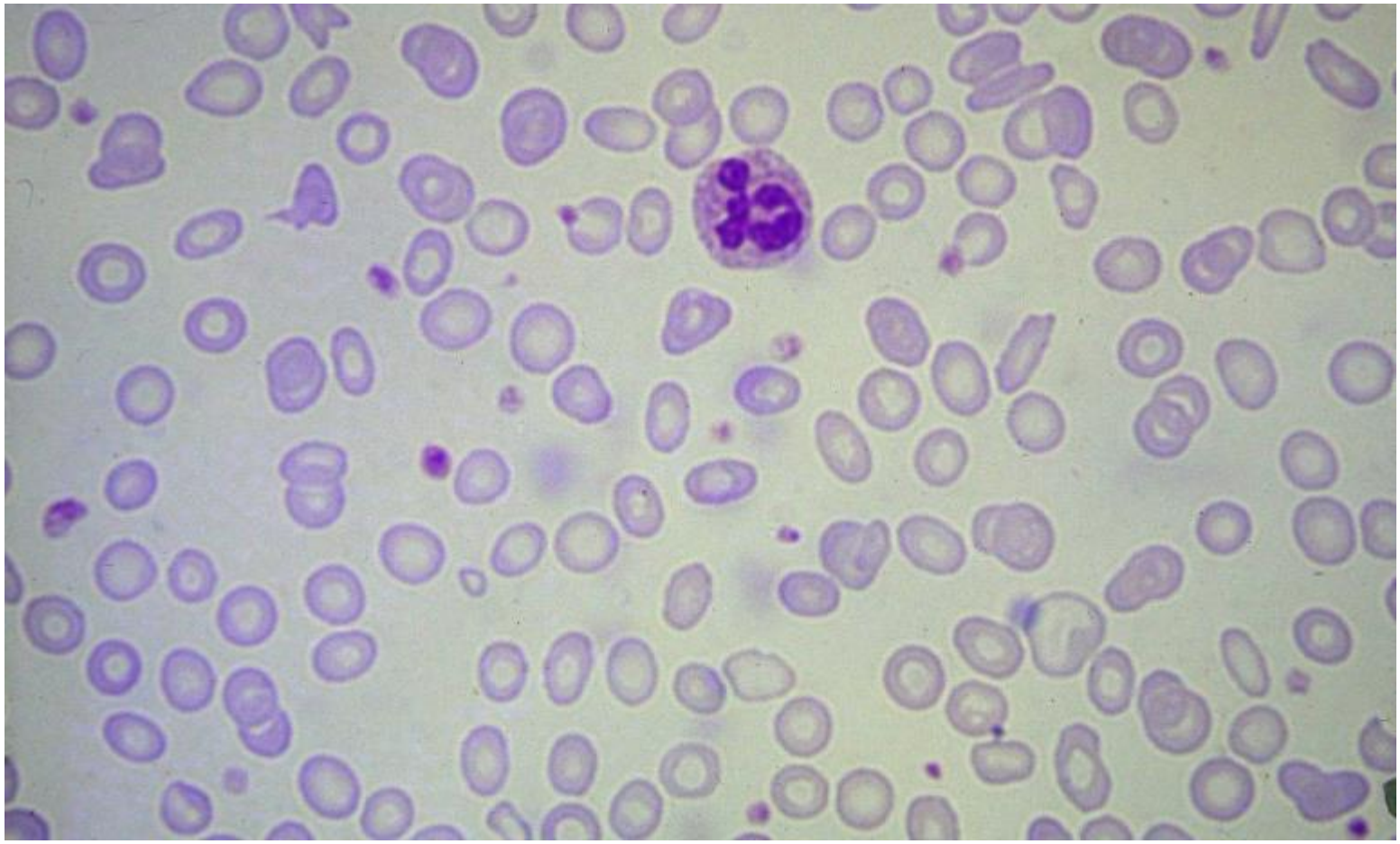
Morphology in Anemia

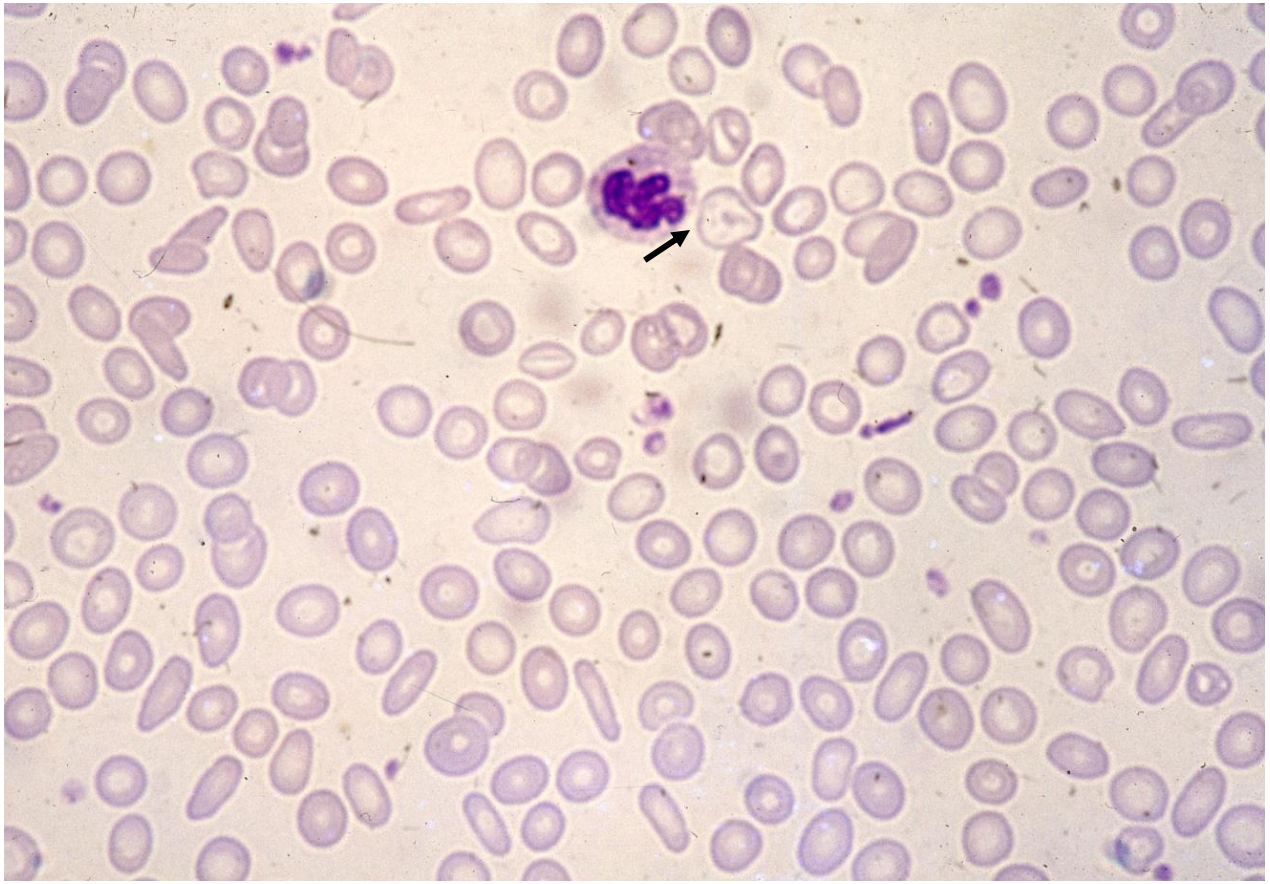
Prof Peretz Resnitzky

