

The anastomoses which develop between the portal and caval veins may be classified as either protected or vulnerable.

It is suggested that the formation of an artificial portal-caval anastomosis alone will not suffice to prevent bleeding, and it should be combined with measures to remove or obliterate the vulnerable varices in the lamina propria and the submucosa.

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AUREOMYCIN: ITS TOPICAL USE IN SOME SKIN DISEASES

A CLINICAL STUDY

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A very high percentage of cases met with in dermatological clinics in Dublin are pyogenic infections. The patients are slow to attend for treatment of such conditions, and the lesions are generally fairly extensive by the time they do so. A potent, non-toxic, easily applicable drug is therefore the ideal form of treatment, and "aureomycin" appears to fulfil these requirements. Aureomycin ointment (A.O.) is dispensed by Lederle Laboratories Division (1950) as a 3% aureomycin hydrochloride ointment in a petrolatum and wool-fat base.

The dermatologist has to contend principally with *Staphylococcus pyogenes aureus*, *Streptococcus haemolyticus*, *Proteus vulgaris*, and *Pseudomonas pyocyanea*, and aureomycin *in vitro* has shown itself capable of dealing with these organisms. It is shown in this paper that aureomycin is also effective *in vivo* when employed in ointment form.

Toxicity

The most important factor regarding the local use of an antibiotic is knowledge of its sensitizing potentialities. Experience with the disadvantages of sulphonamides and penicillin is well known. Siegel and Schantz (1950) obtained data in the case of aureomycin by using the "prophetic patch test" method of Schwartz and Peck (1946) on 127 subjects, including doctors and nurses, but obtained no positive reactions. This test is far from infallible, because it is used on healthy skin, but it does give some idea of the sensitization index of the drug.

Sensitivity has, however, been noted by Siegel and Schantz (1950), Hollander and Hardy (1950), and a few

other authors in a small percentage of cases. Reactions were perhaps to be anticipated, as they occurred in patients already suffering from an allergic skin disease, notably atopic dermatitis. Of the 12 cases of this condition which are described below, two showed local sensitivity.

At the beginning of this trial of A.O., only pyogenic infections were treated, but a miscellaneous group of conditions was included towards the end. None of the patients was admitted, which made the test a severe one, as it was impossible to tell whether the instructions were being properly carried out.

No tableted control is included in this series. The number of cases in the various groups was too small and the sum of variables too many to permit of a statistical analysis. The only series in which two different applications were employed at the same time is described in the case of warts. Results were assessed by clinical appearances. The following groups were treated: sycosis barbae, 22 cases; folliculitis of other areas, 12; impetigo, 57; miscellaneous group, 53.

Sycosis Barbae

This aggravating condition responded well to A.O. (see Table I). Some of the cases were of very long duration, and many had previously received numerous different forms of treatment. The ointment was applied thinly and gently to the affected areas twice a day, which

