THE MODERN TREATMENT OF GONORRHOEA IN THE FEMALE*

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Gonorrhoea in the female is similar in many respects to that in the male, but in some ways is of considerably more importance, since many women suffer from the disease without knowing it and therefore probably convey it to a greater number of people than they would otherwise. Incidentally, too, gonorrhoea not only may infect the eyes of the child during its passage through the birth canal but is also a very common cause of sterility, mainly as a result of salpingitis causing occlusion of the Fallopian tubes. In the case of gonorrhoea in a married woman consent should be obtained to tell the husband not only in order that he may be examined and, if necessary, treated, but also to avoid the risk of marital infelicity should he find out accidentally; in the case of a girl under 21 the parents should be told if circumstances appear to demand it. Such action is likely to prevent difficulties arising later, especially if the girl should become engaged to be married. It is a great mistake to adopt a policy of secrecy, and all those who are, or are likely to be, involved should be told in confidence.

Diagnosis

The signs and symptoms may be much the same as in the male—that is, a discharge of greenish-yellow pus accompanied by pain on micturition—but often the latter is entirely absent, and it must be remembered that discharges of various kinds are regarded by many women, especially multiparae, as hardly abnormal.

Place the patient in the lithotomy position and separate the labia majora; note any discharge from the vulva, vagina, and urethra, any swelling or inflammation of Bartholin's glands, and any discharge from their ducts. Swab the vulva clean and dry; pass the first finger of the gloved left hand into the vagina and draw it forward along the floor of the urethra; by this means any discharge will be brought to the urethral orifice; near this latter look for any discharge from Skene's ducts. Next pass a speculum (Cusco) into the vagina and open it to bring the cervix uteri into view; note any erosion of the external os; clean the cervix and surrounding parts with a swab—dry or soaked in weak alkaline solution if there is much mucoid secretion—and note any discharge coming from within the canal. Take specimens for smear and culture from *within* the urethra and cervical canal and from any discharge from Bartholin's ducts. Examine uterus and adnexa bimanually to ascertain if pelvic inflammation, especially salpingitis, is present.

In cases of acute gonorrhoea gonococci are easily demonstrated, but in chronic cases they are often difficult to find; if gonococci are not in evidence at first, further examinations should be carried out at short intervals. Gonococci are most likely to be found *immediately* after a menstrual period (some clinicians recommend examination *during* a period). Such examination should be repeated monthly, if necessary for three months, before gonorrhoea can be excluded. It is most important to take cultures as well as smears, since the flora of the vagina are very numerous and varied and it is often quite impossible to say whether gonococci are present or not from the examination of smears alone. In chronic cases a gonococcal complement-fixation test (G.C.F.T.) is often helpful, but in acute cases this will usually be negative unless the disease has been present for some time or complications are present; a positive reaction is valuable, but a negative one does not exclude gonorrhoea.

In acute cases examination of the urine, as in the male, will frequently reveal a haziness due to pus if the patient has not passed water recently; specimens may be made from centrifuged urine for bacteriological examination. In chronic cases diagnosis is often very difficult, and can be established only by repeated careful examination and taking of specimens; the latter are best taken with a sterile platinum loop or a dressed Playfair probe. No lubricant should be used when passing a

speculum, since this may inhibit the growth of gonococci in cultures. In all cases it is wise to look for trichomonas vaginitis at the same time, as this is a very common accompaniment of gonorrhoea and, if present, is apt to delay cure unless vigorously treated.

Treatment

Early acute cases usually react well to chemotherapy, but old-standing chronic cases, especially where the cervix uteri and perhaps the pelvic organs are involved, are often very difficult to cure. The general practitioner will do well to remember this and not undertake the treatment unless he feels thoroughly competent to do so. If the patient is married it is most important that the husband should be examined and, if necessary, treated; if husband and wife are both infected they should obviously both be treated, as otherwise repeated re-infection may occur. In any case it is the moral duty of any physician treating a case of communicable V.D. to endeavour to trace the source of the infection and bring him or her under treatment.

General Treatment.—This should be on the same lines as for males; rest during the acute stage and careful personal hygiene are most important.

Chemotherapy.—Sulphathiazole 4 g. a day (1 g. four times a day) for 5 days—total 20 g.—will cure the great majority of acute cases, and the fluid intake should not be less than 6 pints. Where the patient can be kept under the physician's eye—e.g., in hospital—a rather higher dosage may be employed. Bolton (1943) recommends 7.5 g. the first day and 5 g. daily for the succeeding four days—total 27 g., the patient being kept in bed during the period of chemotherapy. In either case if the first dose is given early in the morning and the last dose late in the evening there is no need for one during the night. Should a second course be necessary an interval of seven days should be allowed to elapse and preferably the type of sulphonamide changed—e.g., to sulphadiazine or sulphapyridine; a blood count should be done before starting a second course. Intolerance and its treatment are the same as in males. The urine should be rendered alkaline with sodium bicarbonate to prevent haematuria, and if symptoms are acute tincture of hyoscyamus minimis 20 and tincture of belladonna minimis 5–10 three times a day may be prescribed.

