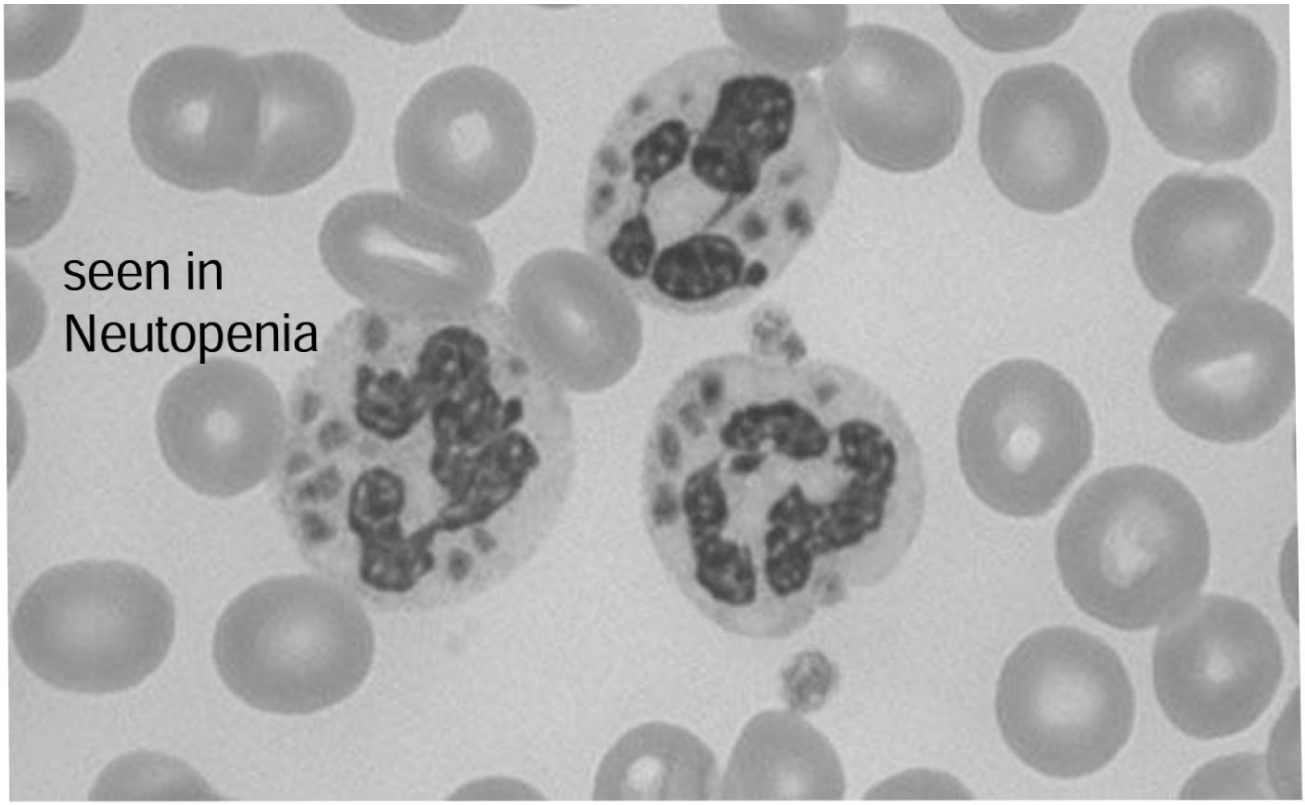
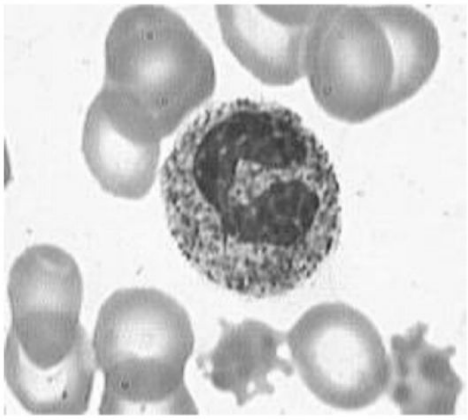
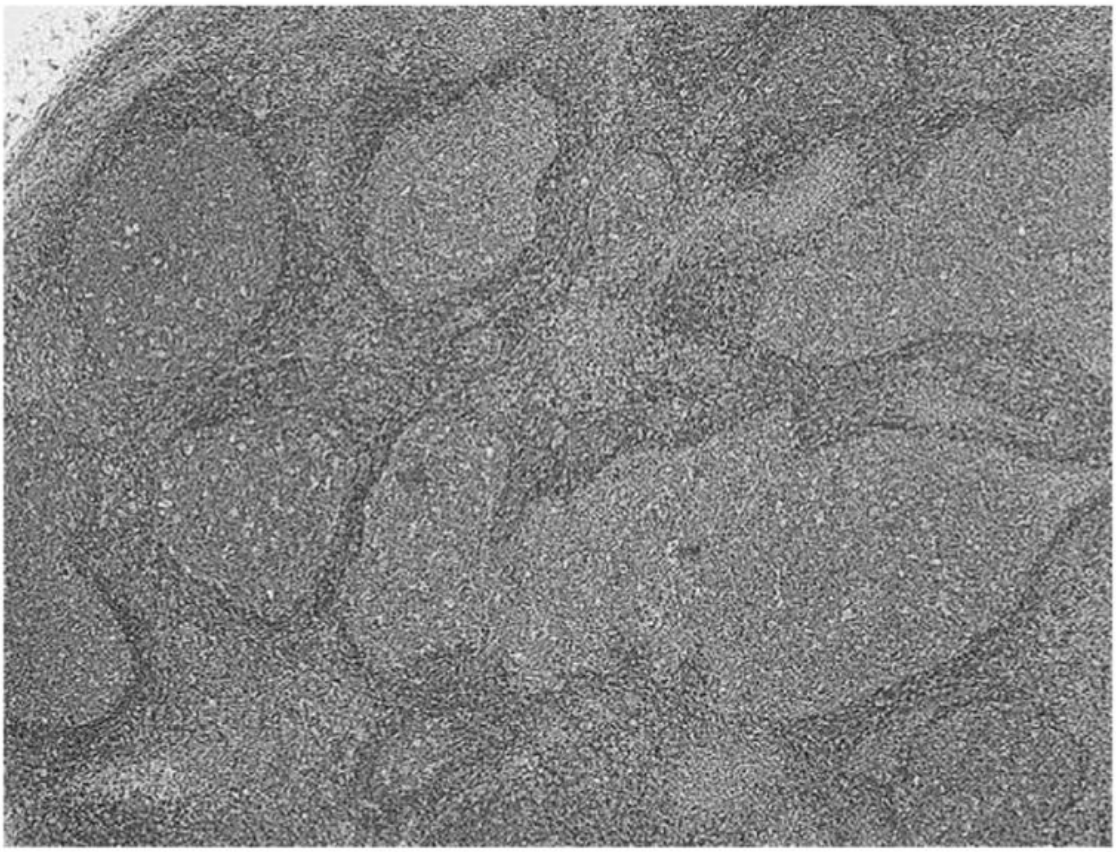


- Chediak-Higashi syndrome (CHS) is due to aberrant cellular handling of lysosomes. Giant granules are found in many cell types, including neutrophils. CHS patients may also be neutropenia

