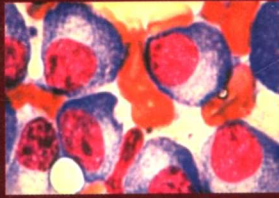
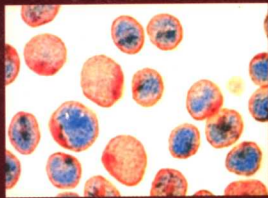
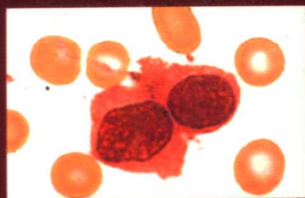


英文原版
医学教材

临床实用血液病学



HEMATOLOGY *in Clinical Practice*

Robert S. Hillman ■ Kenneth A. Ault



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HEMATOLOGY IN CLINICAL PRACTICE, Third Edition

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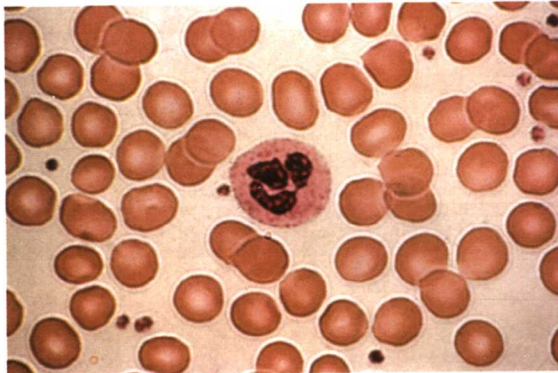
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COLOR PLATES

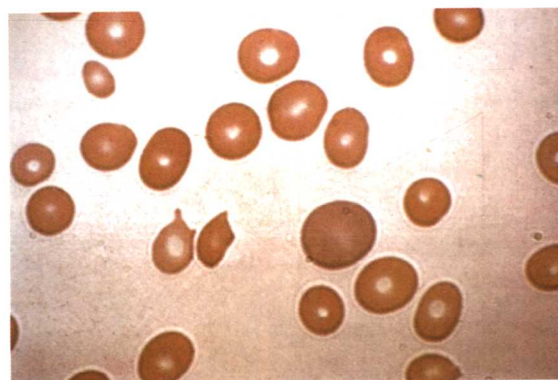
1. NORMAL BLOOD SMEAR.

(Wright's stain). High-power field showing normal red blood cells, a single leucocyte, and several platelets.



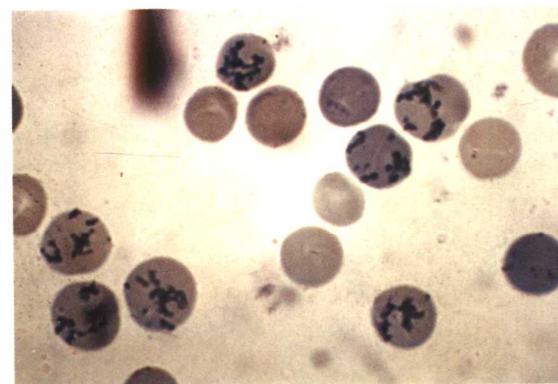
2. POLYCHROMASIA.

A single polychromatic macrocyte (marrow or shift reticulocyte) surrounded by normocytic and microcytic cells.



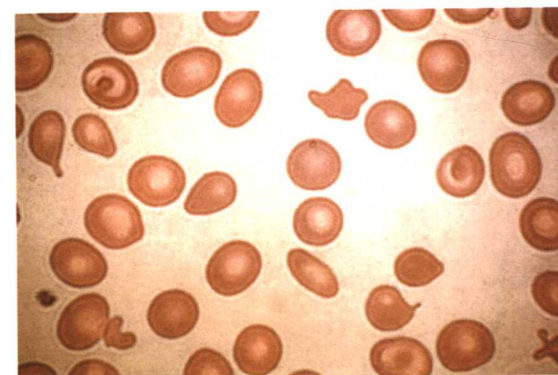
3. RETICULOCYTE COUNT PREPARATION.

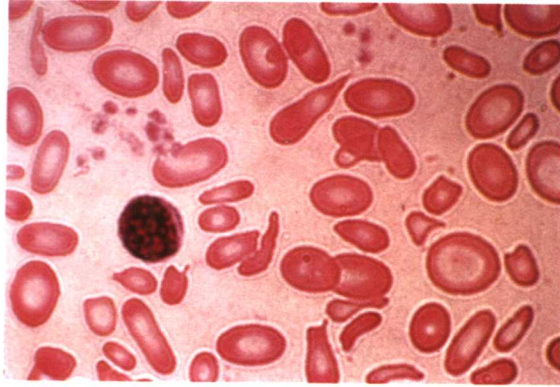
A new methylene blue–stained blood smear showing large numbers of heavily stained reticulocytes (cells containing dark blue–staining precipitates of RNA).



4. MICROCYTOSIS.

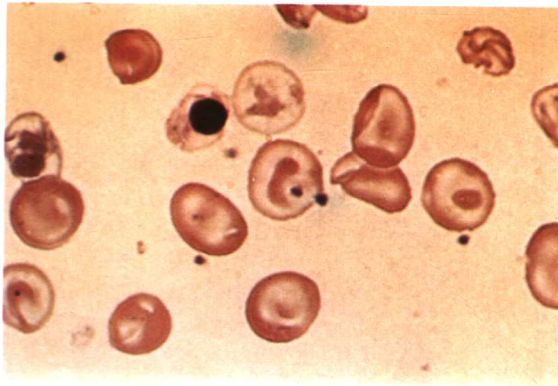
Microcytes are smaller than normal (cell diameter less than $7\text{ }\mu\text{m}$) and may be poorly hemoglobinized (hypochromic). Both anisocytosis and poikilocytosis are present. The target cells suggest thalassemia minor.





