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Morphology blood test

RBC morphology examines red blood cell shape, size, and color. Moreover, it provides insights into hematologic health. Additionally, abnormal features suggest underlying diseases. Furthermore, clinicians use morphology to guide diagnosis. Consequently, it is crucial in routine blood evaluations. Fig. These red cells in the urine appear shrunken and have multiple short, uniform projections on their surfaces. They are commonly described as “crenated” or “echinocyte-like” RBCs, which often result from a hypertonic or otherwise unfavorable environment in the urine as shown in this image. Some common types of RBC morphology are as follows- Normocytic cells have a normal size. Moreover, they carry normal hemoglobin. Consequently, they indicate healthy erythropoiesis. Microcytic cells are smaller than usual. Additionally, they have reduced hemoglobin content. Consequently, they often signal iron deficiency or thalassemia. Macrocytic cells are larger than normal. Furthermore, they occur in vitamin B12 or folate deficiency. Consequently, they suggest megaloblastic anemia. Anisocytosis describes significant size variation. Moreover, it reflects heterogeneous red cell production. Consequently, it appears in many anemias. Poikilocytosis indicates abnormal cell shapes. Additionally, it occurs in various pathological conditions. Furthermore, it requires thorough evaluation. Spherocytes are round and lack central pallor. Moreover, they are common in hereditary spherocytosis. Consequently, they imply membrane defects. Elliptocytes display an oval shape. Additionally, they suggest hereditary elliptocytosis. Furthermore, they may also indicate iron deficiency anemia. Target cells show a central area with a bull's-eye appearance. Moreover, they appear in liver disease and thalassemia. Consequently, they indicate abnormal hemoglobin distribution. Schistocytes are fragmented, irregular red cells. Additionally, they result from mechanical destruction. Furthermore, they often indicate microangiopathic hemolytic anemia. Stomatocytes present with a slit-like central pallor. Moreover, they occur in hereditary stomatocytosis and liver disease. Consequently, they reflect altered membrane integrity. Burr cells exhibit spiny projections on their surface. Additionally, they often appear in uremia. Furthermore, they may result from enzymatic disturbances. Teardrop cells resemble teardrops. Moreover, they appear in myelofibrosis and marrow infiltration. Consequently, they signal severe hematologic stress. Fig. Teardrop cells (dacrocytes) on PBS Microscopic examination Fragmented cells represent broken or disrupted red cells. Additionally, they occur in severe hemolysis. Furthermore, they demand prompt clinical attention. Basophilic stippling shows fine blue granules within cells. Moreover, it occurs in lead poisoning and thalassemia. Consequently, it reflects residual ribosomal material. AbnormalityDescriptionSignificance1. Hypochromatic cellIncreased central pallor area (> 1/3) •Iron Deficiency Anemia •Thalassemia •Sideroblastic anemia •Anemia due to chronic disease2. PolychromasiaAn increased number of blue-gray RBCs, or polychromatophils, on a routine PBS examinationA condition where there are too many immature RBCs (polychromatophilic cells) in the blood due to•Anemia•Bone marrow injury•Hemolysis, or the destruction of RBCs faster than the body can replace them•Marrow infiltrationAnisocytosisDifferent sizes of RBCsIn various anemia1. Macrocytosis>8 µm in diameter of RBCs •Folate and Vitamin-B12 deficiency anemia •Alcoholism •Liver Diseases2. Microcytosis