Case	Age and Sex	Date of First Injec.	Pathology	Previous Treatment	No. of H 11 Injec.	Result of Examination April, 1942	Result of Examination October, 1942
38	M 53	June, 1941	Carc. prostate; not confirmed by section	—	620	Gland normal; gain in wt.; G.C. v. good; micturition normal	G.C. v. good; no symptoms; no nocturnal frequency. P.R., prostate soft; rt. lobe +
39	F 58	Oct., 1941	Squamous carc. cervix, Grade III	Radium	744	No discharge, no symptoms, no pain; G.C. impd. 22/4/42	G.C. v. good; wt. increasing, 7 st. 13 lb.; no pain or symptoms; no signs of recurrence. Injections now stopped
40	F 47	July, 1941	Squamous carc. of cervical stump; had hysterectomy several years previously for fibroids. Large ulcerating mass	Radium; pre-sacral neurectomy	558	V. sat. condition; some scarring vaginal walls; no pain; a little loss of wt.	G.C. v. good; lost 10 lb. in wt. since April; has thickening rt. utero-sacral lig. and small mass in pelvis. To have further injections
41	F 45	Aug., 1941	Squamous carc. cervix, Grade III	Radium; pre-sacral neurectomy; Wertheim's hysterectomy	558	N.A.D. abdomen; no pain; G.C. v. good; scarring and a little thickening of vaginal vault	G.C. v. good; wt. 11 st. 6 lb. Injections stopped in April, 1942. No symptoms; P.R., both utero-sacral thickened
42	F 47	Sept., 1941	Carcinoma cervix, Grade IV	Radium	447	N.A.D. abdomen; no haemorrhage; no discharge; G.C. v. good. P.V., scarred cervix	Gradually lost wt. and pain recurred. Died 11/8/42
43	F 56	Oct., 1941	Solid trabecular transitional and squamous carc. cervix	Radium; pre-sacral neurectomy	249	G.C. v. sat.; gain in wt., 10 st. 7 lb.; no pain; slight cervical scarring	G.C. good; wt. 11 st. 2 lb.; no symptoms but tiredness; utero-sacral ligaments thickened. To have further injections
44	M 60	Sept., 1941	Carc. prostate	—	98, irreg.	—	Doctor states G.C. good; wt. stationary; no pain; working, and feels well
45	M 21	Jan., 1942	Carc. rectum	—	188	Died	Died
46	F 46	Jan., 1942	Carc. cervix	Radium	150	Condition worse	No reply
47	F 26	30/10/41	Carc. stomach	Gastrectomy	240	27/2/42; Epigastric tumour; G.C. deteriorating; losing wt.; vomiting+	
48	F 60	13/1/41	Carc. uterus	Wertheim's and radium, followed by recurrence and suprapubic cystotomy	200	No improvement. Died 10/2/42	
49	F 70	9/10/41	Carc. cervix, Grade II	Radium	300	22/4/42: Satis.; G.C. good; no secs. palpable	Dead
50	F 29	1/11/40	Carc. ovary	Ovariectomy; glands +	19, stopped at patient's request	V. rapid growth, causing intestinal obst. Died 19/12/40 ? accelerated by withdrawal of growth-inhibiting factor	
51	F 60	28/8/41	Carc. breast (scirrhus)	Nil; patient refused operation or radiotherapy	540, irreg.	19/6/42: Operable. Growth slowly increasing: started approx. 1" in diameter, now 1½"	No reply

I wish to express my thanks to the medical and nursing staff of the Kingston County Hospital for their assistance, and to the general practitioners who have co-operated in giving the injections to the patients in their own homes. In particular I am indebted to Mr. J. V. O'Sullivan for his great interest in this research and for his valuable suggestions.

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CUTANEOUS HYPERSENSITIVITY TO SULPHONAMIDES

A REPORT OF 12 CASES

BY

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The following cases illustrate a type of sulphonamide eruption which is being recognized with increasing frequency in the Middle East, but to which I am unable to find any reference in the literature at my disposal. In a previous report from this hospital on sulphonamide eruptions of the photosensitive type (Park and Platts, 1942) it was pointed out that these rashes almost invariably begin after 7 to 10 days of sulphonamide therapy, when there is presumably a high concentration of the drug in the blood. One case, however, was quoted in which there was a severe dermatitis beginning immediately after the first doses of sulphanilamide, differing from the delayed eruptions in its exudative character. An analogy was drawn between this condition and the experimental observations of Epstein (1939), who obtained erythematous and exudative reactions respectively to ultra-violet irradiation of the sites

of two successive injections of sulphanilamide, nine days apart. This phenomenon he christened "photo-allergy." The cases reported below are all of the immediate type, some of the generalized ones being unmistakably photosensitive, and it has been found that all of them have had sulphonamides applied to the skin some time before their eruptions.

