GRATTAGE IN THE TREATMENT OF TRACHOMA*

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THE treatment of trachoma with aureomycin is still far from satisfactory, in spite of favourable reports from such authorities as Braley and Sanders (1949), Boase (1950), Duke-Elder, Ainslie, and Boase (1950), and Tanaka (1951). The drug had been given a fair trial here, but the results have been uncertain in pannus as well as in the lid condition. Similarly disappointing results were reported by Van Tien (1951), Andrade (1951), Sakon, Kohn, and Raphael (1951), Shah (1951), and Sarkies (1951). Mere amelioration of symptoms cannot be taken as a criterion except in acute cases, which are usually encountered after experimental inoculation, or in cases complicated by some secondary infection. Since trachoma alone is a chronic disease, the lid condition as well as the pannus has been given due consideration. Good results were obtained by Kamel (1951) and by Sakon, Kohn, and Raphael (1951) with sulphacetamide, though their results with aureomycin were disappointing.

Present Investigations

Better results were noted when these drugs were supplemented with grattage, as shown by the statistics given below. Two groups of cases were studied:

- (A) 61 cases were used to evolve an optimal method of treatment,
- (B) 28 cases were used to confirm the results obtained by the technique evolved.

GROUP A

Material.—All the patients in the first group (with the exception of two children aged 8 and 10 years) were soldiers. Thirteen patients had pannus tenuis (fine pannus), and the remaining 48 pannus vasculosus (coarse pannus). The pannus was confined to the upper half of the cornea in all but two cases, where it involved the whole of the cornea (total corneal pannus). This distribution is shown in Table I.

TABLE I

Varieties of Pannus	No. of Cases	Study Periods (2 weeks each)								
		1st			2nd			3rd		
		C	I	R	C	I	R	C	I	R
Tenuis	13	8	0	5	2	0	3	2	0	1
Vasculosus	46	0	4	42	6	12	28	16	4	20
Total Corneal	2	0	0	2	0	2	0	1	1	0

C = Cured clinically. I = Improved. R = Resistant to treatment.

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In eighteen cases it was predominantly follicular in type, whereas in the remaining 43 it was predominantly papillary (Table II). All the cases selected were in the second stage of the disease (with active inflammation). Herbert's rosettes were present in fifty cases, but the remaining eleven showed none of those nodules. Follicles were present in nearly all cases with caruncles and plicae. Vision was below 6/18, except in the two cases of total corneal pannus, where it was reduced to 6/60 (both eyes) in one, and 6/24, 6/36 in the other.

TABLE II

Predominant Lid Condition				No. of Cases	Study Periods								
					1st			2nd			3rd		
					C	I	R	C	I	R	C	I	R
Follicular	...	...	...	37	6	0	31	3	8	20	11	3	14
Papillary	...	...	...	24	2	4	18	5	6	11	8	2	7

Drugs

- (1) Aureomycin hydrochloride, sodium borate, $\overline{aa}$ 25 mg., sodium chloride 62.5 mg. (sodium chloride, added according to the usual formula of 625 mg. to 5 ml. aureomycin borate solution, rendered the solution hypertonic and irritated the eyes), aqua dest. 5 ml. The solution so prepared was used within 48 hours.
- (2) Ung. aureomycin borate 1 mg. per g.
- (3) Sulphacetamide 30 per cent. solution.

Dosage.—Treatment was given for periods varying from 2 to 8 weeks. It was divided into three stages, each lasting for 2 weeks.

- (1) The patients were put on gutt. aureomycin or ung. aureomycin (Table III).
- (2) Gutt. sulphacetamide was added.
- (3) The patients were submitted to grattage in addition to the aureomycin and sulphacetamide.

TABLE III

Type of Medication				No. of Cases	Study Periods								
					1st			2nd			3rd		
					C	I	R	C	I	R	C	I	R
Gutt. Aureomycin	...	...	...	31	3	1	27	3	6	19	9	4	12
Ung. Aureomycin	...	...	...	30	5	3	22	5	8	12	10	1	9

From the beginning one-half of the patients received gutt. aureomycin 3-hourly day and night, and the other half received ung. aureomycin 4-hourly by day and 6-hourly by night; gutt. sulphacetamide were given 4-hourly. Grattage was done every 4 days. Progress was recorded at the end of every 2-week period.

Resistant Cases.—All those who were still resistant or only slightly improved in the third period were given the third treatment (aureomycin + sulphacetamide + grattage) for another 2 weeks before being finally classified as resistant.

Cured Cases.—Those clinically cured at the end of one study period continued to be given the same treatment for the subsequent study period. These cases were then finally classified as cured.