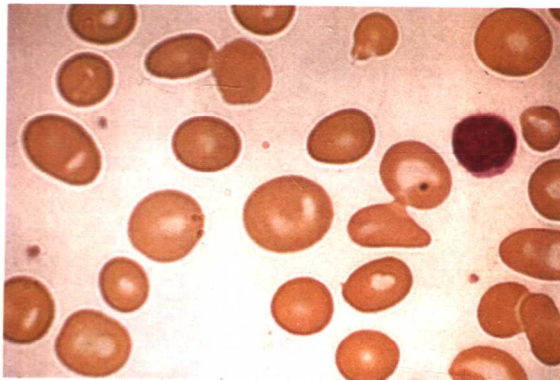
5. SEVERE IRON DEFICIENCY ANEMIA.

Marked microcytosis and hypochromia with pronounced aniso- and poikilocytosis are seen with severe iron deficiency. The presence of cigar-shaped red blood cells and the absence of target cells are also characteristic of iron deficiency and rule against thalassemia.



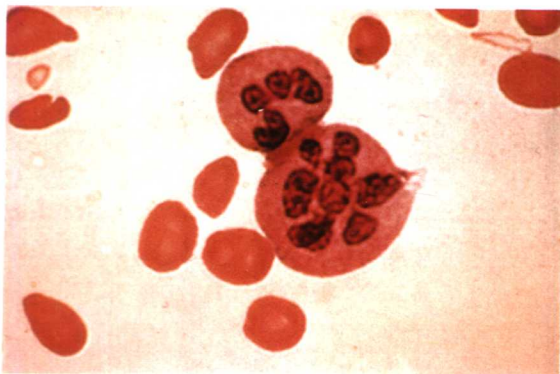
6. THALASSEMIA MAJOR.

Marked microcytosis, with MCVs below 70 fL, together with severe hypochromia and prominent targeting, is typical of thalassemia major. The apparent diameter of the red blood cells on the smear can be deceptive. This effect is caused by the marked deficit of hemoglobin within the cell, producing a flattened cell on the glass surface.



7. MACROCYTOSIS.

Macrocytes are larger than normal red blood cells (cell volume greater than 100 fL and cell diameter greater than $8\text{ }\mu\text{m}$) and are often oval-shaped (macroovalocytes) and well hemoglobinized.



8. HYPERSEGMENTED NEUTROPHILS.

Hypersegmented neutrophils (multilobed polymorphonuclear leukocytes), commonly seen in patients with folic acid or vitamin B₁₂ deficiency, are larger than normal neutrophils and contain five or more nuclear lobes.

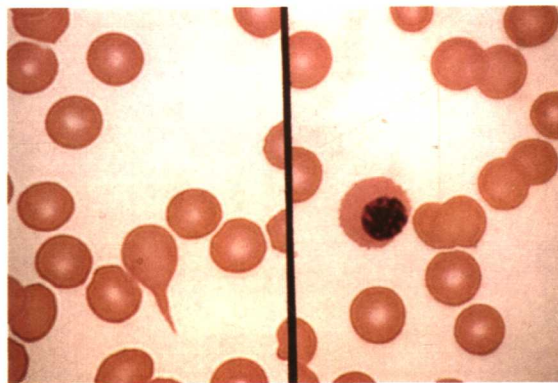
9. HOWELL-JOLLY BODY.

Howell-Jolly bodies are tiny nuclear remnants that are normally removed by the spleen. They appear on the blood smear after splenectomy and in patients with maturation/dysplastic disorders.



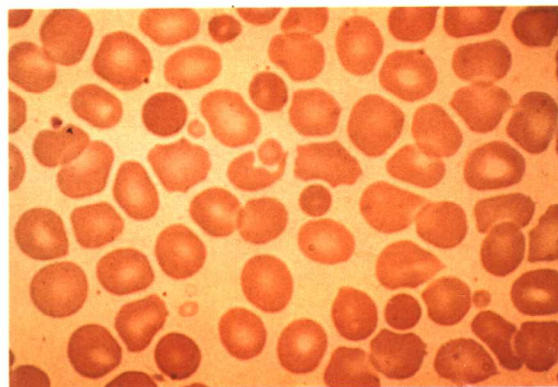
10. MYELOFIBROSIS.

A teardrop-shaped red blood cell (*left panel*) together with a nucleated red blood cell (*right panel*) as typically seen in patients with myelofibrosis and extramedullary hematopoiesis.



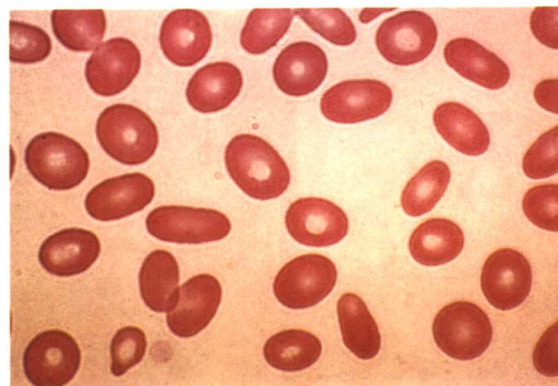
11. SPHEROCYTOSIS.