Case I

On Aug. 16, 1942, Private B., aged 36, developed a seborrhoeic intertrigo of the left axilla. On the 19th this became pustular, and sulphanilamide ointment was applied, clearing up the secondary infection and leaving the intertrigo as before. He gave a history of a widespread eruption, lasting several weeks, following sulphanilamide dressings to a wound of the back 8 months previously. On Aug. 23 he developed acute tonsillitis, and was given three 0.5-g. doses of sulphanilamide by mouth. That evening the intertrigo became worse and a general rash appeared.

Next day, on admission to hospital, he showed a weeping eczematous intertrigo of the axilla and a diffuse papular dermatitis of the trunk and limbs. He received no more sulphanilamide until Sept. 1, when his tonsillitis recurred. Three 4-hourly doses of 1 g. were then given, and that evening the entire eruption recurred, more severely than the first time. It took two weeks to clear. On Sept. 23 0.5 g. of sulphapyridine caused a mild erythematous reaction at all the previous a.e.s., lasting two days. On Sept. 26 1 g. of sulphaguanidine produced no reaction. On the 27th 5 g. of sulphaguanidine gave a mild erythematous reaction. On Oct. 1 1.5 g. of sulphathiazole caused no reaction.

On Oct. 4 a paste consisting of equal parts of sulphanilamide, starch, soft paraffin, and lanolin was applied to several test areas. This caused an immediate reaction in the left axilla, but none on any other part of the skin. Intradermal tests were carried out with 0.01, 0.1, and 1% of sulphanilamide in normal saline, using controls of normal saline alone. Only the 1% gave a reaction, consisting of a raised erythema, beginning in about 4 hours and lasting 24 hours.

Case II

On Aug. 1, 1942, Leading Aircraftman T., aged 38, suffered abrasions of the left elbow which became infected and were treated with eusol and sulphanilamide, applied locally. On Aug. 8 an

eruption appeared; by Aug. 28, when he was admitted to hospital, this had spread to involve the whole forearm. It was an acute weeping dermatitis. On Sept. 9 he developed acute tonsillitis, and was given sulphanilamide in an initial dose of 2 g. and three 4-hourly doses of 1 g. That evening he developed an acute papulo-vesicular dermatitis of the trunk and limbs and an exacerbation of the left forearm.

Test applications of sulphanilamide paste were negative. Sulphapyridine 2 g. gave no reaction, but there was an erythematous reaction of the trunk after 5 g. of sulphaguanidine. No reaction was obtained from 1.5 g. of sulphathiazole. Intradermal and scratch tests with 1% sulphanilamide were negative.

Case III

About the middle of July, 1942, Private M., aged 23, developed a "desert sore" (ecthyma) of the right forearm. It was treated at first with eusol and later with local application of sulphanilamide and cod-liver oil: a dermatitis followed in the area treated. By the end of August the whole forearm was affected, and then the face, hands, and feet. He was admitted to hospital, and on mild applications the condition settled down in two to three weeks.

On Sept. 18 one application of sulphanilamide paste was made to the right forearm, where an immediate acute exudative reaction took place. On Sept. 25 a test dose of 0.5 g. of sulphanilamide was given orally. A few hours later the patient developed an acute vesicular dermatitis of the right forearm and both hands and feet. On Sept. 27 a sulphanilamide paste was applied to the face, with an immediate reaction, and to the left forearm (which had never been the site of eruption), with no reaction. On Oct. 13 0.5 g. of sulphapyridine gave no reaction, but 2 g. next day produced a mild erythema at all the previous sites, lasting a few hours only. From Oct. 16 to 22 doses totalling 12 g. of sulphaguanidine and 4.5 g. of sulphathiazole were given with no effect.

Case IV

On Aug. 6, 1942, Sapper R., aged 35, suffered an abrasion of the left elbow, which developed infection and was dressed with sulphanilamide. A dermatitis subsequently appeared on the forearm, and by Aug. 18 had spread to other parts of the body.

