

The Nasal Sinuses as a Route of Infection in Encephalitis Lethargica.

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THE author gave an account of the condition of the sinuses in twenty-three cases of encephalitis lethargica in which the diagnosis of this disease had been established beyond doubt.

From the point of view of history these cases could be divided into three main groups, namely, those following an acute rhinitis similar to an influenzal attack, those following an acute rhinitis complicating a chronic rhinitis, and those in which a chronic rhinitis and sinusitis were present.

Nasal infection of a high degree was found both clinically and by bacteriological examination in all these cases. The *Staphylococcus aureus* was the commonest organism in cases following an acute rhinitis and the pneumococcus or bacillus of Friedländer in cases following a chronic rhinitis. The rhinitis affected chiefly the mucous membrane in or around the openings of the posterior group of sinuses, the sphenoidal sinus being that most commonly affected. It was found that in these areas the characteristic of the inflammation was the paralysis of cilia, and of mucous secretion, together with a heightened absorption of substances in watery solution of the mucous membrane. By placing within the sinus a quantity of 4 per cent. indigo carmine solution this absorption could be demonstrated by the appearance of the dye in the urine in about twenty minutes. The fact of this heightened absorptive power led the author to believe that the air-borne and filter-passing virus of encephalitis lethargica must fall on soil previously prepared by inflammation so as to render the mucous membrane permeable to the filter-passing virus.

The author also describes a certain experiment with mucus *in vitro*. If viscid mucus was sterilized and mixed with living staphylococci it rapidly became liquid, and permitted the passage of water-soluble dyes to a progressively greater extent as autolysis of the mucus proceeded, while in the absence of micro-organisms mucus prevented the passage of the dye through its substance. It appeared, therefore, that in order to become infected by the virus of encephalitis lethargica an infective environment of sufficient intensity to permit the micro-organisms partially to digest the mucus was necessary, and that when this occurred the toxins, being now able to pass through the digested mucus, paralysed the ciliated epithelium, thus anchoring the mucus and permitting its complete autolysis, the final stage being reached when the secretion of mucus was also paralysed by the toxins, the protective mechanism against the filter-passing virus being thus entirely removed.

Dr. P. WATSON-WILLIAMS congratulated the author on this pioneer work in connexion with encephalitis lethargica, but he thought that Dr. Yates would himself admit it was necessary to make further observations before the ground was secure, and one must hope that he would have opportunities for such investigations. Members would recall the work of Dr. Peters in connexion with the finding of the meningococcus in the sphenoidal and other sinuses, results which seemed very definite but were not always corroborated by the investigations of others.

¹ For complete paper see *Journal of Laryngology and Otology*, Oct., 1925, vol. xl, No. 10, p. 646.

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A difficulty in connexion with cases of encephalitis lay in the correctness of the diagnosis. At the last meeting he had himself brought forward two examples of sphenoidal sinus infection with ocular defects. One was a case in which there was a definite enlargement of the blind spot, with clear infection of one particular sinus, and yet this case had been set down by a previous attendant as a "missed" one of encephalitis lethargica. He (Dr. Watson-Williams) was convinced, however, that it was an instance of ocular manifestations due to simple sinus infection and that the diagnosis of encephalitis could not be sustained. He would like to hear of more definite criteria on which the diagnosis of encephalitis in the cases investigated by Dr. Yates had been arrived at.