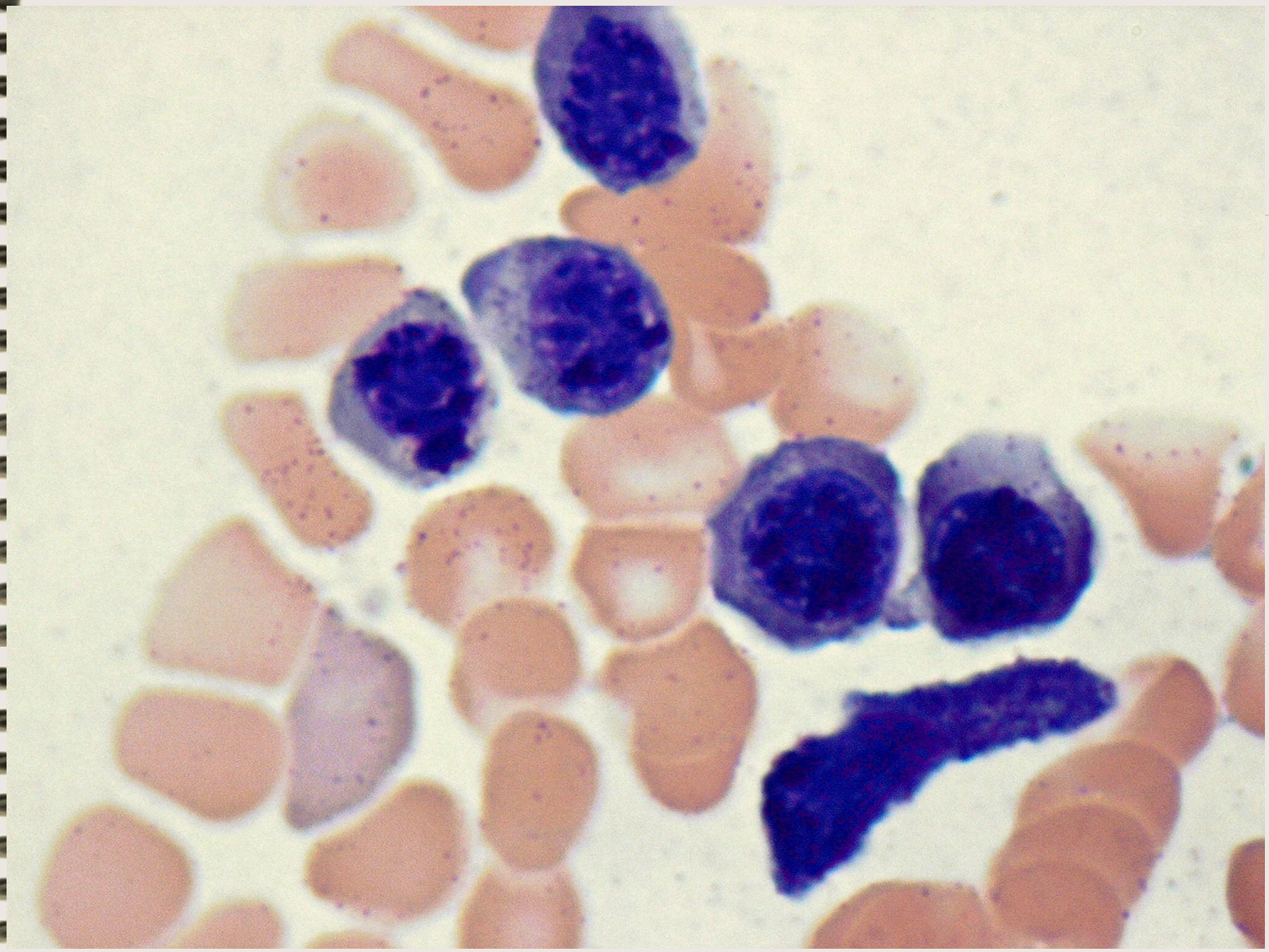
Hematology Case Conference

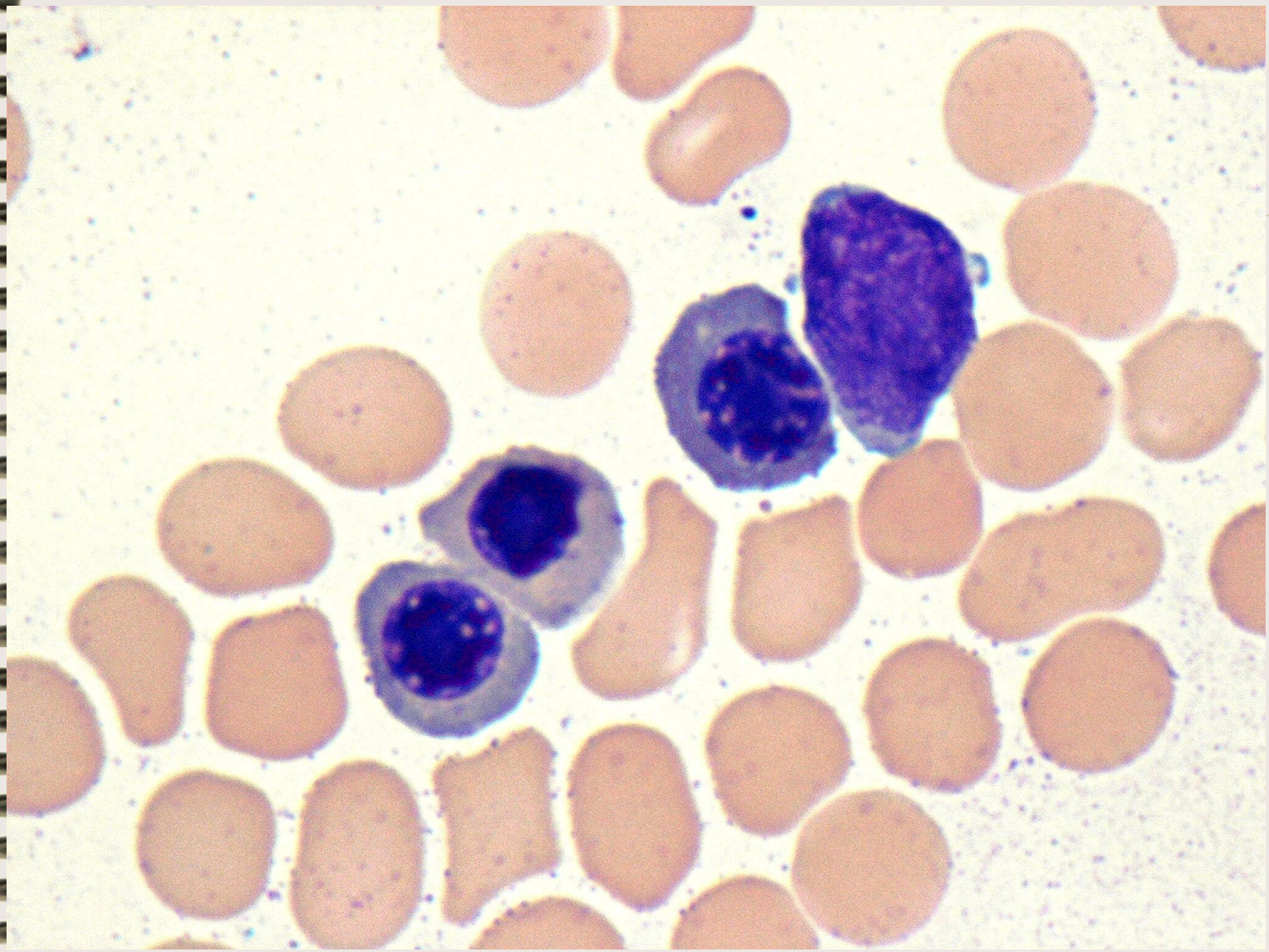
4/6/04

Bone Marrow Case
Patient: Thelxxx Ghixxx

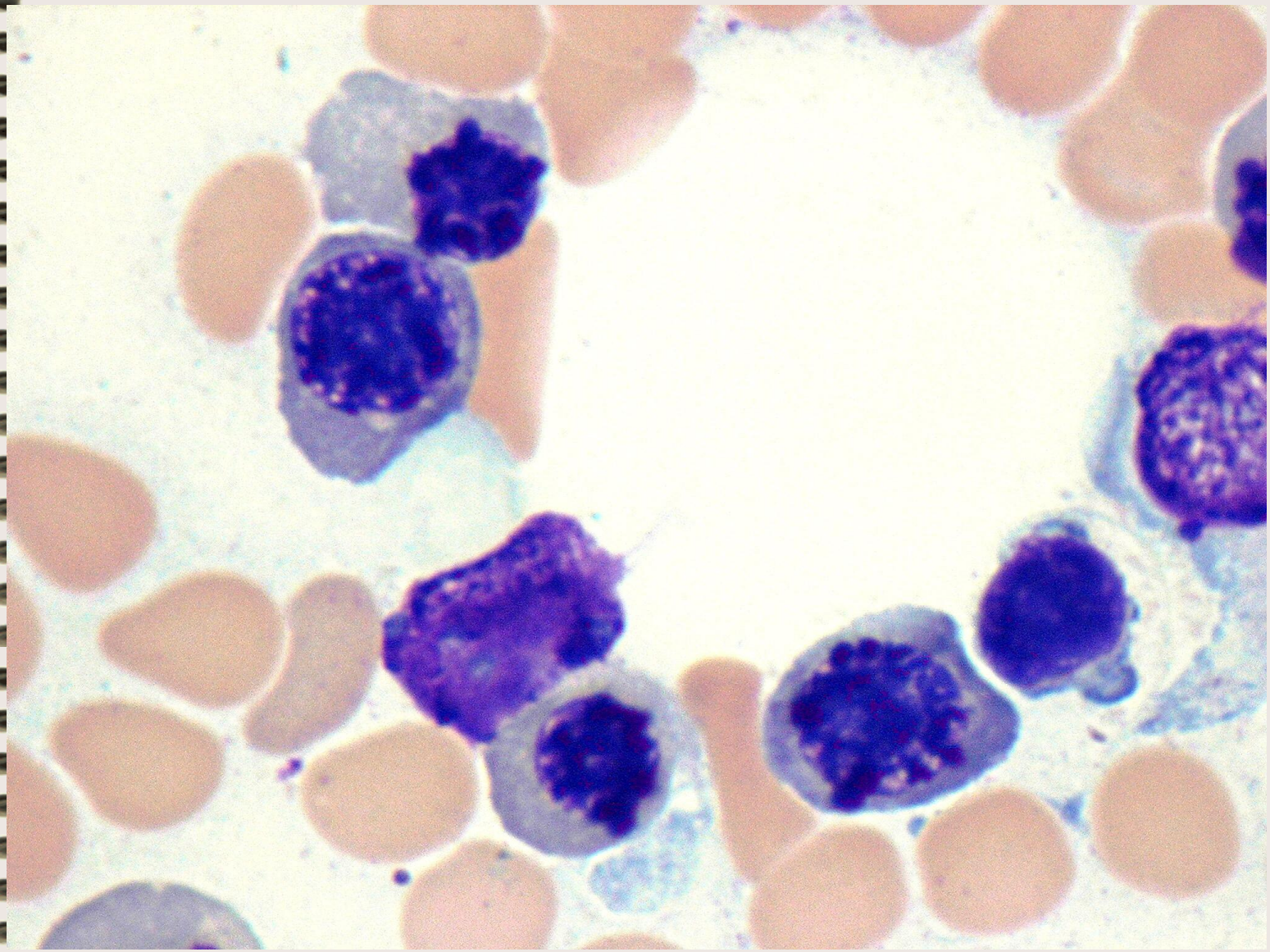
- 75 year old female with leukopenia and thrombocytopenia, S/P Imuran therapy for autoimmune disorder
- WBC= 1.3, Hgb=13.7, Plt=68 k, Retic 1.2%, MCV 100.2 seg 41, lymph 53, mono 4, eos 1, baso 1. No blasts seen in peripheral blood smear