He was admitted to hospital on the 20th with a bullous dermatitis and subcutaneous oedema of the left elbow, a papulo-vesicular eruption of the face, scalp, neck, trunk, arms, hands, and legs, and a mild crural and intergluteal intertrigo. His temperature was 101°. He was given 2 g. of sulphanilamide followed by 1 g. 4-hourly; the drug was discontinued two days later, since there was no improvement, the temperature chart varying from 99° to 102°. This then subsided in two more days and his skin steadily improved. On Sept. 26 1 g. of sulphanilamide was given with no reaction, but on the next day three similar doses caused a sharp flare-up of the left arm and a milder erythema of the face, neck, hands, and feet.

On Oct. 6 three doses of 5 g. of sulphaguanidine gave a papulo-vesicular reaction on the left forearm only. Sulphapyridine 15 g., in divided doses over three days, gave a mild papular reaction on both forearms. Applications of sulphanilamide paste, and intradermal and scratch tests, were negative with 1% sulphanilamide.

Case V

About the beginning of Sept., 1940, Warrant Officer D., aged 40, developed lesions of impetigo and ecthyma on the arms, which were treated with acriflavine and later with sulphanilamide powder. About the middle of September areas of dermatitis appeared on both arms, and on the 29th an eruption occurred on the hands, legs, face, and trunk.

He was admitted to hospital on Oct. 3, when he had circumscribed areas of moist dermatitis round the sites of previous ulcers on the left forearm and right hand. There was a more recent vesicular and pustular dermatitis on the legs, hands, and face, and in scattered areas on the trunk. Intradermal tests with sulphanilamide gave a reaction with the 1% strength only, starting in 24 hours and lasting 3 days. On Oct. 13 0.5 g. of sulphanilamide, given orally, caused irritation on the existing areas and the appearance of a few new papules. Application of sulphanilamide paste to the area of subsiding dermatitis on the left forearm produced a distinct erythematous and papular reaction.

Case VI

About the middle of Aug., 1942, Private R., aged 25, developed some desert sores on both knees. These were treated by dusting sulphanilamide powder on them and dressing them with acriflavine gauze. An ulcer on the right knee healed in three days, but two on the left knee healed only very slowly. About the middle of September a patch of dermatitis began round each of these, with which he was admitted to hospital on the 21st. They were about 4 to 5 in. in diameter, with a weeping and scaly surface and fairly sharp margins. Both these areas became dry on rest in bed and simple dressings. On Sept. 29 one application of sulphanilamide

paste to the milder of these areas caused it to weep profusely, while the other remained dry. Applications to the other knee gave no reaction.

A positive reaction was obtained to 1% intradermal sulphanilamide, none to the other strengths. This was a raised erythematous area, 1/2 in. in diameter, beginning in 18 hours, reaching a maximum in two days, desquamating on the surface, and finally fading in about 10 days. Scratch tests with the same dilutions were all negative. On Oct. 13 0.5 g. of sulphanilamide was given, with an immediate exudative reaction on both areas, together with a papular dermatitis on the face, arms, trunk, and other leg. The patient recalled that a similar eruption had appeared for a few days when he was having his leg dressed with sulphanilamide. On Oct. 19 and 24, respectively, weeping reactions were obtained in both areas, but not on other parts, from oral doses of 0.5 g. of sulphapyridine and 1 g. of sulphaguanidine. On Oct. 31 0.5 g. of sulphathiazole was followed by irritation but no exudation, and on Nov. 4 a total of 5 g. in divided doses caused a definite recurrence of exudation.

Case VII

The case of Leading Aircraftman C., aged 25, was one of pre-existing eczema which developed an intercurrent hypersensitivity to sulphonamides. Between the ages of 5 and 7 he had suffered from intermittent eczema of the face and hands. There was a family history of asthma and a personal history of nervousness and dyspepsia. On the way to the Middle East in Aug., 1941, a septic abrasion of the right index finger started a scaly and vesicular eczema of the hand, which steadily spread and had recently begun to involve the left hand. He had sulphanilamide ointments applied at intervals for four months before his admission to hospital on Aug. 29, 1942. He settled down with mild application and fractional doses of irradiation.