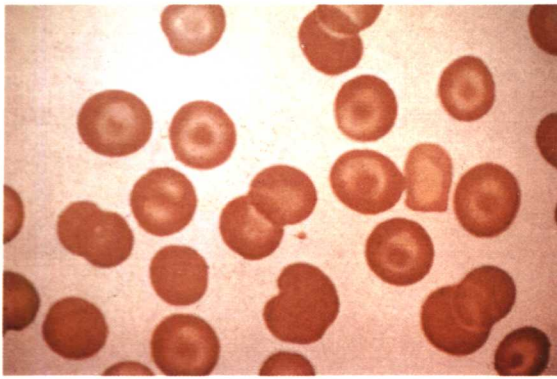
Spherocytes are small, dense red blood cells that lack the central pallor of a normal biconcave red blood cell. They are smaller than normal and show a higher mean corpuscular hemoglobin concentration (MCHC) because of a loss of cell water.



12. ELLIPTOCYTOSIS.

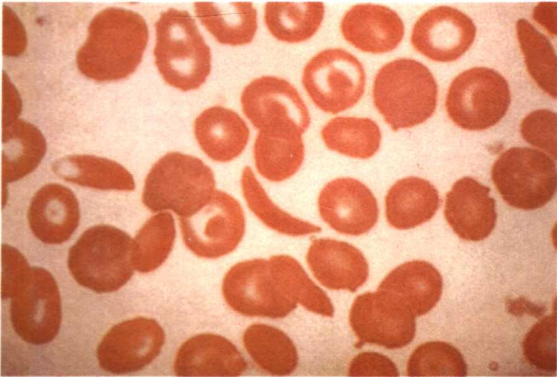
Elliptocytes are recognized by their uniform elliptical shape but otherwise normal appearance and cell indices.





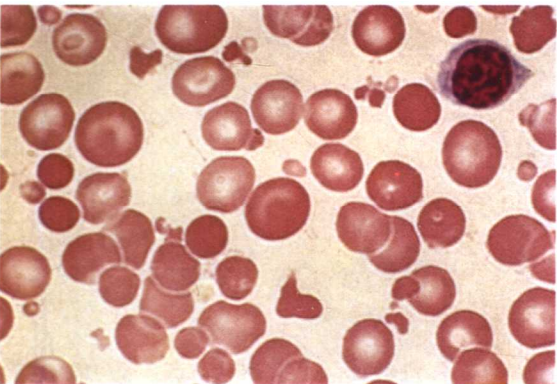
13. TARGETING.

Target cells, commonly seen with hemoglobin C and liver disease, are recognized by the bull's-eye appearance of the cell.



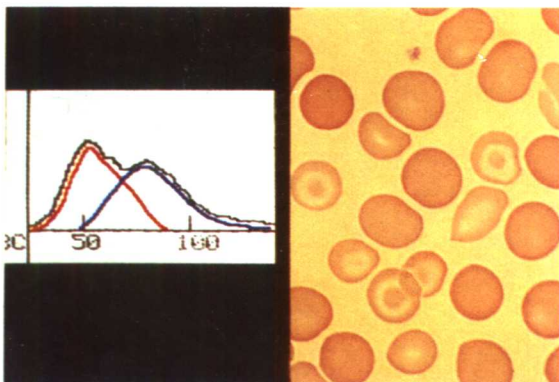
14. SICKLE CELLS.

Sickle cells in a patient with sickle cell anemia.



15. FRAGMENTATION.

Marked anisocytosis, poikilocytosis, microspherocyte formation, and polychromasia in a patient with a thermal burn.

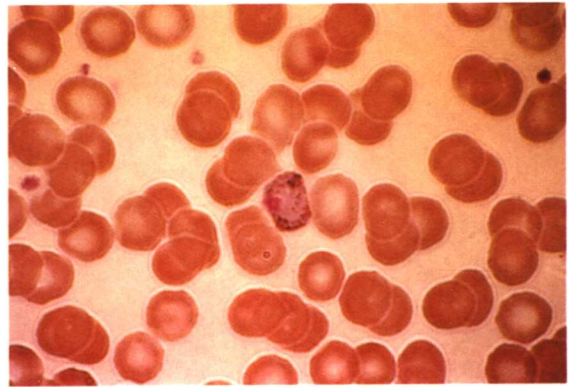


16. MIXED POPULATIONS OF RED BLOOD CELLS.

Red blood cell volume display and smear from a thalassemic patient after transfusion that shows an admixture of normal and microcytic red blood cells. This pattern is also seen with hereditary sideroblastic anemia.

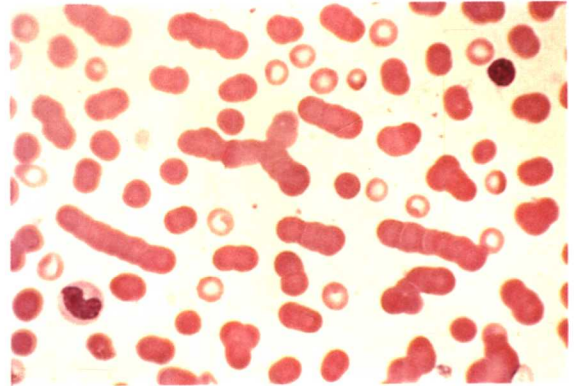
17. MALARIA.

