MEDICAL PRACTICE

*Gynaecology in General Practice***Amenorrhoea**

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British Medical Journal, 1971, 1, 711-713

Amenorrhoea is a common symptom in women attending a general practitioner. In most of these patients the amenorrhoea will be physiological and the diagnosis pregnancy. Beyond emphasizing the need to exclude this diagnosis in other patients with the symptom no further reference will be made to it. Pathological amenorrhoea may be primary or secondary.

Primary Amenorrhoea

At what age can it be said that a girl's failure to menstruate is abnormal? D. C. Wilson and I. Sutherland¹ in a survey of schoolgirls in the south of England found that only one girl in 100 would begin to menstruate after the age of 16 years and 3 months. Presumably therefore doctors need not be concerned about the failure of girls to menstruate until they are about 16. This is true in some girls in whom secondary sexual development has begun a little late but has been progressing slowly towards this age; it is to be expected that menstruation will appear before long and there is no cause for alarm. In other girls, however, it may be wise to undertake examination and investigation sooner. If, for instance, the failure of secondary sexual development and menstruation are associated with very short stature (less than 5 ft (1.5m) in height), the patient may have a sex chromosome abnormality. If, on the other hand, secondary sexual development has been complete for a year or two, yet no periods have started, the possibility arises of an anatomical cause such as absence of the vagina or the presence of an imperforate vaginal membrane.

Fortunately, the investigation of primary amenorrhoea can be carried out in most instances without special disturbance to

the girl herself. It is convenient to divide cases clinically into: (1) those with good secondary sexual development, and; (2) those with poor or absent secondary sexual development.

GOOD SECONDARY SEXUAL DEVELOPMENT

In girls with good secondary sexual development physical examination alone should determine if there is an imperforate membrane (Fig. 1) or if the vagina is absent. The imperforate membrane is likely to be associated with periodic lower abdominal pain and perhaps occasional difficulty in emptying the bladder culminating in acute retention of urine. Examination may disclose a lower abdominal swelling—the distended bladder—a bulging bluish membrane at the introitus, and a large cystic swelling palpable anteriorly per

FIG. 1.—A case of haematocolpos. Note the hymen immediately external to the imperforate membrane.

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rectum; this swelling is the mass of retained blood in the vagina (Fig. 2).

If the symptoms and signs of imperforate hymen are absent, yet no clearly recognizable vaginal orifice can be seen, this strongly supports absence of the vagina as the diagnosis. Apparent absence of the vagina may, however, be mistaken for the very short vagina associated with the rare condition of androgen insensitivity (testicular feminization). To make this distinction a buccal smear and chromosome analysis are indicated; a chromatin positive smear and XX chromosomes will support the diagnosis of vaginal absence, whereas a chromatin negative smear and XY chromosomes establishes the presumptive diagnosis of androgen insensitivity.

Treatment

An imperforate membrane obstructing the lower vagina calls for simple incision to relieve the retained blood. Vaginal

FIG. 2.—A drawing of the pelvis in a case of haematocolpos. Note how easily the large volume of blood distending the vagina can be felt per rectum. (Reproduced by kind permission of Baillière, Tindall & Cassell Ltd.)

FIG. 3.—A single pelvic kidney functioning normally in a patient with absence of the vagina.

absence requires the construction of an artificial vagina by one of a variety of methods. The technique of vulvovaginoplasty described by E. A. Williams² appears the most satisfactory at present. Whether the vagina is imperforate or absent, a malformation of the urinary tract may be associated and an intravenous pyelogram should be carried out to exclude this possibility (Fig. 3).

POOR OR ABSENT SECONDARY SEXUAL DEVELOPMENT

If secondary sexual development is absent or very poor, the explanation is likely to be failure of ovarian development or failure of gonadotrophin production by the pituitary.

The principal cause of ovarian failure is a sex chromosome abnormality (gonadal dysgenesis). The common abnormality is loss of a sex chromosome so that the patient has only 45 chromosomes and a single X sex chromosome; occasionally more complex abnormalities may be associated. Most patients with an abnormality of this kind are of short stature with absent secondary sexual development and primary amenorrhoea, and they may have other easily discernable clinical features such as neck webbing (Fig. 4).

FIG. 4.—A case of gonadal dysgenesis with 45X karyotype. (Reproduced by kind permission of Baillière, Tindall & Cassell Ltd.)

Investigation is simple. A buccal smear and chromosome analysis on a sample of peripheral blood are all that are required in the first instance. For the best results these specimens should be taken in the unit where the analysis is to be carried out. Gonadal dysgenesis should be treated by intermittent low-dose oestrogen therapy; ethinyloestradiol, 0.02 mg daily, may be given for three weeks in every four. Good breast development and withdrawal bleeding normally result and have an excellent effect on the patient's morale.

If no chromosomal fault is discovered this calls for more complex study which may still be performed as an outpatient. The investigations will include assay of gonadotrophin and adrenal hormone excretion and perhaps thyroid function also. Treatment will of course depend on the cause found.

