Peripheral Blood Smear of Bart's Hydrops Fetalis

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Alpha-thalassemia, an autosomal recessive disorder, has a clinical phenotype varying from asymptomatic (α -thalassemia trait) to lethal hemolytic anemia (Bart's hydrops fetalis).

Peripheral blood smear (PBS) and hemoglobin typing of a dead fetus at 30 weeks of gestation are presented. Mother (27-year-old) did not receive prenatal counseling and hypertension was diagnosed during the third trimester of the first pregnancy. Mother's laboratory data was: hemoglobin (Hb) 11.0 g/dl, red blood cell count (RBC) $3.78 \times 10^6/\text{mm}^3$, hematocrit (HCT) 33.2%, mean cell volume (MCV) 68.0 fl, hemoglobin typing—Hb A 88.6%, Hb A2 2.1%, Hb F 0.4%, and negative for osmotic fragility test; her husband had no known history of hemoglobin typing and laboratory data.

Results of hematological parameters of the fetus were: Hb 5.3 g/dl, RBC $2.18 \times 10^6/\text{mm}^3$, HCT 21.7%, MCV 109.2 fl, mean cell hemoglobin (MCH) 24.9 pg, mean cell hemoglobin concentration (MCHC) 24.4 g/dl, red cell distribution width (RDW) 15.4%. PBS showed marked hypochromia, anisopoikilocytosis and marked erythroblastosis (many nucleated red blood cells) (Fig. 1). The

hemoglobin typing analysis was conducted using high-performance liquid chromatography (VARIANT™ II Hemoglobin Testing System, Clinical Data Management Software™, Bio-Rad Laboratories Inc., Hercules, CA, USA). The results showed a peak of unbound Hb (Hb Bart's), no HbA which is a homozygous α -thal-1 (Fig. 2).

Bart's hydrops fetalis is the most severe form of α -thalassemia and is almost always lethal. Patients with Bart's hydrops fetalis have no functional α -globin genes and the disease is commonly seen in Asians patients from Southeast Asia [1]. The clinical characteristics are pale generalized edema resulting from prolonged intra-uterine anemia, hepatosplenomegaly, congenital abnormalities including cardiovascular, skeletal, and urogenital systems, and enlargement of the placenta [2]. Genetic counseling and prenatal diagnosis are essential tools for early diagnosis and prevention.

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Fig. 1 Peripheral blood smears showing hypochromia and anisopoikilocytosis changes, and erythroblastosis (Wright's stain $\times 1000$)

Fig. 2 Hemoglobin typing showing Hb Bart's, 87.5%; HbF, 7.9% (high-performance liquid chromatography method, VARIANTTM II Hemoglobin Testing System)

Compliance with Ethical Standards

Conflict of interest The authors state that there is no conflict of interest present.

Ethical Approval This article does not contain any studies with human participants performed by any of the authors.

Informed Consent Informed consent was obtained from the patient included in the case.

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