

After 10-14 days resolution was complete. Culture showed that the organisms responsible in these cases were *Staph. pyogenes aureus* complicated by a few colonies of *Str. haemolyticus*.

Pustular Psoriasis.—The one case treated showed no response after six weeks' treatment.

Verruca Vulgaris.—Twelve cases were treated. The patients were instructed to apply A.O. to the warts on one side of the body, and an ointment containing only yellow paraffin to the other side. In three of the patients all warts had disappeared at the end of a month.

Verruca Plana.—Two cases were treated as for verruca vulgaris. One cleared in four weeks, the other still showed lesions after ten weeks.

Conclusions

There is no doubt that aureomycin ointment is a powerful addition to the therapy of pyogenic skin conditions. Its local sensitizing powers are low, contact dermatitis being produced in only two cases of this series, and they already had a history of allergy. The most striking performance was the rapidity with which cases, and especially the chronic ones, of sycosis barbae resolved. The temperamental nature of this condition is well known, and, although it may be said that the follow-up periods have not been long enough to pronounce a cure, the patients unanimously acclaimed the treatment as the best they had ever used.

Its efficacy in other pyogenic affections is equal to penicillin. One cannot hope to clear up completely a condition such as impetigo in less than four to seven days. Its great advantage over penicillin cream or ointment lies in the absence of untoward reactions. In the miscellaneous group it was most effective in acne necrotica, but, as with previous forms of local treatment, relapse soon occurred.

At the moment it would seem that aureomycin is the best available antibiotic in ointment form for pyogenic infections. Future use, however, may prove it less reliable; resistant strains of organisms and different examples of sensitivity may be encountered.

Summary

A clinical evaluation of 3% aureomycin hydrochloride ointment made in the treatment of 144 dermatological cases is described.

Sensitization in cases with past or present histories of allergy is described.

The ointment is simple to apply, and is stable over a long period without refrigeration.

I wish to thank Lederle Laboratories for providing me with supplies of the ointment, and in particular their representative in Dublin, Mr. M. Collins. I am also grateful to Dr. J. Martin Beare, of Belfast, for providing me with his results in five cases of sycosis barbae, which are included in Table I.

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TREATMENT OF GONORRHOEA WITH TERRAMYCIN

BY

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"Terramycin," prepared from the *Streptomyces rimosus*, is manufactured in golden 250-mg. capsules for oral use. It is of considerable value in urethritis, both gonococcal and non-gonococcal. Willcox and Findlay (1951) had 19 apparent clinical cures out of 20 male cases of non-specific urethritis treated with 6-12 g. of terramycin given over five to seven days; inclusion bodies were noted to disappear from the scrapings of the 14 male and 6 other female cases in which they were found.

The fact that terramycin is also effective against the gonococcus makes it a useful drug for the routine treatment of urethritis, be it gonococcal, bacterial, or viral in nature. Gocke *et al.* (1950) tested 28 strains of gonococci and found that this antibiotic ranked with "aureomycin" next to penicillin in effectiveness. Certainly it gives good results with gonorrhoea in the doses usually given for non-specific urethritis. For example, Caldwell *et al.* (1950) successfully treated seven patients on a 4-5-day regime.

However, all new drugs used for the treatment of gonorrhoea have to compete in effectiveness, in freedom from toxicity, and in ease of administration with single-injection methods employing penicillin. Hence early trials with terramycin have concentrated on simplicity of administration. Robinson (1950) had no fewer than three failures in six patients treated with single doses of 1 g. of terramycin, and 4 failures in 18 given a single dose of 2 g. As 3 of the latter 18 cases suffered from vomiting it was thought that single-dose techniques were not likely to prove as successful as previously tried methods. These difficulties were to some extent avoided by Hendricks *et al.* (1950) by giving two doses at an interval of six hours. Cures were noted in all of 15 cases given two doses of 1 g., and in 8 of 10 cases given two doses of 500 mg.

