

The effect of diethanolamine ricinoleate (2 cc. n/20 solution intravenously) on the permeability of the meninges was tested in 12 experiments with rabbits, using Uranin A as circulating dye. Occipital puncture was performed 3 hours after the intravenous injection of soap and dye. In every case there was a small but definite increase in the dye which was found in the cistern fluid as compared with the fluid from animals in which the dye alone was injected.

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Dissociation of Allergy from Immunity in Pneumococcus Infection.

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It is commonly believed that allergic hypersensitiveness plays an important and necessary rôle in acquired immunity to bacteria. The idea behind this belief is that the rapid allergic inflammation, which occurs at the site at which bacteria lodge in the sensitized body, prevents the spread and causes the death of the bacteria, while in the non-allergic body in which inflammation develops with less speed and intensity, the bacteria are able to proliferate and to spread more rapidly over the body, being less hampered by the antagonistic forces inherent in the process of acute inflammation. It has, however, been pointed out¹ that there are numerous reasons for questioning the assumed necessity of allergy for the operation of immunity; and, further, that in certain infections, if not in all, it is of considerable importance to know whether or not allergic hypersensitiveness is really necessary for immunity, since tissue destruction is so frequently a direct result of hypersensitiveness of the cells to bacterial products which are relatively innocuous to unsensitized tissues. Rich, Chesney and Turner² have produced immunity in the absence of allergy in experimental syphilis. The present study demonstrates that allergy is not necessary for immunity in pneumococcus infection.

A high degree of allergy in rabbits actively immunized to the pneumococcus can easily be demonstrated by intracutaneous tests. In the present attempt to dissociate allergy from immunity, however,

¹ Rich, *Arch. Int. Med.*, 1929, xliii, 691.

² Rich, Chesney and Turner, to be published.

we have made use of the method of passive immunization. The test rabbits were given intravenously an immune serum prepared against a Type I pneumococcus, and control rabbits were given the same amount of normal serum. Both test and control animals were then inoculated intracutaneously with various multiples of the lethal dose of a Type I pneumococcus of tested virulence for rabbits. The sites of inoculation were carefully studied at frequent intervals, and in no instance did an allergic reaction occur at the site in the immunized animals, whereas progressive, destructive lesions developed in the controls. The latter died, with septicemia, usually within 36 hours after the inoculation; exceptional animals, however, lived as long as 72 hours. On the contrary, all of the immunized animals survived without developing any appreciable lesion at the site of inoculation. Twenty-two passively immunized animals and the same number of controls have been used in these experiments.

It is clear, therefore, that there exists in the plasma of an animal immunized against the Type I pneumococcus, a means of protection against this organism which is effective in the absence of allergic inflammation. It is also clear that the widely postulated necessity of a local allergic sacrifice of tissue for the preservation of the body as a whole during the operation of acquired immunity finds no support in these experiments.

Conclusions. Following the intravenous injection of an immune serum prepared against the Type I pneumococcus, immunity to infection can be demonstrated in the absence of allergic inflammation. The inflammation of allergy, therefore, is not necessary for the operation of immunity in this infection.

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A Study of the Islands of Langerhans in vivo With Observations on the Circulation.

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Studies of the pancreas with an intact circulation were made in the living animal by Kuhne and Lea,¹ Mathews² and Covell.³

¹ Kuhne, W., and Lea, A., *Untersuch. a. d. Physiol. Institut. d. Univ. Heidelberg*, 1882, ii, 448.

² Mathews, A., *J. Morphol.*, Supplement, 1899, xv, 171.

³ Covell, W. P., *Anat. Rec.*, 1928, xl, 213.