Iron deficiency anemia



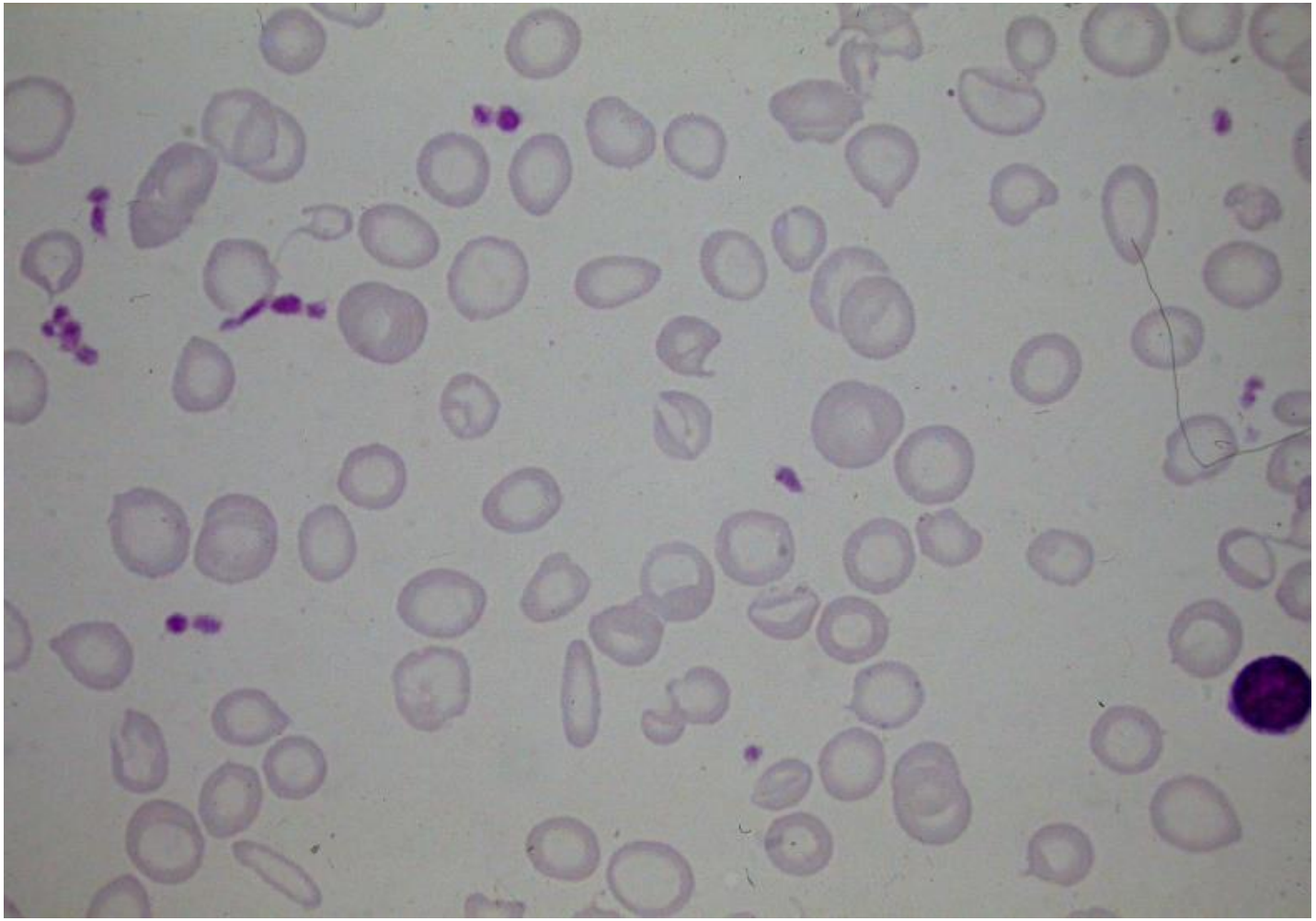
Anisocytosis, poikilocytosis, ovalocytes, hypochromia