Single- and double-dose methods have been employed in the present study, but the results obtained, though successful, have not been quite as striking as those of the American series.

Twenty-nine cases of gonorrhoea have so far been treated at St. Mary's Hospital, London, and at King Edward VII Hospital, Windsor. Twenty-six were males and three were females, the average age being 28.8 (extremes 20-44 years). Five were treated with but a single dose, 23 by two doses, and the only one complicated case, a man with epididymitis, by multiple doses (see Table).

Summary of All Methods

Method	Treated	Observed	Relapse Gc +	Non-specific Infection	Reinfection	Proved Failure Rate %
Single dose, 1 g.	1*	1	1	—	—	—
" " 2 g.	5	5	2	—	—	40.0
Double " 2 g.	23	19	2	2	1	10.5
Multiple " 5 g.	1	1	—	—	—	—
Total ..	30	26	5	2	1	19.2

* This case is also included among the five cases that received a single dose of 2 g.

Single Dose (5 Cases)

Four were male and one was female, all with uncomplicated gonorrhoea. One patient, given only 1 g. of terramycin, responded initially but relapsed three days later and gonococci were again found in the urethral smear on the fifth day. He was then treated with a single dose of 2 g., but the condition relapsed a second time seven days later, when he was given penicillin. Of four others given single doses of 2 g., one relapsed at nine days and was given penicillin. The remaining three, so far observed for 28, 125, and 138 days, respectively, have shown repeatedly normal urethral and prostatic smears and cultures and serological tests. The two patients who have been observed for 28 and 138 days are husband and wife, and both have remained well in spite of regular bi-weekly sexual intercourse together over a period exceeding three months.

Double Doses (23 Cases)

Twenty-one males and two females, all with uncomplicated gonorrhoea, have been treated with two doses of terramycin, each of 1 g., given orally six hours apart. Four patients defaulted at once. The remaining 19 have been observed for periods varying from less than two weeks in 4 to from 14 to 75 days in 15.

There were two definite failures, each showing a urethral discharge containing gonococci five days after treatment. One of these responded to re-treatment with terramycin given as 500 mg. twice daily for two days, and the other, a lorry driver, was re-treated with penicillin but suffered two subsequent "relapses" within a very short time. Another patient, a Nigerian Negro, was thought to have a reinfection. One week later he was found to have a urethral discharge containing gonococci, but he admitted to having had sexual intercourse with the girl from whom he caught the infection during the evening of the day he had received the first dose. He was again treated with terramycin, this time successfully.

Two other patients, later found to possess urethral discharges not containing gonococci, were re-treated for non-specific infections. Some persons may regard these cases as having been incompletely cured gonorrhoea, but most will regard them as being either due to the effect of secondary organisms upon tissues traumatized by the departed gonococcus or as concomitant infections of non-specific urethritis. One of these patients was again treated, 14 days after the first treatment, with two further doses of 1 g. of terramycin. After observation extending over 63 days he was quite free from urethral discharge during the day, and his urine was clear, but a morning gleet which contained a few pus cells per field persisted. In the other patient pus cells but no gonococci were seen in the urethral smear taken on the eighth day. He was then given 250 mg. of terramycin four times daily for four days. One week later he still complained of an early morning gleet and threads were observed in his urine, but unfortunately he did not attend again. The remaining 14 patients were well, and repeated urethral and prostatic smears and cultures were negative throughout observations extending from 1 to 75 days.

Multiple Doses (1 Case)

One man, aged 31, had gonococcal urethritis complicated by a well-marked unilateral epididymitis. He

received 1 g. of terramycin in a single oral dose initially and this was followed by 250 mg. given four times a day for four days. Relief from pain was immediate and the swelling quickly subsided. His progress has been entirely satisfactory during 29 days of post-treatment observation. Moreover, his wife was also found to have a severe gonococcal urethritis and cervicitis. She was treated with terramycin by the double-dose method, and she too has shown repeatedly negative smears and cultures over the same time.