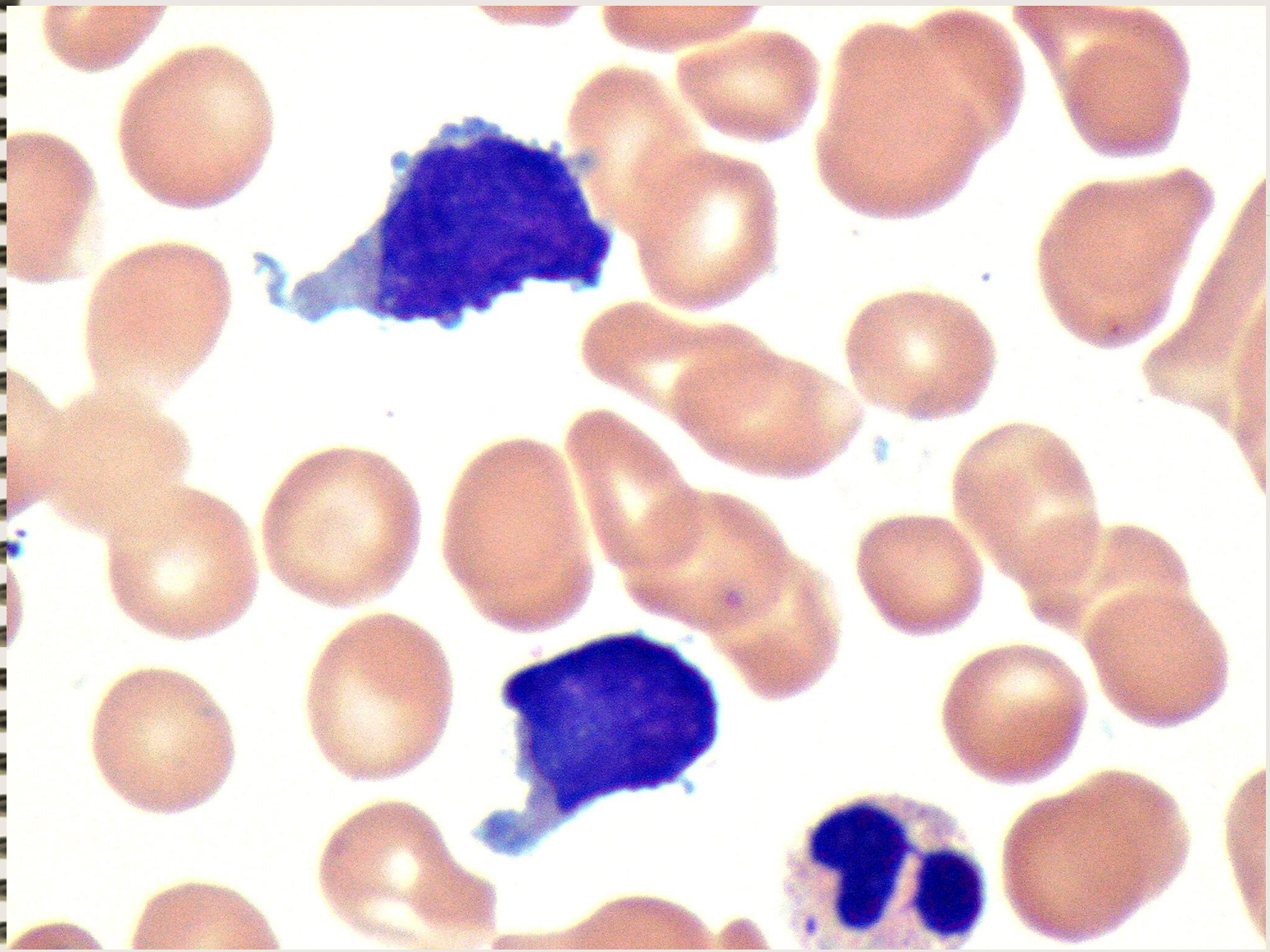
Bone marrow aspirate: 52% normoblasts



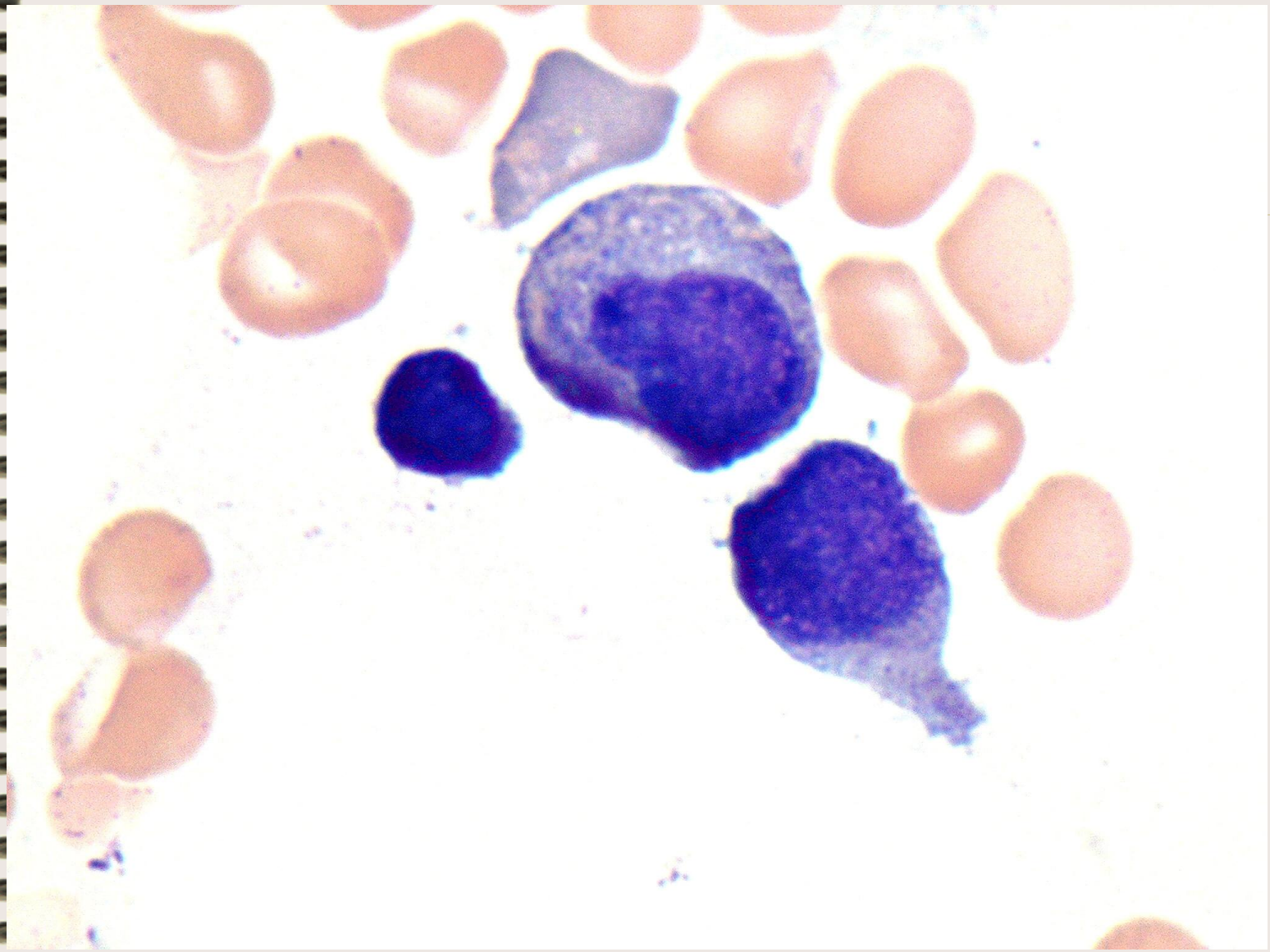
Bone marrow aspirate (cont'd)



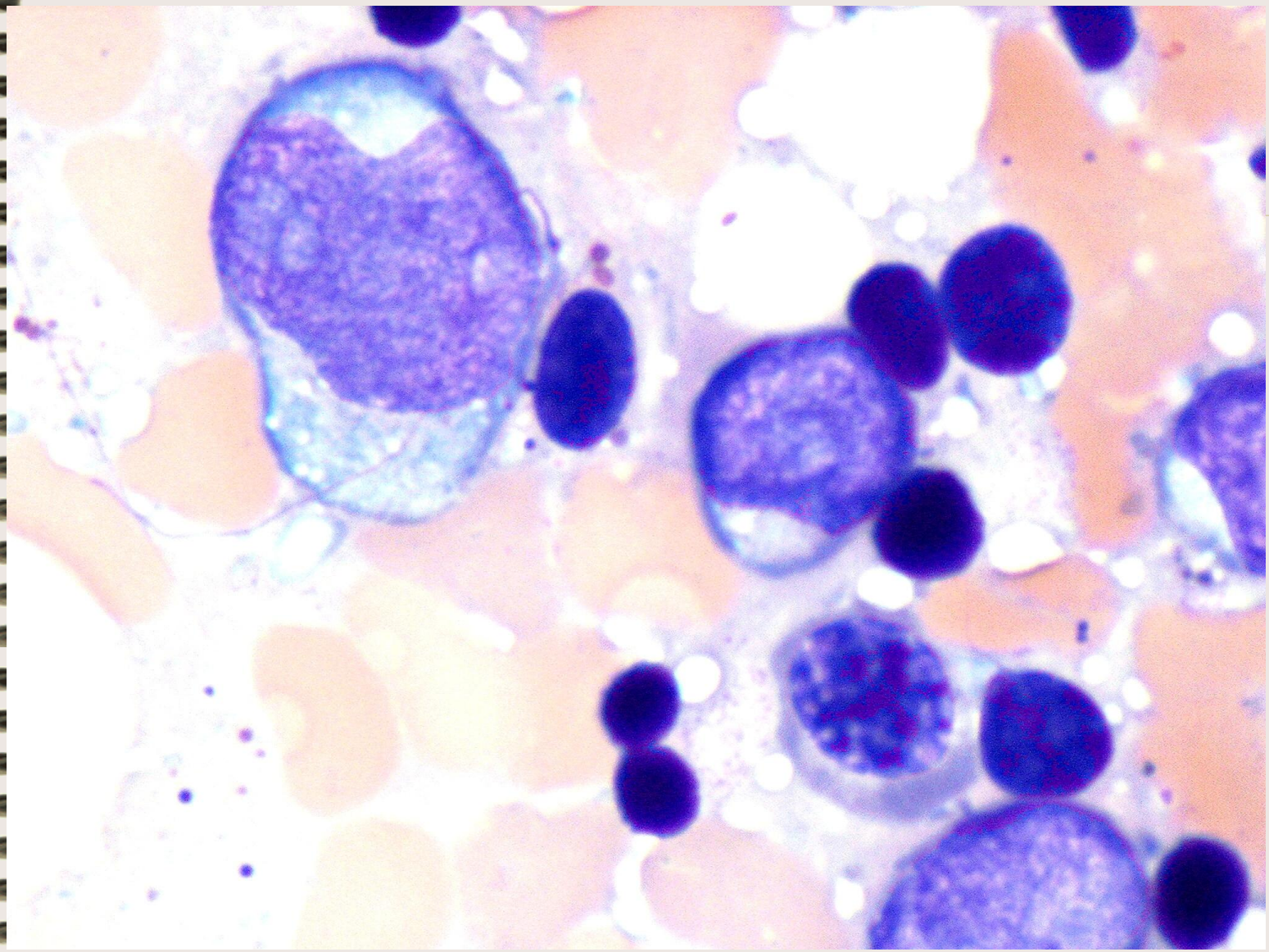
Bone marrow aspirate (cont’d)



Bone marrow aspirate (cont'd): 20% myeloblasts



Bone marrow aspirate (cont'd)



Bone marrow aspirate (cont'd)

Diagnosis

- Flow cytometry results: a blast population that is
  (+) CD13, CD33, CD34, HLA-DR
  (-) CD14, T cell markers (except CD4), B cell markers, TdT

- Cytogenetics (bone marrow aspirate):
  (a) -7 (monosomy 7): seen in AML and MDS, especially secondary to alkylating agent or radiation, associated with poor prognosis
  (b) t (11; 21)(q14; q22) : not common, reported to be associated with myeloid and lymphoid disorders

Diagnosis (cont'd)