Iron deficiency anemia



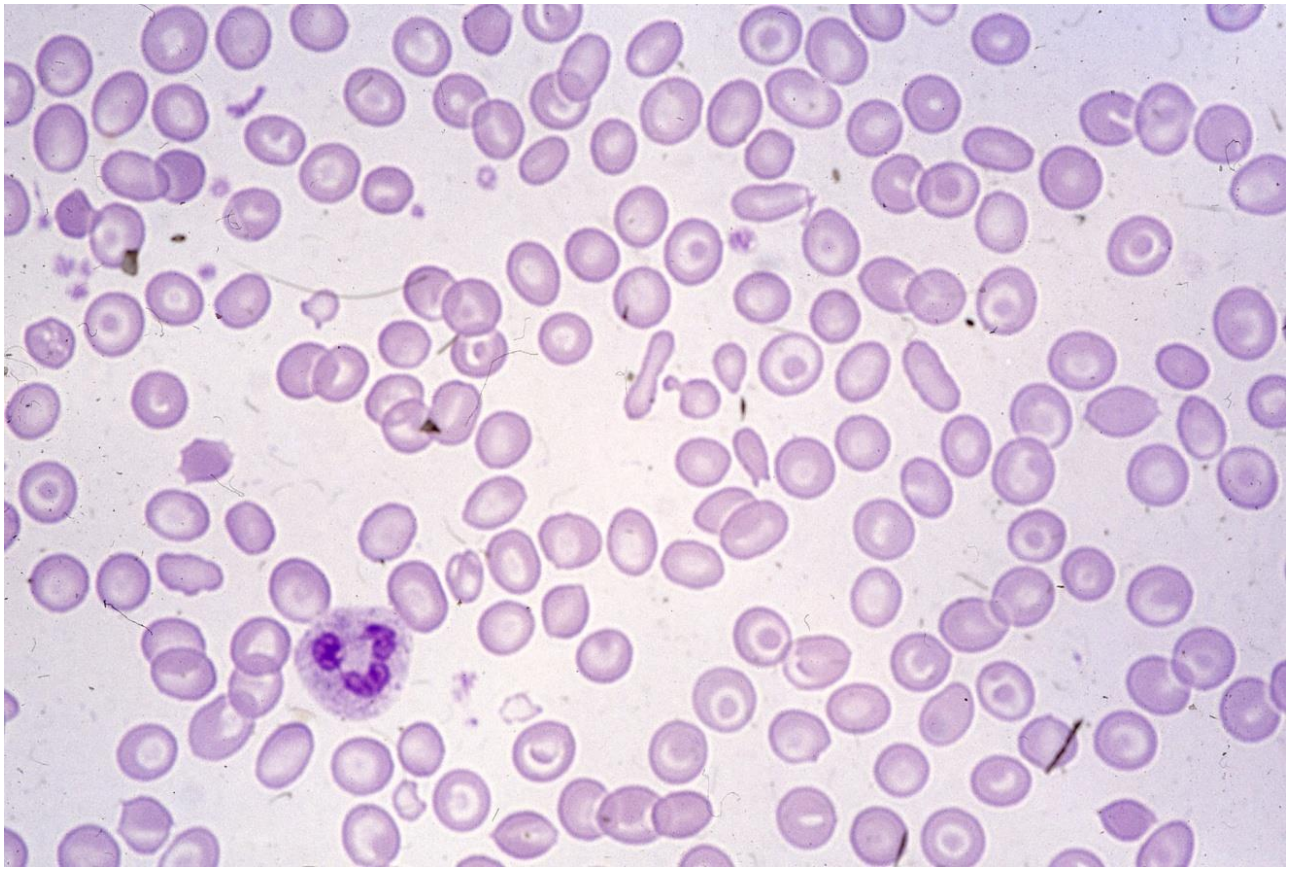
Anisocytosis, ovalocytes, hypochromia,
target cell (arrow)