- Neutrophils show toxic granulation and cytoplasmic vacuoles

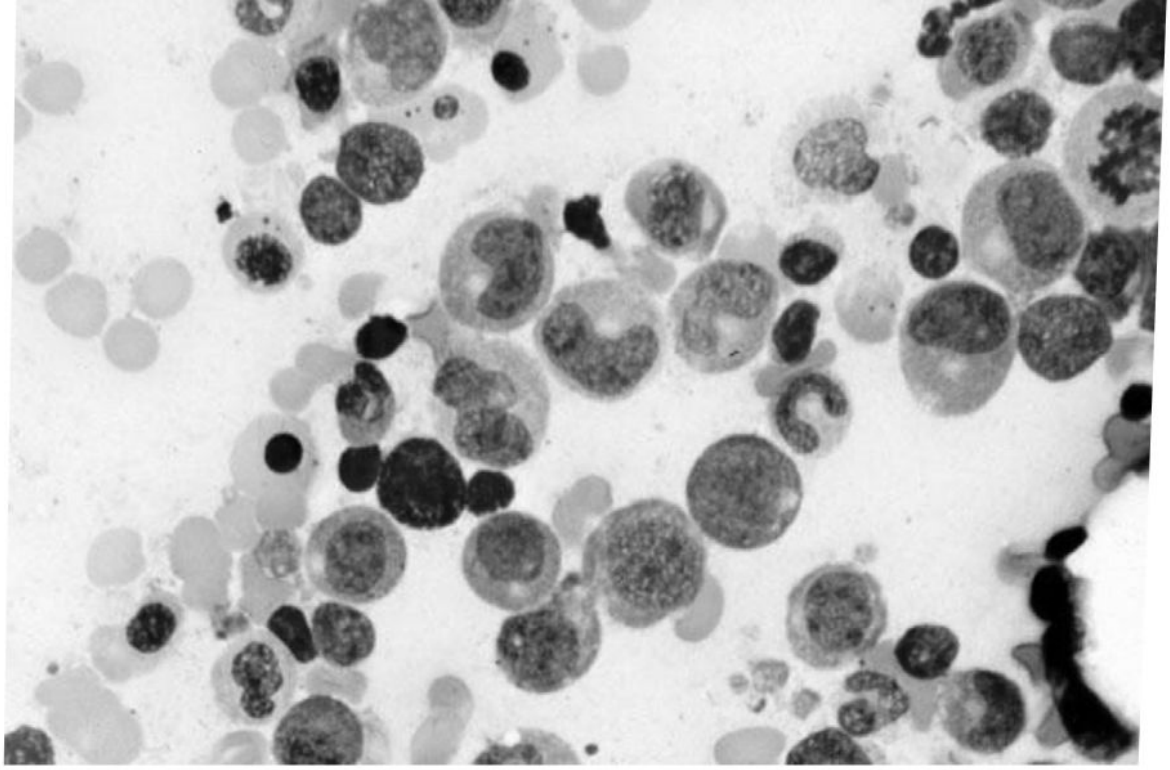
seen in
Neutrophilia





- Reactive follicular hyperplasia: note the enlarged follicles, variable sizes and shapes

remember it is proliferation of germinal center B-cells, occur in HIV, Toxoplasmosis, Rheumatologic diseases



- Aspirate smear from bone marrow shows normal myelogenesis and erythropoiesis

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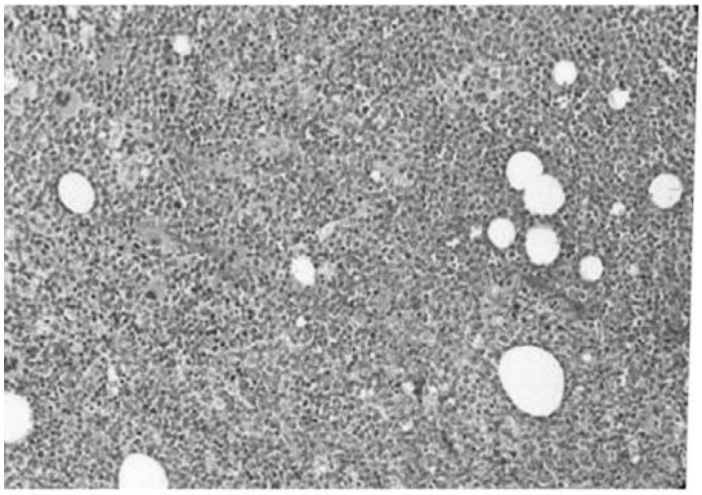
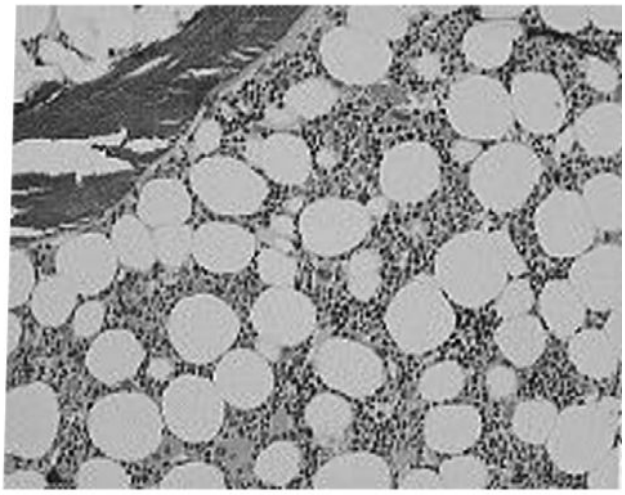
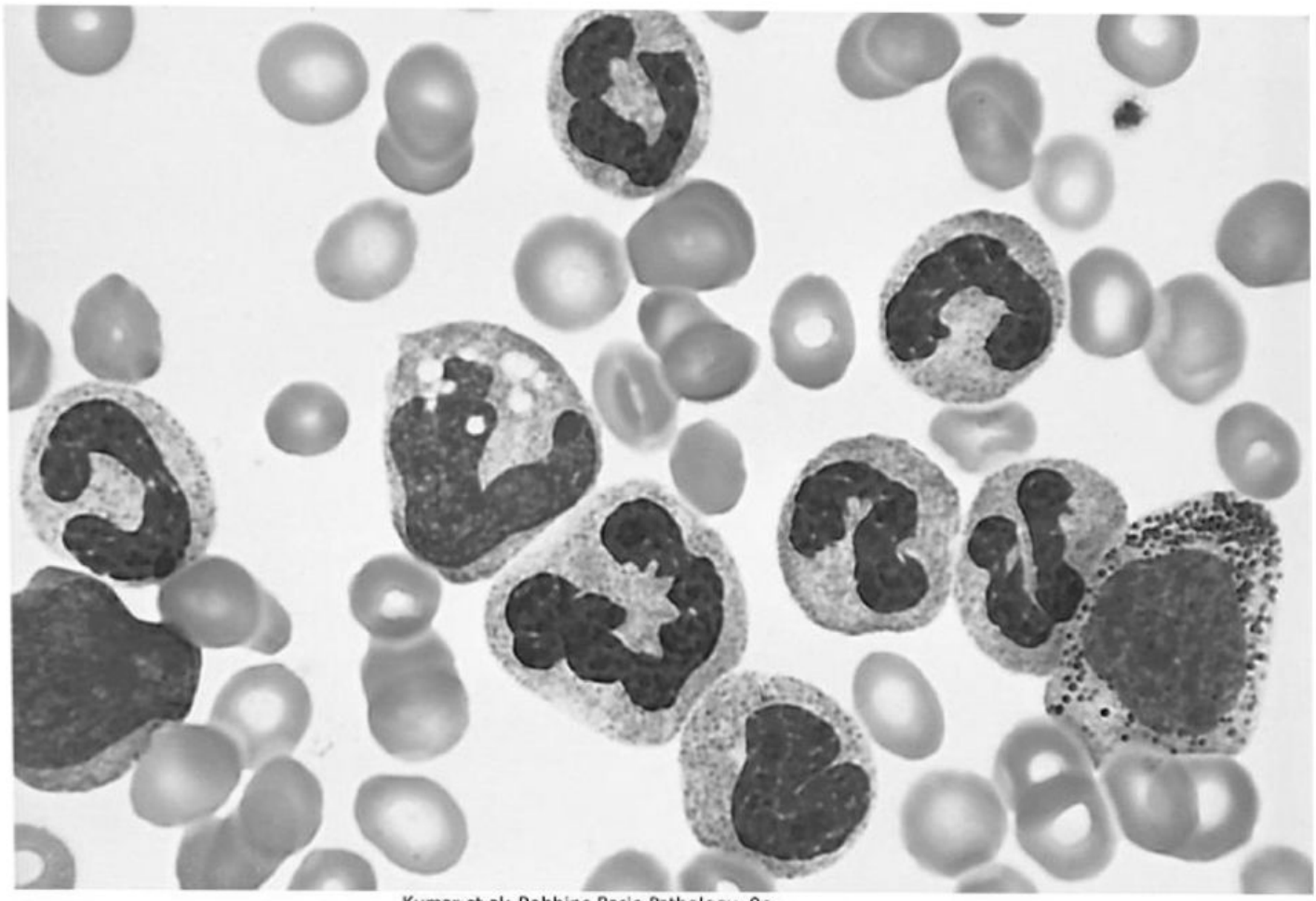