- Erythroids in bone marrow: 52% of nucleated cells, some normoblasts with dysplasia
- Myeloblasts in bone marrow: 20% of nucleated cells, 42% of non-erythroids (20/48 x 100)
- DX:
  1. WHO (AML not otherwise categorized): Erythroleukemia
  2. FAB: AML-M6

Acute erythroid leukemia

- Characterized by a predominant erythroid population
- Two subtypes:
  1. Erythroleukemia: more than 50% erythroids in bone marrow. More than 20% myeloblasts in the nonerythroid population
  2. Pure erythroid leukemia: more than 80% of erythroids in bone marrow with no significant myeloblast component

Erythroleukemia

- Predominantly in adults
- About 5-6% of AML cases
- May present de novo or evolve from MDS
- Erythroids: dysplastic; myeloblasts: similar to those in other AMLs
- Cytogenetics: no specific abnormalities; some cases with abnormalities of chromsomes 5 and 7 (pt with monosomy 7)
- Clinical course: aggressive; morphology may evolve into a more myeloblast feature

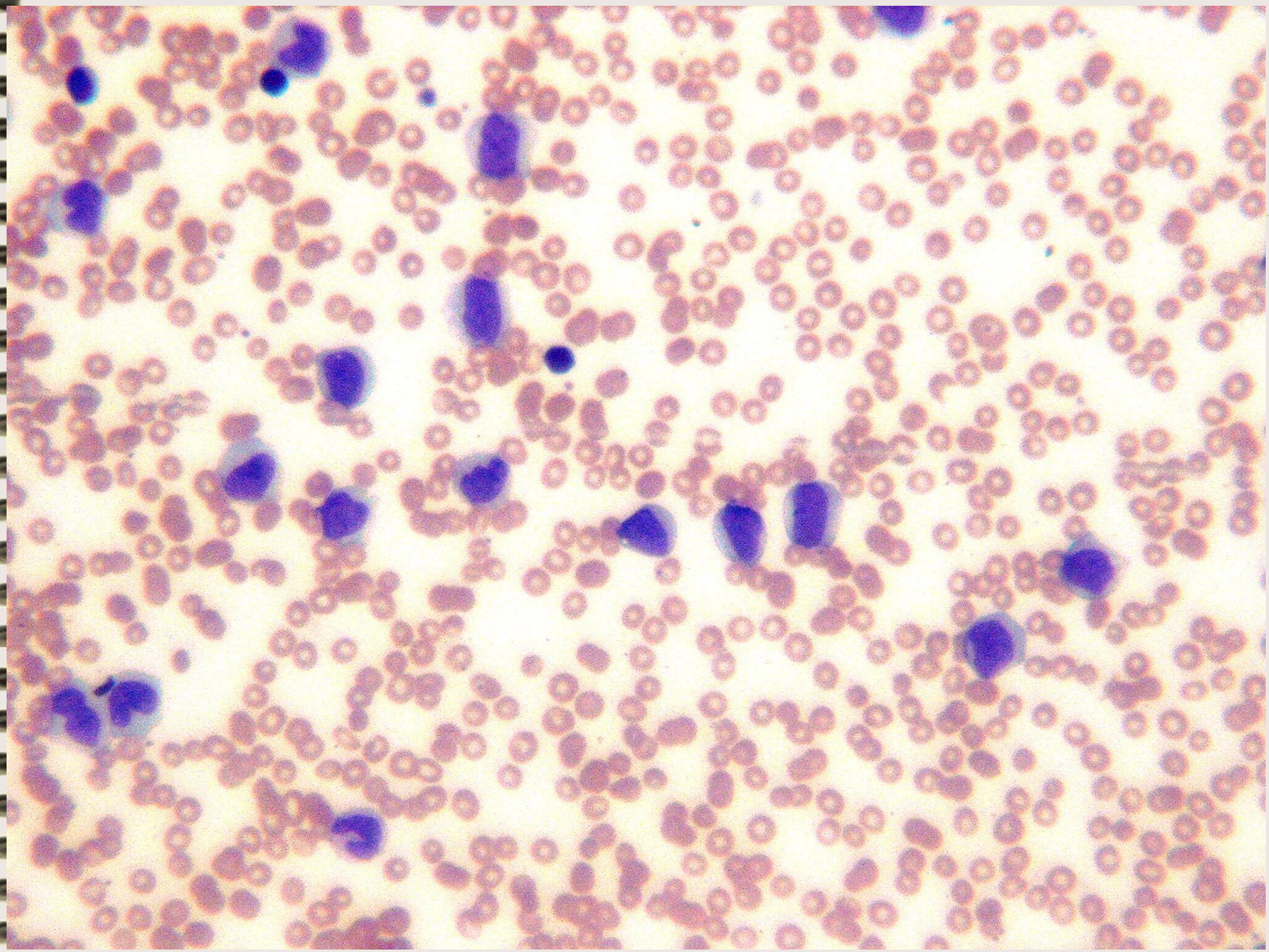
WHO: AML, therapy related
Major types

- Alkylating agent (short survival)
- Radiation (short survival)
- Topoisomerase II inhibitor

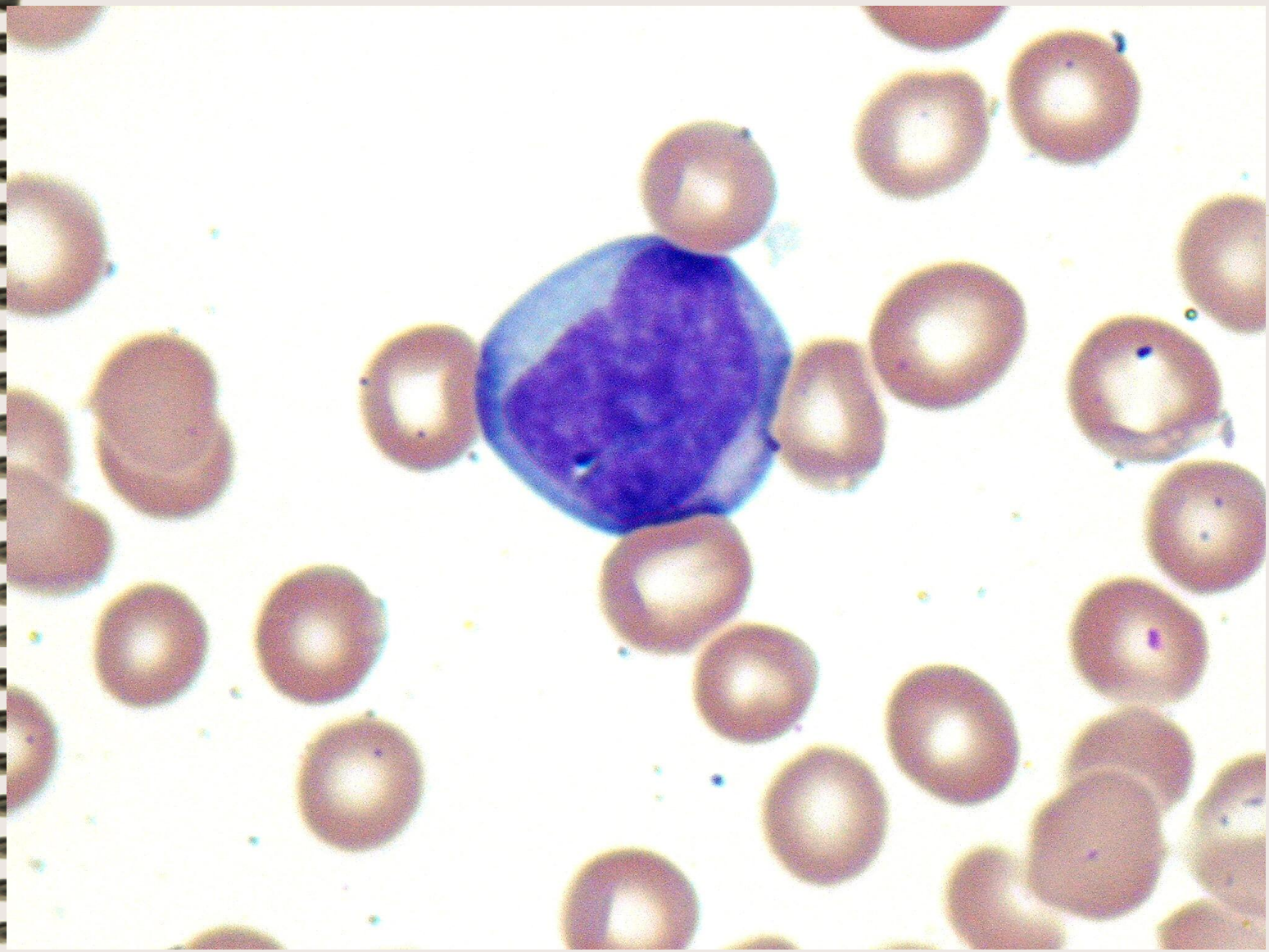
- Pt on Imuran (azathioprine) : carcinogenic, not specific for AML

Bone Marrow Case
Patient: Jacixxx Gomexxx

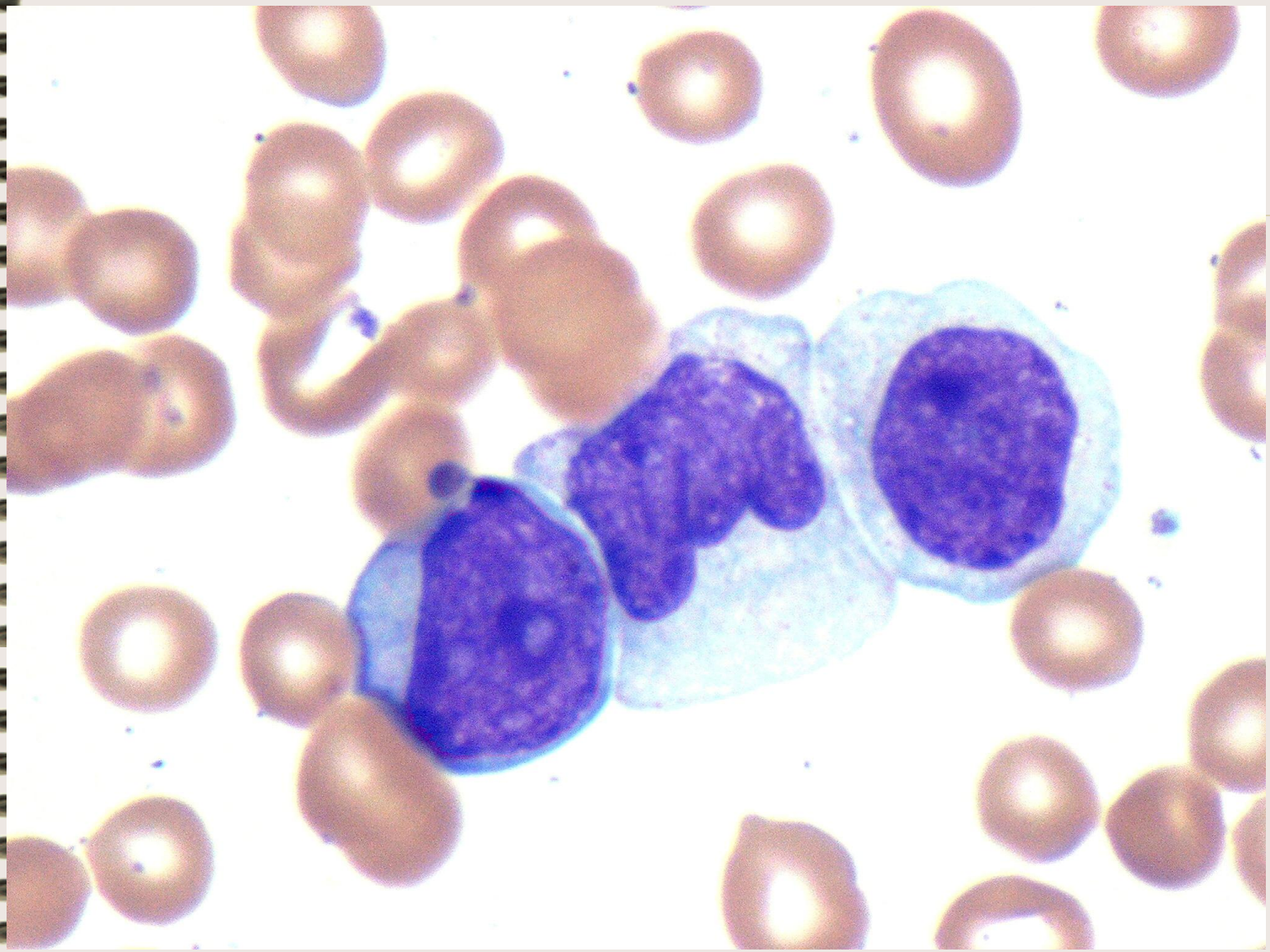
- 55 year old male with 3 week hx of painful & enlarged gun, first saw a dentist who prescribed Amoxicilin which did not resolve the problem. Pt then saw a PCP who prescribed Kephlex which did not help. Pt then came to Hermann ER when eating/drinking became too painful. Pt also lost 20 lb/ 2 weeks with night sweats. Pt has worked in chemical plants x 30 years
- PE: petechia in LEs; anterior /submandibular/ supraclavicular lymphadenopathy
- WBC= 96.2, Hgb=12.1, Plt=68 k, Retic 0.8%, MCV 93.6
  blast 50, lymph 21, mono 29
- Pt 12.3, PTT 32.0