On Oct. 6 0.5 g. of sulphanilamide was given. An exacerbation took place on both hands, and in addition a papular dermatitis appeared on the right forearm. Intradermal and scratch tests and the application of sulphanilamide paste were all negative. Successively larger doses of sulphapyridine and sulphaguanidine were then given from Oct. 17 to 29. Papular reactions were obtained on the right forearm with 3 g. of sulphapyridine and 40 g. of sulphaguanidine in divided doses.

Case VIII

Sapper H., aged 42, began in July, 1942, to suffer from boils in both axillae. Sulphanilamide powder was applied, between other treatments, at intervals over the next three months. At the beginning of October an eruption appeared in both axillae and became progressively worse. A week later he began to itch all over, and a milder eruption spread to the trunk and hands.

On admission to hospital on Oct. 16 he showed an acute exudative dermatitis and furunculosis of both axillae, and a papular dermatitis on the hands and scattered over the trunk. The dermatitis rapidly subsided and the boils improved steadily. One application of sulphanilamide paste to the left axilla caused a recurrence of dermatitis in both axillae, and a papular eruption when applied to an area on the right arm, which had not erupted before. By Nov. 4 both axillae were clear, and 0.5 g. of sulphanilamide was given by mouth. Next day he was covered with an irritable papular dermatitis of a photosensitive nature, being confluent on the face, neck, and trunk above the waist, moderate on the knees, mild on the lower trunk and legs, and absent from the inner surfaces of the upper arms. Both axillae were again the sites of a weeping dermatitis.

An intradermal test with 1% sulphanilamide was negative.

Case IX

About the beginning of Aug., 1942, Lieutenant P., aged 30, was wounded in the right hand and left knee. These were dressed, and he remained with his unit. Sulphanilamide powder was used. The wounds failed to heal, and about the beginning of September his knee underwent secondary infection, with inguinal adenitis and fever. On Sept. 5 he was sent to hospital, where he was treated at first with sulphanilamide locally, and afterwards, as there was no improvement, with other applications. He was almost healed on his discharge 6 weeks later. He was transferred to a convalescent home, where sulphanilamide powder was again applied, and in a few hours both areas were weeping profusely.

I saw him for the first time on the following day, Oct. 24, when he had areas of exudative dermatitis about 3 in. in diameter on the right hand and left knee. There was no adenitis or secondary infection. Dressings of Lassar's paste were applied and he was instructed to avoid sulphonamides locally and by mouth. By Nov. 2 the lesions had cleared, and he was given 0.5 g. of sulphanilamide by mouth. A few hours later a general eruption appeared. When next seen on Nov. 4 he showed an acute papulo-vesicular dermatitis, intensely irritable, and universally distributed from head to feet.

Case X

In June, 1942, Captain B., aged 30, was wounded in the right arm. The wound suppurated and caused some surrounding pustular dermatitis, which persisted until August, when he was admitted to hospital. He had been treated with sulphanilamide powder locally at intervals during this time. About Oct. 8 he developed a small septic sore on the lobe of the right ear. Two days later similar sores appeared on the left leg, and after a further 24 hours these had progressed to a cellulitis, for which he was evacuated from the field. At the field ambulance he was noted to have bullae on the left shin, with surrounding cellulitis and a temperature of 100°. Sulphanilamide was started on Oct. 11: 2 g. followed by 1 g. 4-hourly. On Oct. 12 the bullae were larger and the oedema more extensive, with inguinal adenitis and oedema of the right ear, and a temperature of 101.3°. On the same day an eruption began on his hands and face.

On reaching hospital on the 13th he showed cellulitis of both ears and legs, bullae on the left leg, and a vesicular and pustular dermatitis of the hands, face, and the area of his original wound of the right forearm. Sulphanilamide was stopped on Oct. 13. By Oct. 21 his skin was clear except for an infected ulcer on the left leg where the bullae had been. This slowly healed. He gave no reaction to the local application of sulphanilamide to any areas. Sulphathiazole 6 g. and sulphaguanidine 16 g. in divided doses gave no reactions. On Nov. 5 0.5 g. of sulphanilamide was given, to be followed by an irritable erythematous dermatitis of both legs below the knees and the skin on the right forearm at the site of his original wound.

This condition was considered to be a streptococcal infection, plus a reaction to oral sulphanilamide, to which he had been sensitized by local applications two months previously.

