UNIT 4: REPRODUCTIVE ENDOCRINOLOGY, INFERTILITY & RELATED TOPICS

Educational Topic 46: Dysmenorrhea

Rationale: Dysmenorrhea is a common and sometimes debilitating condition in reproductive age women. Accurate diagnosis guides effective treatment.

Intended Learning Outcomes:

A student should be able to:

- Define dysmenorrhea and distinguish primary from secondary dysmenorrhea
- Describe the pathophysiology and identify the etiologies of dysmenorrhea
- Discuss the steps in the evaluation and management options for dysmenorrhea

TEACHING CASE

CASE: A 14 year-old G0 female presents with severe dysmenorrhea for the past six months. She began menstruating 10 months ago. Her first two periods were pain-free and 2 months apart. Since then, she has menstruated every 28 days, and has associated nausea, diarrhea and headaches. She misses school due to the pain. She says that she gets partial relief by using 3-4 Advil, two or three times a day during her period.

You speak to the patient without her mother about the possibility of sexual activity, which she denies. She is a good student, is involved in sports and after school programs. She denies use of drugs or alcohol.

The review of systems, past medical history and social history are noncontributory. The patient’s mother has endometriosis.

Physical examination:

She is afebrile. Abdominal exam is benign. Because the patient is virginal, pelvic examination is deferred. Abdominal pelvic ultrasound reveals a normal size anteflexed uterus and normal sized ovaries with multiple small sub-centimeter follicles. There are no adnexal masses or tenderness.

Laboratory:

Urinalysis is negative for blood, nitrites and leukocytes.
COMPETENCY-BASED DISCUSSION & KEY TEACHING POINTS:

Competencies addressed:
- Patient Care
- Medical Knowledge
- Systems-based Practice

1. Define and distinguish between primary and secondary dysmenorrhea.

- Dysmenorrhea is defined as painful menstruation. It is common and contributes to recurrent disability in 10-15% of women in their early reproductive years
  - **Primary dysmenorrhea:**
    - Begins with the onset of ovulation
    - Present in up to 90% of teenagers.
    - Due to an excess of prostaglandin F2Alpha (PGF2a) production in the endometrium.
    - This potent smooth-muscle stimulant causes intense uterine contractions and resulting pain.
    - Systemic effects include nausea, fatigue, irritability, dizziness, diarrhea and headache in up to 45% of patients.
    - There are no abnormal physical findings in the gynecological exam for primary dysmenorrhea.
  - **Secondary dysmenorrhea:**
    - Extrauterine causes
      - Endometriosis (endometrial glands outside the uterus)
      - Tumors (benign or malignant) or cysts
      - Pelvic Inflammatory Infection
      - Adhesions
      - Psychogenic (rare)
    - Intramural causes
      - Adenomyosis (endometrial glands in the wall of the uterus)
      - Leiomyomata (fibroids/benign tumors in the wall of the uterus)
    - Intrauterine causes
      - Leiomyomata
      - Polyps
      - Endometritis
      - Cervical stenosis

2. What is the differential diagnosis and most likely diagnosis?

- **Primary dysmenorrhea** is most likely; based on the onset of pain and associated systemic symptoms as well as the partial response to NSAIDs
- **Secondary dysmenorrhea** with underlying endometriosis is less likely; based on the normal physical examination, and the short interval since menarche. However, the patient may have an increased risk of endometriosis due to her mother's history. Most causes of secondary dysmenorrhea increase with age such as structural abnormalities (i.e. leiomyomata, polyps).
3. What additional evaluation is needed?

- A careful history is all that is needed in most cases of primary dysmenorrhea. No additional evaluation (including a pelvic exam in this young patient) is needed for the presumptive diagnosis of primary dysmenorrhea.
- However, if appropriate treatment fails to relieve symptoms within 3 months, pelvic exam and additional evaluation (such as ultrasound, hysteroscopy or laparoscopy) is needed to rule out a secondary cause such as endometriosis.

4. How would you manage the diagnoses in #1 above?

- Primary dysmenorrhea:
  - Non-steroidal anti-inflammatory agents (NSAIDs) are first line treatment
  - Combination hormonal contraceptives (pills, ring or patch) or progesterone-only contraceptives (progesterone injection or implant) provide effective contraception and improve symptoms of dysmenorrhea.
  - NSAIDs are prostaglandin-synthetase inhibitors, while hormonal contraceptives inhibit ovulation and progesterone stimulation of prostaglandin production. Within three months of starting hormonal contraceptives, 90% of women experience improvement.

- Secondary dysmenorrhea:
  - Is more difficult to diagnose than primary dysmenorrhea because symptoms and physical findings vary.
  - In addition to dysmenorrhea, symptoms may include menorrhagia (heavy periods) and/or pain throughout the menstrual cycle.
  - One of the most common causes of secondary dysmenorrhea is endometriosis, found in at least 10% of premenopausal women and 71-87% of women with chronic pelvic pain.
  - Treatment includes continuous combined hormonal contraception (see above), medical induction of menopause with a GnRH agonist (leuprolide), laparoscopic surgery for removal of endometriosis, fibroids or adhesions, or hysterectomy.

REFERENCES