Trophozoite form of *Plasmodium vivax* in an adult red blood cell.



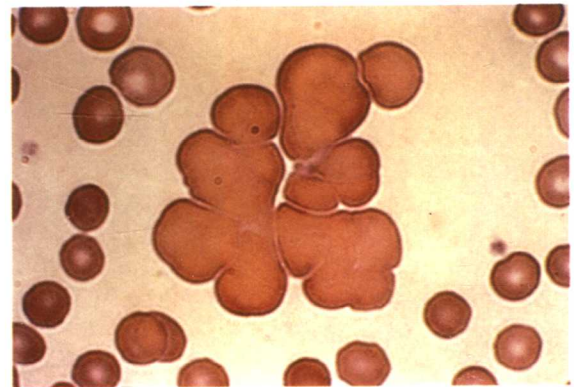
18. ROULEAUX.

Marked rouleaux, red blood cells in a "stack of coins" formation, suggests a proteinopathy.



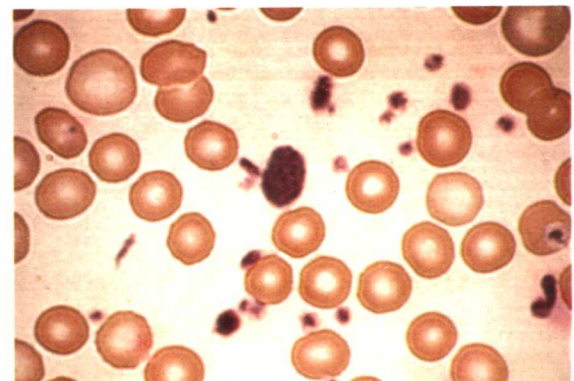
19. AGLUTTINATION.

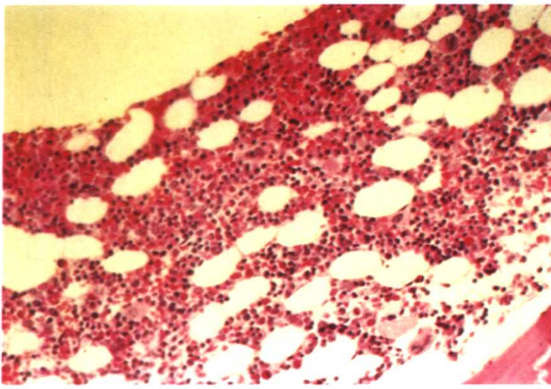
Clumping of red blood cells in a disorganized mass is typically seen in patients with cold agglutinins.



20. GIANT PLATELETS.

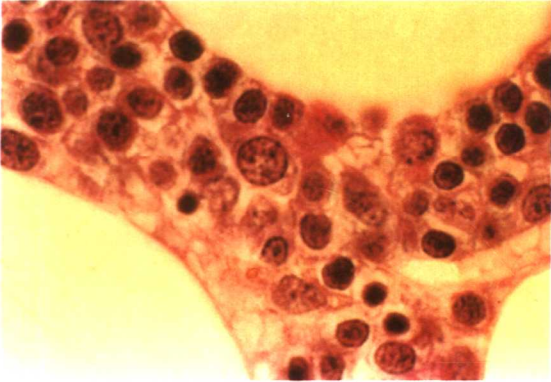
Giant platelets, together with an increase in the platelet count, are seen in patients with myeloproliferative disorders, especially primary thrombocythemia.





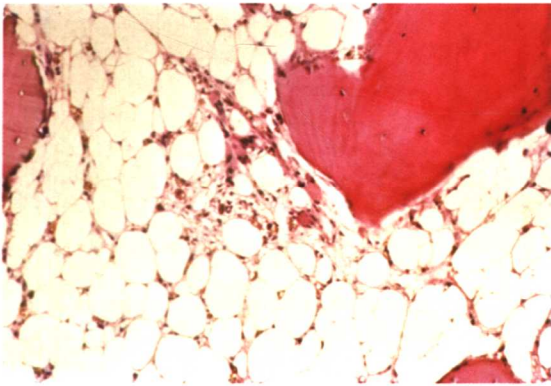
21. NORMAL MARROW BIOPSY AT LOW POWER.

(H & E stain). Low-power view of normal adult marrow, showing a mix of fat cells (clear areas) and hematopoietic precursor cells.



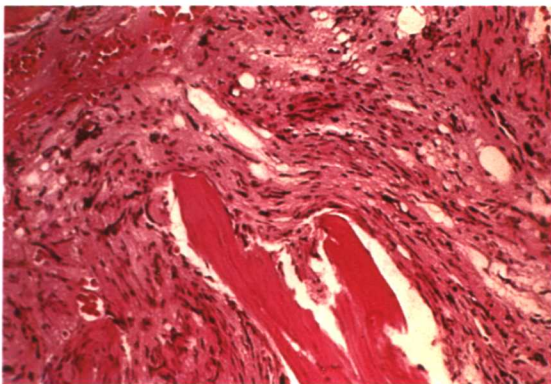
22. NORMAL MARROW BIOPSY AT HIGH POWER.

(H & E stain). High-power view of a marrow biopsy specimen showing the normal admixture of myeloid and erythroid precursors.



23. APLASTIC ANEMIA.

Normal hematopoietic cells are absent, leaving behind fat cells, reticuloendothelial cells, and the underlying sinusoidal structure.