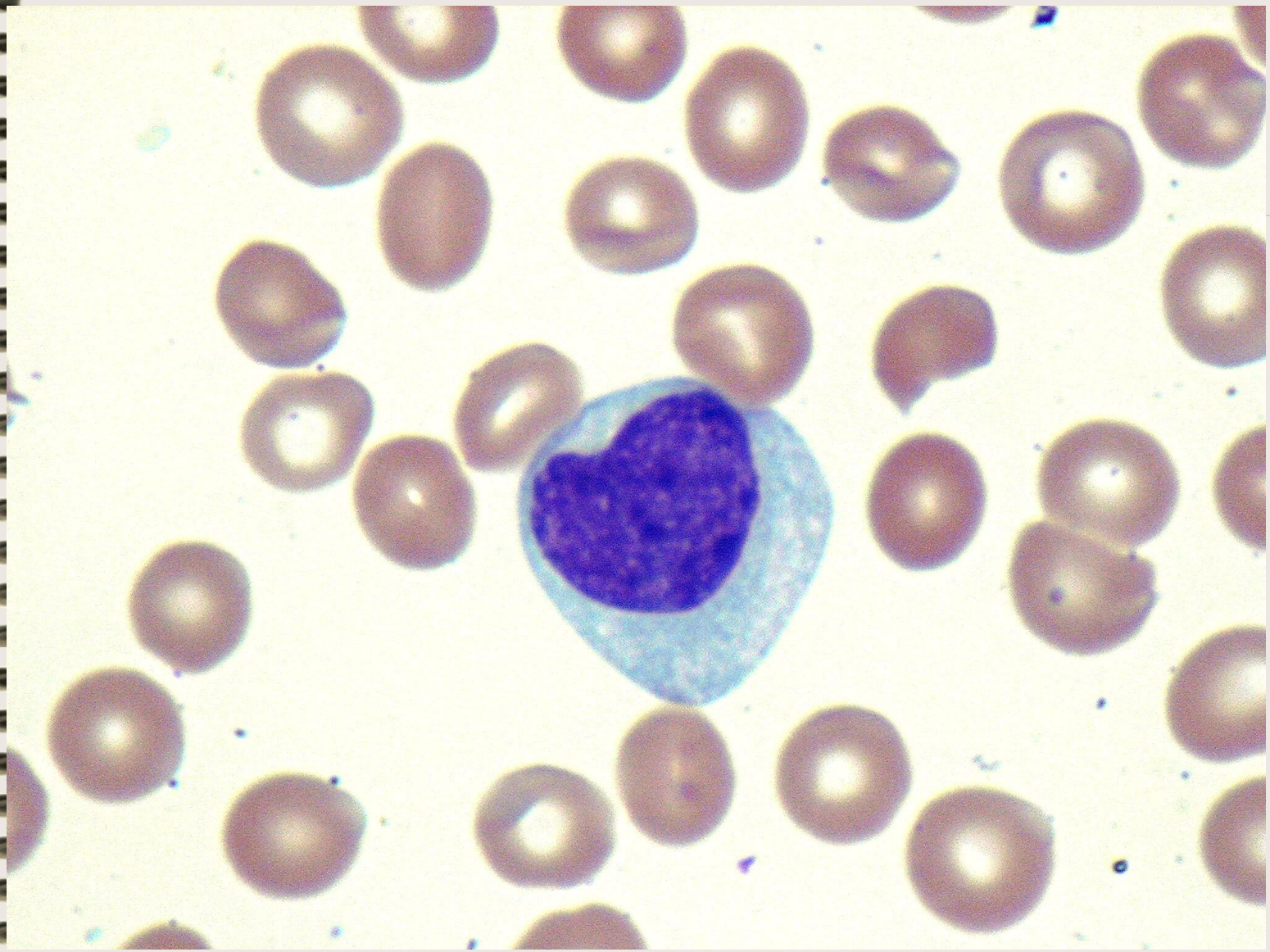
Peripheral blood



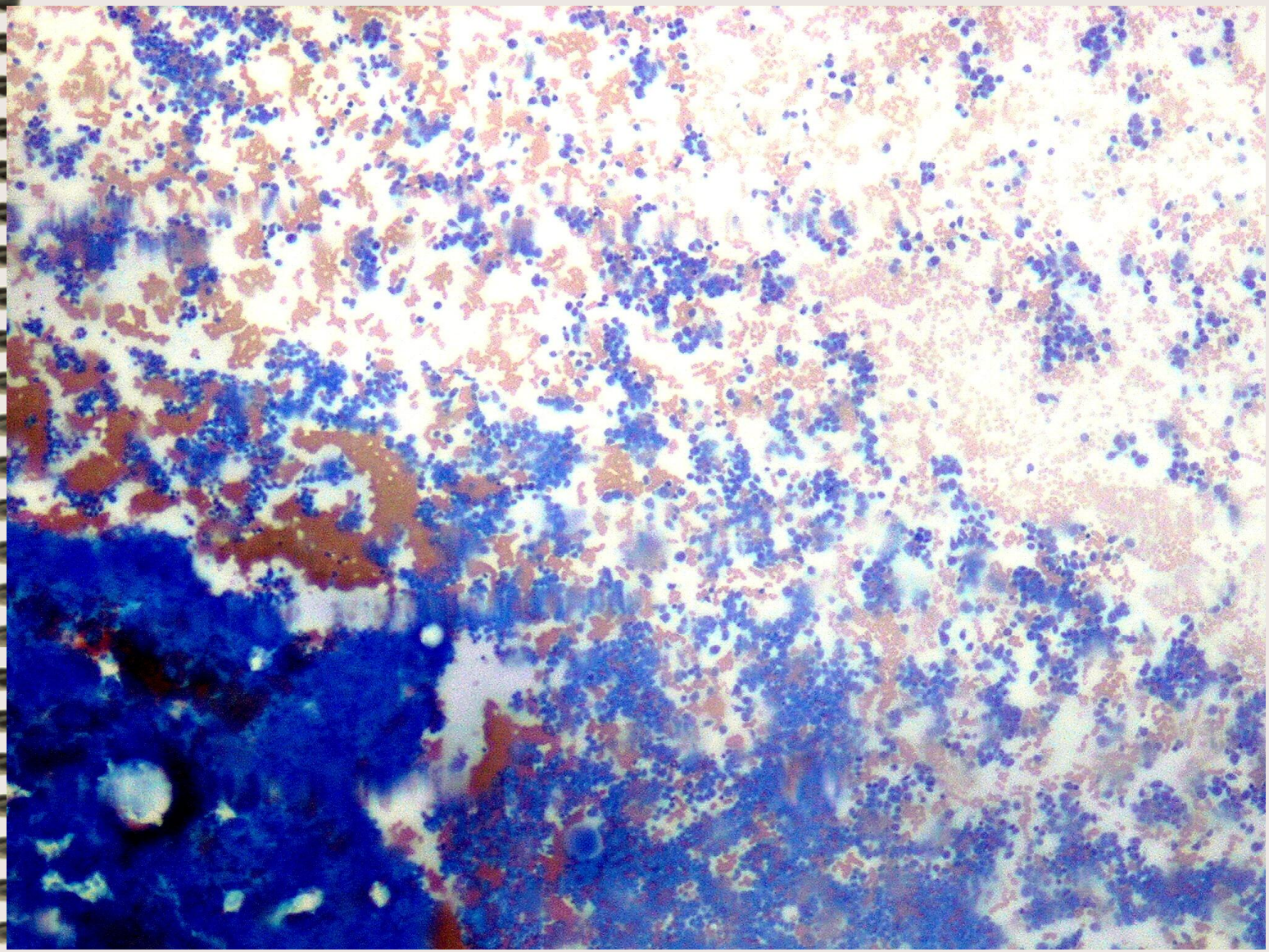
Peripheral blood (cont'd)



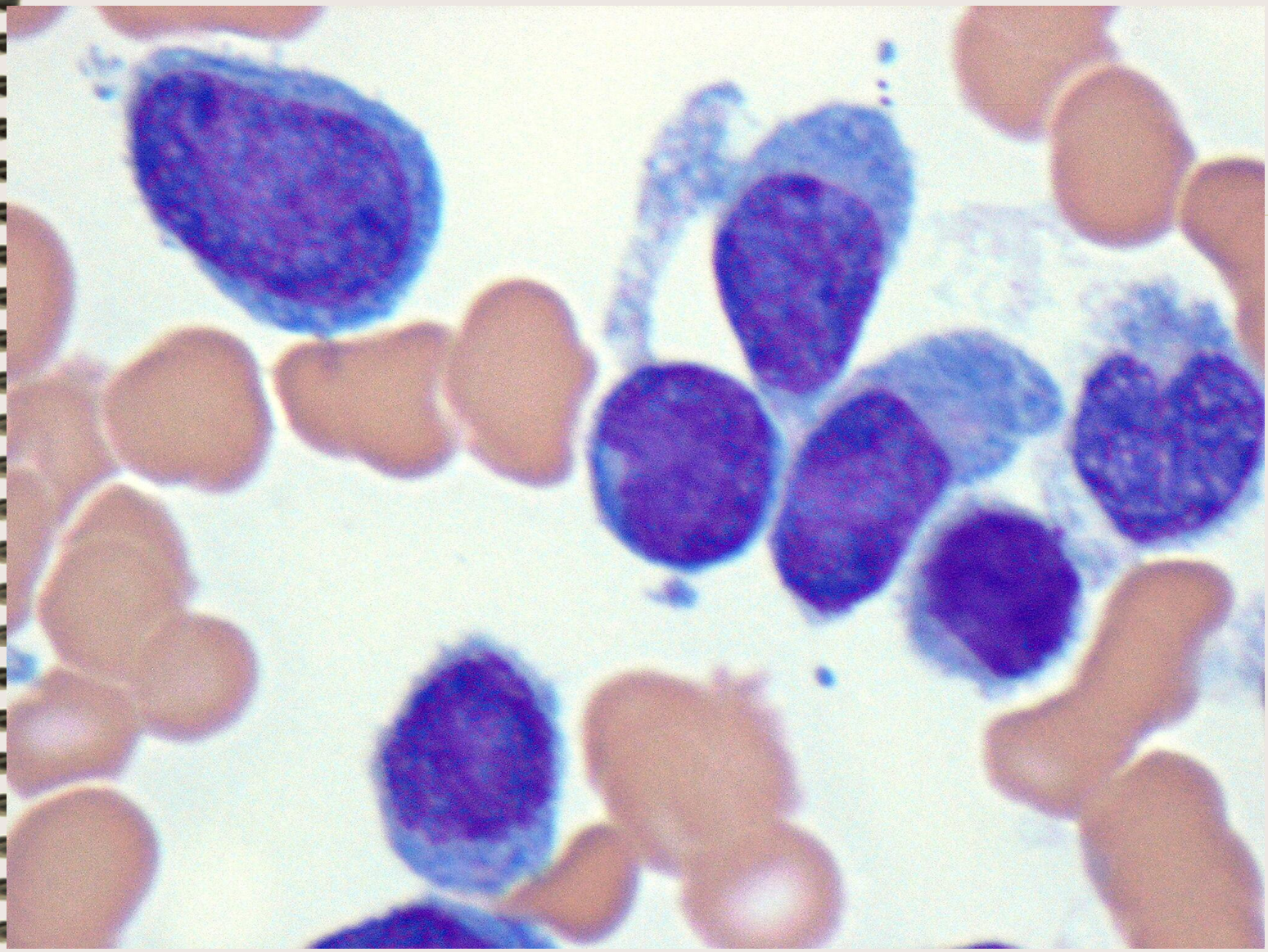
Peripheral blood (cont'd)