Case XI

Corporal C., aged 26, had suffered from a mild eczema of the feet, hands, and trunk for two years, which had been almost quiescent over the past two months. On Oct. 13, 1942, a spot resembling impetigo had appeared on the scrotum. It was treated with iodine. On Oct. 15 sulphanilamide and fomentations were applied three times. On Oct. 16 he was given 2-g., 1-g., and 1-g. doses of sulphanilamide by mouth. On the 17th a generalized irritable rash appeared.

He reached hospital on the 20th, showing a small area of weeping dermatitis on the right side of the scrotum, and a widespread papular dermatitis of the trunk and limbs. An intradermal test with 1% sulphanilamide caused an irritable area of raised erythema, 4 to 5 in. in diameter, lasting three days. Sulphanilamide paste applied on Oct. 31 caused no reactions. On Nov. 1 he took 0.5 g. of sulphanilamide orally. An immediate generalized eruption appeared, of a photosensitive type. It consisted of irritable papules, becoming confluent on the upper trunk, with a sharp lower margin at the waistline. It was also present on the face, arms, and legs, especially the exposed parts of the knees, but was absent from the axillae and the trunk below the waist.

Case XII

Lance-corporal H., aged 32, was operated on for hammer-toe on Sept. 17, 1942. His wound healed slowly, and sulphanilamide powder was applied intermittently to it over the next month. A mild degree of sepsis supervened, and at 10 a.m. on Oct. 21 he was given an initial dose of 2 g. of sulphanilamide, followed by 1 g. 4-hourly until 2 p.m. the next day—a total dose of 8 g. Two hours after the first dose he developed macules on his hands and feet. About 8 o'clock that evening he had a rigor and his temperature rose to 102°. Macules were then seen on his face and neck. His temperature continued between 102° and 104°, with a pulse rate of 100 to 120.

Seen on Oct. 24, he showed a morbilliform erythema, universally distributed, but confluent on certain of the exposed parts—face, neck, necklace area, and dorsum of the hands. It was scanty on the lower trunk and in the axillae—parts seldom exposed to the light. It was not irritable. Malaise was the only symptom, and there were no signs of measles or other exanthemata. The temperature fell by crisis on Oct. 25, and the rash had faded two days after that, except for a mild exfoliation on the face, neck, hands, and feet. There was a little secondary pustulation on the hands.

Discussion

All these cases show a cutaneous hypersensitivity to sulphonamides, apparently induced by their local application. When this sensitization has taken place dermatitis can be caused by the local application of sulphanilamide, and by the internal administration not only of sulphanilamide itself but of other drugs of the sulphonamide series. The reaction is proportional to the dose of the drug and to the degree of sensitivity (which varies considerably). In the same patient a large dose will cause a severe eruption, a moderate dose a mild one, and a small dose no eruption at all.

Three of the above cases were ones in which hypersensitivity could be expected, two being pre-existing eczemas and the

other a seborrhoeic subject with an axillary intertrigo. All the remaining cases were pyogenic skin infections of one kind or another. No cases were seen as a result of dressing clean wounds or burns with sulphanilamide. After a varying period of treatment patches of dermatitis appeared in the areas treated and steadily spread. In some of the cases there has finally been a rapid extension of the sensitivity to other parts, causing a widespread acute dermatitis.

The reaction to oral administration is the most sensitive. All of the above cases have flared up on giving sulphanilamide by mouth, usually with as little as one 0.5-g. tablet. Four out of six cases tested gave a reaction to sulphapyridine, but in rather larger doses. Four out of six reacted to sulphaguanidine in still larger doses. One case reacted only to sulphathiazole, but owing to shortage of this drug at the time it was not possible to test all patients with full doses. The reaction usually begins about 8 hours after administration. In 3 cases it has shown a typical photosensitive distribution, and in one case it has been accompanied by drug fever.

Sensitivity to local application is less marked. Of the 12 cases 6 reacted to it in the eczematous area where the original sensitizing applications were made. Other parts of the skin are much less sensitive. Even those areas which became inflamed on oral administration of the drug reacted to its contact in only one case. Patch tests on unaffected areas of skin, therefore, would not be of any diagnostic value in this condition.

Intradermal tests were positive to a 1% solution in 4 out of 10 cases tested. In a series of 10 control subjects they were negative in all cases. A positive reaction appears in anything from 4 to 24 hours, and lasts from 24 hours to a week. It consists of a raised area of dull erythema, and may itch considerably. Scratch tests gave no positive reactions.

