Menstrual Abnormalities

LEO J. DUNN, M.D.

Chairman, Department of Obstetrics and Gynecology, Medical College of Virginia, Health Sciences Division of Virginia Commonwealth University, Richmond, Virginia

Any physician involved in primary care will encounter patients with menstrual dysfunction. Mismanagement of this disorder is not usually the result of its complexity but rather the lack of an orderly approach. In unusual circumstances one may encounter a patient with a menstrual disorder of sufficient complexity to require referral. This decision should be based on a work-up indicating such a need rather than frustration after unsuccessful empiric therapeutic trials.

The age of the patient is an important consideration for evaluation; the three main categories are the adolescent, reproductive, and climacteric age groups.

Adolescent menstrual disorders are generally the concerns of "too early," "too late" or "too much." Menarche, or the first period, is expected to occur by age 13. "Too early" would be prior to age 9 and "too late" would be after 16.5 years of age. Those who have menarche "too early" usually prove to be individuals who have undergone the normal sequential events of puberty and have cyclic hypothalamic and ovarian function. Only one out of ten of these individuals will have any serious disorder such as brain tumor, residual damage after meningitis, or Albright disease. If menstruation has occurred but cyclic function is absent and ovulation does not take place, then a search for a source of estrogen must be made, the two most common sources being exogenous estrogen that has been ingested or endogenous estrogen from a theca-granulosa cell tumor of the ovary.

Therefore, the first effort is to determine if the patient's condition reflects a full, orderly, pubertal change or whether it represents only the effect of estrogenic stimulation. If it appears to be true puberty, an intracranial lesion must then be ruled out. If it appears to be pseudo-precocious puberty from estrogen stimulation with only menstrual bleeding, skeletal growth and breast stimulation, then a source from the environment or the ovaries must be sought.

About 95% of women will have had their first menses by age 16.5 years and 99% by age 18. A detailed history and thorough physical examination will give a number of diagnostic clues to a physician confronted with a patient who has not yet menstruated. Although it cannot be precisely predicted, there is a relatively orderly sequence of events that occurs with puberty. The gradual elevation of estrogens is reflected in the early development of the breasts, and about one year later, the rapid increase in the rate of skeletal growth. The adrenal changes resulting in higher levels of circulating androgens influence the growth of axillary and public hair. The onset of the first period can be expected within about 18 months of the rapid growth spurt. Therefore, the history and physical examination will give an indication at about what level the problem exists. These patients may present in a number of ways.

First, let us take a 17-year-old female who has not menstruated and who has no secondary sexual characteristics. We know immediately that there are no significant amounts of estro-
gen being made in that individual and must de-
termine whether the gonads are at fault or if the
order is central. A determination of follicle-
stimulating hormone (FSH) and luteinizing hor-
mone (LH) from plasma will divide these pa-
tients into two groups. If the gonadotropins are
elevated, we know that we are dealing with pri-
mary gonadal failure and must obtain genetic
studies by karyotyping. The usual abnormal kar-
yotypes found are 45X, 46 abnormal X, 46XX,
and mosaics. If the gonadotropins are low, we
are dealing with a central defect. The availability
of gonadotropin-releasing hormone will allow
the identification of those who have a hypothal-
amic dysfunction from those with an anterior pi-
tuitary dysfunction but this hormone is not now
generally available. At present, the method of
management for all of these cases will be estro-
gen/progestin substitution therapy.

Second, we consider a 17-year-old with
primary amenorrhea who by history had breast
development beginning at age 11, a growth
spurt evident by age 12, and normal axillary
and pubic hair. We would know that her gonads
had been producing sex steroids for several
years and that the hypothalamus and pituitary
must be functioning. Physical examination
would be expected to reveal some abnormality.
An obstruction to the menstrual flow such as im-
perforate hymen might lead to a direct and
simple solution to the problem. Absence of the
uterus or vagina (or some combination thereof)
requires further evaluation. At this point some
physicians use a buccal smear, others a testos-
terone determination, in order to identify the pa-
tients with testicular feminization syndrome. If
the findings are positive for this diagnosis, then
gonadal removal is indicated after completion of
pubertal changes because of the risk of malig-
nancy. Gender identity for this person has al-
ways been female and this should not be dis-
rupted by informing the patient about the details
of the condition. If a normal testosterone level or
positive buccal smear is indicative of a genetic
female, then surgical vaginoplasty may be nec-

dary, but gonadal removal is not necessary
since a Y chromosome is absent.