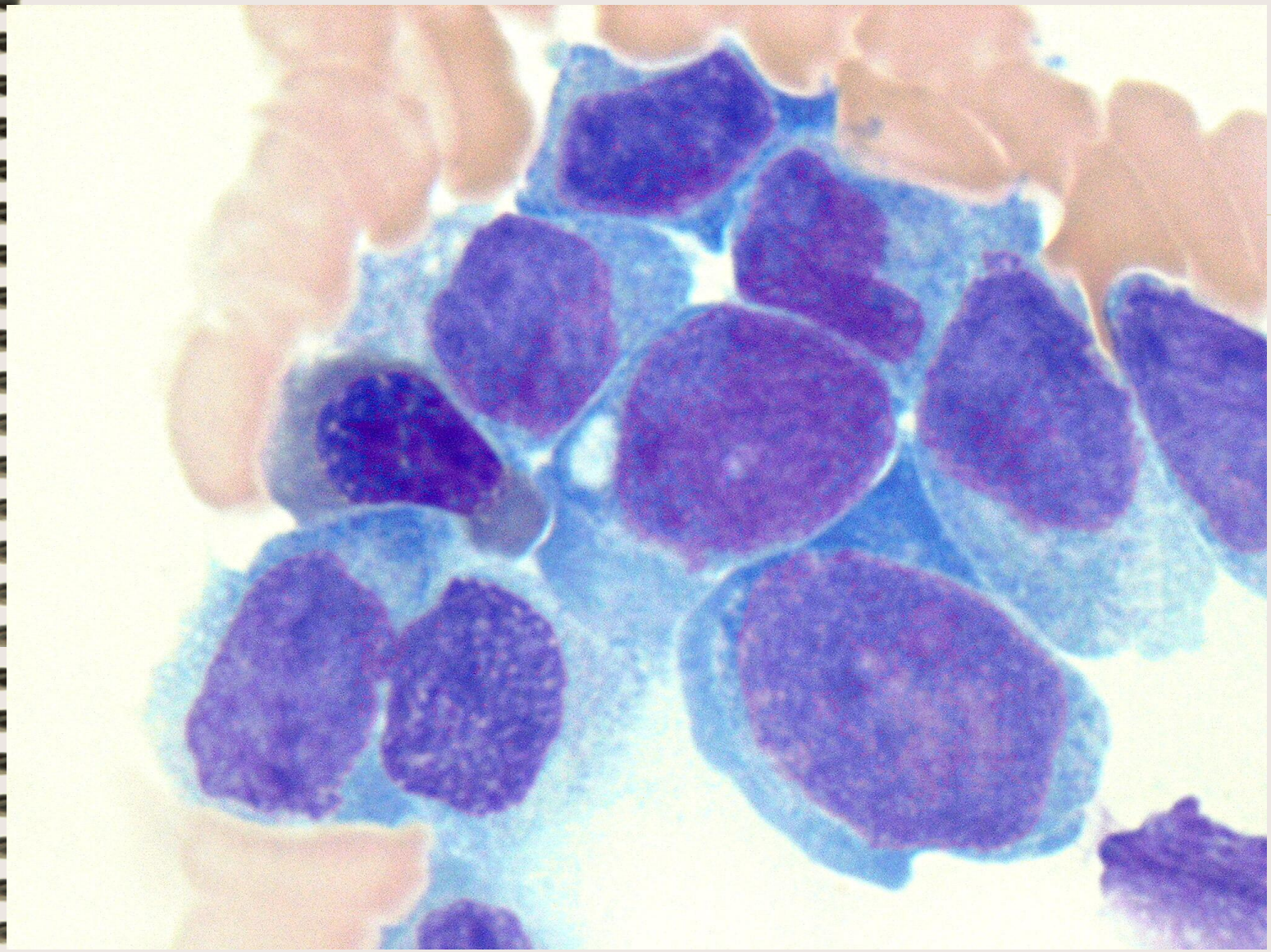
Peripheral blood (cont'd)



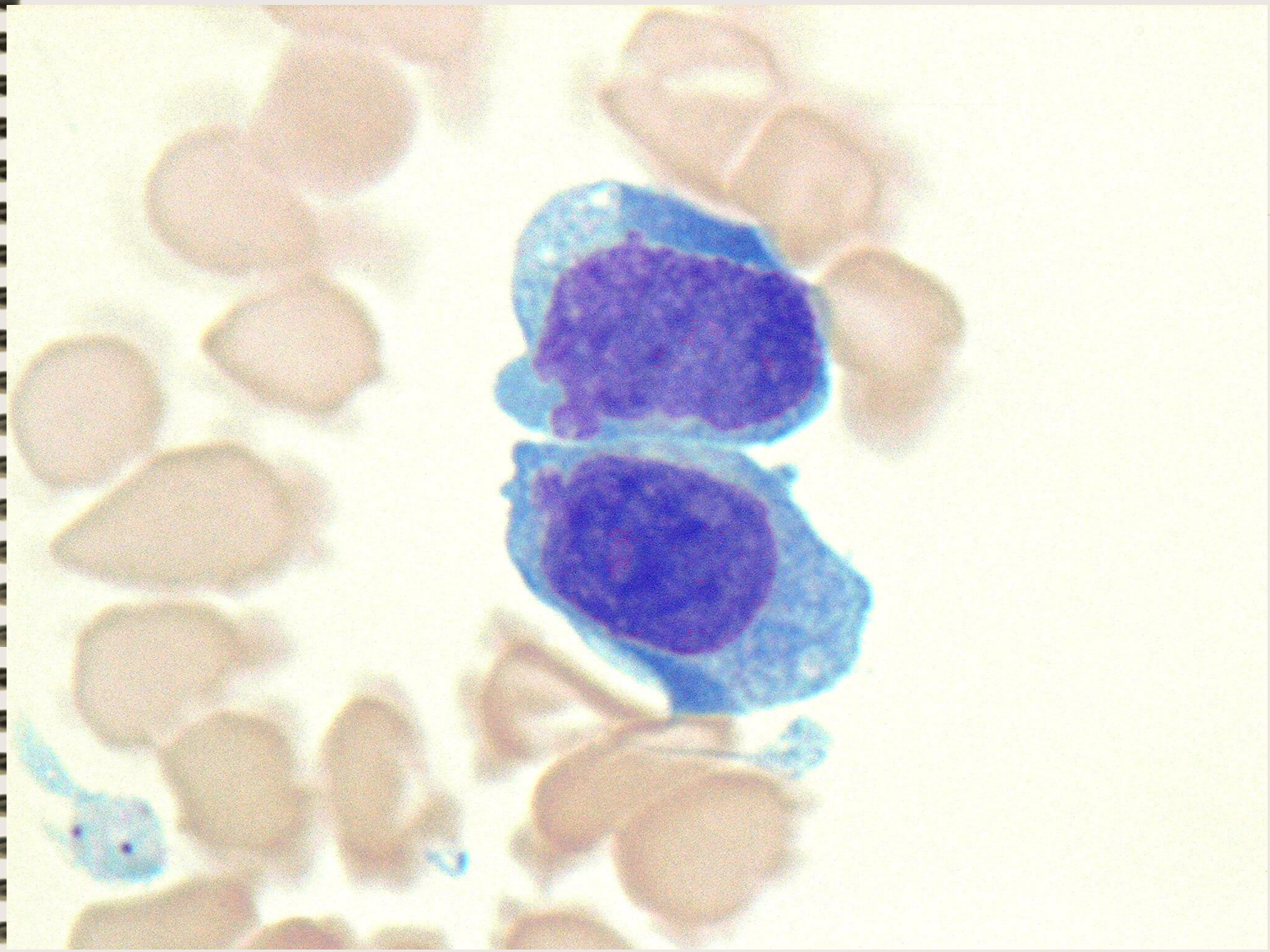
Bone marrow aspirate



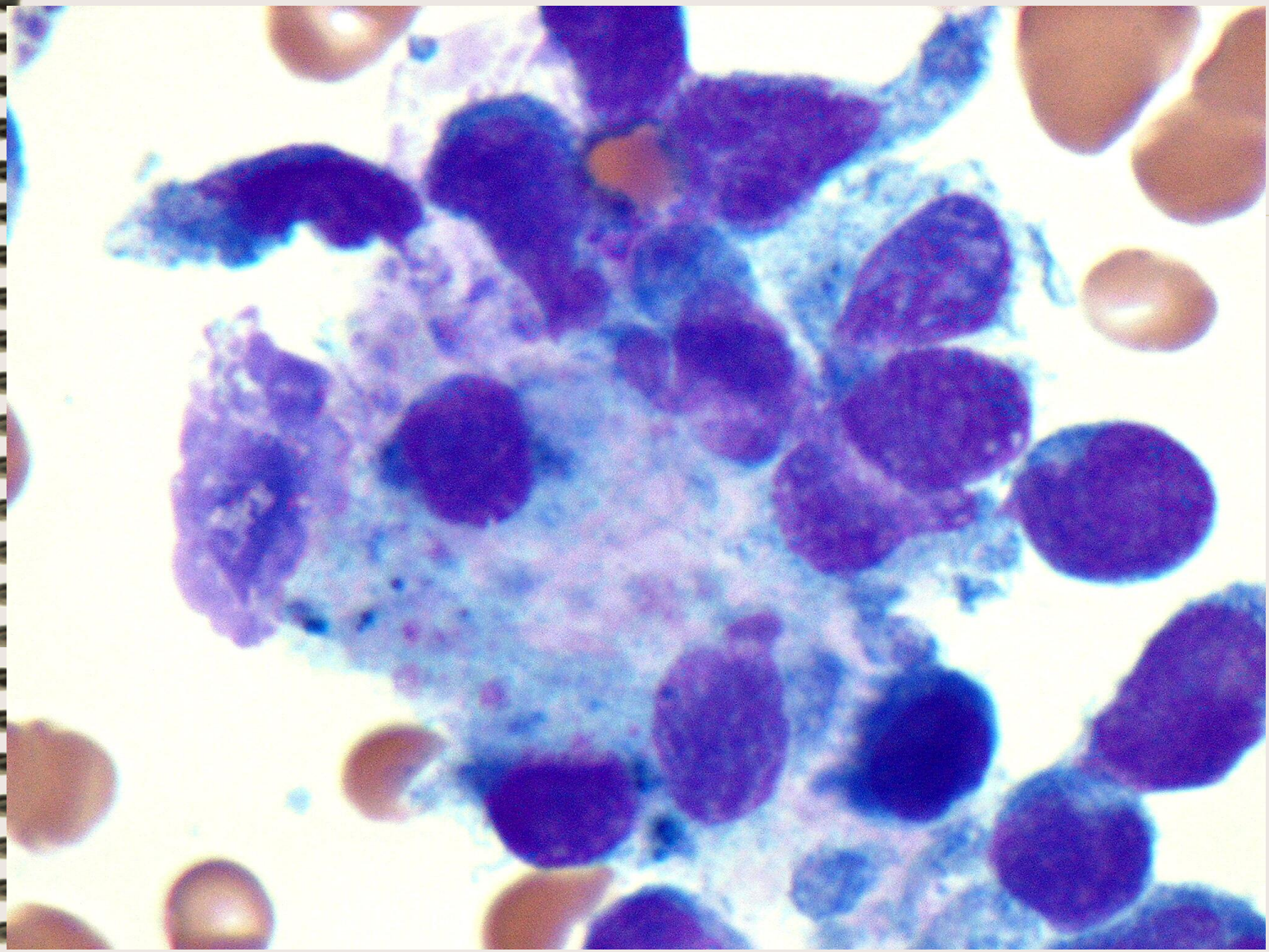
Bone marrow aspirate: 63% blasts, 25% monocytes