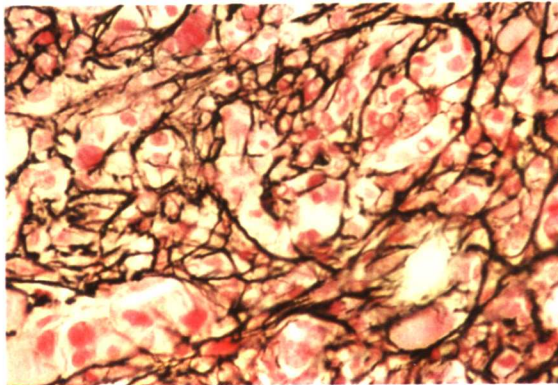


24. MYELOFIBROSIS

(H & E stain). Total replacement of marrow precursors and fat cells by a dense infiltration of reticulin fibers and collagen.

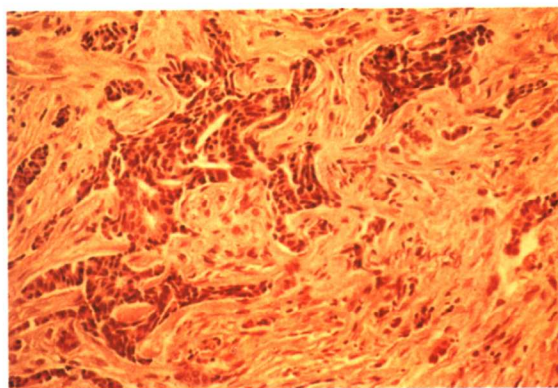
25. MYELOFIBROSIS—RETICULIN STAIN.

Silver stain of a myelofibrotic marrow showing an increased density of reticulin fibers (black staining).



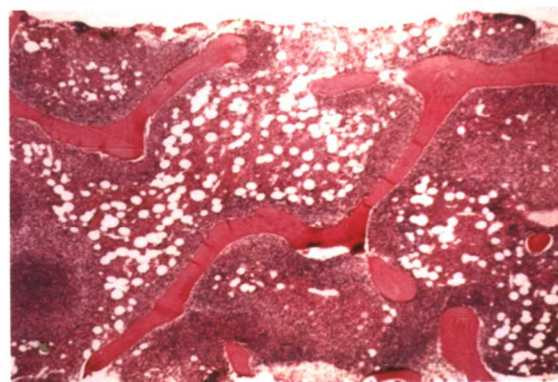
26. METASTATIC CANCER.

Marrow biopsy specimen infiltrated with metastatic breast cancer and reactive myelofibrosis.



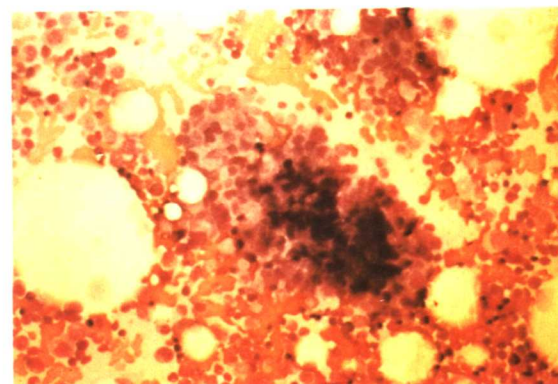
27. LYMPHOMA.

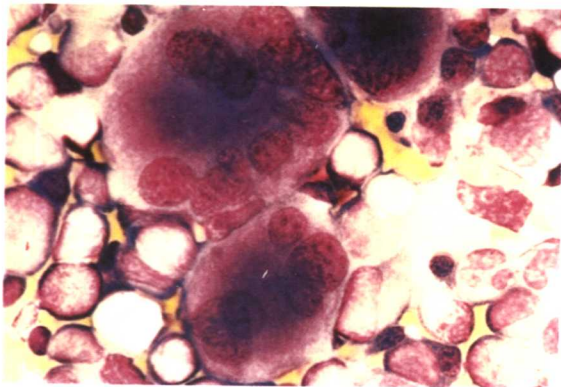
Low-grade, nodular (follicular) lymphoma infiltrate in a marrow biopsy specimen. Note the characteristic paratrabecular distribution of the lymphoma cells.



28. TUMOR CELLS.

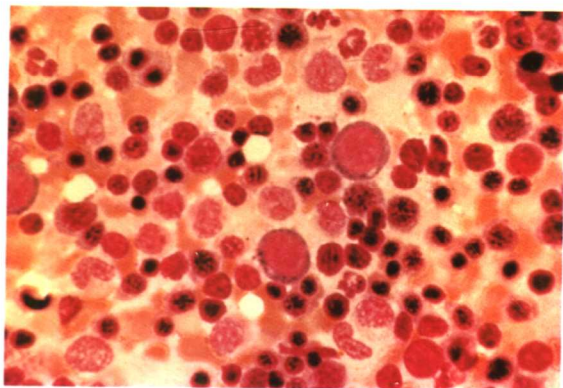
(Wright's stain). A clump of tumor cells (high-power) in a marrow aspirate specimen.





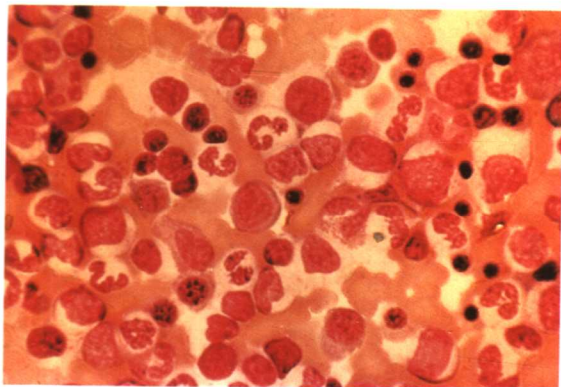
29. MEGACARYOCYTES.