- Normal bone marrow cellularity depends on age (100-age)%

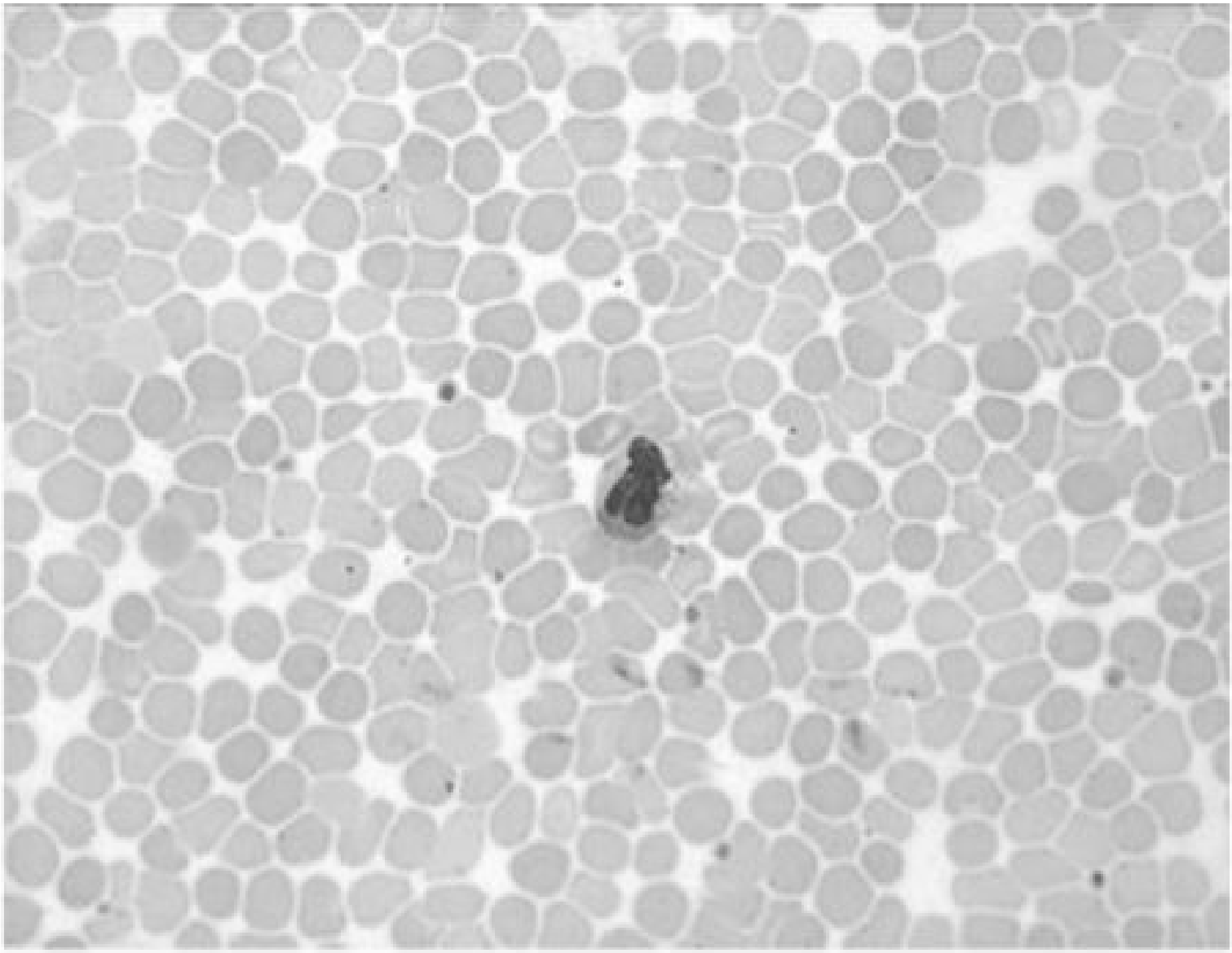


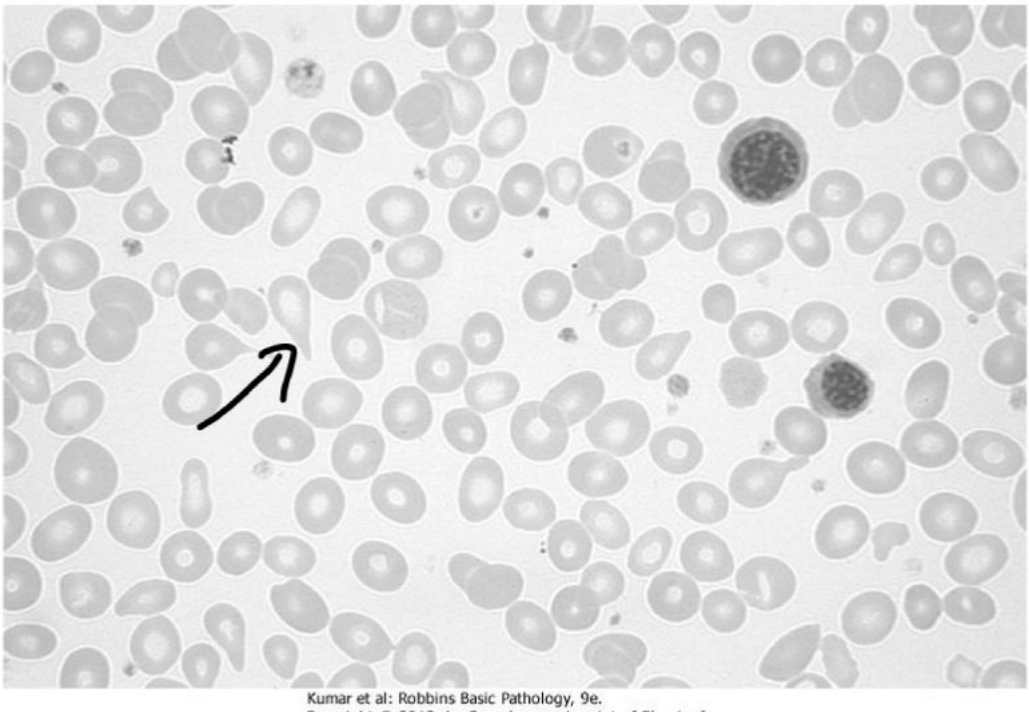
Kumar et al: Robbins Basic Pathology, 9e.

- Chronic myelogenous leukemia-peripheral blood smear. Granulocytic forms at various stages of differentiation are present