Iron deficiency anemia



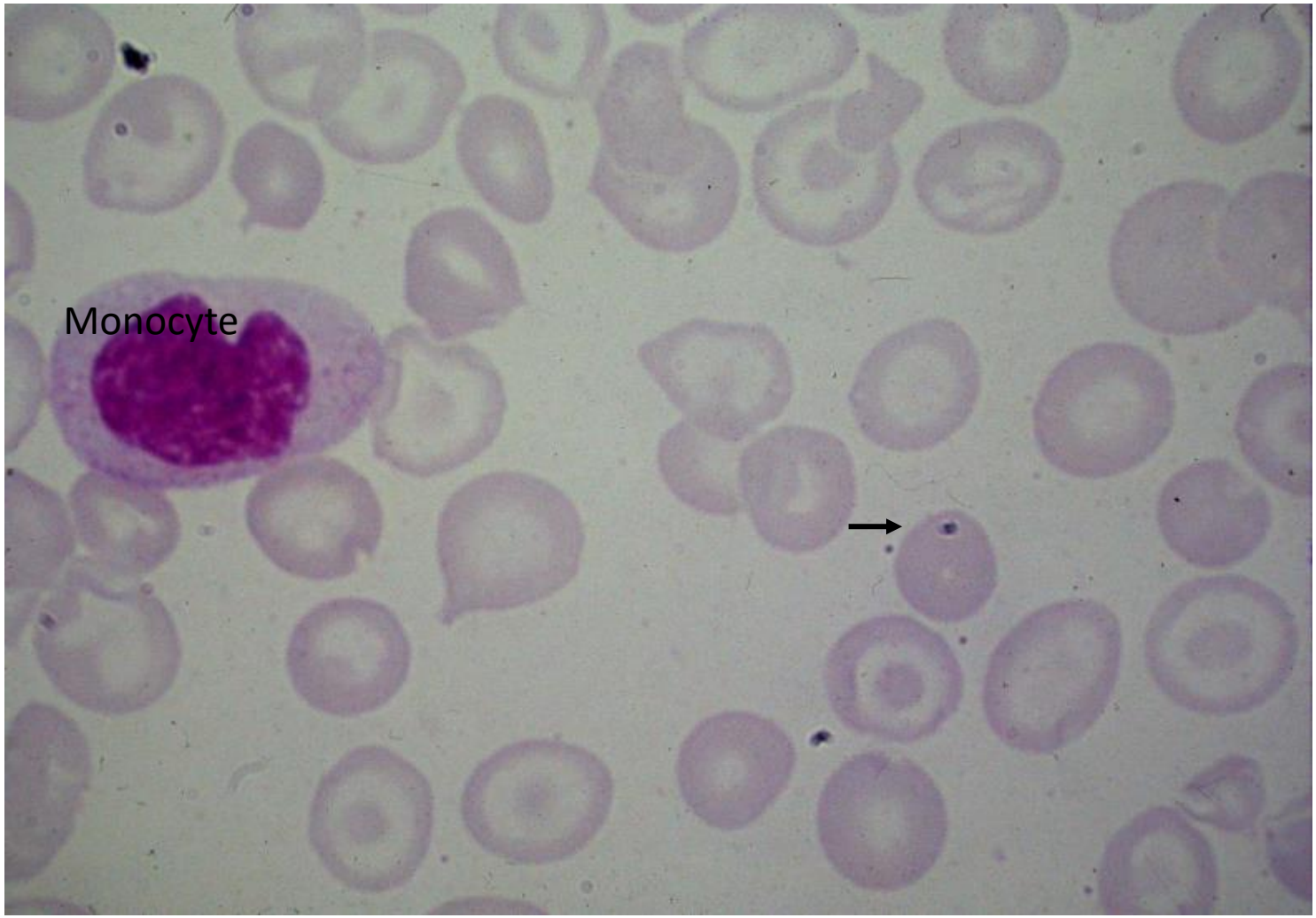
Anisocytosis, poikilocytosis, hypochromia, ovalocytes,

