syphilitic sera are regularly found to contain small quantities of reagin.

8314 P

Fenestration of Nuclei of Lymphocytes: A New Diagnostic Sign in Infectious Mononucleosis.

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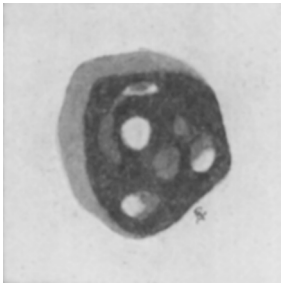
The abnormality of the nuclei of some of the lymphocytes in infectious mononucleosis described below was first observed in 1933. Since then I have found it in all of the 12 cases of infectious mononucleosis studied and it has not been observed in any other condition, although differential counts are made on about 50 to 100 bloods a day in the laboratory under my direction and the technicians were asked to look especially for these fenestrations. In 2 or 3 instances fenestrated nuclei were observed before the diagnosis of infectious mononucleosis had been made by other methods, and this diagnosis was later confirmed by finding the typical large lymphocytes, a positive Paul and Bunnell test, and by the clinical course.

The fenestrated nuclei* appear at first glance to be nuclei containing multiple nucleoli, but careful inspection shows that in the Wright's stained smear there are actually multiple holes, piercing the nucleus in various directions. In those which are parallel to the light beam through the microscope it is obvious that they are holes; but the majority will, from the laws of chance, not have this direction and their diagonal course through the nucleus gives the appearance of an oval-shaped area of decreased density which may or may not have a clear patch at one end. These may be differentiated from nucleoli by the facts that they are too numerous and that their background is the same color as the rest of the nucleus but paler, while in nucleoli the color is a pure blue with no tinge of red in it.

These fenestrations may be present in the nuclei of either the normal or large lymphocytes but are most often seen in the smallest of the otherwise normal lymphocytes. They are usually present in a relatively small proportion of the lymphocytes and may not be

* Slides and colored illustrations showing these morphologic characteristics were shown in the scientific exhibit at the 85th annual session of the American Medical Association in Cleveland, June, 1934.



observed if only 100 cells are examined in making the differential count. However, by thorough search, I have been able to find them in slides from all cases of infectious mononucleosis which I have studied.

The nature and cause of these fenestrations remain to be determined.

8315 C

Phagocytosis of Malaria Parasites by the Neutrophil Leukocytes of the Marrow.*

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It has long been known that malaria plasmodia or their disintegration products must be phagocytized by the neutrophil cells, because pigment granules are frequently seen in the neutrophils in smears from the blood. However, I have never seen, and have been unable to find a record of anyone else who has seen, intact or only partially digested malaria parasites within neutrophil cells in the blood.

The development of the sternal puncture technic for obtaining human bone marrow during life[1] made possible the study of marrow smears in malaria. Examination of these smears revealed not only a higher percentage of the red cells invaded but the presence in the neutrophil leukocytes of malaria parasites in all stages of digestion, from the intact organism to the residual collection of pigment

* Slides and illustrations showing this phenomenon were demonstrated in the scientific exhibit at the 85th annual session of the American Medical Association in Cleveland, June, 1934.

1 Young, R. H., and Osgood, E. E., *Arch. Int. Med.*, 1935, **55**, 186.