LEPTOTRICHOSIS CONJUNCTIVAE*

BY

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VERHOEFF (1913) first reported that *Leptothrix* might be found in the conjunctival lesions of one type of Parinaud's conjunctivitis. Since that time several reports of this condition have appeared, but in only three of these has the organism been cultured; the other cases were diagnosed by the demonstration of leptothrix organisms in sections from conjunctival biopsies.

In the present case it has been possible to demonstrate the organism in sections and to cultivate it from the pre-auricular gland.

Case Report

History.—The patient, an unmarried dressmaker, aged 38, attended hospital on January 18, 1951, complaining of redness with discharge in the left eye for 7 days. She had been unsuccessfully treated with penicillin ointment. When her lower lid was drawn downwards, an adherent yellowish mucopurulent membrane about 1 cm. long and 6 mm. wide, surrounded by an area of severe chemosis, was seen at the bottom of the lower fornix. The ipsilateral pre-auricular lymphatic gland was enlarged. Otherwise the eyes were healthy, and the vision in each was 6/6 unaided.

Clinical Course.—As the condition was penicillin-resistant, 30 per cent. sulphacetamide was tried for 4 days, and then after the first bacteriological report gutt. aureomycin 25 mg./5 ml. After 7 days on gutt. aureomycin the local condition was much improved, chemosis was reduced, and the ulcerated area almost healed; the pre-auricular gland, however, was larger and since the local condition had responded to aureomycin this was now given by mouth, 500 mg. four times daily for 6 days, starting on January 31, 1951. The local condition continued to subside, but the pre-auricular gland became fluctuant and was aspirated on February 5, 1951, the pus removed being replaced by 5 ml. sterile water containing 25 mg. aureomycin. On February 8, 1951, some further 2 ml. pus were removed and 25 mg. aureomycin in distilled water injected. From this time the pre-auricular swelling subsided, and the indurated rim of tissue which surrounded the fluctuating centre appeared to break down from within outwards. The abscess was aspirated on February 26, 1951, and again 25 mg. aureomycin were injected into the cavity. By March 1, 1951, there was fluctuation, and the pre-auricular swelling disappeared during the following week.

Laboratory Investigations.—On January 18, 1951, the patient was referred to the laboratory for scrapings, smear, and culture of the conjunctival lesion. Smears showed pus and epithelial cells but no organisms; Ziehl-Neelsen stained films were negative for tubercle bacilli. Scrapings stained by Giemsa's stain showed no intracellular viral inclusions. Aerobic and anaerobic cultures were sterile after 6 days' incubation.

A biopsy of the fornix was made on January 23 and histological examination showed a mass of acute and chronic inflammatory cells with pockets of suppuration. No virus inclusions or tubercle bacilli were found. Wassermann reaction, Kahn test, and gonococcal complement-fixation test were negative, and a full blood count was normal.

On February 5 pus was aspirated from the pre-auricular gland and smears were again

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negative for tubercle bacilli and other organisms. Cultures were sterile after 4 and 6 days, despite the presence of 10 per cent. carbon dioxide.

On February 8 a second specimen of pus was cultured on routine media, and also on the serum glucose medium described by Verhoeff and King (1933), in the presence of 10 per cent. carbon dioxide and in Brewer's thioglycolate medium. In addition 1 ml. pus was injected intramuscularly into two guinea-pigs.

Cultures on solid media remained sterile but after 18 days' incubation the cultures in Brewer's medium showed a band of growth at the junction of the aerobic and anaerobic zones. Smears from these colonies showed a pleomorphic filamentous bacillus which was Gram-positive but readily decolorized.

Sub-cultures from this medium grew more readily but remained strictly micro-aerophilic. Growth could usually be seen in 4 to 5 days; smears from such cultures were more regular, and morphologically resembled a long slender diphtheroid—the filamentous and coccoid forms of Verhoeff and King (1933) being seen only in old cultures.

Anaerobic cultures in Hiss's serum water sugars showed no fermentation of glucose, maltose, mannite, lactose, or saccharose; litmus milk was unchanged.

After the isolation of the organism, the sections of the conjunctival biopsy were retained by the technique of Verhoeff (1918); Gram-positive masses similar to those described by Verhoeff could be found situated around the necrotic areas.

Animal Inoculation.—Intramuscular injection of the pus from the pre-auricular gland into two guinea-pigs produced a local inflammatory mass 48 hours after inoculation. This subsided after 5 days, and the animals remaining well for 3 months, and showed no pathological lesions at *post mortem*.

Subcutaneous injection of the organisms into a rabbit produced a local inflammation lasting 48 hrs. Conjunctival and subconjunctival inoculation caused no pathological lesion.

Discussion

This case showed one clinical feature unusual in leptotrichosis, namely, suppuration of the pre-auricular gland. In none of the 45 cases reported by Verhoeff and King (1933), nor in that from which Wright (1937) isolated the organism, was suppuration of the pre-auricular gland found.

The organism isolated in this case differs from those described by Verhoeff and King (1933) and Wright (1937) in its inability to ferment sugars and in being more strictly micro-aerophilic. Wherry and Ray (1918), who isolated a similar organism from a pre-auricular gland, do not give a sufficiently detailed description of the morphological and cultural characteristics for comparisons to be made.

Summary

A case of leptotrichosis conjunctivae is recorded in which the organism was isolated from a suppurating pre-auricular gland. The clinical course suggests that the infection was sensitive to aureomycin in large dosage locally.

We wish to acknowledge that Mr. P. MacGregor Moffatt first suggested that the infection might be due to leptotrichosis, and our thanks are also due to Dr. Norman Ashton for his histological report on the biopsy from the conjunctiva.

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