(Wright's/Giemsa stain). Marrow aspirate smear showing an erythroid/granulocytic ratio (E/G ratio) greater than 1:1.



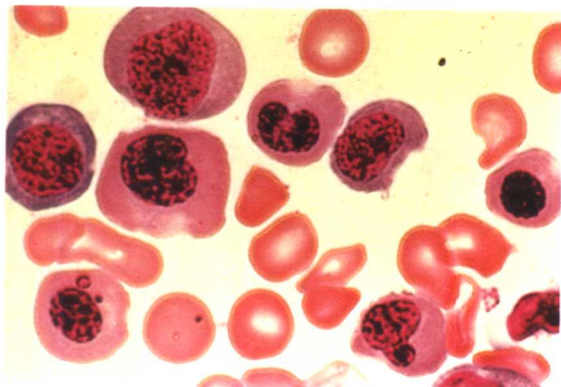
30. ERYTHROID HYPERPLASIA.

(Wright's stain). Marrow aspirate smear showing an erythroid/granulocytic ratio (E/G ratio) greater than 1:1.



31. GRANULOCYTIC HYPERPLASIA.

E/G ratio less than 1:3.

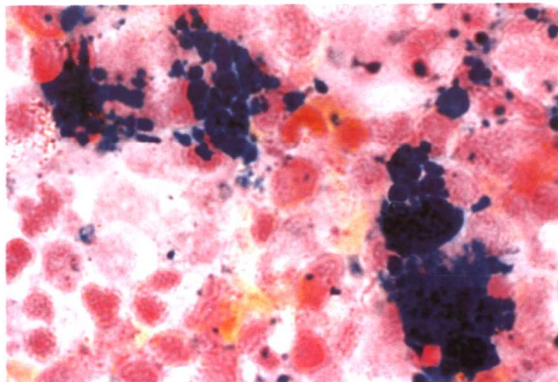


32. MEGALOBLASTIC ERYTHROPOIESIS.

High-power view of megaloblastic red blood cell precursors in a patient with a macrocytic anemia.

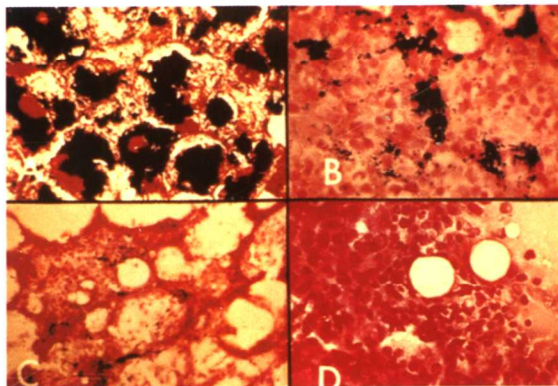
33. MARROW IRON STORES.

(Prussian blue stain). Low-power view of marrow specimen stained for iron. Blue-black staining material (iron stores) is concentrated in the reticuloendothelial cells.



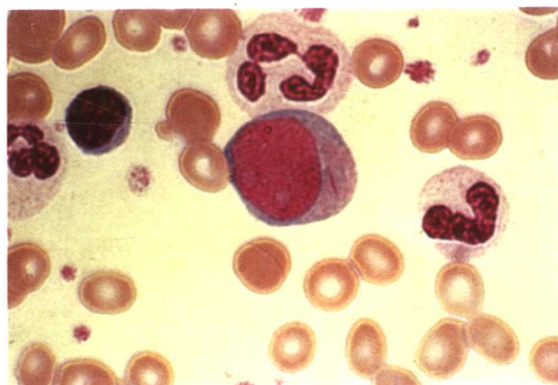
34. GRADING IRON STORES.

Iron stores can be graded on a scale of 0 to 4+. The *upper left panel* shows a marrow with little or no iron stores (grade 0); the *upper right panel* shows 1+ stores; the *lower left panel* shows 2 to 3+ stores; and the *lower right panel* shows greater than 4+ stores.



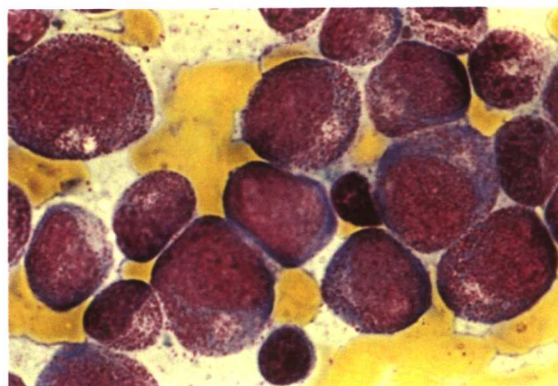
35. RINGED SIDEROBLAST.

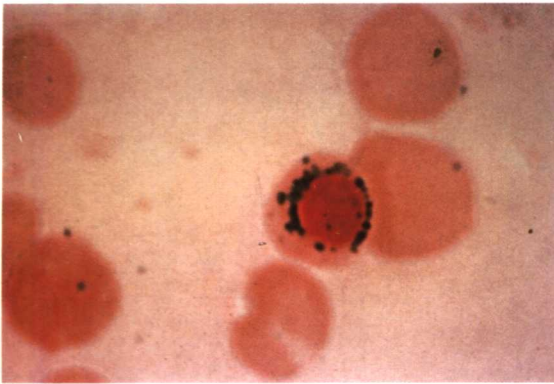
Orthochromatic normoblast with a collar of blue granules (mitochondria encrusted with iron) surrounding the nucleus.