Secondary Amenorrhoea

Menstrual periods may cease as a result of faults in the hypothalamus, the pituitary, the ovary or, rarely, other systems.

HYPOTHALAMIC CAUSES

The hypothalamic release of pituitary gonadotrophin may be inhibited in various circumstances. A common finding is that a "crash" diet to lose weight precipitates the episode of secondary amenorrhoea, which may last for many months. The precise cause of this association is not known, but emotional factors may be involved as well. In its extreme form the condition is called anorexia nervosa, when weight loss may be severe and the amenorrhoea may last for years, even after weight has been regained. Emotional strain associated with the death of a relative, a broken love affair, uncongenial work away from home, or similar stress factors may act in the same way. In the last few years failure to resume menstrual periods after stopping the contraceptive pill has become an important cause of hypothalamic secondary amenorrhoea.

PREMATURE OVARIAN FAILURE

Very rarely a pituitary cause, such as a tumour, may be found. Premature ovarian failure may also occur. Presumably this results from great reduction in the number of oocytes in the ovary during development; as a result there are only sufficient ova present to last a few years, after which the ovary can no longer respond to gonadotrophic stimulation. Occasional adrenal or thyroid causes may be found.

MANAGEMENT

These various possibilities should be considered in any patient presenting with secondary amenorrhoea. If the amenorrhoea is of brief duration—some three months or so—and the patient remains in good health and the physical signs suggest no important cause, it may be sufficient to wait a few months while attention is paid to the patient's general health

and emotional outlook; sometimes menstrual periods will resume spontaneously. If they do not it will be wise to send the patient for further consultation and investigation to find out (a) what the probable cause of the abnormality is—particularly whether this threatens the patient's life; and (b) whether specific treatment in the form of ovulation induction is possible.

The cause of the abnormality may be investigated by general physical examination and determination of the patient's blood picture. Other investigations include gonadotrophin and adrenal steroid assay in the urine, testosterone assay in blood and urine, especially in cases associated with hirsutism, tests of thyroid function, and x-ray films of the pituitary fossa. These tests will probably exclude a serious cause for the secondary amenorrhoea. Moreover, the gonadotrophin assay in particular will indicate whether ovarian stimulation is likely to be successful. If gonadotrophin levels in the urine are raised to menopausal values attempted induction of ovulation will be unavailing. If gonadotrophin excretion is normal or low induction of ovulation may be successful. If a serious cause for secondary amenorrhoea is diagnosed, it must of course receive treatment. When a serious cause is excluded it is better to limit treatment to measures designed to improve the patient's general health and emotional outlook, and await the results. Induction of ovulation should be reserved for the specific treatment of infertility at the appropriate time.

If the amenorrhoea is likely to be of hypothalamic origin—such as that associated with weight loss or emotional distress—the use of the contraceptive pill either as a contraceptive measure or to produce withdrawal bleeding is contraindicated as it is likely to make matters worse. It seems better to discuss the whole problem fully with the patient to ensure that she understands that no serious fault exists, that treatment is possible later if she wishes to have children, and that the amenorrhoea itself is doing her no harm. If the production of withdrawal "bleeds" is thought necessary—and this is seldom the case after full explanation—oestrogens only should be used for a few months.

References

- ¹ Wilson, D. C., and Sutherland, I., *British Medical Journal*, 1950, 2, 862.
- ² Williams, E. A., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1964, 71, 511.

One Hundred Years Ago

From the British Medical Journal, 25 March 1871

UNPOPULARITY OF THE NAVAL MEDICAL SERVICE

It is obvious, from the following incident, that there exists some cause deserving the attention of statesmen beyond lack of emolument which causes employment in the navy to be unpopular with the medical profession. At the recent competitive examinations for admission into the army and navy medical services, nearly twice as many the number of candidates presented themselves for the army as there were army vacancies; while the number of candidates for naval commissions was very considerably below the number of vacancies in the navy. After the required number had been selected for the army medical service, there remained eighteen gentlemen who had qualified themselves by their examination for admission into the army, and who would have been admitted had their services been required. As there was no opportunity

of giving army commissions to those qualified competitors, and as there were vacant appointments in the naval service, the offer was made to give them naval commissions. Only seven out of the eighteen accepted the offer. The pay and emoluments on entering the naval medical service are higher than in the army service, and the expenses on board ship so moderate that a medical officer can save no inconsiderable portion of his income; promotion, too, is quicker, and the rate of retirement higher, in the navy than in its sister service. It is worth while to inquire officially what counteracting influences are at work to neutralise these superior advantages. We have not the least doubt that the popular and energetic Director-General, who now rules the medical service of the navy, will be fully able to indicate what the grievances are, if only an honest desire of knowing the truth on the subject be manifested in the quarters where alone, whatever their nature may be, they can be rectified.