TABLE I.—*Sycosis Barbae*

Case No.	Duration of Disease	Clinical Type	Bacteriology	Previous Treatment	Treatment Time	Follow-up
1	5 years	Severe	Pen.-sen. S.P.A.	Pen.; Quin.; X rays; Sulph.	6 weeks	7 months
2	1 year	"	Pen.-sen. S.P.A.	Pen.; Quin.; X rays	5 "	7 "
3	6 months	Mod.	S.P.A.	Pen.; Quin.; Vio.	3 "	6 "
4	3 weeks	Mild	S.P.A.	Nil	2 "	4 "
5	2 "	"	"	"	1 week	18 weeks
6	3 months	"	S.P.A.	Sulph.; Pen.	3 weeks	5 months
7	8 "	Mod.	Pen.-sen. S.P.A.	Pen.; Vio.	3 "	5 "
8	2 years	Severe	S.P.A.	Pen.; Sulph.; Ung. S. and S.; Vio.	5 "	7 "
9	15 months	"	S.P.A.	Pen.; Quin.; X rays	5 "	6 "
10	2 weeks	Mild	—	Nil	1 week	4 "
11	4 "	"	"	"	2 weeks	18 weeks
12	2 months	"	S.P.A.	Ung. S. and S. Pen.; Sulph.;	2 "	18 "
13	10 "	Mod.	"	X rays; Vio. Pen.; Vio.;	4 "	7 months
14	9 "	Severe	"	Pen.; Vio.; X rays	5 "	6 "
15	6 weeks	Mild	—	Quin.	2 "	4 "
16	18 months	Severe	S.P.A.	Pen.; Quin.; X rays	5 "	6 "
17	3 "	Mod.	—	Pen.; Quin.; Vio.; Arg.	2 "	4 "
18	11 "	"	—	Quin.; Arg. Pen. (loc. and syst.); Ung. S. and S.	2 "	5 "
19	9 years	Severe	—	X rays; Quin.; Staph. vac.	4 "	14 weeks
20	3 months	Mild	—	Quin.; Vio.; Pen.	1 week	4 "
21	6 weeks	"	—	Sulph. and Pen. (syst.); Ung. Bor.	1 "	4 "
22	8 "	Mod.	S.P.A.	Quin.; Pen.	3 weeks	6 months

Pen.-sen.=Penicillin sensitive. Pen.=Penicillin preparation. Vio.=Vioform. Sulph.=Sulphonamide preparation. Ung. S. and S.=Ung. sulphur and salicylic acid B.P. Quin.=Ung. quinolor Co. S.P.A.=*Staphylococcus pyogenes aureus*. Staph. vac.=Mixed staphylococcal vaccine. Arg.=Argyrol.

included once after shaving. Within a week improvement was noted in all cases, and in four mild cases cure resulted. In all other cases, excluding Nos. 1, 2, and 8, the pustules had disappeared by the end of a fortnight. In these three cases occasional pustules remained until

the end of the third week. On account of this manifestation, treatment was maintained for prophylactic purposes for several weeks after resolution of the lesions, though further experience will probably deem this precaution to be unnecessary.

All patients returned for regular examinations, and no relapse has yet occurred. No case, fortunately, was resistant to A.O.

Folliculitis of Other Areas

Details of the 12 cases treated are shown in Table II. Case 3 showed some improvement after six weeks' treatment, but a small number of lesions remain. It has been the only resistant case of folliculitis. Previous treatment in Tables I and II indicates treatment which

TABLE II.—*Folliculitis of Other Areas*

Case No.	Duration of Disease	Area	Clinical Type	Bact.	Previous Treatment	Treatment Time
1	6 weeks	Scalp	Severe	S.P.A.	Ung. S. and S.	2 weeks
2	2 "	Arms	Mild	"	Nil	7 days
3	15 months	Legs	Severe	"	Pen.; Sulph.; Vio.; Ung. S. and S.	(See text)
4	3 weeks	Thighs	Mild	"	Nil	7 days
5	6 "	Groin; axilla	Mod.	S.P.A.	Pen. (loc. and syst.)	3 weeks
6	10 days	Scalp	Mild	—	Nil	7 days
7	2 weeks	Neck	"	—	Ung. S. and S.	7 "
8	4 "	Chest; axilla	Mod.	S.P.A.	Sulph.; Vio.	2 weeks
9	8 months	Thighs; legs	Severe	"	Pen. (loc. and syst.); Sulph.	2 "
10	10 "	Arms; legs	"	—	Ung. S. and S.; Sulph. (syst.)	3 "
11	4 weeks	Scalp	"	S.P.A.	Quin.; Ung. S. and S.	2 "
12	10 days	Leg	Mild	—	Nil	7 days

the patient has generally obtained outside hospital. I have not used sulphonamide or penicillin cream, on account of their unreliability as therapeutic agents.

It is worth noting here that Siegel and Schantz (1950) recommend 3% aureomycin hydrochloride in talc, as opposed to ointment, for use in folliculitis of the groin area.