36. ACUTE MYELOCYTIC LEUKEMIA.

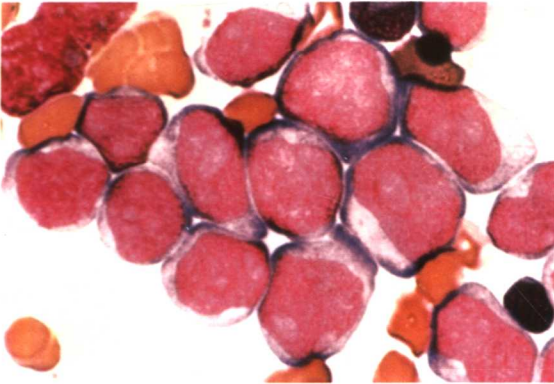
Primitive blasts containing multiple, large nucleoli in a patient with acute myelocytic leukemia (AML).





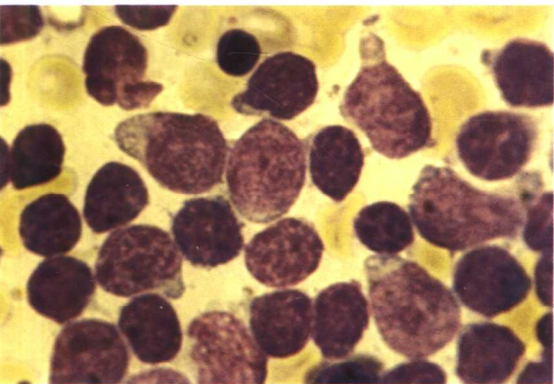
37. AUER ROD

Leukemic myeloblast with a single rod-shaped crystal (Auer rod) in the cytoplasm.



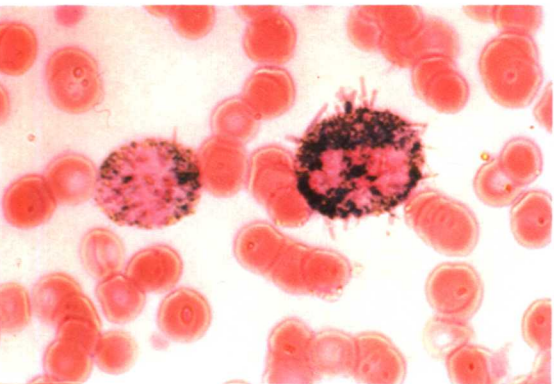
38. PROMYELOCYTIC LEUKEMIA.

Uniform population of malignant promyelocytes with a heavy concentration of primary granules in the cytoplasm.



39. ACUTE LYMPHOCYTIC LEUKEMIA.

Lymphoblasts in the marrow of a patient with acute lymphocytic leukemia (ALL).

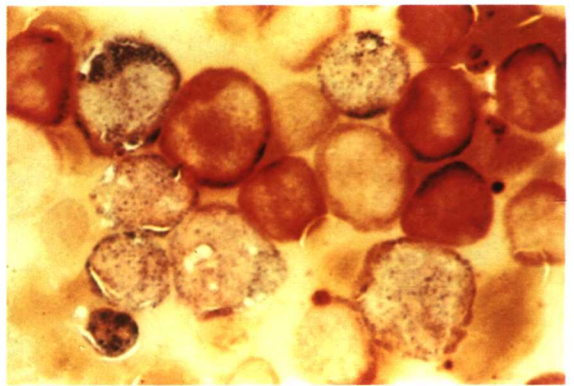


40. STAIN.

Granules in the cytoplasm of myeloblasts from a patient with AML stain positively (blue) for peroxidase.

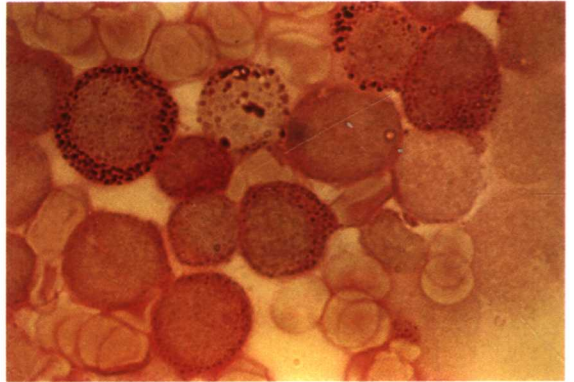
41. COMBINED ESTERASE STAIN.

Blast forms stain positively for esterases with myelomonocytic leukemias.



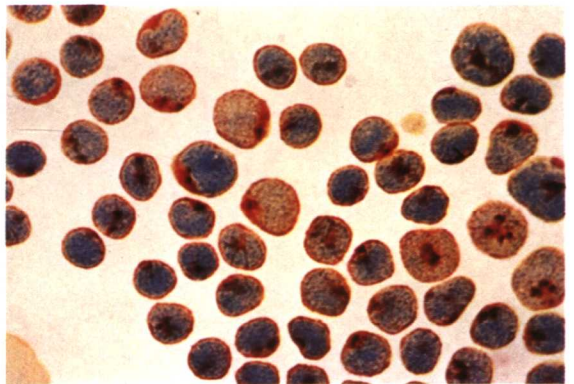
42. PERIODIC ACID—CHIFF (PAS) STAIN

Lymphoblasts (ALL) and erythroblasts (erythroleukemia) can stain positively (bright red granules) with PAS.



