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Histopathology of Experimental Vesicular Stomatitis of the Guinea Pig.

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In a previous article by one of the writers,[1] the histopathology of the lesions of vesicular stomatitis was described and mention was made of further studies on this subject, which were in progress at the time. Additional facts have been secured from the later investigations and are herewith presented.

The tissues examined consisted of pads from guinea pigs, 18 to 120 hours after inoculation with guinea-pig passage virus of vesicular stomatitis of horses. The pads were fixed in Zenker's fluid (with acetic acid) and stained with eosin-methylene blue.

The cells which are most profoundly affected are those in the upper part of the epidermis, that is, just beneath the horny layer. The basal epithelial cells are not as much damaged by this virus as by the virus of herpes. The cells immediately beneath the horny layer are swollen and stain less intensely than normal ones. As degeneration proceeds vesicles form, containing a loose reticulum composed of collapsed degenerated cells. Later there is infiltration with polymorphonuclear and endothelial leucocytes.

The cytoplasm of the affected epithelial cells becomes granular. The nuclei swell and finally appear as empty sacs with a dark blue-staining membrane. The nucleoli become first vacuolated and later fragmented. Often they are extruded and enter the cytoplasm, and frequently the staining is pink instead of blue.

Intranuclear inclusion bodies are also present. It should be mentioned that the criteria employed for the recognition of these structures vary with the investigator. We have accepted the criteria of Lipschütz.[2] Two types of inclusions are distinguishable: one consists of small eosin-staining bodies which are frequent and conform to those described by Gins.[3] They are found not only in the specific lesions, but also in lesions induced by agents other than the virus (Trautwein,[4] Ruhle,[5] and the writers). The second consists of medium-sized eosin-staining bodies, 1 to 2 microns in diameter, which are usually present in greatest numbers within 48 hours after the inoculation. They are regular in outline and are highly refractive. Some of them resemble the nuclear bodies of varicella and of herpes. Minute study, however, indicates that they differ from the latter,

so that the question has arisen whether or not they represent degenerated nucleoli which stain pink instead of blue. It should be added that indistinguishable lesions of the epithelial cells and nuclear inclusions have been found in experimental foot-and-mouth disease of the guinea pig.[6]

[1] Olitsky, P. K., *J. Exp. Med.*, 1927, xlv, 969.
[2] Lipschütz, B., *Arch. Dermat. u. Syph.*, 1921, cxxxvi, 428.
[3] Gins, H. A., *Centr. Bakt.*, 1 Abt., 1922, lxxxviii, 265.
[4] Trautwein, K., *Arch. f. wiss. u. prakt. Tierheilk.*, 1925, lii, 475.
[5] Ruhle, F., *ibid.*, 1926, liv, 197.
[6] For some of the specimens of foot-and-mouth disease tissues, we are deeply indebted to Dr. F. C. Minett.

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The Transfer of Normal and Irritated Omentums with Subsequent Streptococcus Immunity in Rabbits.

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In a recent paper[1] it was shown that if areas of granulation tissue are formed in the peritoneums of rabbits, these animals become immune to a subsequent intrapleural infection with a highly virulent hemolytic streptococcus. The intrapleural doses varied from 100 to 250 M.L.D. and successful recovery occurred in 75% of the cases. The protection appeared to be due to the migration of tissue macrophages or clasmatocytes from the peritoneal granulating areas into the pleural cavity and particularly into the subserous tissues of the diaphragmatic and parietal pleura.

The present report describes an extension of the transfer technique. A portion of the peritoneal granulating area is removed and inserted in the peritoneum of a normal rabbit. The method is as follows: A peritoneal focus of cells is built up in a rabbit by two or three intraperitoneal injections of an irritating substance, in this case a mixture of aleuronat and starch. Four days after the last injection the animal is sacrificed, and its omentum removed and carefully freed from any lumps of aleuronat which may have become adherent to it. It is then immediately inserted in the peritoneum of a normal rabbit, under complete anesthesia. An omentum of this type is at least twice normal size. Microscopically, it is found to