Erythrocyte (RBC) Morphology

Most numerous cell in peripheral blood responsible for O2 & CO2 transport

Anisocytosis	Variation in cell size, microcytic (smaller) and macrocytic (larger)
Polychromasia	Increased coloration
Hypochromasia	Decreased coloration (hemoglobin is lower)
Poikilocytosis	Variation in shape from the typical biconcave disc
Forms of Poikilocytosis	
Acanthocyte (spur cells)	Irregular projections from cell
Echinocyte Type II & III (burr cells)	Numerous, regular, uniform short projections cover entire cell
Blister Cells	Appear to have a large bubble on edge of cell
Keratocytes (helmet cells)	Blister splits, leaving two projections
Apple Stem Cell	Blister splits, leaving one projection
Schistocyte	Fragment from a keratocyte or apple stem cell caused by shearing from fibrin strands
Spherocytes	Very small (5 microns or less), dense erythrocytes with no central pallor Seen in IMHA and with agglutination
Eccentrocytes	Central pallor is pushed to one side creating a half-moon or "smile" Usually observed with Heinz bodies
Elliptocytes (ovalocytes)	Oval cells with oval central pallor
Ghost cells	Only outer membrane remains
Artifactual Changes	
Echinocytes Type I	Numerous uniform projections are only found on edge of cell
Leptocytes	Include folded cells, stomatocytes, and codocytes (target cells)
Stomatocyte	Folded cell with a mouth-like slit in center
Codocytes (target cells)	Small round area of hemoglobin inside central pallor
Torocytes (punched out cells)	Sharp distinction between central pallor and hemoglobin, usually caused by improper drying of smear
Dacrocytes	Teardrop shaped erythrocytes, artifacts if tail ends point in the same direction
Inclusions	Howell Jolly bodies (nuclear remnants), Heinz bodies (denatured hemoglobin, Siderocytes (Pappenheimer bodies – abnormal iron)

CONTINUE READING →

Cell Morphology

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Leukocyte (WBC) Morphology

Nucleated larger cells in peripheral blood

Band neutrophil	Immature neutrophil with thick nucleus
Segmented neutrophil	Pyknotic nucleus with segments, clear to pink cytoplasm (granules do not stain), low N:C (nucleus: cytoplasm) ratio
Eosinophil	Slightly larger than neutrophil, chromatin less condensed, orange to red cytoplasmic granules of varying size depending on species.
Basophil	Decreased coloration (hemoglobin is lower)
Lymphocyte	Small cell, high N:C ratio, condensed chromatin, scant sky-blue cytoplasm
Monocyte	Large cell with lacy chromatin pattern, low N:C ratio, becomes a tissue macrophage, may contain vacuoles

Thrombocyte (PLT) Morphology

Smallest cell in peripheral blood responsible for coagulation

Anisocytosis	Variation in cell size
Macroplatelet, Macrothrombocyte, Giant platelet	Increased coloration
Hypochromasia	Decreased coloration (hemoglobin is lower)
Poikilocytosis	Variation in shape from the typical biconcave disc