IMAGES IN HEMATOLOGY
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Hemolytic Anemia in a Newborn : Think About Infantile Pycnocytosis

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A female newborn presented at 24 days of life with jaundice and pallor. She was born at 36 +2 week of gestation by a cesarean incision. Her mother was a healthy thirty-two- year-old woman, and was blood group O positive. The parents were non consanguinous and there is no particular family history.

On the seventh day of life, the patient presented jaundice which worsened gradually and on day 24, the baby was referred to our departement for prolonged jaundice.

On admission, the clinical examination revealed cutaneous-conjunctival jaundice and skin pallor. No hepatomegaly or splenomegaly was palpated.

A complete blood count was performed and showed normal leukocyte and platelet counts, but a highly regenerative macrocytic anemia with haemoglobin of 6.5 g/dL, mean corpuscular volume of 101 fL and a reticulocyte percent of 20% (absolute reticulocyte count of 450000 /µL). Unconjugated hyper bilirubinemia of 46 mg/L was noted.

Infection screening was negative and hemolytic anemia was diagnosed. The baby's blood type was O positive and the direct coombs test was negative, ruling out fetal-maternal allo-immunization. Surprisingly, the blood smear revealed anisocytosis and poikilocytosis with specific findings included of pyknocytes, polychromasia, fragmented red cells and microspherocytes (Figure 1).

Various causes of haemolytic anemia were investigated. Hemolytic uremic syndrome was ruled out following normal renal function and platelet count. Erythrocyte enzyme assays (glucose-6-phosphate dehydrogenase, pyruvate kinase) and haemoglobin electrophoresis were normal. Similarly, the eosin-5'-maleimide-binding test ruled out a spherocytosis.

The diagnosis of infantile pyknocytosis (IP) was suggested. Indeed, the blood smear was consistent with this diagnosis by showing pyknocytes at rates greater than 3%. She received one red blood cell transfusion. Three months later, her haemoglobin level remained stable at 10.8 g/dL. The diagnosis of infantile pyknocytosis was so retained retrospectively.

IP is a rare cause of hemolytic anemia in newborns ; some case reports or case studies had been published (1,3-6).

The physiopathology of IP remains unclear, but potential contributions include defects in erythrocyte membrane production, altered red blood cell metabolism, and oxidative stress, as suggested by the presence of pyknocytes in glucose-6-phosphate dehydrogenase deficiency (G6PD) (7).

Currently, IP remains a diagnosis of exclusion. The diagnosis is based on cytology that usually showed numerous pycnocytes and the exclusion of classical etiologies, especially ABO incompatibility and G6PD deficiency.

Key words : infantile pycnocytosis ; blood smear
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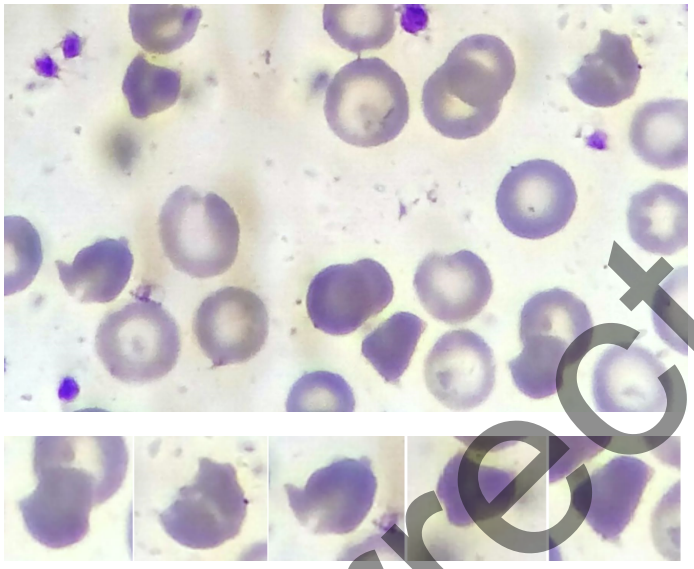

Figure 1 : peripheral blood smear showing anisocytosis and poikylocytosis with distinctive abnormalities including numerous pyknocytes, polychromasia, fragmented red cells and microspherocytes