Congenital Abnormity of Peroxidase Granules— A Case of “Congenital Gigantism of Peroxidase Granules,” Preliminary Report

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In Dec. 1950 I found in a 1 year old Japanese infant a striking abnormity of peroxidase granules of all the myeloid leucocytes of blood and marrow. The stain used was the peroxidase reaction of Sato and Sekiya.¹⁾ Under this method, the cytoplasm of normal neutrophils is, as is well known, filled with fine peroxidase granules (Cf. Fig. 1), while in this particular case neutrophils have scarcely ever any peroxidase granules except in some limited parts of their cytoplasm where peroxidase granules seem to form exceedingly large masses—“Gigantic Peroxidase Granules” (Cf. Fig. 2). Each granule is spherical, oval or spindle-like in shape, 2–3 μ in diameter, intensely blue colored. Each neutrophil contains 1–7 such granules. Such a gigantic peroxidase granule occurs also in monocytes and eosinophils. In these latter such granules are thickly grouped in a place in the cytoplasm. As to myelocytes and myeloblasts, these show similar characteristic abnormity of peroxidase granules only much more conspicuously. Giemsa stain was tried which showed no morphological change corresponding to the abnormal peroxidase granules, though the Giemsa stained picture was in no way normal. Concerning the Giemsa picture and the oxidase stain, I shall report in the near future.

The patient was admitted to the Univ. Hosp. on Dec. 2, 1950, when he had signs of some upper respiratory tract infection, followed by bronchopneumonia. He died on the 17th hospital day, showing hepatosplenomegaly, jaundice, petechiae, melena and pancytopenia. The patient is an offspring of a consanguineous marriage. It is highly probable that the Gigantism of Peroxidase Granules is an evidence of congenital malformations of leucocytes. It is to be noted here that the above mentioned abnormity of peroxidase granules is not limited to a few cells, but to all the myeloid cells in the blood and marrow and I desire to suggest the name of “Congenital Gigantism of Peroxidase Granules” to this congenital disease.

References. 1) Sato & Sekiya, Tohoku J. Exp. Med., 1926, 7, 111.

Fig. 1

Fig. 2

Fig. 1. Normal peroxidase picture of leucocytes; two neutrophils (left), one eosinophil (right upper), one monocyte (right lower) and one lymphocyte (left below).

Fig. 2. The “Gigantic Peroxidase Granules” in neutrophils and monocyte (right upper).