Discussion

Side-effects.—The side-effects produced by the small doses of terramycin given were minimal. One patient admitted to heartburn, and two to "soreness of the back passage," a complaint noted more often in the larger series of non-specific urethritis cases for which bigger doses were employed. On the other hand, one man who was suffering from coryza at the time of treatment enthusiastically declared at his next visit that the terramycin had cured it, and, indeed, asked for some more when another cold developed later.

Masking of Syphilis.—Like penicillin, terramycin has a definite action upon syphilis. Spirochaetes were banished from the lesions of six cases of early syphilis and sero-reversal was obtained in two cases reported by Hendricks *et al.* (1950). Likewise, Schoch and Alexander (1950) noted healing in two cases. Similarly, Loughlin and Joseph (1951), in a large-scale study of 150 cases of yaws in Haiti, noted most dramatic initial results when 7–10 g. of terramycin was given over three to five days.

It was considered interesting to note the effect of the double-dose method on a case of well-marked secondary syphilis.

Case Report

The patient was a female domestic servant aged 25. She had generalized glandular enlargement, typical inguinal adenitis, multiple ano-genital condylomata in specimens from which numerous *Treponema pallidum* were seen under the dark field, mucous patches in the mouth, and bald patches on the tongue, but *no* rash. The serum Wassermann and Kahn reactions were both strongly positive. She was given two doses of terramycin, each of 1 g., at an interval of six hours, in the manner adopted for the treatment of gonorrhoea. She was then observed for 24 hours before beginning intensive therapy with penicillin.

The first dose of 1 g. was given at 6 p.m. When seen at 11 p.m. there had been no pyrexial response and a second dose was ordered to be given at midnight. By the time that she had received it, however, her temperature had already risen to 99.4° F. (37.4° C.) and her pulse, which had been 80 or below, to 88. By 2 a.m. the temperature was 100° F. (37.8° C.) and the pulse rate showed a steep rise to 106. At 4 a.m. the pulse had fallen again but the temperature was 100.4° F. (38° C.). Her temperature fell to 99.8° F. (37.7° C.) by the following morning.

The patient was examined at noon (18 hours after receiving the first dose) and there was then noted an obvious roseolar rash which had not been evident the night before. A dark-field examination of serum squeezed from the condylomata revealed numerous vigorously motile spirochaetes. A further dark-field examination was performed at 6 p.m. (24 hours after the first dose of terramycin) and again spirochaetes were found without much difficulty, but by this time they were somewhat reduced in number and markedly sluggish in their movements. She was then given the first of eight daily injections of 600,000 units of procaine penicillin G with 2% aluminium monostearate, and it is interesting to observe that

no further Herxheimer reaction was noted and that the temperature remained normal and the pulse at 80 or below.

As two doses of terramycin, each of 1 g., at an interval of six hours exerted such a definite effect in established secondary syphilis, and as it is probable that larger doses and/or longer periods of treatment are necessary properly to cure gonorrhoea with this drug, it appears that terramycin does not differ from penicillin in its capabilities in masking undeclared syphilis for which smaller doses than those given would be sufficient.

Summary and Conclusions

Three of six treatments of acute gonorrhoea with single doses of 1-2 g. of terramycin given orally were unsuccessful. However, only two relapses (10.5%) were noted in the 19 cases followed up out of the 23 that were given two oral doses each of 1 g. spaced six hours apart, although there was one reinfection and two others were treated for non-specific infections.

Two doses of 1 g. of terramycin at an interval of six hours were given to a girl with secondary syphilis. A febrile Herxheimer reaction resulted, with the appearance of a previously unseen roseolar rash. Eighteen hours after the first dose the dark field contained an abundance of motile spirochaetes, but at 24 hours they were very sluggish in their movements. The patient was then treated with daily penicillin and no further Herxheimer reaction was observed.

Terramycin is thus clearly effective against gonorrhoea. In the small series described it was not quite as effective as penicillin at its best, though the results were better than those of King *et al.* (1950), who, by including all cases of secondary urethritis and reinfection as failures, showed penicillin at its worst; and more prolonged schedules with terramycin remain to be tried.

