

curvature and not on the line of the lesser curvature, as is the rule in chronic gastric ulceration. The stomach contents consisted of the typical coffee-ground fluid with some supernatant small clots of blood.

From their shape, their number, and their bleeding character, we may accept these as acute ulcers similar to those in the previous case, and more especially as there was in Case 2 no history of any previous subjective or objective gastric disturbance.

### Discussion

These two cases demonstrate the close relationship between gastric ulceration and localized lesions of the cerebral frontal lobe.

The nature of the ulceration does not correspond to that of the chronic gastric or duodenal ulcer. The haemorrhagic character, number, site, and funnel shape of these ulcers are typical of acute ulcers due to haemorrhage. The primary cause is a local vascular disturbance, possibly related to alteration of the gastric motility, which produces haemorrhages that separate the epithelium from the submucosa. The devitalized epithelium is then digested away by the gastric juice and a superficial erosion produced. The funnel shape and the depth of some of these ulcers are, similarly, evidence of their vascular origin.

The regulating action of the cerebral cortex—in particular certain areas of the frontal lobe—has been firmly established experimentally, so that in these two cases we may accept the evident relationship between the cerebral lesions and the gastric and intestinal changes.

As for the anatomical pathways which take part in the transmission of regulating impulses from the cortex, at present three are accepted as connecting the frontal area to the primary subcortical centres—one to the anterior thalamic nucleus, another to the dorso-medial nucleus of the thalamus, and a third to the hypothalamus, though this latter has no firm anatomical basis, its existence being accepted only through the physiological observations of Ward and McCulloch (1947).

It is possible that in addition to these direct and indirect connecting pathways to the hypothalamus other extrapyramidal tracts may regulate the primary and autonomic centres, as may be deduced from the work of Spiegel and Hunsicker (1936).

### Summary

Two cases of frontal-lobe lesions with acute multiple ulceration of the stomach and duodenum are described.

In one case there was a purulent pneumococcal meningitis localized to the frontal area, together with seven acute ulcers in the duodenum. In the other case there was an ependymoma of the frontal lobe with four acute ulcers in the greater curvature of the stomach.

The possible mechanism in the production of these ulcers is discussed along with their relation to vascular changes and alterations in gastric motility of cerebral origin.

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## THE TREATMENT OF BLEPHARITIS

BY

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Blepharitis, though sometimes dismissed lightly as a minor complaint, is in fact one of the most distressing afflictions met with in ophthalmic practice. Even with the wide range of antibacterial substances now available some cases prove very obstinate, causing prolonged suffering to the patient. The majority can be cured, however, if appropriate antiseptics or antibiotics are used before the disease has become chronic.

The mildest form—squamous blepharitis, manifests itself by a scaliness of the lid margins. It is merely dandruff of the eyelashes, associated with seborrhoea elsewhere. Dandruff of the scalp is an almost constant accompaniment. Squamous blepharitis is itself not serious except in so far as, if neglected, it is likely to pass on to the more severe condition of ulcerative blepharitis in which pyogenic infection of the skin of the lid margins has supervened. Shallow ulcers then form near the bases of the lashes and become covered by a thick yellow crust. By far the commonest infecting organism is *Staphylococcus aureus*, but any pyogenic organism may be found.

Ulcerative blepharitis is serious, for if not cured at an early stage it will become chronic and lead to a deep folliculitis. After this has happened even the most assiduous treatment may fail to eradicate the infection, and scarring of the lid margins with trichiasis, epiphora, and dermatitis of the surrounding tissues will ensue. It is important, therefore, that the action of the different classes of antibiotic and antiseptic substances should be understood so that each may be used to best advantage.

### Treatment

As with any inflammatory lesion, the results of local treatment will be disappointing if general measures are not employed when necessary. Particularly in the case of children it is found that sufferers from ulcerative blepharitis are debilitated. A holiday in the fresh air, good food, and preparations containing the vitamin-B complex may be of the greatest value.

An uncorrected error of refraction is often blamed as the cause of blepharitis. While this is never the true cause, the ocular discomfort and asthenopia which result play their part in undermining the general constitution. Refractive errors should therefore be meticulously corrected.

*Squamous Blepharitis.*—As with dandruff of the scalp, the scaliness of the lids in squamous blepharitis is the result of epidermal irritation following infection by pityrosporum. Treatment consists in frequent bathing with a 2% solution of sodium bicarbonate in order to remove the scales, followed by the application of 1%

ung. hydrarg. oxidi flavi or 1% ung. hydrarg. ammon. dil. While this will rapidly clear up the lid condition the disease will immediately recur on cessation of treatment unless the seborrhoea of the scalp, and possibly of the eyebrows, is also dealt with. Lotions containing salicylic acid, mercury perchloride, sulphur, or resorcin are the most effective. Persistent treatment, consisting in frequent washing of the hair and applications of the lotion, will clear the dandruff, but periodic treatment should be continued indefinitely, as recurrences, usually due to reinfection, are common.

*Ulcerative Blepharitis.*—The successful treatment of ulcerative blepharitis is more difficult, but resolves itself into the removal of the encrustations by mechanical means and the application of an antiseptic preparation to the infected parts thus exposed.