Improved Cases.—The fourteen which began to improve towards the end of second study period were divided into two equal groups; seven were used as controls and the other seven along with resistant cases from the second study period were submitted to grattage (Table IV).

TABLE IV

Group	Type of Trachoma	No. of Cases	Result		
			C	I	R
Control (7) ... (Same treatment as 2nd study period)	Pannus vasculosus ...	5	1	4	0
	Pannus tenuis ...	1	0	0	1
	Total pannus ...	1	0	1	0
Grattage (38) ...	Pannus vasculosus ...	35	15	0	20
	Pannus tenuis ...	2	2	0	0
	Total pannus ...	1	1	0	0

Observations

- (1) Of the cases treated with aureomycin, those receiving ointment showed better response (66 per cent.) than those treated with drops (48 per cent.).
- (2) Most of the cases with pannus tenuis cleared up within the first week, and in another week's time the pannus was not detectable even with the slit-lamp. Only two of the thirteen appeared to be resistant at the end of the 6 weeks' study period. One patient who showed some improvement in the third study period was not cured in the following 2 weeks' follow-up, although during this time he was transferred to the grattage group.
- (3) Of the 46 cases of pannus vasculosus, 25 proved to be resistant (Table I). Four showed some improvement in the last study period, but did not improve any further in the final follow-up period.
- (4) About 13 per cent. improved with aureomycin alone. When sulphacetamide was added in the second study period, the percentage of cure rose to 15 per cent., and in the third study period, with the addition of grattage, the percentage of cure rose to 42 per cent.
- (5) The follicular type of pannus proved to be more resistant (62 per cent. cure) than the papillary type (70 per cent. cure).
- (6) Among the cured cases, Herbert's rosettes were reduced to pigmented scars at the limbus.

GROUP B

The results obtained by supplementing the antibiotics with grattage, encouraged us to test a further group of 28 cases.

Material.—Six cases of pannus tenuis and 22 of pannus vasculosus.

Dosage.—Aureomycin ointment was used in preference to the drops, and treatment was continued for 4 weeks.

Results.—The six cases of pannus tenuis cleared up in about 2 weeks, and eleven of the remaining 22 cleared up in a further 2 weeks, but ten proved resistant to the drug. The cure rate recorded was 64 per cent.

Discussion

Pannus tenuis is probably an early stage in the evolution of pannus vasculosus in cases of trachoma, and is thus amenable to aureomycin therapy. Once the stage of pannus vasculosus is reached, the case becomes increasingly resistant to treatment. It is sometimes difficult to distinguish between the two types, but for the purpose of the above study all vessels visible only with the aid of the loupe were classed as tenuis, and those visible to the naked eye were classed as vasculosus.

Ointment proved more efficacious than drops in the above series, because it remains longer *in situ*, and being neither drained nor washed out by the ensuing increased lacrimation maintains a certain concentration by forming an oily film lining the whole conjunctival sac. The tropical climate further helps in reducing the ointment to an oily consistency.

Grattage may assist recovery because it not only expresses out the offending elements, which the attendant increased lacrimation then washes out of the eye, but also exposes any viruses or other organisms to the action of the bacteriostatic drugs.

The better results in the second series are due to direct mass action on the exposed bacteria by a full concentration of the drug, whereas in the first series the organisms had time to develop resistance.

Summary

Encouraging results were obtained in 89 cases of trachoma, by the addition of grattage to treatment with aureomycin and sulphacetamide combined.

REFERENCES

- ANDRADE, L. DE (1951). *British Journal of Ophthalmology*, **35**, 601.
 BOASE, A. J. (1950). *Ibid.*, **34**, 627.
 BRALEY, A. E., and SANDERS, M. (1949). *Amer. J. Ophthal.*, **32**, No. 6 (June), pt. 2, p. 119.
 DUKE-ELDER, S., AINSLIE, D., and BOASE, A. J. (1950). *British Journal of Ophthalmology*, **34**, 30.
 KAMEL, S. (1951). *Amer. J. Ophthal.*, **34**, 205.
 SHAH, M. A. (1951). *British Journal of Ophthalmology*, **35**, 50.
 SAKON, H., KOHN, M., and RAPHAEL, E. R. (1951). *Rev. int. Trachome*, **28**, 309.
 SARKIES, J. W. R. (1951). *British Journal of Ophthalmology*, **35**, 549.
 TANAKA, C. (1951). *Acta Soc. ophthal. jap.*, **55**, 956.
 VAN TIEN, P. L. (1951). *Rev. int. Trachome*, **28**, 202.