p.s: im CML t(9;22) Philadelphia chromosome

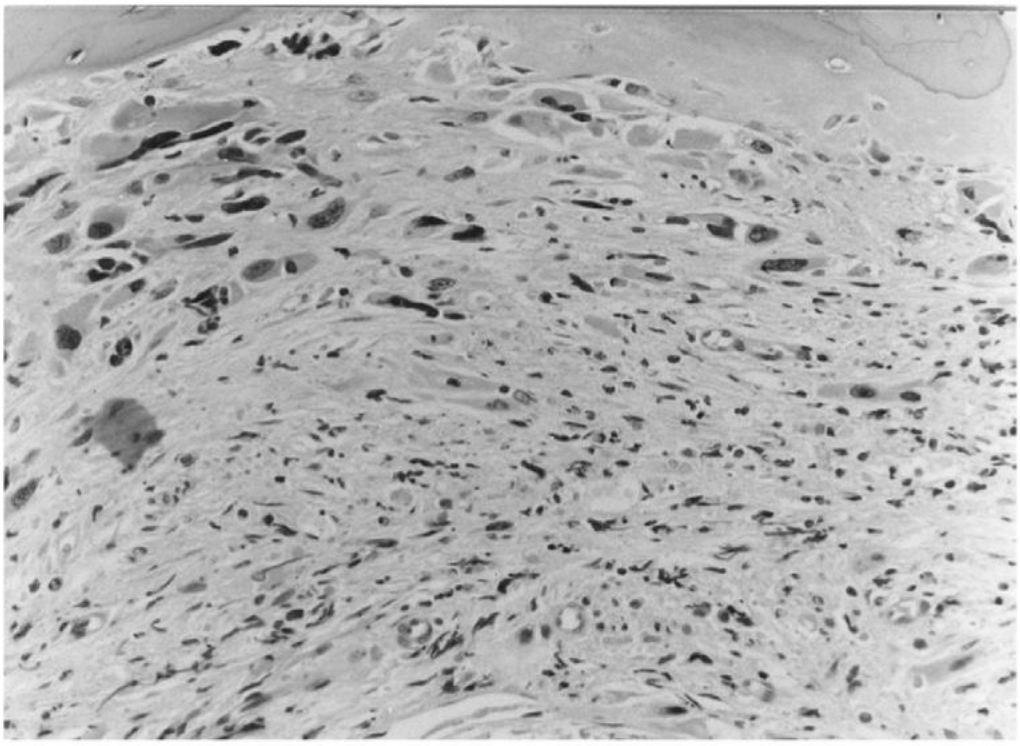
Polycythemia vera



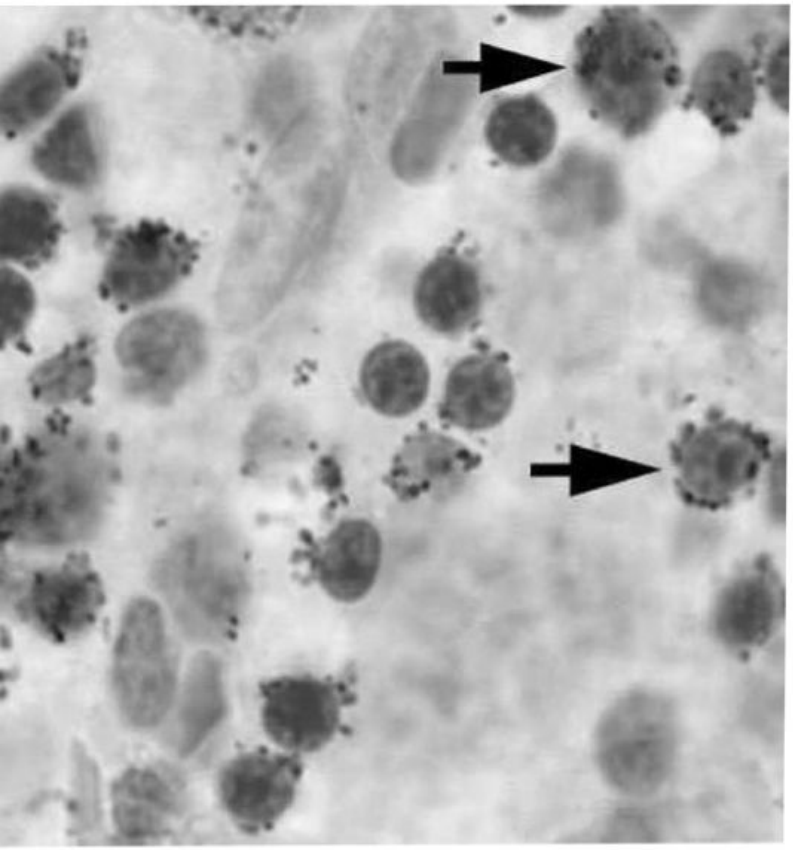


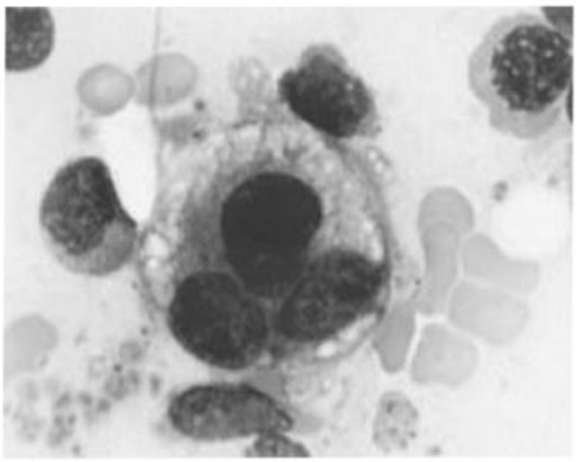
**Primary Myelofibrosis

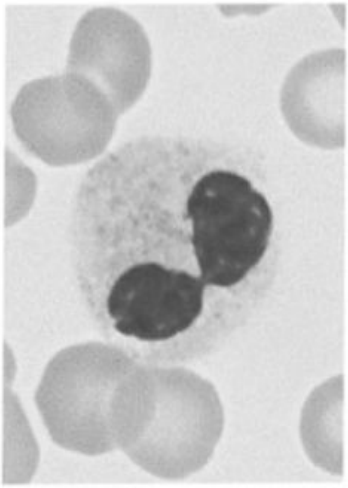
- Two nucleated erythroid precursors and several teardrop-shaped red cells are evident

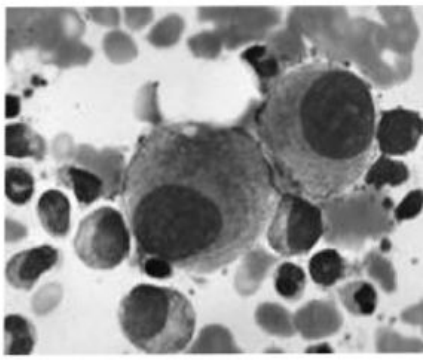


- BM biopsy shows hypocellular marrow, spindle shaped stroma and atypia of megakaryocytes