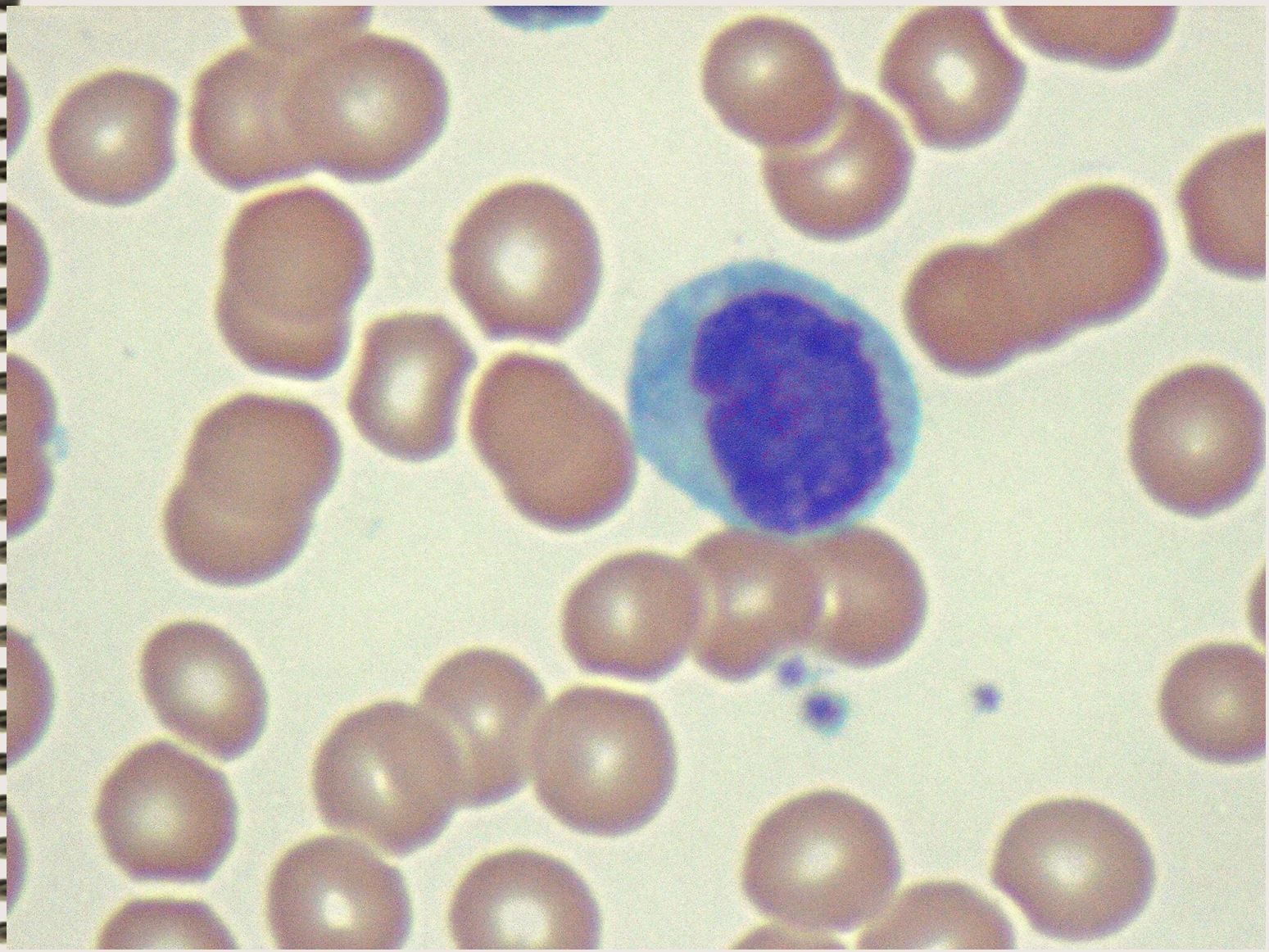
Bone marrow aspirate (cont’d)



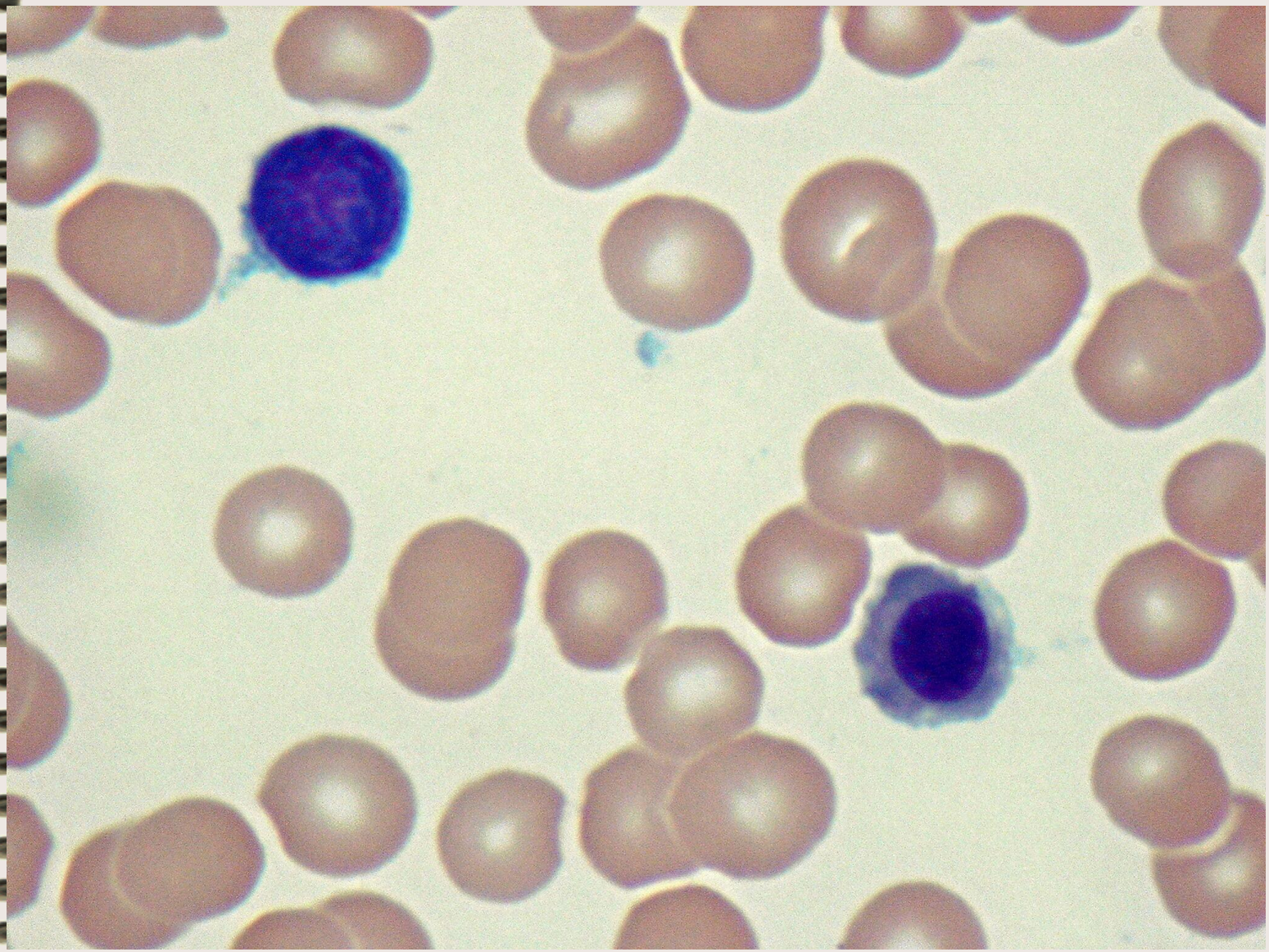
Bone marrow aspirate (cont’d)



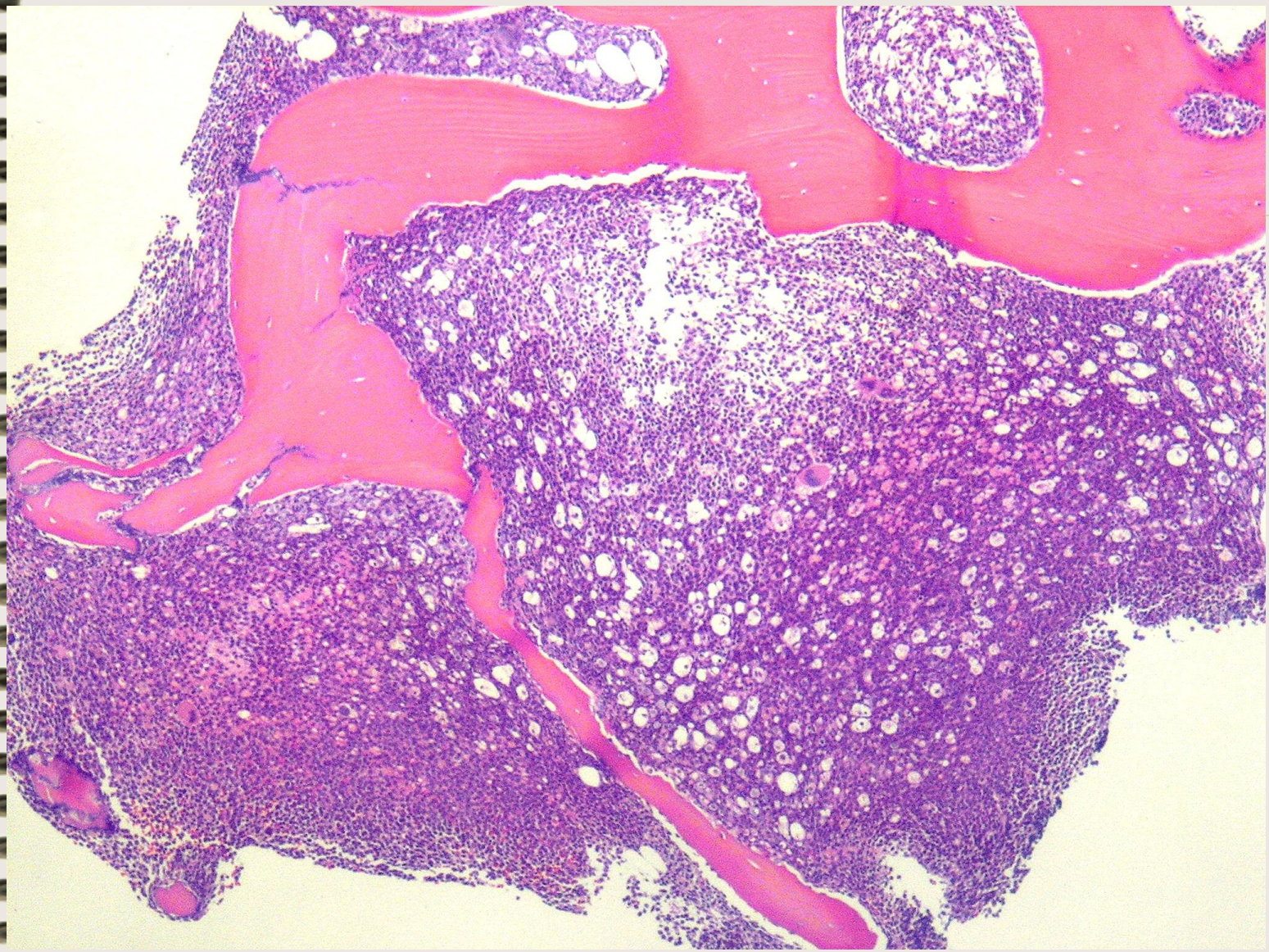
Bone marrow aspirate (cont'd): hemophagocytosis