### Methods of Treatment

*Non-specific Antiseptics.*—Until quite recently non-specific antiseptic ointments were the only means of treatment, and they are still of great value. Sodium bicarbonate 2% is at first used to soften and remove the crusts, and 1% (or 2%) ung. hydrarg. oxidi flavi is then rubbed firmly into the raw areas. This should be repeated three or four times daily. After the first few days a change from sodium bicarbonate to oxycyanide of mercury lotion 1:8,000 can be made with benefit, as this is a powerful antiseptic in itself and is useful in combating any associated conjunctivitis. The importance of removal of the crusts cannot be too strongly emphasized. No matter what ointment is used, it will be useless if held away from the infected area by a barrier of encrustation.

*Sulphonamides.*—Since the introduction of the sulphonamides drugs of this class have often been employed, and the popular sulphacetamide, as a 6 to 10% ointment, has been used in thousands of cases. I have found it effective in some instances, and it has the merit of being a perfectly safe preparation, allergic responses being of the utmost rarity. I have not, however, found the results superior to those obtained with yellow oxide of mercury. Whatever the situation when sulphacetamide was first introduced, it is now certain that in many cases organisms are resistant to the drug.

*Penicillin.*—With the discovery of penicillin the era of antibiotics became established. Penicillin, with its great potency as an antibiotic against the coccal organisms, was found to be a most useful agent in the treatment of blepharitis. The application of penicillin ointment led to rapid, and in many cases complete, cures. Unfortunately, however, penicillin has been used somewhat indiscriminately, all too often in inadequate amounts. Some strains of staphylococci have always been penicillin-resistant, but now poorly sensitive and insensitive strains are becoming more frequent. It is unfortunate that, while the staphylococci have managed to become more resistant, the human subject is becoming more sensitive to penicillin, and allergic responses, once rare, are now common. If the use of penicillin, or for that matter any antibiotic, is under consideration, the likelihood of a cure must be weighed against the danger of allergy. There is undoubtedly a place for the use of penicillin ointment in the treatment of blepharitis, but I do not believe that it should be used empirically without a culture and, if possible, a test of the organism's sensitivity. If this precaution is not taken the patient

may be unnecessarily exposed to the risk of an allergic response, with the unpleasant eczematous reaction and, indeed, possibly secondary dermatitis. If penicillin is used without cultural control it should certainly not be persisted with for more than a few days in the face of anything but the most rapid improvement. The most useful penicillin preparation in the treatment of blepharitis is an ointment containing 25,000 units per gramme.

*"Aureomycin."*—Recently other antibiotics have become available. Aureomycin, with its wide range of antibiotic activity, covering the cocci, most Gram-negative bacilli, and even some of the larger viruses, suggested attractive possibilities. Through the kindness of surgeons of the Moorfields, Westminster, and Central Eye Hospital I have had the opportunity of testing the effectiveness of aureomycin in a variety of ophthalmic infections, including a number of cases of blepharitis. Here it held out especially bright prospects, as staphylococci which have become resistant to penicillin are still in most cases susceptible to aureomycin.

### Results of Treatment with Aureomycin

As aureomycin is soon likely to be generally available I am recording the results obtained in the treatment of 30 consecutive cases of blepharitis. All the cases were well established, and the blepharitis had been present for periods varying from three months to over twenty years. In view of this and the fact that all had had numerous previous treatments, including mercurial ointments, application of silver salts, sulphonamides, and penicillin, the results have been encouraging. A number of long-standing cases, including one of twenty-six years' duration, have been brought under control and have remained clear for over six months. It will be noted, however, that, even as the result of vigorous treatment with aureomycin, cures for three months or more have been possible in only two-thirds of the cases. This, I think, emphasizes the importance of thorough treatment while the disease is yet in an early stage.

In each of the 30 cases a culture was taken, the results of which are shown in Table I. *In vitro* sensitivity of the

TABLE I.—Results of Culture and Sensitivity of Organisms *in vitro*

Organism Grown	No. of Cases	Penicillin-Sensitive	Sulphacetamide-Sensitive	Aureomycin-Sensitive
<i>Staph. aureus</i> ..	22	11	4 (12 tested)	21
<i>B. Friedlander</i> ..	3	0	2	3
No growth ..	5	—	—	—

organism to penicillin and aureomycin was tested in all cases with positive culture. Twelve were tested against sulphacetamide ("albicid.") Testing was purely qualitative, it being observed whether or not the growth of the organism in question was inhibited by the various therapeutic preparations—that is, a penicillin, sulphacetamide, or aureomycin solution. Very slight inhibition was regarded as negative.

The paper-disk method of testing for sensitivity was employed. Pieces of filter-paper 7 mm. in diameter were soaked in the various solutions and placed on the blood-agar plate upon which the organism under test was growing. The strength of solution in the case of penicillin was 500 units per ml., aureomycin 1 mg. per ml., sulphacetamide 30%.