Thalassemia minor



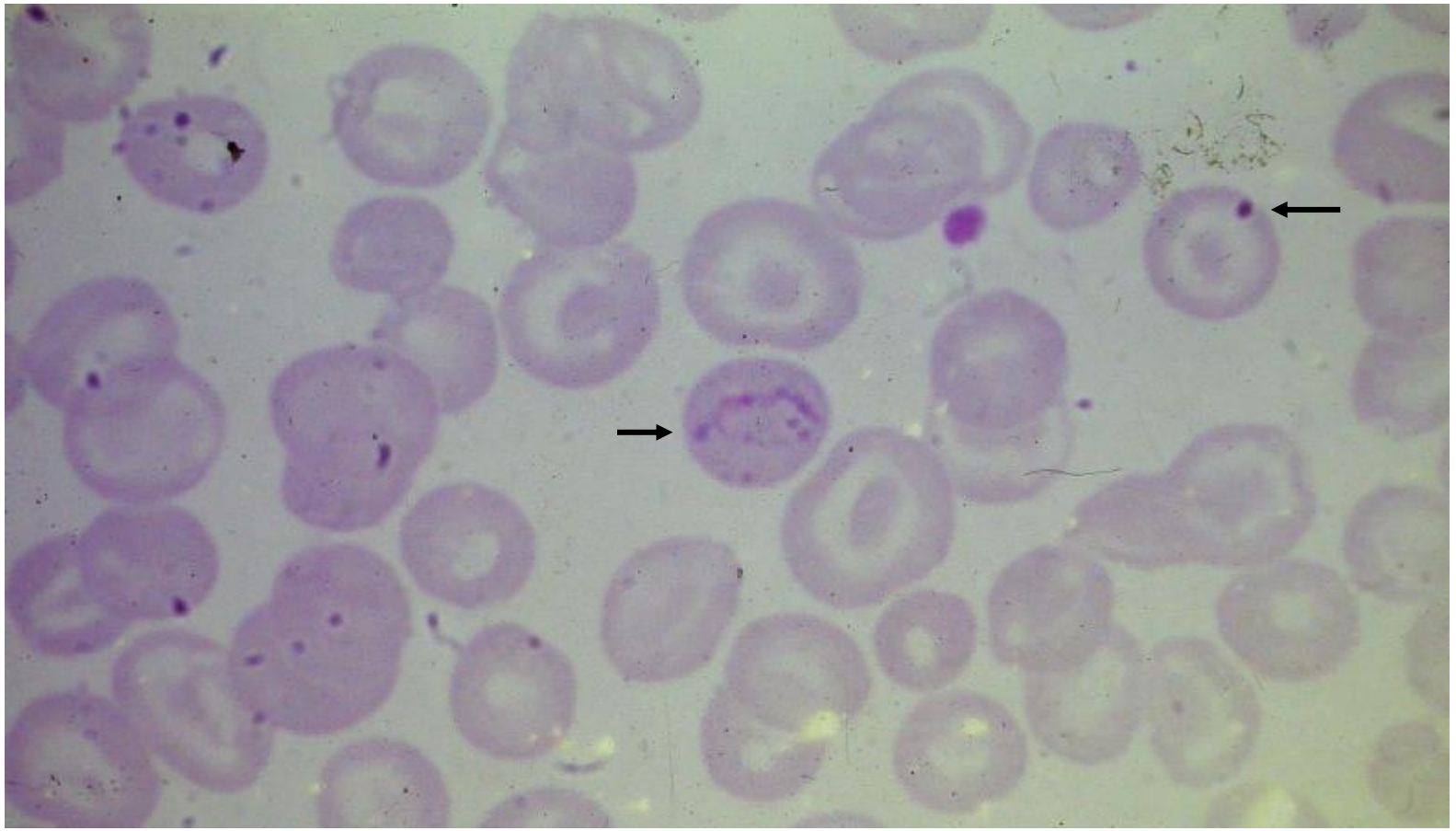
Target cells’ ovalocytes

Thalassemia minor



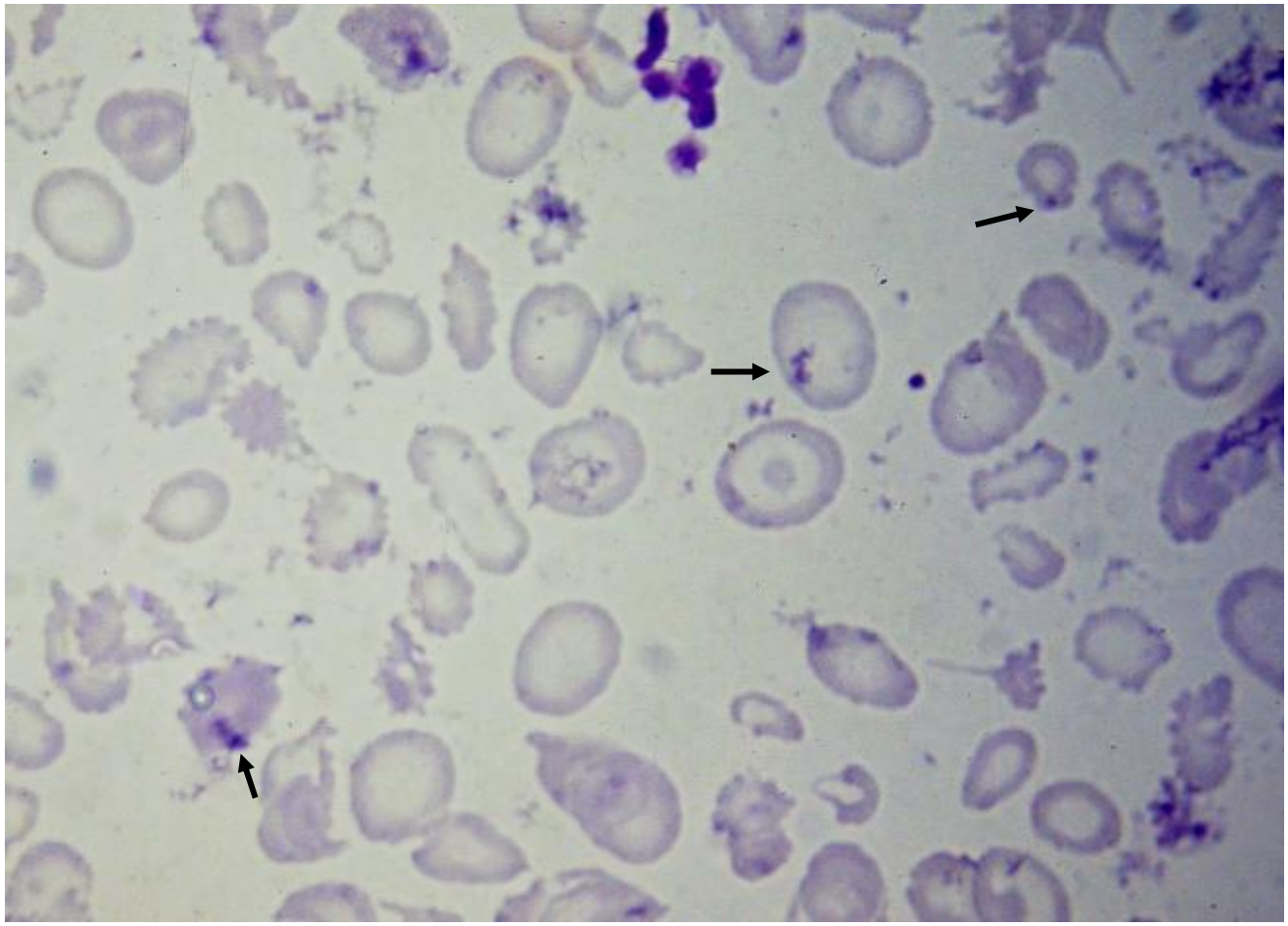
Hypochromia, target cells, mycrocytes, Howell Jolly body (arrow)

Thalassemia minor



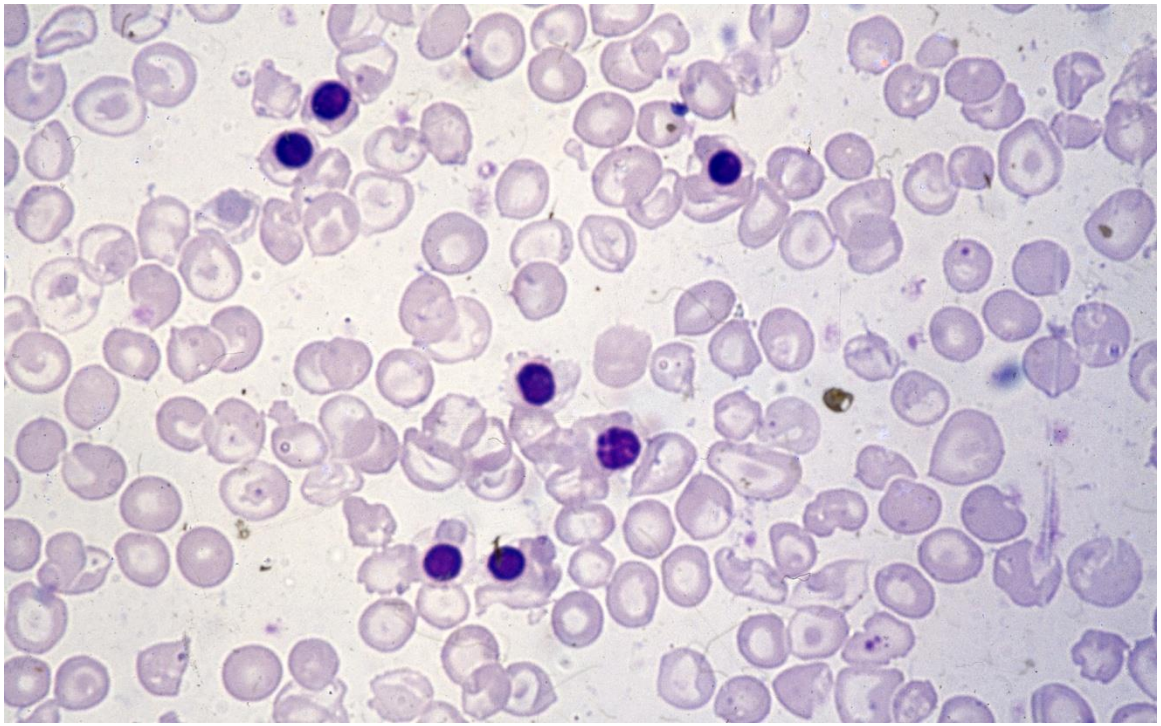
Hypochromia, target cells, Cabot ring & basophilic stippling (arrow), Howell-Jolly body (arrow)