Third, we may be faced with a 17-year-old
female with a normal history of puberty, normal
secondary sexual characteristics, and both va-
FREQUENT, HEAVY, OR IRREGULAR PERIODS

Endometrial Sampling

Proliferative Endometrium

Simple Hyperplasia

Adenomatous or Atypical Hyperplasia

Carcinoma

Hysterectomy

Staging and Treatment

Cyclic Progestin Estrogen/Progestin

Fig. 2: Evaluation and management of menstrual abnormality during climacteric

Gina and uterus present. The evaluation of this individual would be the same as for the woman who has previously had menstrual function but who now has secondary amenorrhea. First, pregnancy should be ruled out. This may be done by a progestin or progesterone withdrawal test or by a beta human chorionic gonadotropin (BHCG) pregnancy test. The latter is probably now preferred because of the alleged teratogenic effect of hormones when pregnancy does exist. Once pregnancy is ruled out, a progestin or progesterone withdrawal test may be performed to evaluate the level of circulating estrogen, although the status of the endometrium and patency of the cervix would also influence the outcome. Eventually, however, in these patients a determination of FSH, LH and estradiol will be necessary to categorize the patient as indicated in the flow sheet (Figure 1).

The adolescent with “too much” bleeding, who is otherwise normal, is most likely experiencing anovulatory cycles. The diethylstilbestrol (DES) problem has made it important that visualization of the vagina and cervix be carried out. However, it is not necessary to biopsy or curette the endometrium of these individuals except under unusual circumstances. Management is usually by the administration of oral contraceptives to control the cycles, and oral iron to replenish its loss.

During the reproductive age a variety of menstrual disorders may be found also. For those women whose menstrual function has ceased (secondary amenorrhea) we can follow the course of evaluation previously outlined for the anatomically and genetically normal adolescent. For all other disturbances of the cycles, where bleeding is not of sufficient magnitude as to create an urgent problem, it is necessary to rule out pregnancy and to determine whether or not ovulation is occurring. If the patient has excessive menstrual flow or intermenstrual bleeding with good evidence of ovulation (by basal body temperature, progesterone assay or endometrial biopsy) then coagulation disorders should be ruled out and dilatation and curettage performed. If anovulation is demonstrated, endometrial sampling is prudent for those women at the end of the reproductive scale to rule out abnormal hyperplasia or the rare carcinoma. In general, however, these patients can be treated by either combined oral contraceptives in a cyclic manner or by one week of oral progestin each month. When anovulation occurs it is important to recognize that there is a wide variety of emotional, endocrine and general health disturbances that may interfere with the menstrual cycle. Therefore, evaluation of the patient must be general and thorough in order that symptoms and signs of other disorders may be found.

Menstrual change in the climacteric is expected as anovulation becomes more frequent and ovarian function progressively declines. However, some patients will experience excessive bleeding and/or unpredictable frequent episodes of bleeding. The possibility of pregnancy still exists in this age group and must be considered. However, the most important requirement for these women is the sampling of the endometrium. Subsequent management depends upon the pathologist’s findings and is outlined in Figure 2.

In summary, control of menstrual function is a very complex system that is highly integrated and subject to a number of types of malfunction from both within and without. Identification of the majority of menstrual disorders is within the reach of physicians responsible for primary care but requires a thoughtful, organized approach. Inability to reach a satisfactory diagnosis or lack of response by the patient to established methods of therapy indicate the need for more intensive evaluation.