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# CASE NOTES

## A CASE OF MENINGITIS APPARENTLY SECONDARY TO HERPETIC KERATITIS AND POSSIBLY PRECIPITATED BY CORTISONE TREATMENT*

BY

CHRISTOPHER HEATH

*Redruth, Cornwall*

As the effect of cortisone in lowering resistance to infection is now recognized, and as it has been suspected for some time that meningeal involvement sometimes occurs with virus infections of the eye, this case, although unproven, seems of sufficient interest to be worth recording.

### Case Report

**A man aged 43** first attended the eye clinic on July 18, 1952.

*History.*—He stated that he had had several severe attacks of dendritic ulceration of the right eye whilst in the Navy, starting in 1932. He was thrice invalided home from abroad, and was finally, in 1947, invalided out of the service for this cause. Until the present attack, however, he had had no recurrence since an attack after a bout of malaria in 1945. Visual acuity in the right eye on discharge from the Navy was 6/18. He had had herpes on his face in childhood and occasionally up to the time of his first dendritic ulcer in 1932; this attack occurred when he was 2 weeks convalescent from measles and facial herpes developed 2 weeks later. He was doubtful whether he had ever had herpes again since that time. He had been vaccinated more than six times during his 23 years' service. He had had several bouts of malaria, but only in 1945 in Africa was this associated with corneal ulceration; he had had no malaria since 1947.

*Examination.*—His right eye had been sore and under treatment for 2 weeks before he attended the clinic. He had been in good health and had neither a cold nor herpes nor any apparent malady to precipitate the attack. His last illness had been bronchitis 7 months before. Vision in the right eye was reduced to 6/60 by active general superficial keratitis; this was largely of punctate type with a suggestion of dendritic ulceration in one area, but the appearance was obscured by treatment and by the gross underlying scarring. There was secondary iritis. The left eye was normal.

*Therapy.*—As it was thought that the cornea was already too severely damaged to tolerate painting with iodine, treatment was started with atropine and aureomycin ointment and a week later the condition appeared much improved. After another fortnight the cornea was healing so well that the patient was advised to continue with the atropine for another 4 weeks and then to desist if all seemed well.

*Further Developments.*—On September 2, 1952, however, he returned to the clinic because the eye had become painful again; 10 days later its appearance suggested the onset of atropine irritation and bullae of the corneal epithelium began to form. Under treatment with lachesine drops and emollient applications the eye became more painful and the patient was admitted to hospital on September 25.

There was now a general keratitis with secondary iritis and spastic pupil; corneal sensation was not appreciably impaired. The patient was in good general health.

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*Further Therapy.*—As the eye now appeared irritable to treatment, gutt. cortisone acetate 0.5 per cent. twice daily was prescribed to combat this, with gutt. hyoscin 0.5 per cent. twice daily and heat; with this the eye improved steadily.

*Development of Meningitis.*—On October 7, 12 days after admission, the patient complained of severe frontal headache. This was not accompanied by any apparent change in general condition, temperature, or pulse; the eye condition remained the same and no other physical signs were elicited. Throughout the next and most of the following day the headache persisted, but the situation seemed otherwise unchanged. On the evening of October 9, the third day of the headache, the patient's temperature rose to103° and he noted some deterioration of vision of the right eye, which had, however, been only " hand movements " previously. Examination at that time showed slight loss of upward movement of the eye and some stiffness of the neck; reflexes were normal and no other physical signs elicited. Next morning, for the first time, the patient appeared seriously ill; his temperature was 102°; his right eye had lost all movement, and had no perception of light, and the tension was low; the fundus could not be seen; the left eye was normal. The assistance of the Ear, Nose, and Throat department was sought, to exclude the possibility of sinus involvement, and also of the physicians, who confirmed the diagnosis of meningitis, performed a lumbar puncture, and instituted intrathecal penicillin therapy.

Next morning there was little change in the general condition; the pyrexia remained unabated; a prolific crop of herpes simplex appeared on the patient's face, mainly on the right side. Lumbar puncture and treatment was repeated.

The report on the cerebrospinal fluid of the previous day showed a slightly turbid fluid with no clot formation, 450 cells per cmm. (polymorphs 70 per cent., lymphocytes 30 per cent), protein 190 m. per cent., globulin (N.A.) increased, chlorides 700 mg. per cent., sugar 80 mg. per cent.; no growth was obtained on culture.

In the afternoon examination showed impairment of inward, upward, and downward movement of the good left eye and apparent contraction of the peripheral field of vision. The fundus was normal. The alarming inference that the left eye was about to follow the example of the right, coupled with the normal sugar content of the cerebrospinal fluid and the failure to isolate any organism, enhanced an earlier suspicion that the progress of the malady might be due to direct spread of the herpes virus from the affected eye; treatment with aureomycin was therefore started at once. Next day the patient felt better, his temperature fell to 100.2° and the field of vision appeared full.

*Recovery.*—On the following day (October 13) his condition was much improved, and his temperature normal. The right eye had bare perception of light, but was otherwise unchanged; the left eye had a partial oculo-motor palsy and good vision.

From the second day of treatment with aureomycin the patient made a steady recovery; by the third day movement of the left eye was improving and on the fourth day it appeared full. By October 21 the right eye also had recovered fair movement; vision seemed still reduced, but this was difficult to assess because of the keratitis. By October 28, vision had improved to " hand movements " again, and local treatment was continued with lachesine and hyoscine. A rather atypical deep, disciform keratitis subsequently developed. The patient recovered his general health and was discharged from hospital on November 5.

He continued to attend the clinic, and the right eye improved steadily. All movements except full abduction were restored by December 9, and this also returned a month later; vision is still limited to hand movements, but it is not possible to assess whether this is due only to the gross corneal scarring and adherent pupil or to neural damage. The left eye is normal.

*Pathological Investigation.*—Samples of the cerebrospinal fluid and blood were submitted to the Virus Reference Laboratory, Public Health Department, Colindale, Middlesex; no organism was discovered; leptospiral agglutination and complement-

fixation tests for lymphocytic choriomeningitis were negative. In later specimens of cerebrospinal fluid more than 80 per cent. of the white cells were lymphocytes.

It seems most likely that this dramatic illness was a virus meningitis, presumably that of herpes simplex. If this be granted, it remains to enquire why this does not appear previously to have followed the common herpetic infections of the eye. It is suggested that the solution of this problem is to be found in the effect of cortisone treatment in reducing the local resistance to infection.

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