

## **DISORDERS OF MENSTRUATION**

The first menstrual period usually occurs around 12 years of age but the range is between 9 and 16 years. The interval between normal menstrual cycles typically varies from 25 to 34 days. Cycles shorter than 3 weeks or longer than 40 days may indicate some abnormality in ovulation. The length of flow on the average is 5 + or – 2 days. A normal menstrual cycle correlates very highly with ovulation.

### **PRECOCIOUS PUBERTY**

The appearance of sexual development before 8 years of age characterizes precocious puberty (PP). Seventy to 80 percent of the cases of PP are due to an early “awakening” of the hypothalamic-pituitary axis – idiopathic PP. Any secondary sex characteristic appearing before the age of 8 years warrant a clinical evaluation that involves trying to exclude serious disease such as neoplasms of the brain, adrenal, or ovary, or some disorder of the thyroid.

Besides the obvious body changes, PP also contributes to major psychosocial issues. The parents are often very distressed, and the child may experience problems relating to peers. If ovulation is present, no other studies need to be done. Ovulation does not occur during any pathological or disease states associated with precocious puberty. If the problem is idiopathic, Gn-RH analog therapy is used for the curtailment of physical and behavioral symptoms.

### **PRIMARY AMENORRHEA**

The absence of breast budding by age 14 and no menses by age 16, primary amenorrhea (PA), constitutes reason for concern. Primary amenorrhea may be due to delayed physiological menarche. Other possible reasons include a genetic cause impacting ovarian or gonadal function, a congenital anomaly involving the vagina and/or uterus, or a central problem influencing hypothalamic function and Gn-RH pulsatile secretion. A clinical evaluation should be directed to different compartments: the utero-vaginal tract, ovary, pituitary, CNS-hypothalamus, and other systemic problems.

Congenital abnormalities associated with primary amenorrhea can be as minor as an imperforate hymen or as major as the complete absence of the uterus and vagina. The diagnosis of anatomic defects is readily evident on performing a careful physical exam. A lack of sensitivity of androgen receptors, more commonly known as “testicular feminization syndrome”, should be included in this category. These patients have 46XY karyotype. These patients’ gonads should be removed because of the increase risk of neoplasia. Other causes of anatomical abnormalities include Turner’s syndrome, 45,XO; 46XX and 46XY (Swyer’s syndrome). These abnormalities are associated with elevated FSH.

Pituitary causes of primary amenorrhea are uncommon. Any patient with primary amenorrhea should have a serum prolactin, elevation of which would indicate a tumor. Kallmann’s syndrome is a Gn-RH deficiency associated with the inability to smell, absence of secondary sexual characteristics and a low FSH level.

Many psychosocial issues need to be addressed with these patients. Extensive counseling will be required.

## SECONDARY AMENORRHEA

After a previously menstruating individual misses three consecutive periods or 6 months pass without a period, she had met the definition of secondary amenorrhea. When pregnancy has been excluded, clinical evaluation should be directed to different compartments. CNS-hypothalamus, pituitary, ovary and the uterovaginal tract. The most common problem resulting in secondary amenorrhea is hypothalamic dysfunction and includes weight-change-related disorders, severe psychological stress, and exercise-induced problems. Pituitary causes include neoplasms; the most common being a tumor that either directly or indirectly results in hyperprolactinemia. Premature ovarian failure, the cessation of periods before age 40, is another important cause, and is characterized by an elevated serum FSH of > 40mIU/ml. Intrauterine scarring can be sufficiently extensive to result in amenorrhea. These patients have usually had curettage after pregnancy or severe endometritis.

Amenorrhea associated with dramatic or sudden significant changes in weight (plus or minus 15% from ideal body weight) is often associated with hypothalamic amenorrhea. Anorexia nervosa is the most extreme form of weight loss associated with amenorrhea. At the other end of the spectrum is pseudocyesis, a strong desire for pregnancy, with mild to moderate weight gain.

A very common cause of secondary amenorrhea is polycystic ovarian syndrome (PCOS). This is a hyperestrogenic and hyperandrogenic syndrome associated with anovulation. The three cardinal symptoms of PCOS are menstrual disorders (amenorrhea, oligomenorrhea, or dysfunctional uterine bleeding), which are present in about 90 % of the cases; hirsutism, which occurs in about 70% of the cases; and infertility, which is the presenting symptom in 75% of patients. The diagnosis is made by clinical features and by the presence of an elevated serum LH.

Another cause of amenorrhea or oligomenorrhea is congenital adrenal hyperplasia. It is a common genetic disorder. It is an enzyme failure in the production of cortisol. It results in increased ACTH, which results in increased androgens, causing hirsutism and oligomenorrhea.

## PREMENSTRUAL SYNDROME

Symptoms associated with the menstrual cycle are common. When the number and severity of the symptoms increase to the point where they interfere with daily existence, this is considered premenstrual syndrome (PMS). Predominant somatic symptoms can include the feeling of bloatedness, breast pain, headache, pelvic pain, and alterations in bowel function. The major psychological symptoms can include mood alterations such as irritability, aggressive tendencies, anxiety, depression, extreme lethargy, sleep disorders, crying spells, diminished libido, and loss of concentration. The incidence of PMS is reported to be between 5 and 95 %. Two to 3% of women have a severe form. There is no known cause for PMS. Patients should be encouraged to obtain a more healthy diet and to include a moderate amount of exercise. A multiple-feeding, high-protein diet and the elimination of caffeine and alcohol have been very effective for certain patients. The following table lists some medical therapies.

### DYSMENORRHEA

Dysmenorrhea, lower abdominal-pelvic cramping pain with menses and usually with a constellation of other symptoms, is classified as primary or secondary. It can be incapacitating.

Primary dysmenorrhea (PD) usually appears shortly after the menarche and is associated with ovulatory cycles. It is not caused by or associated with demonstrable pelvic pathology such as adhesions, infection or endometriosis. The pain is cramping in nature and may radiate to the back or thighs. Other symptoms, such as nausea, emesis, headache, fatigue and diaphoresis have been associated with dysmenorrhea. The severity may be correlated with the amount and duration of menstrual flow. While the exact etiology of the pain is unknown, endogenous prostaglandin seem to be important. Over the counter pain medications usually provide adequate relief for the patients. Low-estrogen containing birthcontrol pills have also been helpful.

Secondary dysmenorrhea (SD) usually occurs in women over the age of 20. The most likely cause is endometriosis, adenomyosis, and chronic pelvic infection. The treatment is the same. Occasionally, hysterectomy is needed to resolve the condition.

### ABNORMAL UTERINE BLEEDING

Abnormal uterine bleeding (AUB) is a frequent complaint of patients. Making an accurate diagnosis and ruling out serious etiologies are important. When a woman complains of vaginal bleeding, it is important to rule out the possibility that the origin is actually from another site i.e. bowel, urinary tract, and vulva. For women above the age of 35, endometrial cancer must be ruled out. This is done by doing an endometrial biopsy.