high amplitude contractions, and ischemia causing dysmenorrhea.
- Depending on the type of concomitant pelvic disease, prostaglandins and anatomical mechanisms are involved in secondary dysmenorrhea.

Diagnosis (Table 1)

- Diagnosis of primary dysmenorrhea is based on history and presence of a normal pelvic examination.
- Women suspected of suffering from secondary dysmenorrhea may require review of a pain diary and tests to confirm the clinical diagnosis, the extent and type of underlying pathology need to be carried out. An ultrasound examination or laparoscopy or hysteroscopy or both may be required.

TABLE 1: How to distinguish between primary and secondary dysmenorrhea.

	Primary dysmenorrhea	***Secondary dysmenorrhea***
Onset	Shortly after menarche	During reproductive age group, 30s or 40s
Duration	8–72 hours during menses	Prior to onset of menses and throughout menstrual cycle
Nature	Cramping pelvic pain, with or without nausea and vomiting, which commences with the start of menstrual flow; the pain may radiate to the lower back or upper legs	Variable number of days; noncyclical and cyclical episodes
Coexistent gynecological symptoms	Usually, no other gynecological symptoms	Coexistent gynecological symptoms, e.g., heavy menstrual bleeding (HMB), dyspareunia, vaginal discharge, intermenstrual bleeding, postcoital bleeding, and chronic pelvic pain
Clinical examination	Normal pelvis	Abnormal pelvic examination; findings based on underlying disorder
Pelvic ultrasound	Normal pelvic ultrasound	Adenomyosis, uterine fibroids, and ovarian endometriosis

Treatment

- Dysmenorrhea treatments aim to relieve pain and symptoms by affecting the physiological mechanisms behind menstrual cramps (such as prostaglandin production) or symptom relief.
- For women with menstrual cramps and no other associated findings or symptoms, no additional evaluation is initially required; can be treated empirically.
- Analgesics like paracetamol, piroxicam or antispasmodics like hyoscine compounds, camylofin, drotaverine or nonsteroidal anti-inflammatory drugs (NSAIDs) like mefenamic acid provide pain relief.
- Steroid hormone contraception inhibit ovulation, decrease endometrial proliferation and in turn lower endometrial prostaglandin levels.
- Cyclic COC pills can be used; extended or continuous administration regimen in women with pain not controlled by the traditional cyclic pill schedule.
- Progestin-only contraceptives such as the levonorgestrel-releasing intrauterine system (LNG-IUS), depot medroxyprogesterone acetate injection, and progestin-releasing implanted rods can also be used.
- Oral vitamins E, fish oil, low-fat diet, and Chinese herbal medicine improve dysmenorrhea.
- Nonpharmacologic pain management, in particular acupuncture or transcutaneous electrical nerve stimulation (TENS) may also be useful.
- Surgery is indicated if medical measures fail to provide relief and in women with secondary dysmenorrhea to treat the underlying pelvic pathology. Surgical interventions may be based on severity of symptoms, patient's age, desire for childbearing, and menstrual functions.

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Gynecological Algorithms in Clinical Practice

Salient Features

- Provides an overview of treatment protocols and outcomes in the field of gynecology by a unique algorithmic approach
- Designed to support rapid decision making in the most clinically relevant situations to minimize the risks of a poor outcome
- Based on current national guidelines and clinical evidence, the algorithms can be used as a reliable and practical resource for normal and problem cases encountered in day-to-day practice
- Divided into various sections like General Gynecology, Reproductive and Clinical Endocrinology, Infertility, Urogynecology, Aspects of Operative Gynecology, Complications of Early Pregnancy, Menopause, Gynecology Oncology, Endoscopy/Laparoscopy, Surgery for Obstetrical Complications, and many more
- Each chapter has been tried to be presented as an algorithm and has been carefully structured to ensure a logical progression of thought to aid anticipation, early diagnosis, and prompt and appropriate management
- Used easy-to-follow management algorithms presented in a highly visual format
- Various illustrations also have been included for better understanding
- A ready reckoner for the gynecologists, postgraduate students, and private practitioners who are practicing obstetrics and gynecology.

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