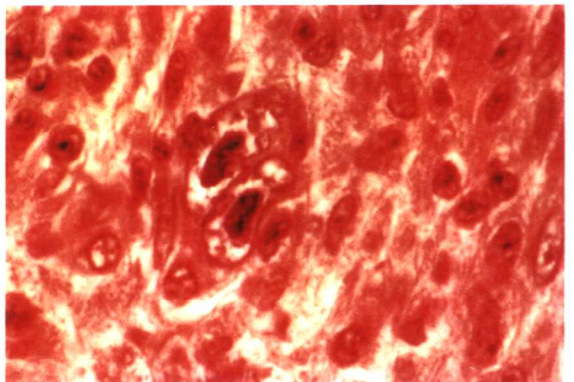
43. MULTIPLE MYELOMA.

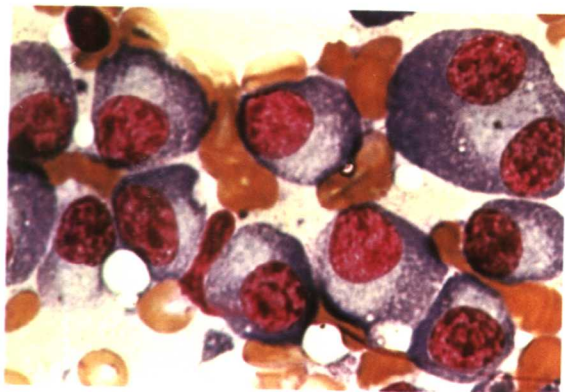
High-power view of malignant plasma cells in a patient with multiple myeloma.



44. HAIRY-CELL LEUKEMIA.

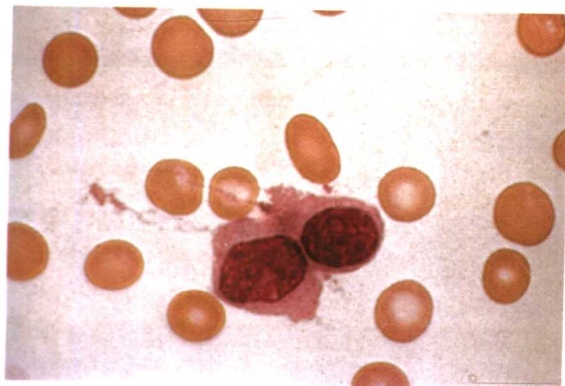
Hairy cells (malignant B cells) with filamentous cytoplasm on a peripheral smear.





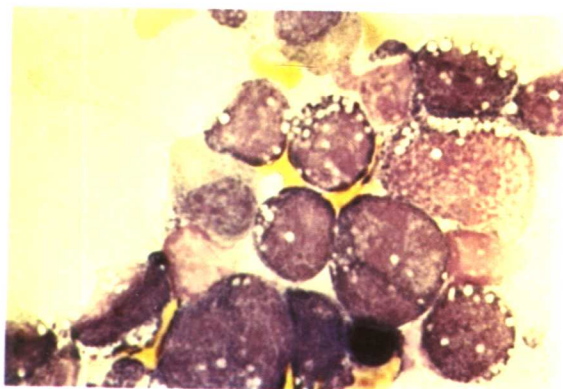
45. ACID PHOSPHATASE STAIN.

Polar staining (red) for acid phosphatase in a patient with T-cell lymphoma. Tartrate resistant acid phosphatase staining is seen with hairy-cell leukemia.



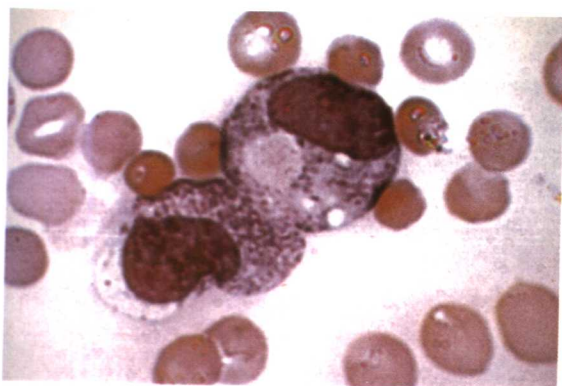
46. REED-STERNBERG CELL.

Binucleate giant cell with prominent staining nucleoli (often bright red) in the lymph node biopsy specimen of a patient with Hodgkin's disease.



47. BURKITT'S LYMPHOMA.

Heavily vacuolated lymphoblasts in a patient with Burkitt's lymphoma.



48. ERYTHROPHAGOCYTOSIS.

Red blood cell ingested by a monocyte/histiocyte in a patient with histiocytic medullary reticulosis.

Notice

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A Lange Medical Book

HEMATOLOGY IN CLINICAL PRACTICE

A Guide to DIAGNOSIS AND MANAGEMENT

third edition

ROBERT S. HILLMAN, MD

*Past Chairman, Department of Medicine
Maine Medical Center
Professor of Medicine
University of Vermont College of Medicine*

KENNETH A. AULT, MD

*Scientific Director
Maine Medical Center Research Institute
Associate Professor of Medicine
University of Vermont College of Medicine*

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