Correspondence

Received: March 10, 1983

Accepted: May 8, 1983

Acta haemat. 1983;70:274-275

A Phenocopy of the Homozygous Pelger-Huët Anomaly Secondary to Acute Enteritis in a Heterozygous Pelger-Huët Patient

A.		Vaya
A.		Garcia
Y.		Mira
J.		Aznar

Valencia

A. Vaya, A. Garcia, Y. Mira, J. Aznar, Departamento de Biopatología Clínica, Ciudad Sanitaria 'La Fe', Avda. Campanar, 21, Valencia-9 (Spain)

The Pelger-Huët anomaly is a hereditary disorder of the leukocytes, characterized in its heterozygous manifestation by an incomplete segmentation of the nuclei of the granulocytes [3]. The heterozygous phenocopy of this anomaly (pseudo-Pelger-Huët) has been extensively reported to occur as a result of malignant hematological diseases undergoing treatment, in infectious disorders of bacterial or viral origin, and under the influence of chemical agents. However, the homozygous phenocopy with a round nucleus and only a small proportion of granulocytes having an indented nucleus [1, 2, 4, 5] is an exception. We present a case of homozygous phenocopy secondary to enteritis in a patient affected by the heterozygous Pelger-Huët anomaly.

P.G.M., a 5-year-old male, was admitted with a clinical picture of profuse vomiting and diarrhea (7-8 movements in 12 h) accompanied by high fever: 40°C. His clinical history showed repeated otitis media, dacryocystitis and sinusitis. The parents were healthy and there were no other personal antecedents of interest. Salmonella group D was isolated from the stools; the agglutinations were positive to O antigen with a titer higher than 1/320. The number of leukocytes recorded on the day of admission was $7 \times 10^9/L$; a very intense myeloid reaction existed in the differential leukocyte count: myelocytes 67%, metamyelocytes 8%, lymphocytes 12% and monocytes 13%. 93% of the granulocytes had a single, small, round nucleus while the remaining 7% had nuclei with a small indentation. None of the granulocytes had two segments. The chromatin was very coarse and the cytoplasm presented toxic granulation and vacuoles; no changes occurred in the chromatin structure in the monocytic and lymphoid series. Treatment was begun with amoxycillin and fluid therapy. The fever began to go down and an obvious clinical improvement was observed. Simultaneously, changes in the granulocyte series were observed; the number of nuclear lobulations began to increase slowly.

15 days after admission, the peripheral granulocyte picture was that typical of the heterozygous Pelger-Huët anomaly: there were 23% stab cells, 70% of the granulocytes

had a bilobed nucleus with the typical 'pince-nez' appearance and only 7% had 3 segments. The toxic-degenerative signs in the cytoplasm had disappeared. The study performed on the parents showed that the patient's mother, brother, and maternal grandfather were also carriers of the heterozygous Pelger-Huët anomaly; the father was normal.

The coexistence, in the peripheral blood of our patient, of a normal number of leukocytes with a high proportion of granulocytes with a round or oval nucleus, but without other segmented elements, together with the coarse aspect of the chromatin suggested the possibility of a homozygous anomaly of Pelger-Huët. However, the concomitant toxic-degenerative alterations spoke rather in favor of an additional infectious process.

We have found only two communications that refer to the behaviour of granulocytes in human carriers of the heterozygous Pelger-Huët anomaly in the presence of an additional infection – acute pneumonia and peritonitis, respectively [2, 5]. A homozygous phenocopy characterized by an 'ultra shift to the left', similar to that of our case, was found in these two cases. No more than 3% of neutrophils with a bi-segmented nucleus were found, the remaining nuclei were round or oval.

In our case we believe that we are dealing with a heterozygous Pelger-Huët anomaly which, in the presence of *Salmonella typhosa* infection, in itself an inducing agent of the pseudo-Pelger-Huët anomaly, has led to an intense myeloid reaction and to a peripheral blood picture typical of a homozygous phenocopy of the Pelger-Huët anomaly.

Correspondence

275

References

Aznar, J.; Vaya, A.: Homozygous form of the Pelger-Huët leukocyte anomaly in man. *Acta haemat.* 66: 59-62(1981).

Jonsson, E.; Bostrom, L.; Bringel, B.: Pelger-Huët's anomaly of the nuclei of the leukocytes. *Acta med. scand.* 131: 381-393(1948).

Pelger, K.: Demonstratie van een paar zeldzaam voor komende typen van bloedlichampjes en bespreking der patienten. *Ned. Tijdschr. Geneesk.* 72: 1178(1928).

Rister, M.; Botcher, K.; Gramer, H.: A phenocopy of a homozygote pelger nuclear anomaly associated with an antibody deficiency. *Klin. Pädiat.* 790: 203-208(1978).

Schuster, R.J.: Myeloische Reaktionen bei der Pelger-Huët'schen Kernanomalie. *Wien. Z. inn. Med.* 30: 155-159(1949).

Acta haemat. 70: 275-276(1983)

The Pelger-Huet Anomaly: A New Familial Association with Polydactyly and Trisomy 13 Syndrome

The Pelger-Huet (PH) anomaly is an autosomal dominant hereditary trait characterized in the heterozygous state by increased condensation of nuclear chromatin, poor segmentation of granulocytes, and a benign course. Its unique nuclear phenotype suggests an inherited defect in the genetic control of the last postmitotic stage of granulocytic maturation which begins with elongation of nucleus of metamyelocyte.

So far no studies have shown any correlation between PH and the specific autosome that carries mutant gene or genes. In one study, linkage was established between PH and an unusual autosomal form of muscular dystrophy [1]. Unfortunately, the latter trait has no chromosomal assignment.

In 1981, Aznar and Vaya [2] described an 18-month-old girl with the homozygous form of PH and 6 fingers on one hand and 6 toes on both feet. Polydactyly also was observed in the propositus' sister and in a first cousin of the maternal grandmother.

We have observed a black family in which the father and 2 sons had the heterozygous form of PH. The affected 3 ½-year-old boy had an additional digit without bone structure attached to his right thumb. 1 of 2 daughters in this family died in 1972 of multiple congenital malformations at age 3 months. She had microcephaly, a defect over the posterior region of the head through which meninges were visible, hypertelorism, microphthalmia, low-set ears, a small posterior cleft in the palate, and a simian crease. An extra digit was attached to the fifth finger and fifth toe on both hands and feet. Her hemoglobin was 13.5, hematocrit 40.9, white blood cell count 9,000, with 40% segments, 1 % bands, 45% lymphocytes, 1 % eosinophils and 13% monocytes. The skull X-ray