GYNECOLOGY OF CHILDREN AND ADOLESCENTS
Report of a Round Table Discussion
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GYNECOLOGIC PROBLEMS IN CHILDHOOD

The discussants began the round table with a few general comments concerning various phases of development of the female. At birth and for the first week or more of life, the effects of maternal hormones on the newborn infant may be evidenced by hypertrophy of the breasts, prominence of the genitalia with nonpurulent vaginal secretion and occasional uterine bleeding. Throughout the remainder of infancy, until late childhood, there are no changes in the genitalia, and the mucosa of the vagina remains shrunken, producing little or no secretion. From the period of late childhood to early adolescence—that phase extending from the first menstrual period until the onset of ovulation—secondary sex characteristics develop and the vaginal mucosa undergoes cornification, becomes succulent and produces an increased quantity of secretion. Late adolescence is defined as that phase from the first ovulation to full maturity. The phases of adolescence are never clearly demarcated.

Certain pathologic conditions commonly seen in female children were then described. The relative incidence of these conditions as seen in a special clinic reflects their incidence in a general pediatric practice.

Nonspecific Vulvovaginitis

The majority of children (75%) are referred to the gynecologic clinic because of vulvovaginitis. Of these, 75% are found to have nonspecific vulvovaginitis. Etiologic agents and their relative incidence in the remainder of patients are: monilia, 15%; foreign body, 5%; and infections due to trichomonas, gonococcus and pinworms, 5%. Children under 10 years of age are most commonly affected. Those found to have vulvovaginitis due to fungi have usually given a history of recent antibiotic therapy.

The diagnosis of nonspecific vulvovaginitis is established in each instance by a careful history and complete examination, including visualization of the vagina. Instruments used for vaginoscopy are cystoscopes, numbers 22 and 26 French, cut to a length of approximately 6 cm. By giving a thorough explanation of the procedure to the mother and child, and frequently inviting the mother to watch the examination, the speakers have rarely had difficulty obtaining the cooperation of the patient. Occasionally the examination must be postponed until a second visit, but it has rarely been necessary to use anesthesia. Wet and dry smears and culture of the vaginal secretion are obtained. The culture usually shows the presence of E. coli, diphtheroids, staphlococcus and streptococcus in varying combinations; these are usually present secondarily, rather than as etiologic organisms.

Nonspecific vulvovaginitis is most frequently due to improper hygiene, specifically, improper cleansing after evacuation. The vast majority of patients who have a mild discharge and vulvar excoriation will show complete clearing after instruction in proper cleansing and the recommendation to change from the use of a tight-fitting, nonabsorbent panty to a loose, cotton bloomer. If, however, proper attention to hygiene is not successful in eradicating the
discharge, a solution of U.S.P. lactic acid, 85% (1 teaspoon to 1 pint of water) may be injected into the vagina by means of a medicine dropper. Application of 15 to 30 ml once or twice daily in this manner for 1 to 2 weeks will usually suffice. For the resistant cases requiring more continuous treatment, nitrofurazone (Furacin®) urethral suppositories may be used, one inserted each day for 2 weeks, then one every other day, until the infection clears. The speakers have not observed local sensitivity to nitrofurazone in their patients. Antibiotics are usually reserved for the most resistant infections in which overwhelming growth of a single organism is established by culture. Sensitivity tests will then determine the proper selection of antibiotic. Rarely, estrogen suppositories have been required when these measures have failed.

Attention was called to the fact that some children secrete considerable amounts of a mucoid material; these children require only proper instruction in cleansing and occasional observation to avoid development of a purulent discharge.

Some children with upper respiratory infections will also have concomitant non-specific vulvovaginitis which disappears with clearing of the primary infection. Tumors, although rare in childhood may have a serous or blood-stained discharge as one of the presenting signs.

Foreign-body Vaginitis

Despite the fact that vulvovaginitis in children has been found to be secondary to a foreign body in the vagina in only 5% of patients, it is important to be certain by direct inspection that one is not present before beginning therapy. Rectal and roentgenographic examinations may be helpful occasionally, but should not replace vaginoscopy. The secretion resulting from the presence of a foreign body is commonly foul-smelling, persistent, purulent and often bloody.

The only type of foreign body seen in the pediatric gynecologic clinic has been small, rolled-up balls of fiber, presumably introduced accidentally in the process of cleansing with paper. Removal of these objects results in complete clearing of the discharge. If secondary infection is severe, nitrofurazone suppositories may be required. Recurrence of this type of vaginitis has been rather common.

Labial Adhesions

Labial adhesions are characterized by a thin, white line appearing in the mid-line of the vulva. They occur secondary to vaginitis, particularly in the child under 5 years of age who has a viscid type of secretion. Labial adhesions are important to differentiate from the less common abnormal genitalia or absence of the vaginal orifice.