Even if terramycin does not replace penicillin in the treatment of gonorrhoea it is likely to have a considerable application for persons who dislike injections, for those who are unable to obtain injections without difficulty (ship's crews, etc.), for cases of gonorrhoea which are resistant to penicillin if and when they arise, and as "an emergency kit" for both treatment and prophylaxis of the traveller and the soldier. Like penicillin, however, it may mask undeclared syphilis.

Grateful acknowledgments are due to Messrs. Chas. Pfizer and Co. Inc., of New York, for so generously supplying the terramycin used in this study.

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At the 13th International Congress of Military Medicine and Pharmacy held recently in Paris, Major-General E. E. Hume read a paper entitled "United Nations Medical Service in Korean Conflict" (*J. Amer. med. Ass.*, August 4, p. 1307). He remarked that Korea was about the size of Italy, with many mountains strikingly like the Apennines. The winter was the coldest in which American troops had fought, and in the first eight months of the campaign the United States Army sustained nearly five times as many casualties as in the American Revolution (1775-83), though the two world wars, and strangely enough the war of 1861-5 between North and South, all cost more lives.

Medical Memoranda

Clean Catheterization

The importance of aseptic atraumatic catheterization of the male urethra should not need emphasis, but observation shows that there is a common lack of knowledge of a suitable technique. The hasty insertion of a poorly lubricated catheter into a dirty meatus results in sepsis, which may be fatal, or failure to pass the instrument owing to the spasm which results. One problem is that of adequate lubrication and distension of the urethra. The injection into the urethra of a mixture of petroleum jelly and paraffin, which is often useful in passing small bougies through tight strictures, was thought undesirable, as there was a risk of introducing some of the mixture into the bladder, where it might form the nucleus of a stone. The usual water-soluble jellies have, in my opinion, very poor lubricating properties. The small amount of mercury oxycyanide contained in some of them is probably inefficient as an antiseptic and may act as an irritant.

A stiffer jelly containing a sulphonamide seemed desirable, and the help of the hospital pharmacist, Mr. B. W. Coultas, was sought. Mixtures of alginates or tragacanth with sulphathiazole or sulphacetamide were found unsatisfactory, and after many experiments a jelly of 3% "promulsin" with 5% sodium sulphacetamide was produced and found satisfactory. This can be sterilized in the autoclave, and is dispensed in rubber-capped glass tubes containing 15 ml. This formula was evolved at about the time Stewart's (1949) paper on prostatic obstruction was published, and it is evident that we were working along the same lines. In order to avoid introducing infection in acute or chronic retention of urine due to prostatic disease, many urge that the use of a catheter should be banned except as a prelude to immediate operation. This is the ideal, but there must be occasions when its use cannot be postponed or is desirable for some other reason—for example, in post-operative retention—and it is hoped that the following routine may lessen some of the dangers.

If pain is present a suitable analgesic—morphine, pethidine, or amidone—should be given, preferably intramuscularly. The following are required: 10-ml. glass "record" or urethral syringe with rubber tip; penile clamp; container for local analgesic; catheter, usually a soft rubber No. 10; one pair of artery forceps; solution of percaine 1 in 500 with 1 in 200,000 adrenaline; and antiseptic jelly. The pubic hair is cut short, and a thorough toilet with soap and water carried out. Percaine solution, 10 ml., is injected into the urethra and the penile clamp applied for three to five minutes. Meanwhile the syringe is filled with the promulsin jelly. As it is somewhat glutinous it is necessary to pour it into the open end of the syringe barrel. After milking as much as possible of the anaesthetic solution into the posterior urethra the remainder is allowed to escape. The catheter, clipped at the outlet with the artery forceps, is lubricated with the remainder of the jelly, taking care not to block the eye. The clipped end produces an air-lock as noted by Stewart. The jelly is then injected into the urethra, distending it moderately. It will be