Thalassemia major



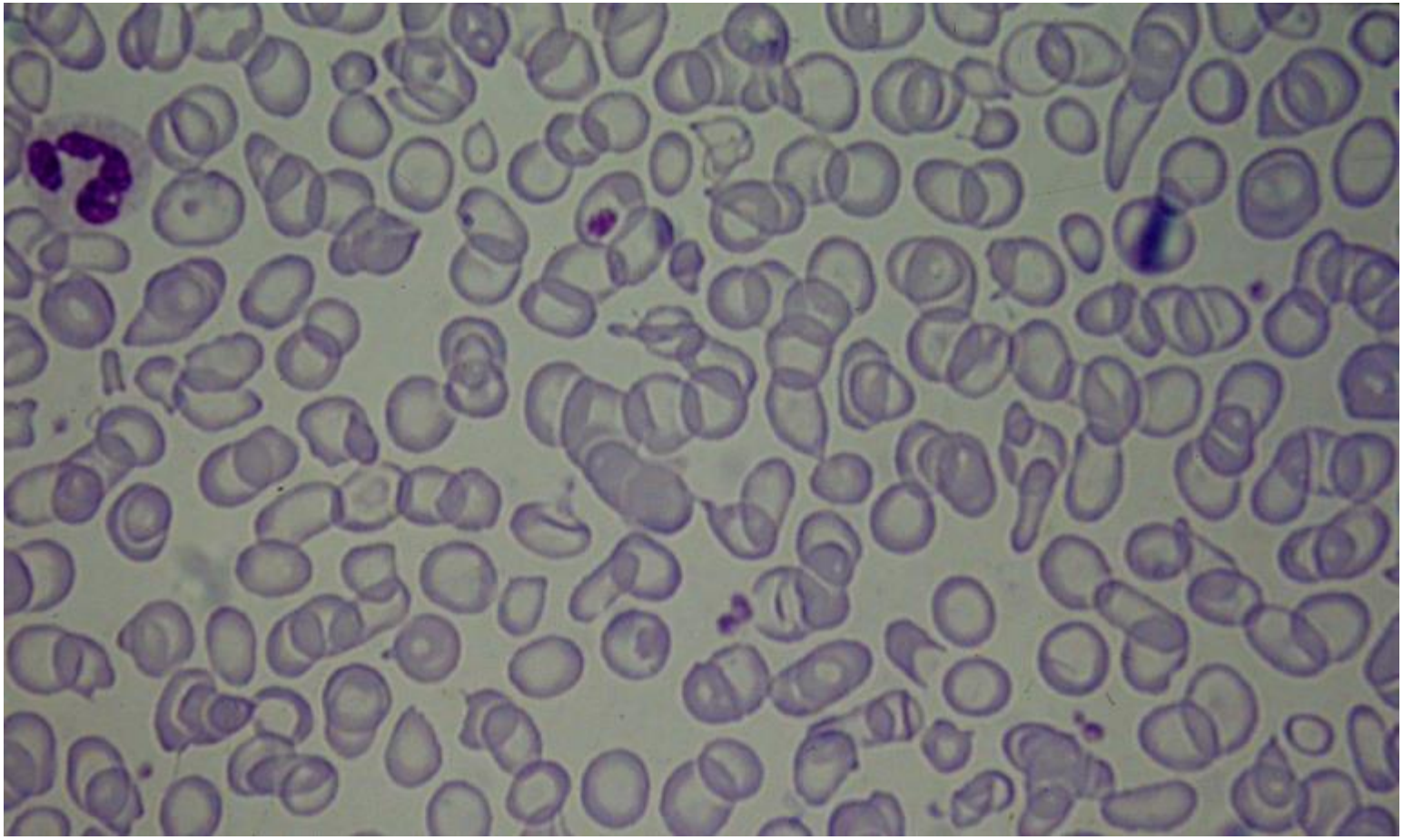
Aniso-poikilocytosis, hypochromia, target cells, Howell-Jolly bodies (arrows)