It is not known how long this sensitivity persists. None of these cases has been under observation long enough for it to pass off, and no diminution has been observed in the degree of sensitivity with the passage of time. The cases have reacted for periods of up to two or three months after local sulphonamide therapy has been stopped.

In Case III, one of the most sensitive, an attempt was made to transfer the hypersensitivity by the Prausnitz-Küstner technique. Serum from the patient was injected intradermally into the arm of a normal subject (my own). A scratch test was performed 48 hours later on this site, with no reaction. Nor was there any reaction to the ingestion of sulphanilamide tablets by the subject.

Although hypersensitivity to many substances used locally on the skin may occur, its existence with sulphonamides is a more serious matter. It is easily seen that should these men get pneumonia, cerebrospinal meningitis, bacillary dysentery, or any of a large number of other diseases, their treatment with sulphonamides would be gravely hampered, if not rendered impossible. These cases present a strong argument against the indiscriminate use of sulphonamides as applications for skin infection or dressings for wounds. Other materials will usually do the job equally well, if perhaps not quite as quickly. It should be added that this does not apply to the introduction of sulphonamides into the depths of wounds, since in all cutaneous sensitizations it is necessary to have actual contact with the skin itself.

Most of the above cases have had sulphonamides applied for prolonged periods, and in Case VI an area of skin treated for only a few days escaped sensitization, in contrast to those treated for several weeks. This indicates that when these drugs are used it should be for as short a time as possible. Such a principle should not prove any hindrance in practice, since an infection susceptible to sulphonamides will be eradicated in a few days if it is going to be eradicated at all.

Summary

Twelve cases are described in which local sulphonamide therapy has caused sensitization dermatitis.

This is a serious drawback in the treatment of subsequent infections for which sulphonamides are really needed—e.g., pneumonia.

The fact that these 12 cases were seen in this hospital over a period of less than three months suggests that the condition

is by no means a rare one. It is to be suspected whenever eczematization occurs in skin lesions receiving local treatment with sulphonamides.

Intradermal and patch tests are of little value in diagnosis, which is best confirmed by the reaction which follows a small dose of sulphanilamide by mouth.

My thanks are due to Major B. C. Tate, R.A.M.C., who first drew my attention to the existence of this condition, and to the Director of Medical Services, N.Z.E.F., for permission to publish this paper.

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THE MODERN TREATMENT OF GONORRHOEA

BY

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Consulting Venereologist to the Army

The following article has been written in response to a request from the Editor, who recently received a letter from a surgeon saying he was "appalled by the way patients are being mistreated in general practice." I have therefore set out the treatment somewhat dogmatically, because my remarks are meant not for the venereologist but for the general practitioner, who may be none too familiar with either gonorrhoea or its treatment.

GONORRHOEA IN THE MALE

The incubation period is of some importance; a gonorrhoeal discharge usually starts 3 to 5 days after infection, with extremes of 2 to 10 days; do not believe the patient who says he has not indulged in sexual intercourse for several weeks or even months—he is either a liar or suffering from a relapse. It is said that non-gonococcal urethritis—and this is a very definite entity—has a rather longer incubation period: often a week or 10 days or more. Don't forget the possibility of an intra-urethral syphilitic chancre causing a discharge, in which case the incubation period is likely to be not less than 3 weeks.

Diagnosis

In a typical case there is a profuse greenish-yellow purulent discharge from the urethral canal; make sure that it does come from within the urethra and not, as in balanitis, from behind a tight foreskin. A thin watery discharge usually indicates chronic gonorrhoea or non-specific urethritis.

1. Take a loopful of the pus from within the meatus with a platinum loop and spread it thinly and evenly on a slide—or preferably two slides—and allow to dry in the air. Do not rub the slide over the tip of the glans penis. Stain by Jensen's modification of Gram's method—gonococci appear as Gram-negative intracellular diplococci. If there is likely to be any question of legal proceedings it is a wise plan to have the discharge cultured as well, in which case it is better to refer the patient to a pathologist before starting treatment.

2. Take a specimen of urine into two or more glasses; if the infection is recent, that in the first glass will be hazy owing to pus, and that in the second clear (anterior urethritis). If both glasses are hazy there is posterior urethritis as well. Add half an ounce or so of acetic acid to the urine in each glass: if the haze is due to pus it will not disappear; if due to phosphates it will clear.