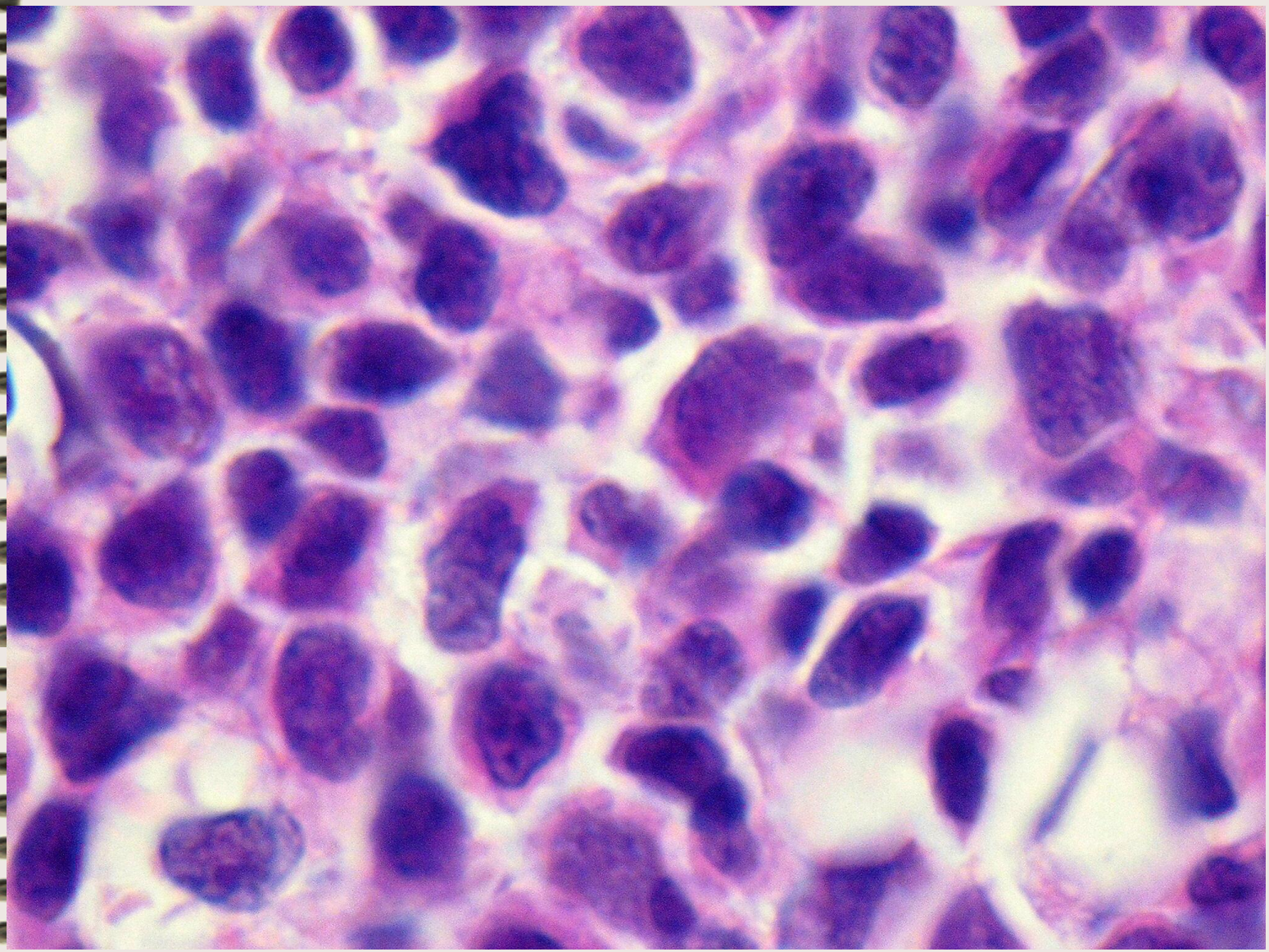
Bone marrow aspirate (cont'd): monocytes



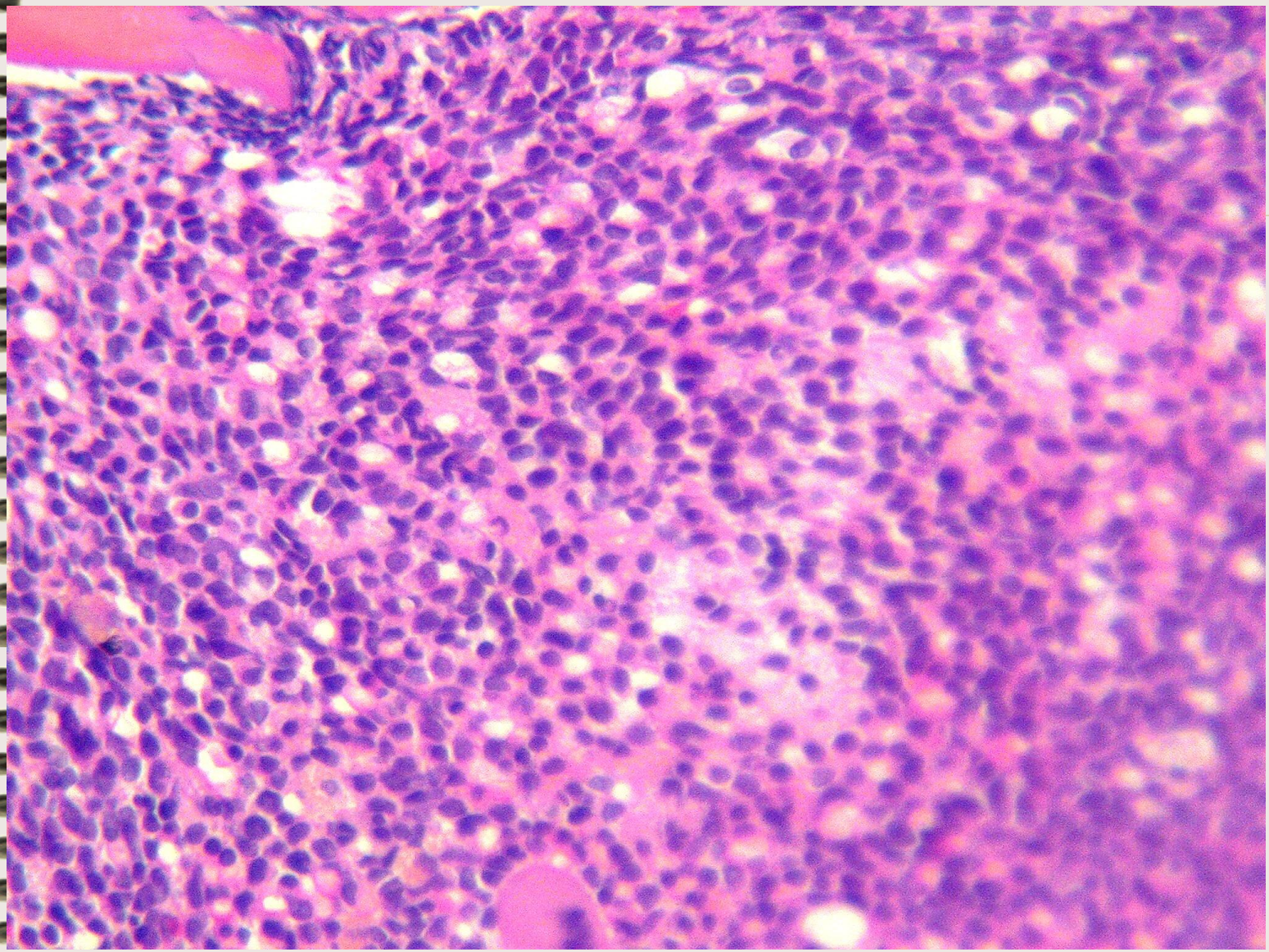
Bone marrow aspirate (cont'd): normoblast 4%



Bone marrow biopsy



Bone marrow biopsy (cont'd)



Bone marrow biopsy (cont'd): hemophagocytosis

Diagnosis

- Flow cytometry results: a large blast population that is
  (+) CD13, CD33, CD34, CD 11c, CD14 (weak), HLA-DR
  (-) T cell markers, B cell markers, TdT

- Cytogenetics (bone marrow aspirate):
  (a) t(6; 11)(q27; q23): usually seen in AML-M4 and AML-M5, associated with poor prognosis
  (b) +3, +8, +10, +12, +16, +18, +19 (trisomy)

Diagnosis (cont'd)

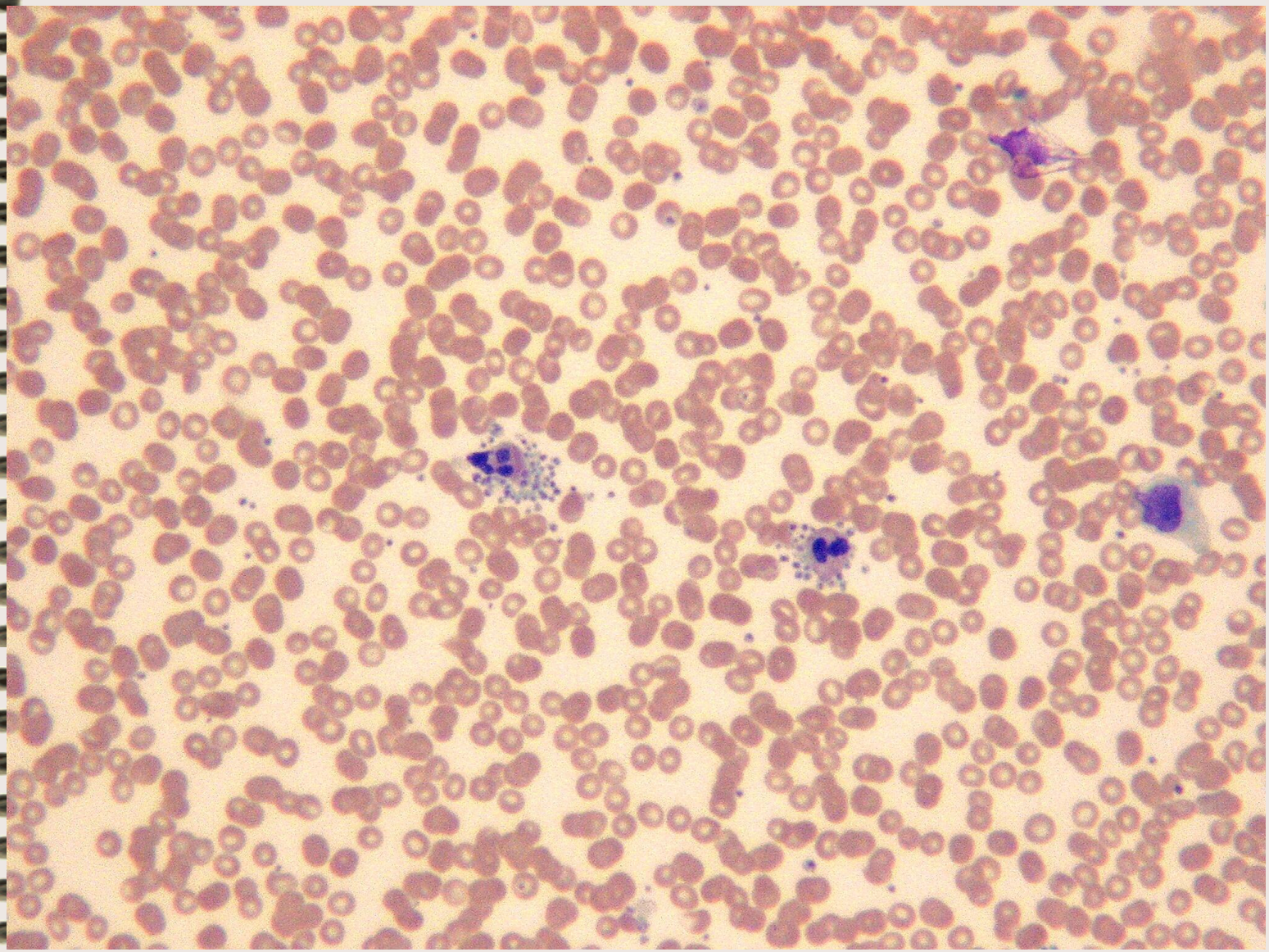
- FAB: 20-80% monocytic cells in bone marrow -> acute myelomonocytic leukemia (AML, M4)
- WHO; AML not otherwise categorized: acute myelomonocytic leukemia