Therapy of labial adhesions is at present controversial. There are those who consider that no therapy is required since the adhesions are not found with the development of mature genitalia. If they are broken, according to this group, they tend to recur, with a greater incidence of vaginitis and cystitis. If the adhesions are not treated, careful observation of the patient is essential to prevent secondary infection. Breaking the adhesions is usually painful and causes bleeding, and the adhesions will recur unless the vulva is kept carefully lubricated.

The discussants prefer to use an estrogen cream once or twice daily, for a period of 2 weeks. The adhesions “melt,” no recurrences have been seen, pain is not incurred and generally no infections are encountered. Mucosal changes and some pigmentation will be seen during the use of estrogen cream but will disappear upon discontinuation of therapy. Other ointments such as zinc oxide, bacitracin or iodochlorhydroxyquin (Vioform®) may be used instead of estrogen cream.

Specific Vulvovaginitis

Vulvovaginitis due to specific organisms is uncommon in childhood. Gram-negative intracellular diplococci seen on stained smear may be N. gonococcus (most frequently) or N. sicca which are usually not
considered pathogenic. Other less frequently encountered organisms are Corynebacterium diphtheriae, pneumococcus and trichomonas. Infections due to specific organisms should receive appropriate antibiotic therapy administered systemically.

Lesions of the Vulva

Lesions of the vulva are extremely rare in children. Condyloma acuminatum is a flattened, greyish-white, vegetative wart. It is generally accompanied by a moderate vaginal discharge. It is resistant to ointments containing sulfonamide preparations, iodochlorhydroxyquin, antibiotics and cortisone. Two patients with condylomata treated in the clinic have responded to 5% ammoniated mercury ointment. It is usually not acquired by sexual contact during childhood. Some consider it to be of viral origin.

Lichen sclerosis et atrophicus appears as a greyish-white thinning of the vulvar mucosa, resembling kraurosis in old women. There is a loss of pigmentation and a low-grade inflammatory process accompanied by pruritus. It is not malignant and disappears at the menarche. It should not be treated by surgery. Symptomatic therapy with an antipruritic ointment is the only treatment indicated.

Granulomatous lesions are occasionally seen in association with nonspecific vulvo-vaginitis. They may be painful and are usually accompanied by a scant vaginal discharge. Biopsy usually shows no evidence of a specific type of granuloma, such as granuloma inguinale. These lesions are particularly resistant to treatment, but cases have been seen to respond to estrogen ointment. Application of such ointments must be continuous until the onset of menses.

Tumors

The discussion of gynecologic problems in childhood was concluded with a brief description of the types of tumors encountered in this age group. All tumors occur rarely; 50% are malignant and embryonal in type. Tumors of the ovary are the most common; 25% of these are benign teratomas or dermoid cysts. The tumors of the ovary not associated with production of hormones are fibromas and simple serous cysts. They are usually discovered accidentally, or in association with abdominal pain.

Simple follicular cysts of the ovary which produce estrogen may result in increased bone age, secondary sex changes and cornification of the vaginal mucosa. They are usually of approximately golfball size and should be treated by simple excision. Granulosa-cell tumors are rare; only about 10% of such tumors occur in children under 16 years of age. They are usually malignant but not rapidly recurrent. If they are solitary and no extension through the tumor capsule is found, then unilateral ovariectomy is the treatment of choice. Regression of secondary sex changes will be noted following removal. Bilateral growth increases the chance of rapid recurrence. Rarely, chorioepitheliomas, which produce estrogens, are found singly or in combination with dysgerminomas which do not produce hormone.

Approximately 30% of ovarian tumors are associated with the problems of torsion or rupture. Exploration is required to establish the diagnosis in most instances; occasionally special roentgenologic examination with pneumoperitoneum will be helpful. All tumors seen in adult females are also seen in childhood.

GYNECOLOGIC PROBLEMS IN ADOLESCENCE

The remainder of the round table discussion was devoted to gynecologic problems encountered in adolescence. For adolescent vaginal examination it is preferable to use a speculum for adolescents, which is 11 cm long and 1 cm wide, or a special cystoscope cut to a length of approximately 11 cm rather than the Graves' speculum, which is too short and too wide. In this connection, comment was made upon the use of shoulder braces, the lithotomy position and the mandatory complete explanation and gentle persuasion. It is rarely necessary
to employ anesthetic agents in order to perform a thorough examination of adolescent girls. At the time of examination, a stained specimen, a cytologic smear and a wet smear, as well as culture if indicated, are obtained.