If gonococci are found treatment may be begun; if they are not found take further specimens (smear and culture) next day, having told the patient to hold his urine all night or at least 4 hours before coming to see you. If gonococci are still not found refer the case to a specialist. You may get into deep water if you undertake chemotherapy without having made a definite diagnosis.

Only in *urgent* cases in which the diagnosis is clinically probable may chemotherapy be started pending the result of microscopical examination.

Treatment

The general practitioner should be chary of undertaking the treatment of gonorrhoea unless he has had considerable experi-

ence not only of the disease but of chemotherapy: gonorrhoea cases have a way of "going wrong," and the sulphonamide drugs are dangerous in unskilled hands. Many practitioners do not care to treat these cases, and there are plenty of venereologists and V.D. clinics available in most parts of the country. Remember, the average venereal patient is not a satisfactory one: if you cure him he shows little gratitude; if you fail he is apt to turn nasty.

However, if you do decide to undertake treatment start on the following lines. Don't forget the importance of general as distinct from specific treatment. During the acute stage the patient should lead a quiet, peaceful, sedentary life, keep his bowels well open with cascara or liquid paraffin, and avoid sexual intercourse, alcoholic and other stimulants, and pornographic literature. No special diet is necessary. Above all things he should avoid introspection: many of these patients take far too much interest in their disease and its treatment. This applies more particularly to those cases which do not react well to specific drugs. All patients should be warned of the contagiousness of their condition and of the necessity for simple hygienic measures to avoid infecting their own eyes or communal articles such as towels, baths, etc. While it is true that *adults do not get gonorrhoea from such things as lavatory seats*, nevertheless young female children are particularly susceptible to infection, and simple hygiene is desirable on aesthetic grounds alone.

Chemotherapy

Before starting this exclude previous intolerance and other contraindications such as certain dermatoses, blood dyscrasias, renal disease, jaundice, and neuritis, and ask the patient if he has already taken any sulphonamide. Remember that the sulphonamides may cause vertigo: do not allow a patient to drive a car or pilot an aircraft while taking these drugs. Under optimum conditions from 80 to 90% of early acute cases will be cured by the best of the sulphonamide preparations without any other treatment. Those recommended are sulphadiazine, sulphathiazole (thiazamide, M & B 760), sulphapyridine (M & B 693), and sulphanilamide, in that order of merit; the first-named is often unobtainable, and sulphathiazole is therefore the usual choice. Prescribe 5 g. (10 tablets) a day for 2 days—3 tablets on rising, 2 at midday, 2 at tea-time, and 3 at bedtime; the tablets should be given crushed; two tumblerfuls of water or other bland fluid to be taken on each occasion. It is of the utmost importance that the fluid intake should be *at least 6 to 7 pints* in the 24 hours in order to avoid the risk of haematuria, which may be a very serious complication of treatment. If the patient shows a dramatic improvement at the end of 48 hours no further chemotherapy may be needed; if, however, there is still some discharge, or the urine is still hazy with pus, continue chemotherapy on the same dosage for a further 2 days; total—20 g. of sulphathiazole in 4 days. Then *stop* the drug. Insist on seeing the patient daily, preferably early in the morning, and do not give a prescription for, or supply, sufficient of the drug for more than one day: sulphonamide preparations cannot be obtained by the patient from a chemist without a prescription. The sulphonamide preparations appear to act best and to be less apt to cause haematuria or anuria when the urine is rendered alkaline; therefore prescribe the following from the start of the treatment:

Pot. cit. (or sod. cit.)	..	..	gr. xxx
Pot. bicarb. (or sod. bicarb.)	..	..	gr. xx
Chloroform water	..	..	ad 3ss

Sig.—One tablespoonful to be taken 4 times a day.

If the discharge clears in 2 to 4 days watch the patient daily for 7 days after the termination of chemotherapy, noting whether there is any discharge or heavy threads in the urine; if both are absent at the end of this period a presumptive cure has been obtained. If after 4 days' chemotherapy minor signs of urethritis persist, put the patient on to antero-posterior irrigations (into the bladder) of 1 in 10,000 potassium permanganate or 1 in 8,000 oxycyanide of mercury. (Before using the latter drug make sure the patient is not taking iodides in any form.) Irrigations should not be carried out by the patient himself but by someone skilled in the procedure. The lotion should be at blood heat, given with an irrigator, raised not more than 2½ feet above the patient's penis, and a nozzle of the Janet type; the anterior urethra should first be cleansed, and the