Table I shows that the overwhelming majority of cases were due to *Staph. aureus*, and it will be seen that

a high proportion of these were insensitive to penicillin and sulphacetamide. This in no way gives a representative picture of the general sensitivity of organisms in blepharitis, for the cases were selected because they had failed to respond to ordinary treatments. The percentage of penicillin- and sulphacetamide-insensitive causative organisms is certainly much higher than average.

The results of treatment with aureomycin are given in Table II. The cases designated as successful cleared up

TABLE II.—Results of Aureomycin Treatment

Culture Result	No.	Successful	Unsuccessful	
			Recurred	Did not Improve
<i>Staph. aureus</i> ..	22	13	6	3
<i>B. friedlanderi</i> ..	3	3	0	0
No growth ..	5	2	0	3
Total ..	30	18	6	6

as the result of a single course of treatment and have remained clear for from three to twelve months. The unsuccessful cases either failed to improve or recurred soon after cessation of treatment. Two recurrent cases responded well to a second course and have now remained clear for over two months.

Treatment of these cases was as follows: the crusts were removed with warm saline solution and aureomycin ointment was applied to the ulcerated areas. The patient was instructed to apply the ointment every two hours during the day, and the importance of removing any crusts which had re-formed was emphasized. After three to four days the ointment was applied four-hourly. In every successful case there was a marked improvement during the first week and the lids appeared to be cured within two to three weeks. Treatment was continued for total periods of five to six weeks, however, in order to minimize the risk of recurrence.

All the successful cases were treated by local application only. Those with a marked associated conjunctivitis were, in addition to the ointment, given aureomycin drops every three hours for three days. The cases which did not respond to these measures were also given systemic aureomycin (orally, 500–750 mg. every six hours) but without improvement. It would appear, therefore, that an intensive course of local treatment is the correct method of approach, and that if this is ineffective systemic administration is likely to be equally useless.

The ointment used was the standard preparation of the American Cyanamid Company (Lederle Division) and contained 1 mg. of crystalline aureomycin per gramme. This is a stable preparation remaining active without refrigeration for over a year.

Drops were freshly made up before use, as in solution aureomycin deteriorates rapidly. Lederle prepared a dry powder containing aureomycin hydrochloride 25 mg., sodium borate 25 mg., and sodium chloride 62.5 mg.; and 5 ml. of distilled water is added. In this way 0.5% solution of aureomycin, suitably buffered, is obtained.

#### “Terramycin”

During the past few weeks I have been fortunate in having available terramycin, in the form both of ophthalmic drops 0.5% and of ophthalmic ointment 0.1%, supplied by Chas. Pfizer, of New York. As with aureomycin, the drops must be freshly made up, and a suitable dry powder is supplied by Pfizer. The ointment is stable.

I have treated only two cases of blepharitis with terramycin and in each case ointment alone has been employed. In both, cultures revealed *Staph. aureus*, and in both the organism was insensitive to sulphacetamide and penicillin but sensitive to aureomycin and terramycin. Improvement with terramycin was immediate. It is, of course, too early to say whether the results are permanent.

#### Conclusion

In view of the number of antibacterial substances now available the best results will be obtained only if an orderly line of treatment is followed. The danger of allergic responses and the danger of producing insensitive organisms make it desirable to reserve antibiotics for cases failing to respond to older treatments. Empirical remedies, such as mercurial ointments, are very often effective, but if, after a reasonable trial, there is little or no relief a culture and a sensitivity test should be performed so that the most appropriate antibiotic can be chosen. In this way prolonged ineffective treatment will be avoided and the danger of allergic responses minimized. Once treatment with an antibiotic is decided upon it must be conducted with the utmost vigour so that the danger of producing insensitive strains of the organism will be reduced to a minimum.

#### Summary

The results of treatment with aureomycin of 30 cases of long-standing blepharitis are given.

The initial results in two cases treated with terramycin are mentioned.

A line of treatment for blepharitis is suggested.

I should like to thank Dr. N. H. Ashton and his staff in the pathological department of the Institute of Ophthalmology for performing so many cultures and sensitivity tests.

## Medical Memoranda

### Metastatic Adrenomedulloblastoma of the Pterygopalatine Fossa

It will be recalled that neuroblastoma of the right adrenal medulla tends to metastasize to the retroperitoneal glands, liver, and lungs, producing Pepper's syndrome (Pepper, 1901), whereas neuroblastoma of the left adrenal medulla usually metastasizes to the cranium and long bones, producing Hutchison's syndrome (Hutchison, 1907). It is with the latter that we are concerned in this brief contribution, although the two classical types tend to merge into one another, owing to the intense malignancy of the tumour.

Adrenal, mesencephalic, and retinal neuroblastomas all arise from undifferentiated neural elements. They are highly cellular, and the cells are small and dark, tending to become arranged in pseudo-rosettes.

#### Case Report

A baby girl aged 8 months was referred by Dr. Kenneth Dick to the E.N.T. Department of the Royal Halifax Infirmary because of a swelling in the right temporal region of three weeks' duration. There was no evidence of otitis media. The eyelids were slightly discoloured, but our ophthalmic colleague, Mr. P. M. Wood, reported that the media and fundi were normal. The temperature varied from 99