Anatomic considerations discussed were: the small, central hymenal orifice; the vaginal length of 11 cm; the appearance on cytologic smear of large hexagonal cells with pink staining properties indicative of cornification and estrogen production; and the size and position of the uterus. Hypoplasia of the uterus is associated with failure of menstruation; a true infantile uterus is a rarity. Retroversion of the uterus is rare and usually not a cause of functional disturbance of menstruation. Early menstrual cycles are usually anovulatory.

**Leukorrhea**

In adolescence, nonspecific infections are seen, but unlike those found in the childhood period, the inflammatory process involves the entire vagina and frequently does not respond as readily to nitrofurazone or lactic acid. Management of the adolescent patient with vaginal discharge includes first, of course, a thorough examination to eliminate specific pathology, then a trial of the lactic acid solution (1 teaspoon to 1 pint of water). This is administered by lavage using a syringe attached to a urethral catheter. Simultaneously nitrofurazone suppositories are used before returing. If clearing of the vaginal discharge does not occur promptly, then a culture and smears are obtained, sensitivity of the organism to antibiotics is tested and appropriate antibiotic therapy to be administered locally is prescribed. Most commonly used are tetracycline suppositories or one of the sulfonamide creams with which an applicator is supplied.

Specific infections of the vagina most commonly seen are caused by trichomonas and fungi, the most common one being Candida albicans. The wet smear will demonstrate trichomonas vaginalis, or, if mycelia are seen, will establish the presence of a fungus. (The presence of spores alone is not considered diagnostic of monilial infections.)

There are many methods of treating trichomoniasis. Each method will cure 90% of cases, i.e., no recurrence for at least 3 months. The remainder of cases however, usually do not respond more than temporarily to any form of treatment. One theory given to explain this phenomenon is that there may be other organisms present which produce the primary infection and the trichomonas is present as a scavenger. Fortunately, trichomoniasis is not nearly as common in adolescents as in older women.

Lactic acid lavage and a sulfonamide cream are used first. If unsuccessful, then tetracycline ointment is used locally. Systemic antibiotics are not indicated. Nystatin is not effective. The speakers have had no experience in adolescents with the administration of Trithione®, the oral preparation of aminitrozole currently being used in adults.

Mycotic infections produce a curdy, white discharge with a diffuse inflammation of the vulva, associated with considerable pruritus and little odor. They often occur following administration of antibiotics systemically, presumably due to a change in the normal flora of the vagina. Diarrhea may precede the onset of the vaginal infection.

Treatment consists of the use of nystatin vaginal suppositories morning and night. One month of continuous treatment is required. Nystatin may also be given orally, 1 tablet (500,000 U) three times daily. For those patients who do not respond to this treatment, vaginal lavage with an alkaline solution (2 to 3 teaspoons of sodium bicarbonate to 1 pint of water) is prescribed before insertion of the suppository. For relief of the vulvitis, the alkaline solution may be used as a compress.

Mycotic infections may be an early sign of diabetes. Decreasing the intake of sweets may be a helpful adjunct to treatment. Any medication given in the form of a solution will not provide continuous high concentration of active ingredients as will creams or suppositories.
Dysmenorrhea

Painful or difficult menstruation, a common problem confronting the pediatrician caring for adolescent girls, is usually not encountered during the first few menstrual periods. Primary dysmenorrhea, by definition painful menstruation having no organic cause, is the most common type found in adolescence.

Various explanations for primary dysmenorrhea have been offered: poor (or incomplete) development of the uterus; improper hormonal balance (since ovulation occurs, this seems an unlikely explanation); lowering of the pain threshold; imperfect contractility of the uterus (any device used to study contractility will influence the result); and, perhaps most valid, some disturbance in the circulatory mechanism, a phenomenon analogous to vascular spasm.

The clinical picture of the adolescent with primary dysmenorrhea reveals a patient with normal physical development and normal pelvic anatomy. The periods are regular (that is, the range of onset of periods will be from 22 to 35 days, lasting at least 26 days and not longer than 6% days). The flow is usually normal—approximately 1 dozen pads, well soaked, will be used in a single period. Pain is reported beginning 24 to 48 hours before the onset of the period, lasting about 24 hours after the onset. Nausea and vomiting are generally not a feature of dysmenorrhea in early adolescence. The periods may be associated with temporary increases in weight, a sensation of bloating and occasionally headache. Irregularity, within the limits stated here, may be considered to be the "normal" period of the adolescent.

Secondary dysmenorrhea, painful menstruation with an underlying organic cause, may be due to stenosis of the cervix, a rudimentary uterine horn, pelvic inflammatory disease or other genital disease. A complete history and physical examination will provide clues for investigation in these areas. If fainting occurs in association with dysmenorrhea, the pediatrician must consider the possibility of hysteria or a pelvic accident, such as ruptured follicle or ruptured ectopic pregnancy. Rarely, the pain may be severe enough to provoke fainting without there being such an underlying organic cause.