Thalassemia major after Sx



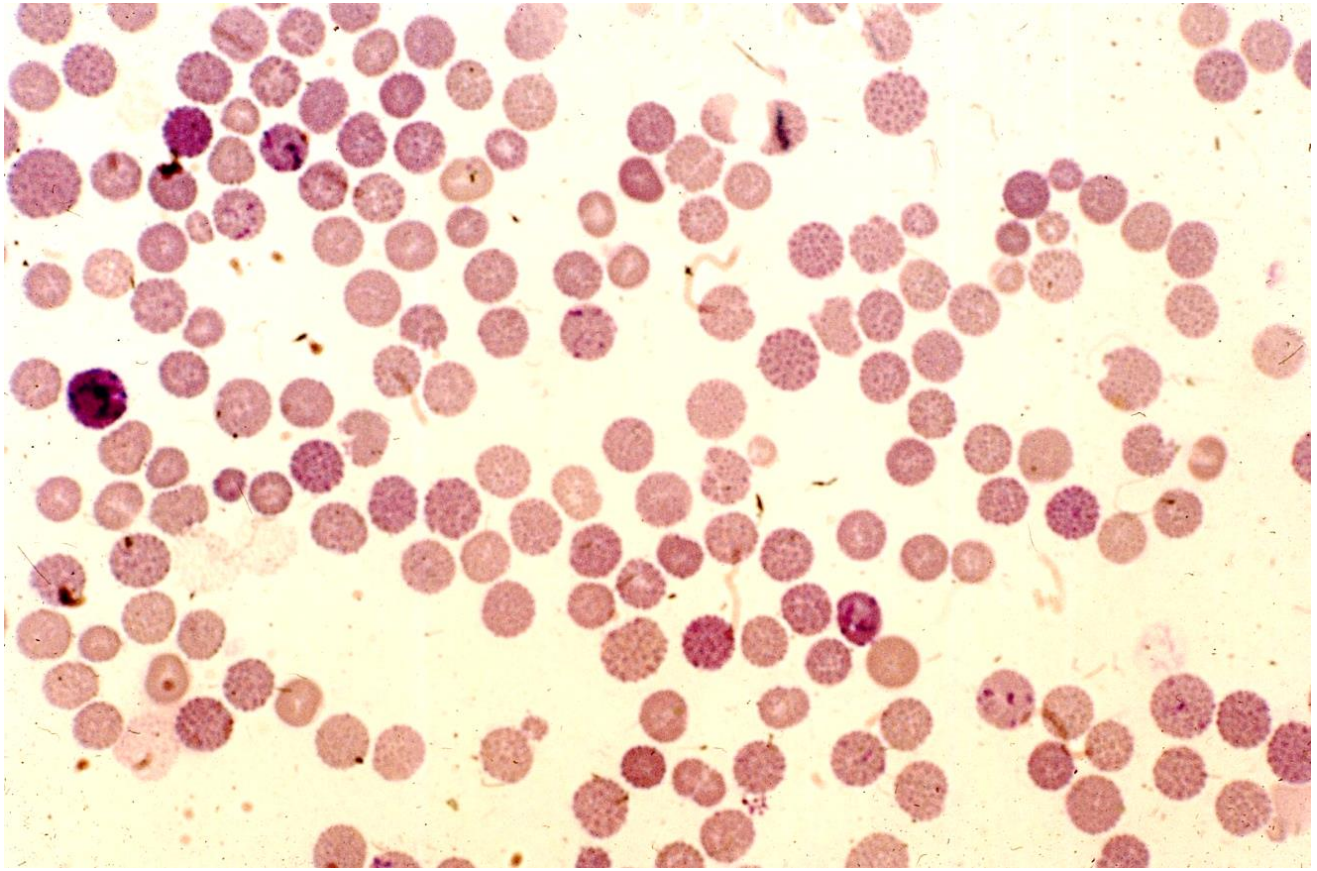
Nucleated rbc, target cells Howell Jolly bodies

Hemoglobin H disease



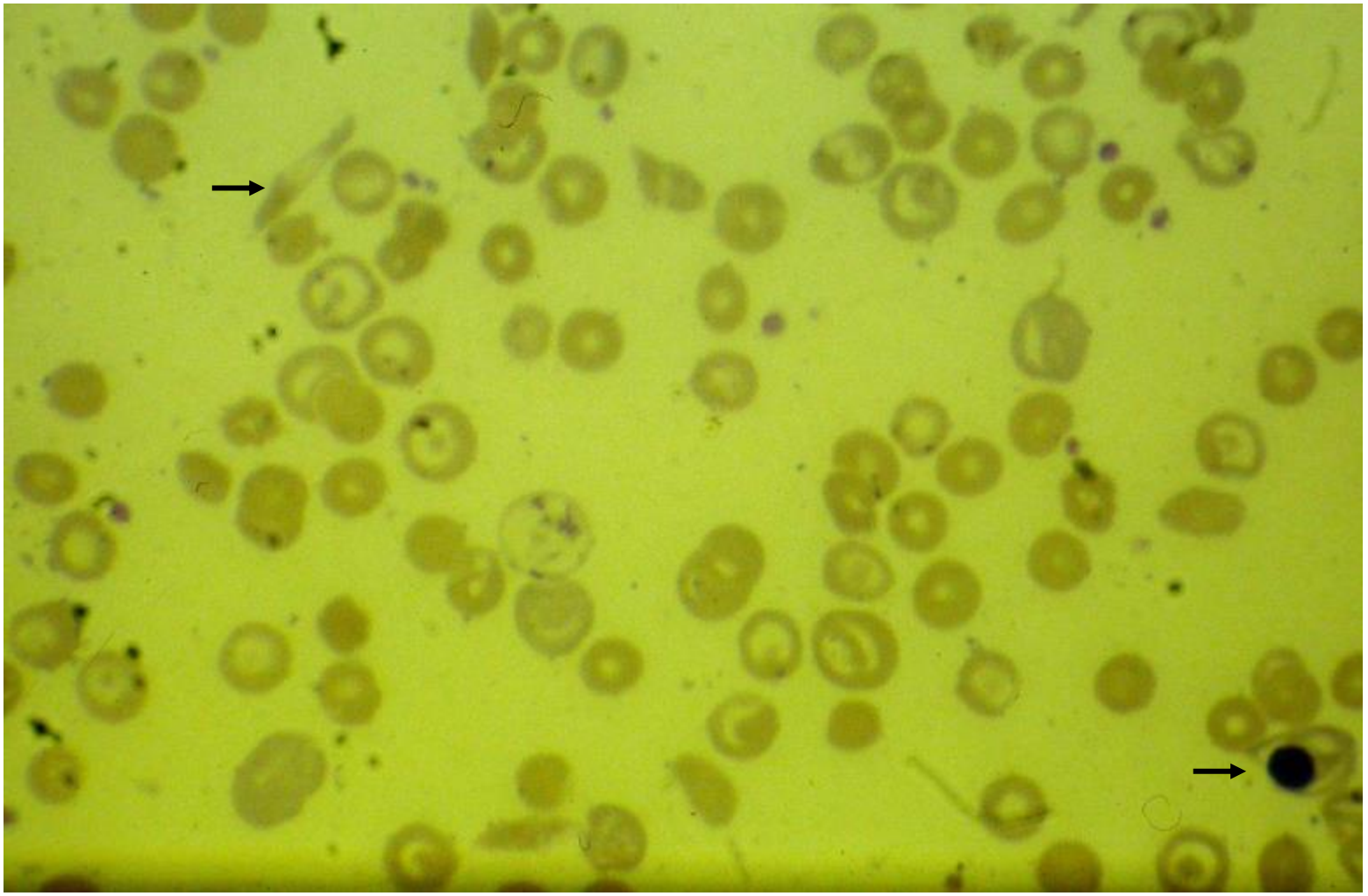
Hypochromia , anisopoikilocytosis, ovalocytes