Impetigo

Although I have previously found it more satisfactory to treat these cases with lotions than with ointments, A.O. has proved to be an exception. It is as speedy as penicillin in bringing about resolution without ill effects. The crusts were removed with boric soaks before applying the ointment.

Secondary impetigo in children attending the hospital is ten times as common as the primary variety, and is invariably secondary to pediculosis capitis, a disease which is rampant among the poorer classes. A.O. has been most effective in both varieties (see Table III). Most patients stated that a cure had occurred within four to seven days.

TABLE III.—*Impetigo*

Type	No. Treated	Cured	Aggravated
Contagiosa	12	12	—
Secondary to pediculosis capitis	33	33	—
Secondary to atopic dermatitis	12	10	2

All cases of impetigo contagiosa showed *Staph. pyogenes aureus*, and five were also associated with a few colonies of *Str. haemolyticus*. Only twelve cases of the secondary variety had bacteriological examinations, which showed *Staph. pyogenes aureus*. The third group

in this series consisted of nine cases of infantile eczema and three of atopic dermatitis. All except three of the babies had a family history of eczema, asthma, or hay-fever. The patients in the second group were all males, aged 18, 19, and 52, and gave histories of asthma. The cases which were aggravated by A.O. were the young men, who reacted acutely to the ointment. This sensitivity has already been mentioned.

Miscellaneous Group

Gravitational Ulcer.—Patients with varicose veins rarely attend hospital before ulceration has set in, and the ulcers are large, heavily infected, and emit a powerful and foul odour. Any treatment improving these conditions is to be recommended. A.O., by dealing with the infection, greatly accelerates the epithelization of the ulcer's edges. Local treatment of this condition differs. Oldham (1951), for instance, states that preliminary cleansing of the ulcer is unnecessary, no matter how foul, deep, or long-standing it may be, and that there is nothing to be gained by the application of antiseptics or antibiotics, because of the danger of aggravating the condition. Foote (1949), on the other hand, believes that in some cases hot fomentations or eusol dressings may hasten recovery. None of the 12 cases treated with A.O. showed skin sensitivity. An old technique was employed for application. The ulcer was dried after being cleaned with normal saline; a piece of gauze impregnated with A.O. was applied to the ulcerated area and covered with a pad of cotton-wool, which was held in position during the application of four Unna-paste bandages. Then a window was cut around the pad and a gauze bandage wound very firmly round the area. The pad was removed for daily dressing. In three cases the predominant organism was *Ps. pyocanea*, whilst in the remainder it was *Pr. vulgaris*. The response to A.O. was good in all cases; the floor of the ulcer was practically dry in 10–14 days, though organisms could still be cultured. Treatment was continued until the ulcer was healed. It cannot be claimed that aureomycin heals gravitational ulcers, but it greatly assists the other measures employed.

Acne Vulgaris.—Eight cases of the pustular type treated solely with A.O. did not show any improvement after eight weeks. Philip (1950) found, however, that the pustules cleared, but that the acne vulgaris was unaffected.

Acne Necrotica.—Three cases of this condition responded well to A.O. It was applied twice daily for six weeks. Within two weeks of suspension of treatment, however, varioliform lesions reappeared.

Chronic Paronychia.—Three cases of this condition of over six months' duration, which had been treated with various proprietary ointments, lotions, and penicillin cream, showed little improvement with A.O. after eight weeks' treatment. The failure may have been due to the patient's inability to introduce the ointment far enough beneath the bolstered nail-fold. Treatment might be successful if an aqueous solution of the drug was employed, thus ensuring deeper penetration.

Herpes Zoster.—Four cases of children with impetiginous lesions resolved within a week. The treatment did not appear to improve any other features of this condition.

Post-auricular Dermatitis.—Eight cases were treated. They were all associated with seborrhoeic dermatitis.

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

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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.