Local Treatment.—In acute uncomplicated cases this is rarely indicated beyond that necessary for personal hygiene—i.e., frequent hot baths, to which alkalis may be added, and the keeping of the affected parts dry and clean. In chronic cases, and especially those which do not react to the sulphonamides, irrigation of the urethra and bladder may be carried out as in the case of males; but routine vaginal douches are to be deprecated, dry or moist swabbing being preferable. It should be remembered that in adult females vaginitis is not a prominent lesion, the brunt of the disease falling on the urethra and cervix uteri. The vagina and cervix should be swabbed, dry or with a mild antiseptic, using a Playfair probe dressed with cotton-wool, and, following this, the whole surface should be dusted with powder applied by means of an insufflator. Cervical erosions should be treated, after clearing the secretion away, with weak alkali, with topical applications, applied by means of a Playfair probe, care being taken not to pass the internal os. Probably the best substance is glycerin, and this may be used neat or in the form of glycerin of borax or glycerin of ichthyol 5%; other applications recommended are mercuriochrome 1%, picric acid 1% in spirit, and acriflavine 0.5 to 1%. These applications should be carried out daily in subacute cases and once or twice weekly when the condition is chronic, ringing the changes on the various preparations. Cystic swellings (ovulae nabothi) are treated by puncture. As an adjuvant to chemotherapy the insertion of two tablets of acetarsol at bedtime is very helpful, or the vagina may be insufflated daily with this drug in powder form or with powdered sulphanilamide; local treatment should be carried out by the nurse or the medical officer himself wherever possible. Sulphonamide-resistant cases often call for pyretotherapy, applied by means of a fever cabinet or protein injections (e.g., T.A.B. vaccine) as described for males.

Complications and their Treatment

Many of these react well to chemotherapy, but a closed focus—e.g., a Bartholin's abscess—should be drained. When serious complications occur it is wise to refer the case to a specialist

* Written by request in continuation of the article on gonorrhoea in the male which appeared in the *Journal* of July 17, 1943 (p. 72), and for the same reasons.

if they do not clear up under chemotherapy. When chemotherapy fails the following measures may be adopted:

1. *Skenitis*.—This is an inflammation of the gland ducts opening on either side of the urinary meatus; the ducts should be destroyed with the electric cautery or fused silver nitrate, or injected with tincture of iodine, 10% silver nitrate, or 10–20% mercurochrome.

2. Urethral caruncle, which forms at the meatus, should be excised or cauterized.

3. *Bartholinitis, or Bartholin's Abscess*.—The gland should be dissected out or the abscess laid open freely.

4. *Salpingitis, Oophoritis, and Pelvic Peritonitis*.—If acute the patient should be put to bed in the Fowler position and treated on expectant lines; as soon as the acute symptoms have passed off, hot vaginal douches may be given once or twice daily, and, when the chronic stage is reached, two or three times a week. Operation is rarely called for if the infection is purely gonococcal; if in doubt call in a gynaecologist.

5. *Metritis and Endometritis*.—In the acute stage treat as for salpingitis. When acute symptoms pass off, treat as for cervicitis; dilatation of the cervix and the insertion of a glycerin drain are often helpful.

6. Other complications, arthritis, etc., are dealt with in the same way as in males.

7. *Trichomonas vaginitis*, which, as has been said, is a very common accompaniment of gonorrhoea, should be treated from the first; it is troublesome to cure and very apt to relapse. Its presence should be suspected in those cases of gonorrhoea which fail to clear up in the ordinary way.

Tests of Cure

These are even more essential than in males, because conclusive evidence of cure is so much harder to obtain. Gonococci have a way of disappearing under treatment and reappearing after treatment has been stopped, more especially at the menstrual periods; apparently they may lie dormant in the endocervical glands for very long periods. One or two tests should be carried out at four-day intervals following completion of treatment, and then monthly for at least three, and preferably six, months before the patient is discharged as cured. These latter examinations should be carried out immediately after a menstrual period, since it is at this time that gonococci, if present, are most easily detected. The following procedure is recommended:

1. Clinical examination, including smears and cultures from the vagina, urethra, Bartholin's ducts, and the endocervix. Specimens should also be taken from the rectum, as this is often infected in females. The importance of cultures cannot be overestimated, but it is essential that a suitable medium be employed.

2. Examination of vagina and cervix through a speculum.

3. Examination of the urethra through a urethroscope.

4. Bimanual examination of the pelvic organs, including uterus, tubes, and ovaries.

5. G.C.F.T.—This is of particular value when the disease has been chronic, if there have been complications, or if a previous positive result has been recorded.