The treatment of primary dysmenorrhea involves a simultaneous attack upon the many factors which may be operative. Analgesics are prescribed; usually acetylsalicylic acid and codeine will provide adequate relief. Recommendation is made to reduce insofar as possible environmental tensions (which surround the adolescent) during the period of discomfort, to reduce the amount of activity and increase the quantity of sleep obtained, and to take the necessary measures for normal gastrointestinal function. Occasionally, in order to reduce the symptoms associated with fluid retention, ammonium chloride is prescribed, 1 gm four times daily for 1 week preceding the onset of menstruation until the flow is established. Concomitant reduction in salt intake may be helpful. It is essential that the patient not be made an invalid, or her mother in any way encouraged to make an invalid of her.

Failure to respond to the above measures may require a trial of one or another therapeutic agent. Preparations of relaxin have been used in the clinic with some success. Tablets containing 1,000 units each are prescribed in a dose of 1 to 3 tablets every hour until the pain is gone. This must be repeated with each period. It may result in an increased flow.

Hormonal therapy may be tried in the severe or difficult case. Stilbesterol, 0.5 mg daily, is started on the fourth day of the period and continued through the eighteenth day. This provides relief from dysmenorrhea by preventing ovulation. This method is simple to use and innocuous. Disadvantages are that there may be some spotting when stilbesterol is stopped; occasionally gastrointestinal disturbances may be noted such as dyspepsia; and after a few months, ovulation may occur after the twentieth day, resulting in a delayed and painful period. Methyltestosterone, 5 mg daily, given...
in the same manner as stilbesterol, may be helpful. It is contraindicated in patients with acne or evidence of hair growth on the face, and it may produce changes associated with virilization. Both agents are used for six menstrual cycles and then stopped. They may have to be used repeatedly for relief in some patients.

The speakers felt there was no place for dilatation and curettage in the treatment of primary dysmenorrhea in adolescents. It will relieve the pain for 2 to 3 months only and is distinctly traumatic psychologically. Presacral neurectomy and the use of pessaries are not indicated. Antispasmodics have not been helpful. In answer to questions from the group, it was stated that Diamox might be useful in place of ammonium chloride. Tranquilizing agents have not been used.

Menorrhagia

Menstrual flow lasting longer than 7 days and of sufficient quantity to cause a decrease in hemoglobin and erythrocytes, may have its origin in endocrine dysfunction. It may be due to excessive estrogen production, an imbalance of estrogen-progesterone production, thyroid or pituitary dysfunction. Most commonly, menorrhagia is due to prolonged estrogen effect or thyroid dysfunction. These may be differentiated by absence of other signs of hypothyroidism and evidence of excessive estrogen activity such as succulent vaginal mucosa and breast engorgement. The status of the thyroid must be investigated in all cases of menorrhagia.

To inhibit the flow toluidine blue in the form of Blutene®, 100 mg orally twice daily, is given until the bleeding stops. It is then taken at the beginning of the next period in the same dosage and reduced to 100 mg daily as the bleeding lessens. It is used only if necessary at the next period and then in the original dosage, 100 mg twice daily. The medication will result in excretion of blue urine and may produce dysuria. Rarely, patients will experience some gastrointestinal distress. It has proven to be effective in about 80% of patients. The rationale for its use is that it inhibits the action of heparinoid substances found in increased amounts in the circulation during periods of excessive bleeding.

Stilbesterol, 25 mg daily, has been found to be effective in reducing excessive menstrual bleeding. It is usually effective in 2 to 3 days, is continued for 26 days and then stopped abruptly. Bleeding will occur in 24 to 48 hours. After 48 hours of flow, stilbesterol is started again. This regimen is continued for 3 months, then the patient is observed without treatment. Excessive flow may require repetition of the medication for several years. Increased pigmentation of the areola will be associated with large doses of stilbesterol.

Amenorrhea

A brief period only was available for the discussion of amenorrhea. If the patient has had either no period or a single period followed by complete cessation for months or years, a thorough examination is made. The functional status of the ovary, thyroid and pituitary glands should be evaluated. Ovarian dysfunction and hypothyroidism are the most common causes of amenorrhea.

In the presence of continuing amenorrhea of unknown etiology, treatment should be started at the seventeenth year of age. The administration of 2.5 mg of an estrogen preparation (Premarin®) or 0.1 mg of ethinylestradiol daily for 26 days, will result in onset of bleeding on the 28th day. The course of treatment is given for 6 months and then stopped. A period of observation will determine whether or not it must be restarted. These patients generally have problems of reproduction throughout their life.

The nature of the questions at the end of the round table discussion led both Dr. Wieczorowski and Dr. Huffman to stress the importance to the patient and the parents of a complete examination including vaginal.
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Discussion

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Pediatrics 1958;22;395

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