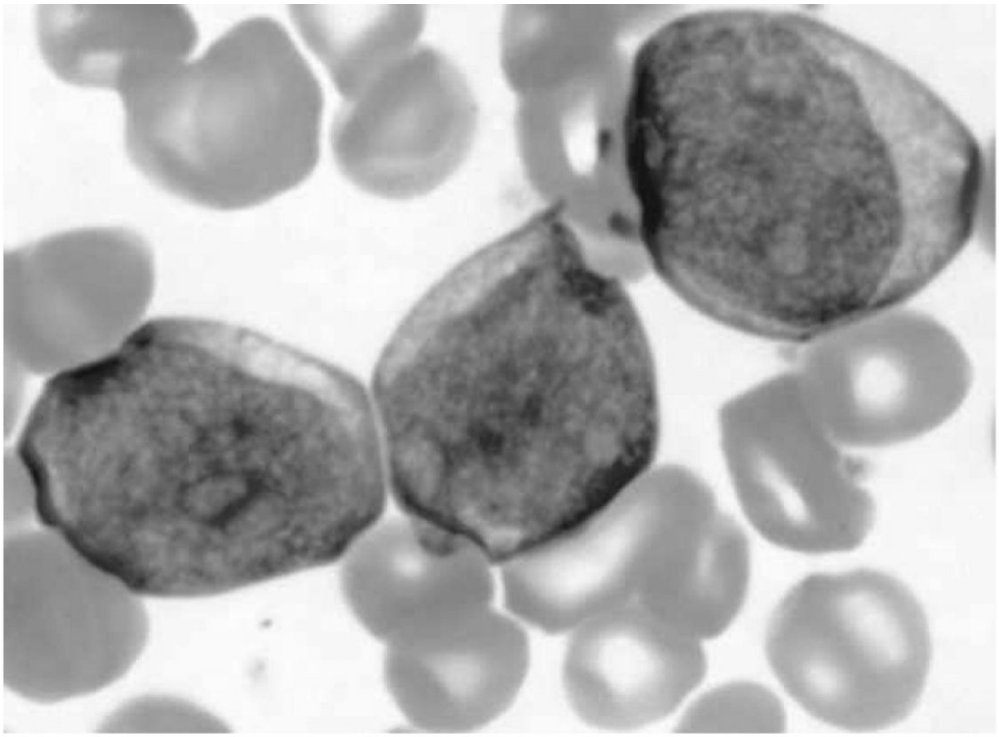




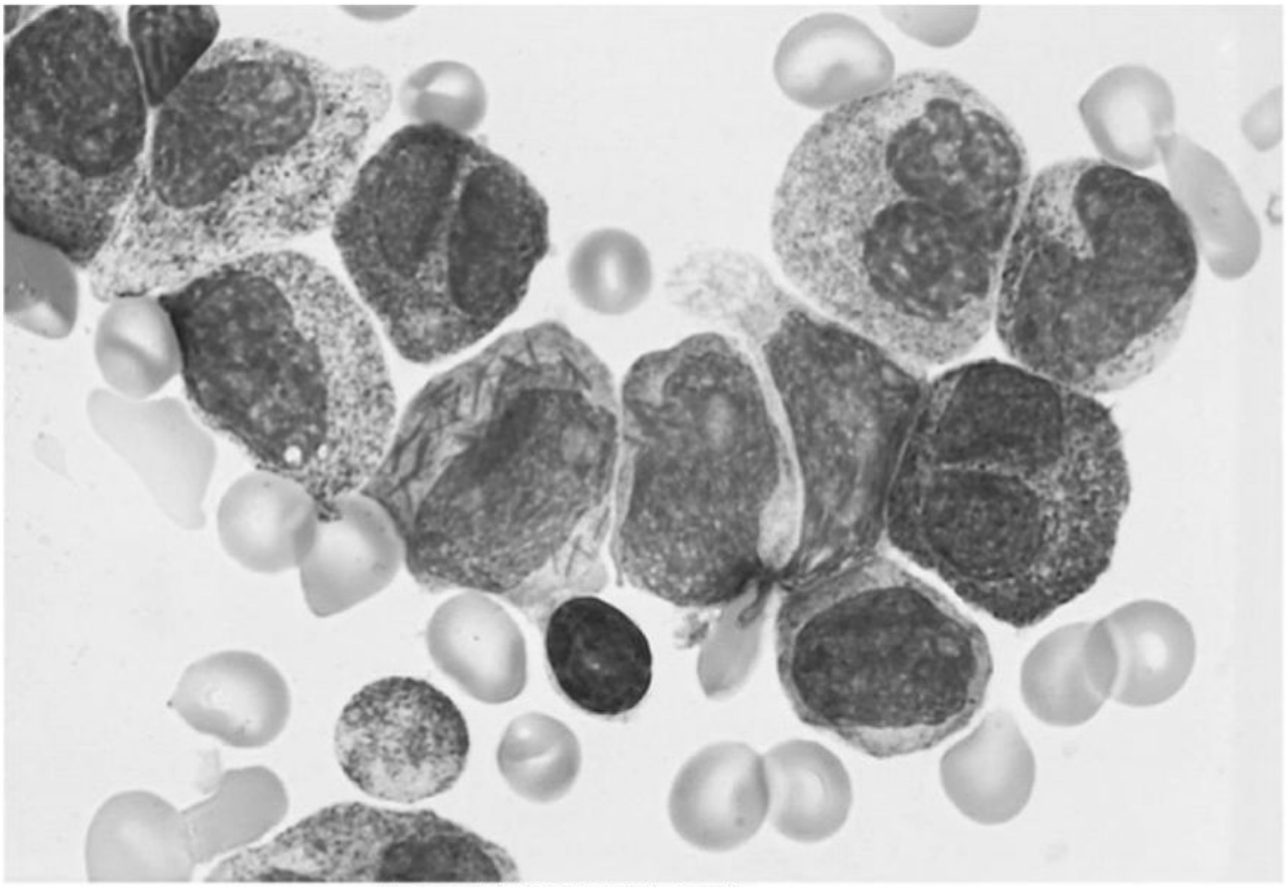


**MDS

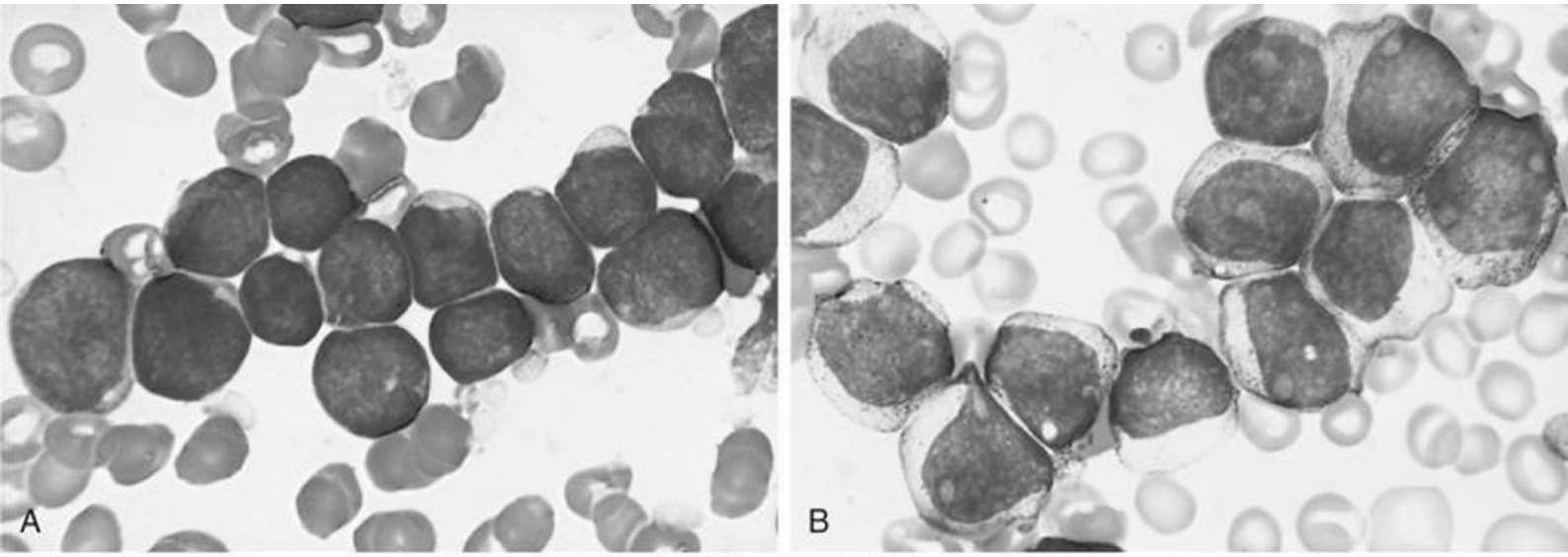
- Upper left: ring sideroblasts (iron stain), upper right: dysplastic erythroid precursor (multinucleation), lower right: dysplastic mega (small, hypolobated), middle: dysplastic neutrophil (hypogranulated cytoplasm, hyposegmented nucleus)



- AML: myeloblasts are large, high N/C ratio, prominent nucleoli



- Acute promyelocytic leukemia-bone marrow aspirate. The neoplastic promyelocytes have abnormally coarse and numerous azurophilic granules. Other characteristic findings include the presence of several cells with bilobed nuclei and a cell in the center of the field that contains multiple needle-like Auer rods