Acute myelomonocytic leukemia

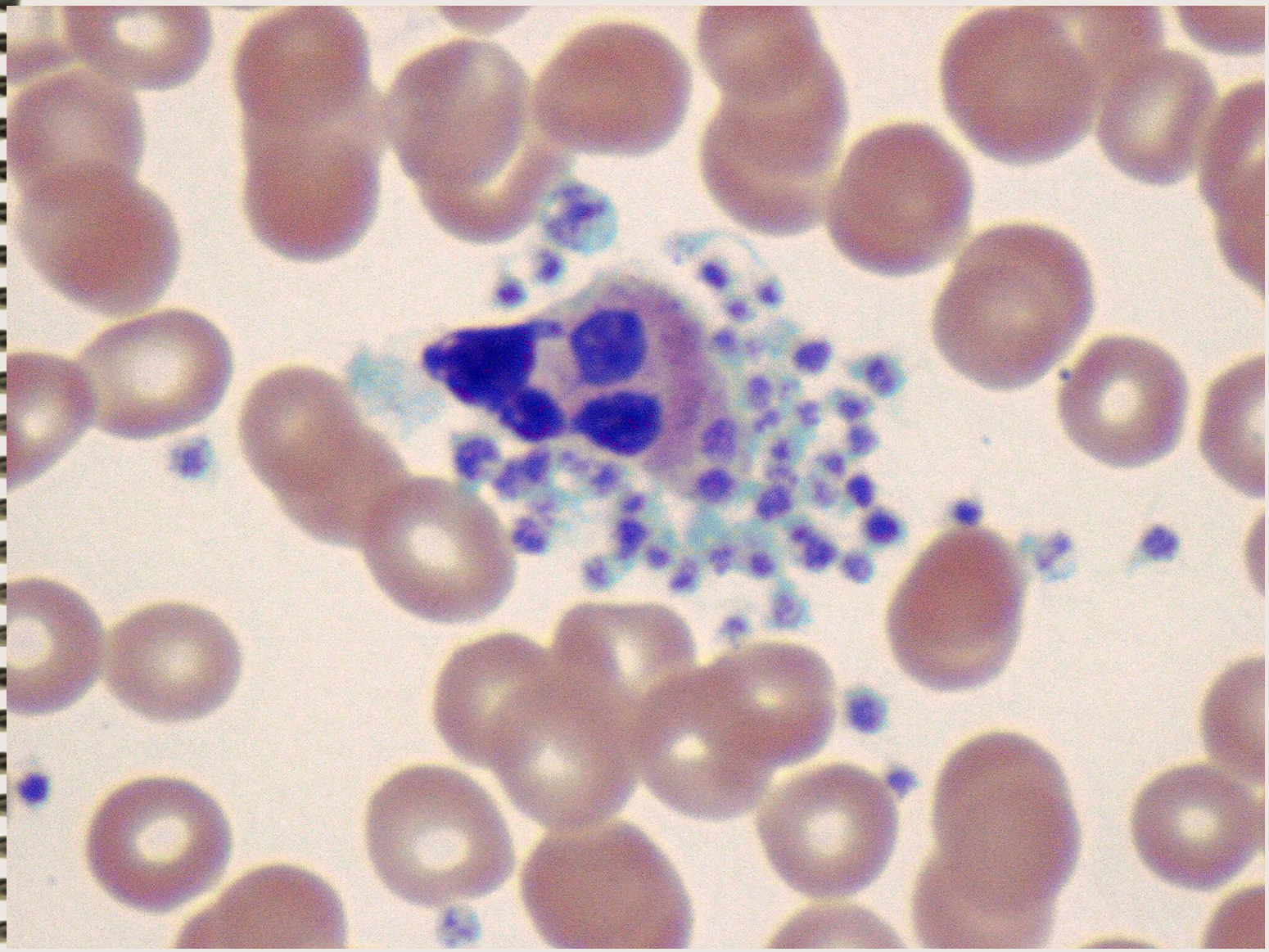
- Bone marrow has more than 20% blasts
- Monocytic cells in bone marrow (monoblasts, prmonocytes, monocytes): 20-80 % of cells
- 15-25 % of AML cases
- Some cases may evolve from CMML
- Median age 50 y/o
- M:F 1.4:1
- Cytogenetics: inv(16), 11q23 (WHO: AML with recurrent genetic abnormality)

Peripheral Blood Smear Case
Patient: Ellxx Carxxx

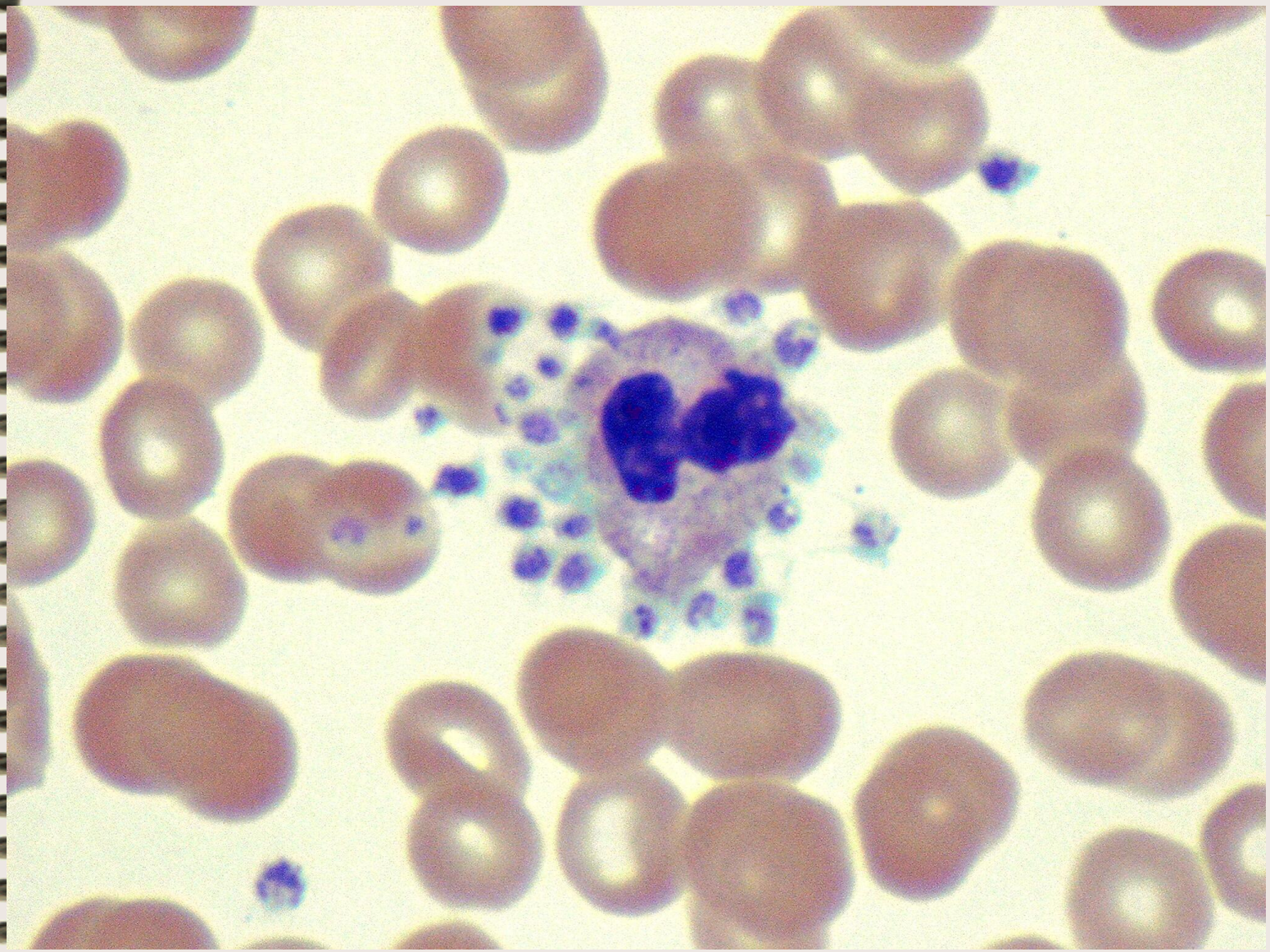
- 49 year old female admitted by Neurology service with possible CVA
- WBC= 10.5, Hgb=12.3, Plt=155 k



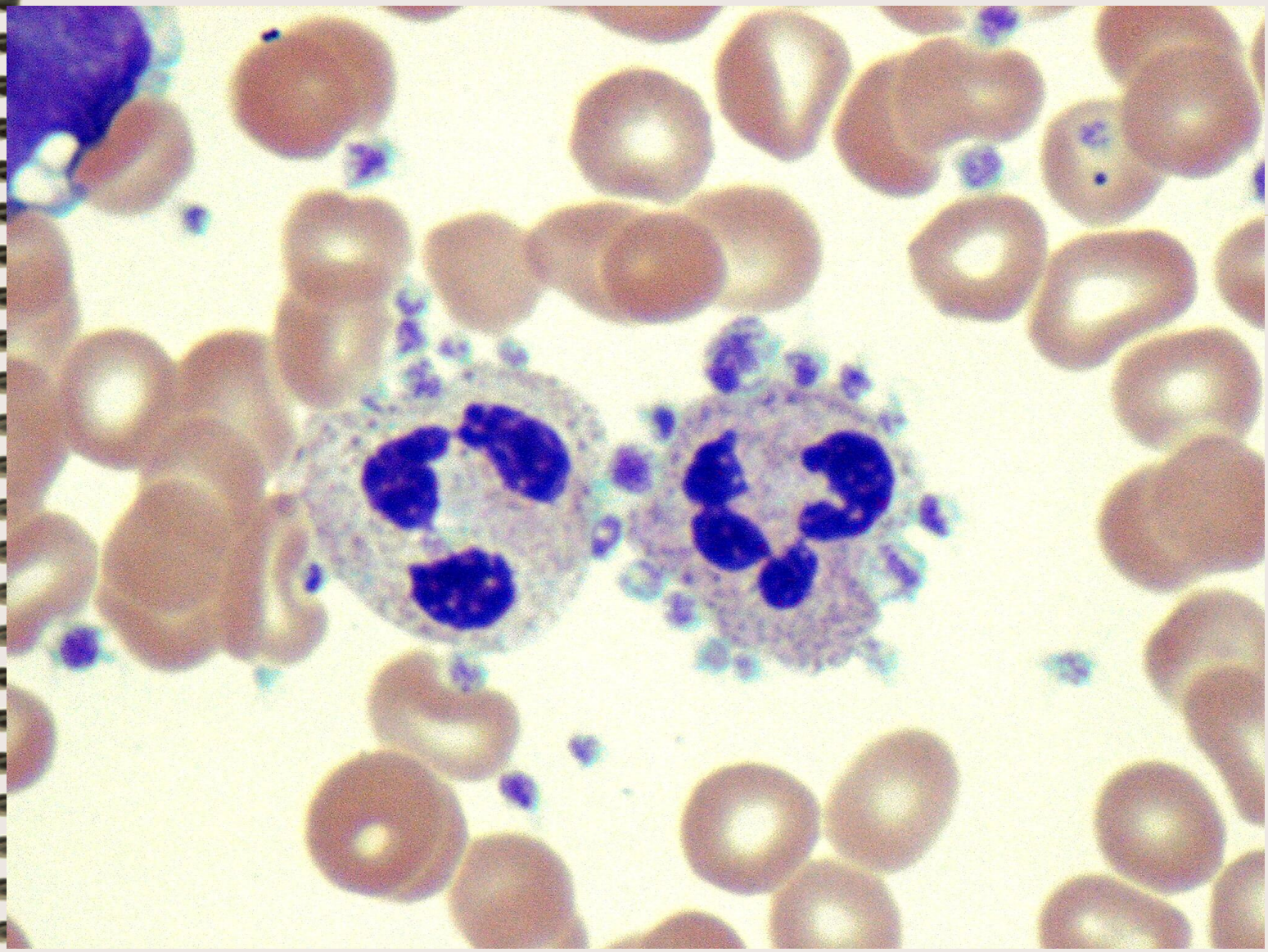
Peripheral blood



Peripheral blood (cont'd): platelet satellitosis



Peripheral blood (cont'd)



Peripheral blood (cont'd)

Etiology

- Platelet satellitosis secondary to EDTA (ethylenediamine tetracetic acid) buffer
- Sometimes this may be associated with spurious thrombocytopenia (pseudothrombocytopenia) -> may need to recollect sample in sodium citrate tube
- Incidence 0.1%