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Identification of *Listerella monocytogenes*.*

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That *Listerella monocytogenes* may cause a severe experimental conjunctivitis in several animal species was pointed out in an earlier report.¹ While, as will be seen, the ocular infection is both a curious and characteristic reaction, it was not particularly emphasized at the time as a potential diagnostic test, since the study was made with only 2 strains. Since that communication, however, the isolation of this organism from the blood of a patient with infectious mononucleosis furnished the initiative for determining the possible accuracy of the conjunctival reaction in the identification of *Listerella monocytogenes*. While other procedures, such as the stimulation of mononucleosis in susceptible animals, agglutination in specific antisera, and fermentative reactions, are also helpful for the purpose, the test to be suggested is much more readily accomplished, requires little preparation, and eliminates entirely the question of interpretation, so that it is recommended as a method of simple and accurate diagnosis. Eight strains have been collected from various animal and human sources, and all have been found to give typical reactions, so it is felt that the test may be of actual value. While the number of cultures studied is small, it must be remembered that the total number of strains of *Listerella monocytogenes* available at the present time is not much more than twice as great.

In conducting the test, young cultures (18-24 hours) are applied either by instillation of heavy suspensions into the conjunctival sac or by swabbing the everted conjunctiva. This may be done by running a moistened swab over the surface of a blood-agar culture and then transferring the organisms by light massage to the conjunctiva of the animal to be tested. While the reaction has been reproduced with equal readiness in the rabbit, guinea pig, and rat, it has been found more convenient to employ the rabbit. A distinct conjunctivitis becomes visible 1 to 5 days following the application of bacteria. The lids rapidly become edematous, chemotic, and aggluti-

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¹ Morris, M. C., and Julianelle, L. A., *Am. J. Ophth.*, 1935, **18**, 537.

nated. Upon forcing the lids apart, there is an expulsion of thick, heavy exudate, composed in great part of monocytes. The conjunctiva is acutely and intensely inflamed, sometimes with petechiæ on the bulbar conjunctiva. The cornea appears turbid, the turbidity completely covering the cornea within 24 to 36 hours. Then the cornea may appear roughened or pitted and blood vessels begin at the superior limbus and reach the pupillary margin. The acute reaction varies in individual animals from 5 to 10 days, when the infection begins to subside slowly, complete healing requiring 1, 2, or 3 weeks.

Histological examinations of enucleated eyes reveals, in general, edema of the bulbar conjunctiva, advancement of the conjunctiva over the cornea, migration of numerous monocytes with a small number of lymphocytes into the conjunctiva, and congestion of the capillaries, which in certain instances are undergoing proliferation of the endothelial lining. The cornea exhibits infiltration with monocytes primarily and lymphocytes secondarily, the infiltration being particularly pronounced between the anterior lamellæ of the *cornea propria*. The corneal corpuscles apparently are unaffected. Moreover, the cornea is invaded by small capillaries which extend to all its depths.

It is important to point out that a number of other organisms tested in a similar manner have no effect on the eye. Even subconjunctival injection, which frequently causes a conjunctivitis, has no effect on the cornea. With the numerous bacteria studied, moreover, corneal infection was induced only by direct intracorneal injection.

The ocular infection due to *Listerella monocytogenes* remains localized in the eye, the organism being apparently unable to penetrate the conjunctival barrier into the blood stream. While occasionally the blood elements undergo changes characteristic of the organism, in general it has not been possible to establish any correlation between the presence and severity of the ocular infection and hematological change.