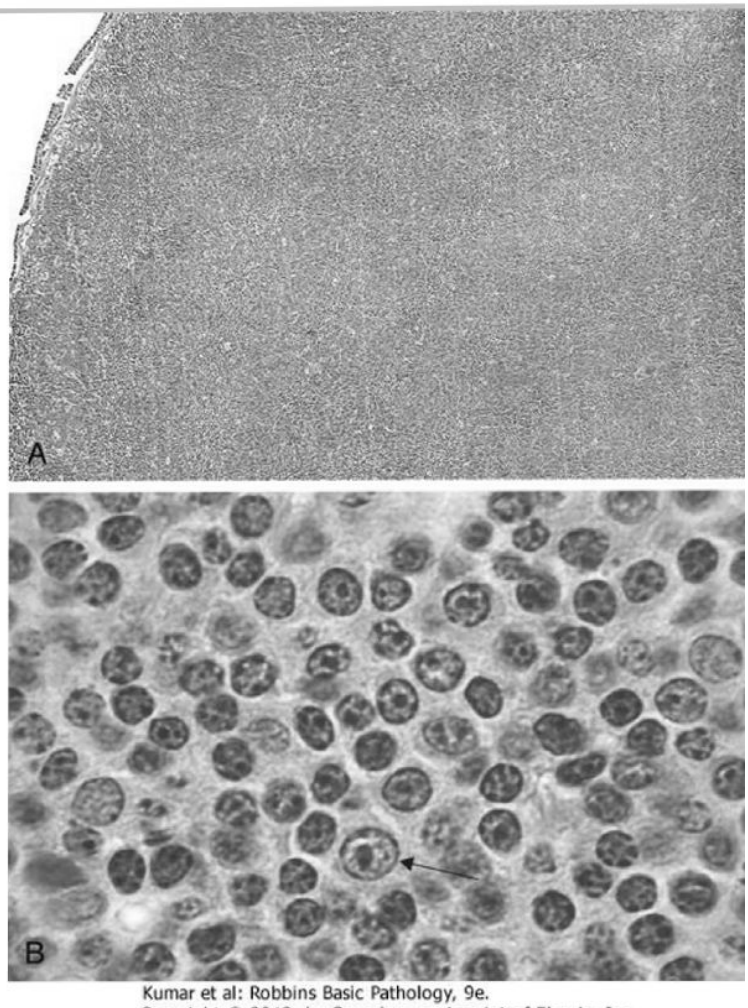


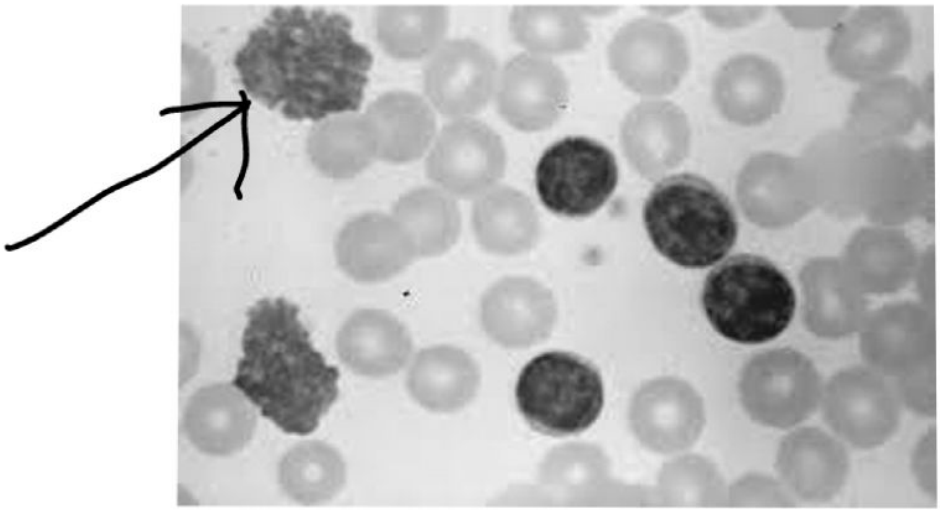
Acute Lymphoblastic Leukemia/ Lymphoma

- Morphology: lymphoblasts have fine chromatin, minimal agranular cytoplasm

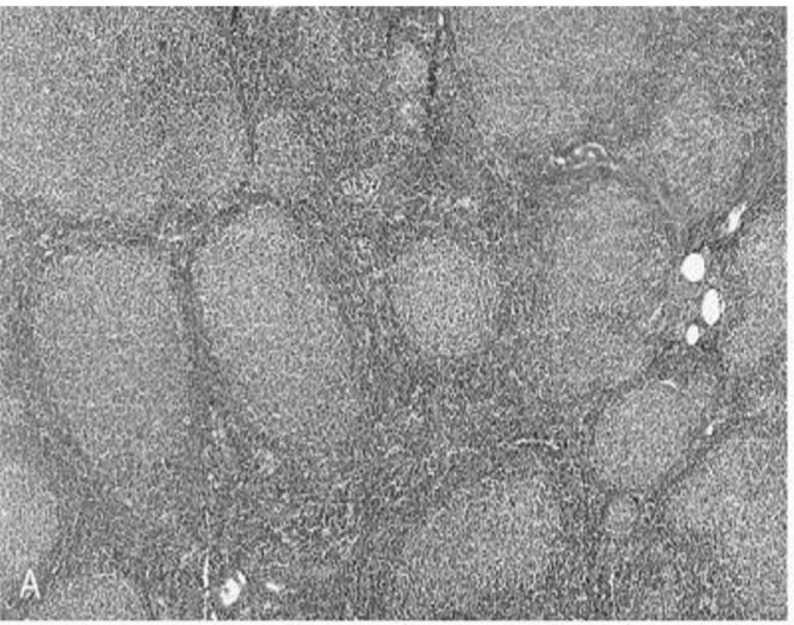
Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma

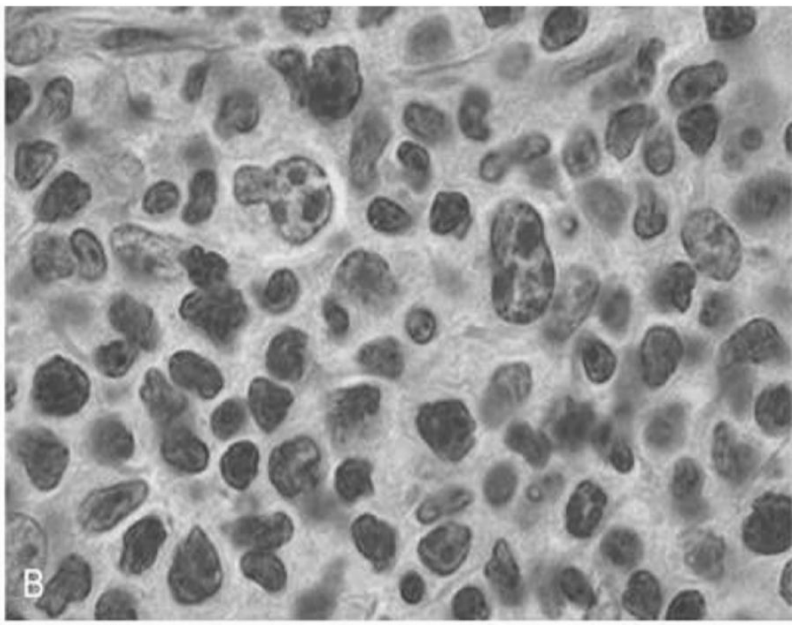
- A: Low-power view shows diffuse effacement of nodal architecture.
- **B,** At high power, a majority of the tumor cells have the appearance of small, round lymphocytes, with scattered larger cells: "prolymphocyte," that have a central nucleolus