During the period of observation in the case of a married woman, if intercourse takes place the husband should employ a sheath, not only for his own protection but in order that impregnation should not occur. A woman should not allow herself to become pregnant until the fact of cure has been established with as great a degree of certainty as possible.

Pregnancy and the Puerperium

The treatment of gonorrhoea during pregnancy is similar to that already described, but it is important to exercise the greatest gentleness both in taking specimens and in carrying out instrumental treatment in order to avoid the risk of inducing an abortion or miscarriage. Douching should be avoided and, owing to the fact that the discharge is often profuse, care should be taken to keep the genital area dry with dusting powder to avoid excoriation. Sulphonamide drugs are not contraindicated—pregnant women tolerate them well—but anything likely to cause a general reaction should be avoided. When labour starts an endeavour should be made to cleanse the birth canal, as it is particularly important to avoid risk of infection of the eyes of the infant; they should be treated thoroughly as soon as it is born.

If fever occurs during the puerperium it is possible that the gonococcus may be responsible; if the interior of the uterus is involved a catheter should be passed, with aseptic precautions, up to the fundus and glycerin or glycerin and iodine instilled

through it. The patient should of course be kept in the Fowler position.

Gonorrhoea in Female Children: Vulvovaginitis

The vagina of the adult is lined with stratified epithelium and is therefore relatively resistant to the gonococcus; but that of the young female is lined with delicate columnar epithelial cells, and is very susceptible to infection. Infection may occur at birth direct from the mother's secretions or at any time up to puberty through the medium of infected articles such as towels, napkins, underclothing, baths, and instruments. Criminal assault is a not uncommon cause.

Signs and Symptoms.—In the case of young females the brunt of the attack falls on the vagina, though the urethra almost invariably and the cervix frequently are also involved; the vulva is usually red and inflamed, and may be excoriated; discharge is often profuse and there is considerable discomfort. Specimens for bacteriological examination should be taken as in the adult, but it will often be impossible to pass a vaginal speculum; in such cases a urethroscope as used for the adult male is most useful for examining the interior of the vagina and the cervix. It must be remembered that the majority of cases of vulvovaginitis are due to causes other than the gonococcus: these include other organisms (staphylococci, streptococci, etc.), parasites, and trauma; a diagnosis of gonorrhoea should therefore not be made unless the gonococcus is demonstrated. The anal canal and rectum are commonly involved, and these should be examined carefully in all cases.

Treatment.—It should be remembered that this disease is extremely contagious and may easily spread rapidly through a community of young girls; the patient should therefore be isolated and the communal use of toilet articles forbidden; all contacts should be examined and every endeavour made to find and treat the source of the infection. Chemotherapy is the treatment of choice, and the disease usually reacts well. Sulphathiazole should be prescribed in dosage according to age and weight (0.5 g. per 15 lb. of body weight)—i.e., one-quarter to half a tablet three times a day in early life, rising to one tablet three times a day at the age of about 5 years; the usual precautions as to side-effects must be taken. Frequent hot baths and scrupulous cleanliness of the affected parts—keeping them as dry as possible—are indicated; but local treatment should be avoided so far as is possible, as this has a bad psychological effect and may lead to masturbation. Where indicated, local treatment is similar to that for adults, the cervix being treated through a urethroscope. When other methods fail an attempt to encourage the formation of resistant epithelium may be made by the administration of ovarian hormones; but this is a matter for the expert. Cases of vulvovaginitis are notoriously difficult to cure, and are very liable to relapse; treatment should therefore be continued, except in those cases which react well to the sulphonamides, for some time after all gonococci have disappeared, and tests of cure should be carried out over considerable periods, particular attention being paid to the rectum.

REFERENCE

Bellon, Marjorie (1943). *Brit. J. vener. Dis.*, 19, 95.

THE ORDER OF ST. JOHN

Two reports, the covers of which bear the white eight-pointed cross of the Order of St. John, have been received from the Chancery of the Order in the ancient gateway of St. John's priory at Clerkenwell. One of them is a report of the Chapter-General of the Order on the progress of its various modern foundations—namely, the St. John Ambulance Association and the St. John Ambulance Brigade at home and over-seas; the other gives an account of the ophthalmic hospital of St. John in Jerusalem, the city where the original Order was founded during the first Crusade. There were critics years ago, both before and after the incorporation of the English branch of the Order by a charter granted by Queen Victoria, who described it as sham-Gothic and absurd, but every critic must by now have been won over by the disciplined humanitarian work of this venerable institution.

Work of the Association and Brigade

The St. John Ambulance Association issued just upon 120,000 first-aid certificates last year and nearly 25,000 certificates for home