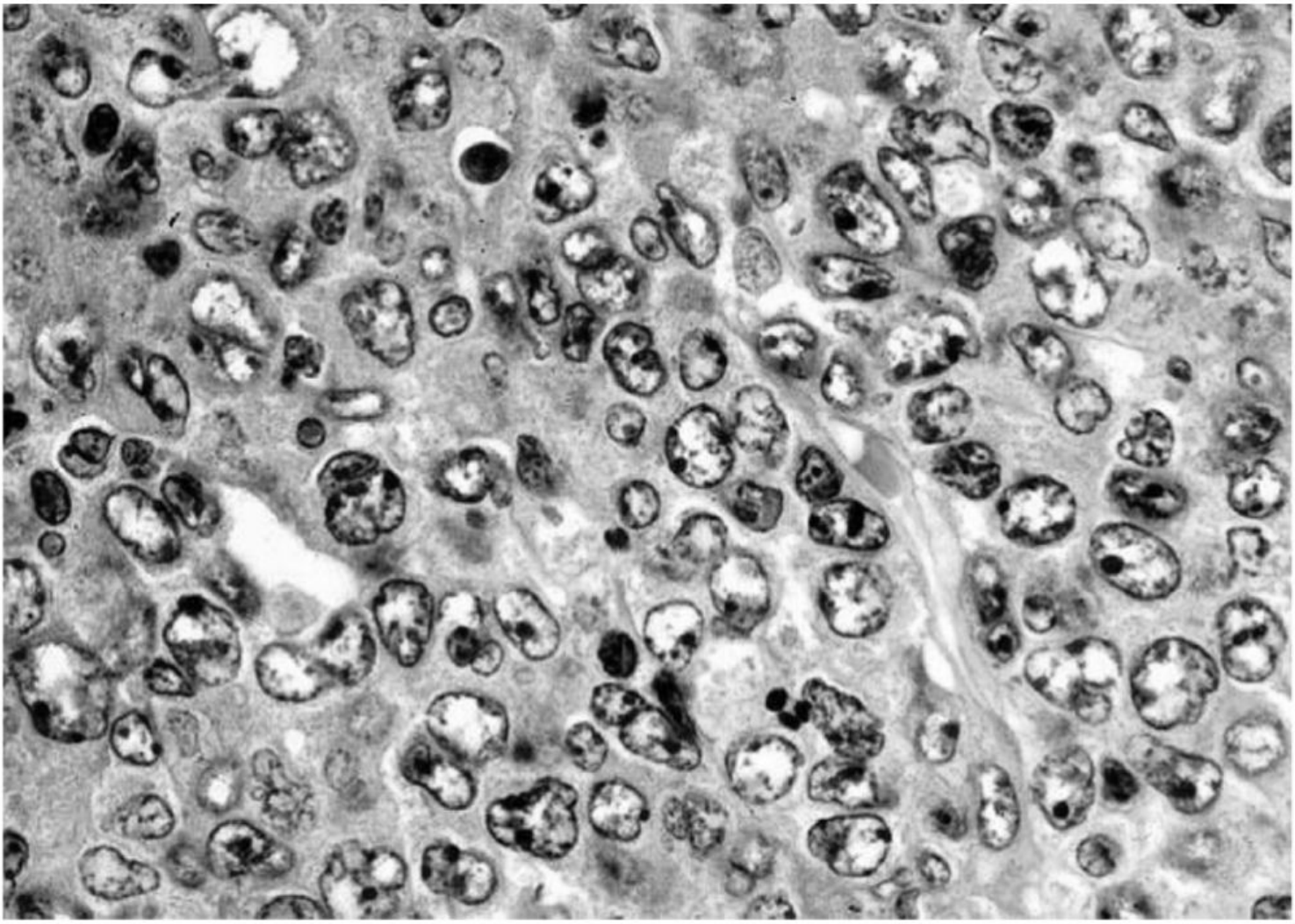
- CLL: leukemia cells are small in size, resemble normal lymphocytes. Burst "smudge" cells are commonly seen





Follicular Lymphoma

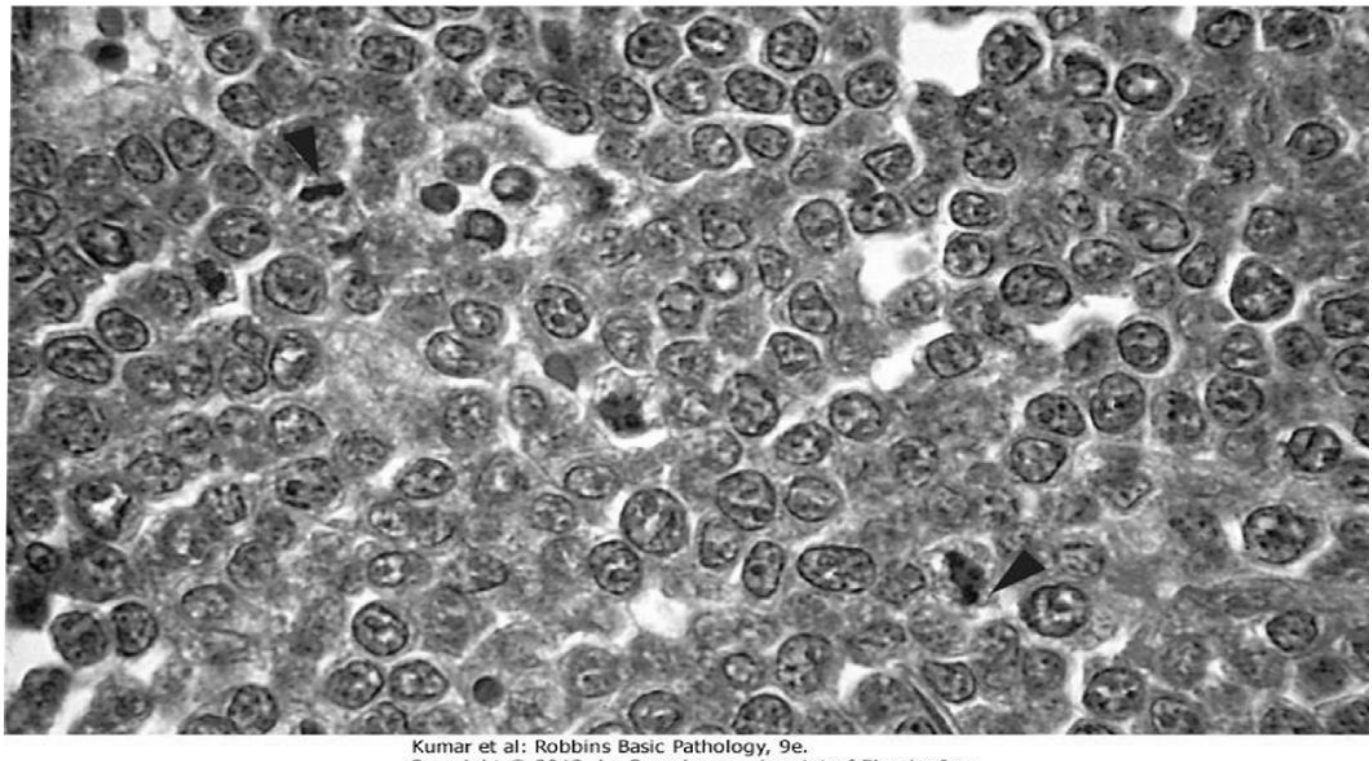
- **A,** Nodular aggregates of lymphoma cells are present throughout
- **B,** At high magnification, small lymphoid cells with condensed chromatin and irregular or cleaved nuclear outlines (centrocytes) are mixed with a population of larger cells with nucleoli (centroblasts).



Tumor cells have large nuclei with open chromatin and prominent nucleoli.

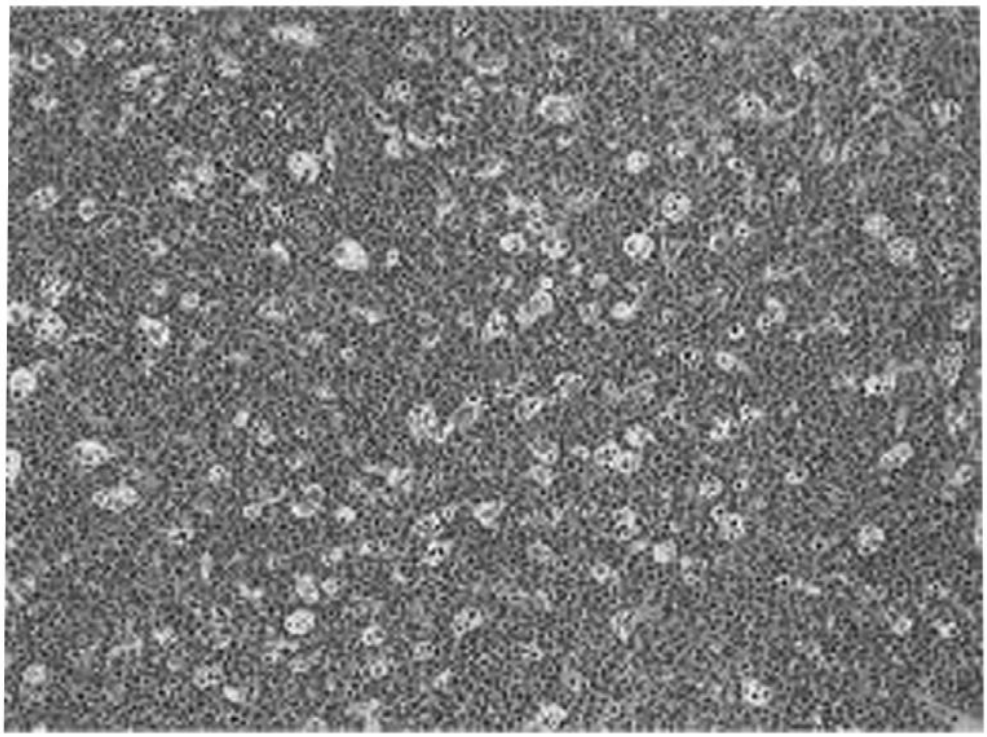
Diffuse Large B Cell Lymphoma

Burkitt lymphoma

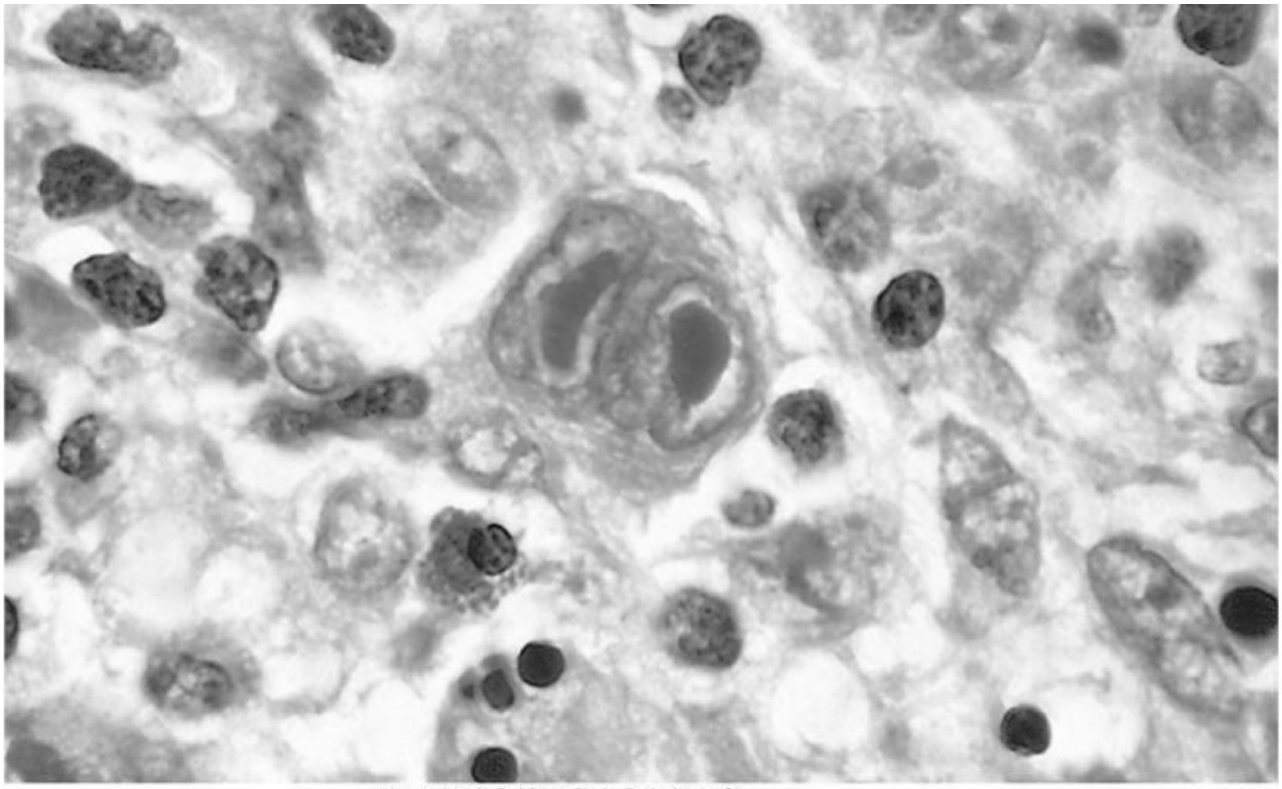


Kumar et al: Robbins Basic Pathology, 9e.

- The tumor cells and their nuclei are fairly uniform, giving a monotonous appearance
- high level of mitotic activity (*arrowheads*) and prominent nucleoli.



- The "starry sky" pattern produced by interspersed, lightly staining, normal macrophages

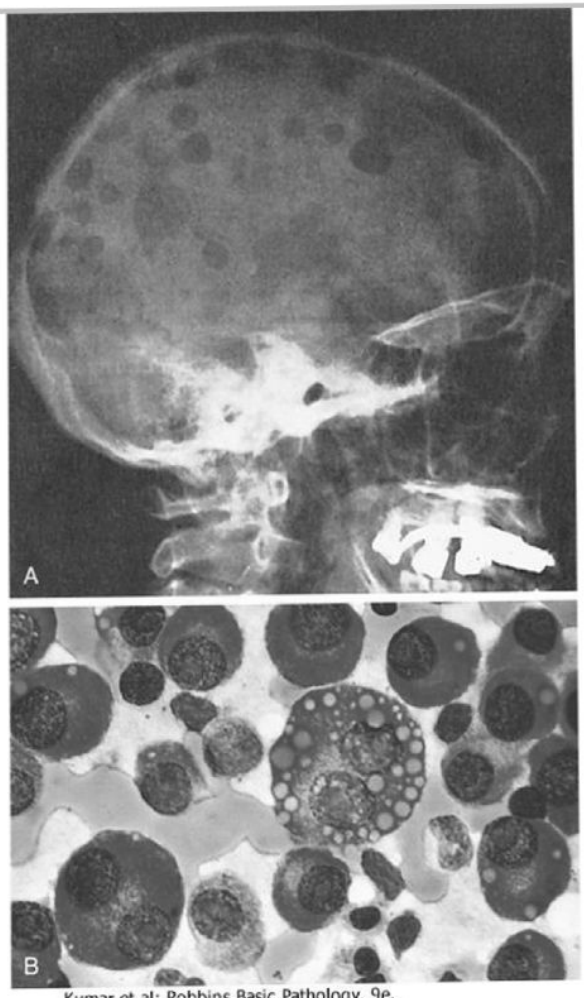


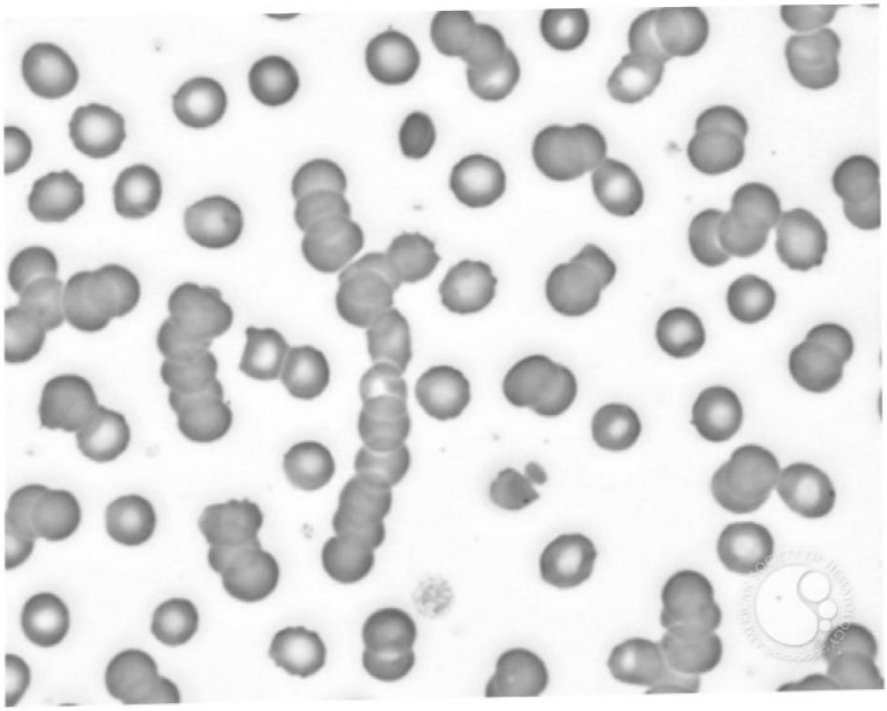
Hodgkin Lymphoma

- Reed-Sternberg cell, with two nuclear lobes, large eosinophilic e nucleoli, and abundant cytoplasm, surrounded by lymphocytes, macrophages, and an eosinophil

Plasma cell myeloma / multiple myeloma

- Normal marrow cells are largely replaced by plasma cells, including forms with multiple nuclei, prominent nucleoli, and cytoplasmic droplets containing Ig





- Rouleax formation of RBCs secondary to M-protein in plasma cell myeloma