Hemoglobin H disease



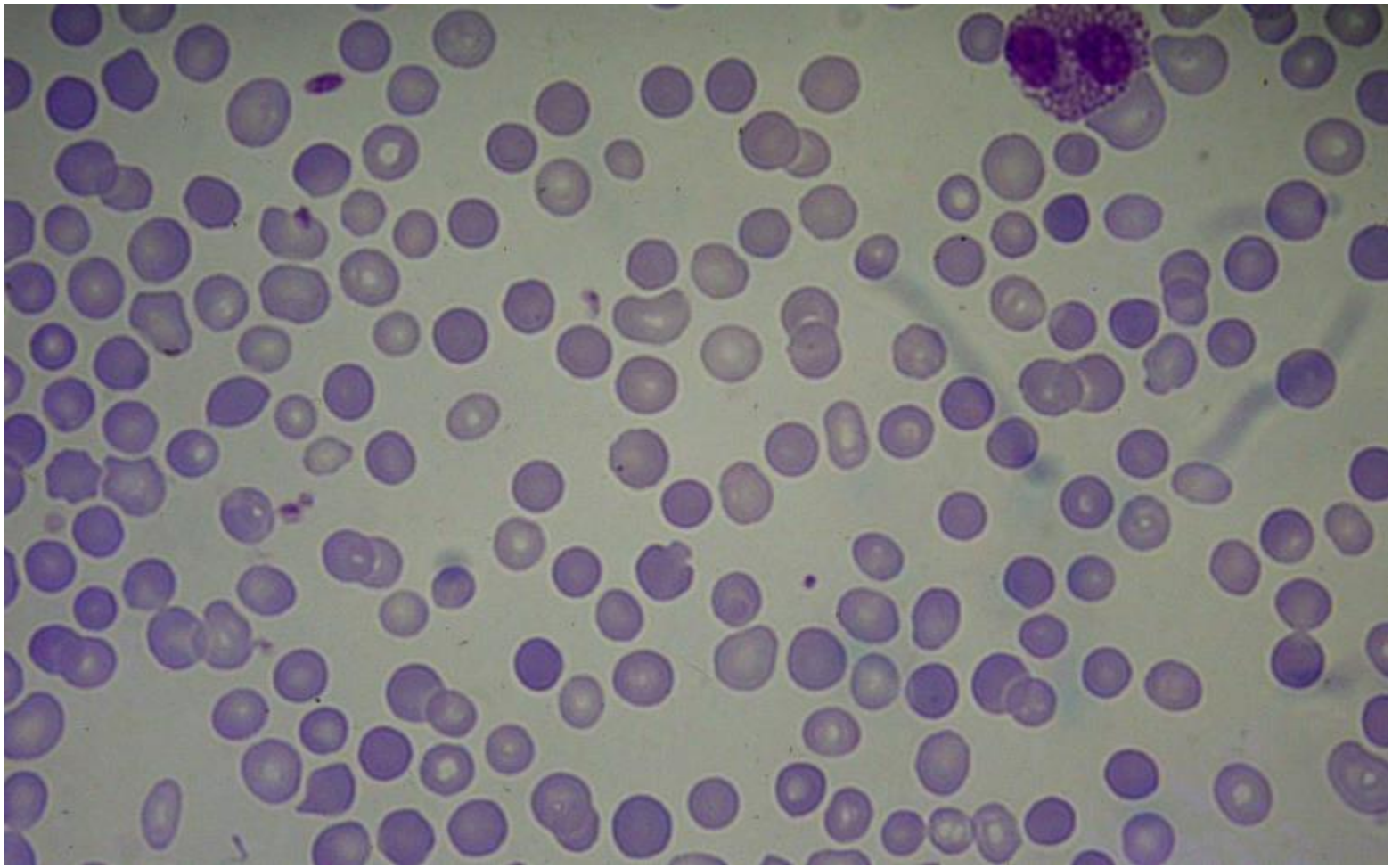
Brilliant cresyl blue staining: inclusions in rbc
(reticulocytes are also stained)

Sickle cell-Thalassemia



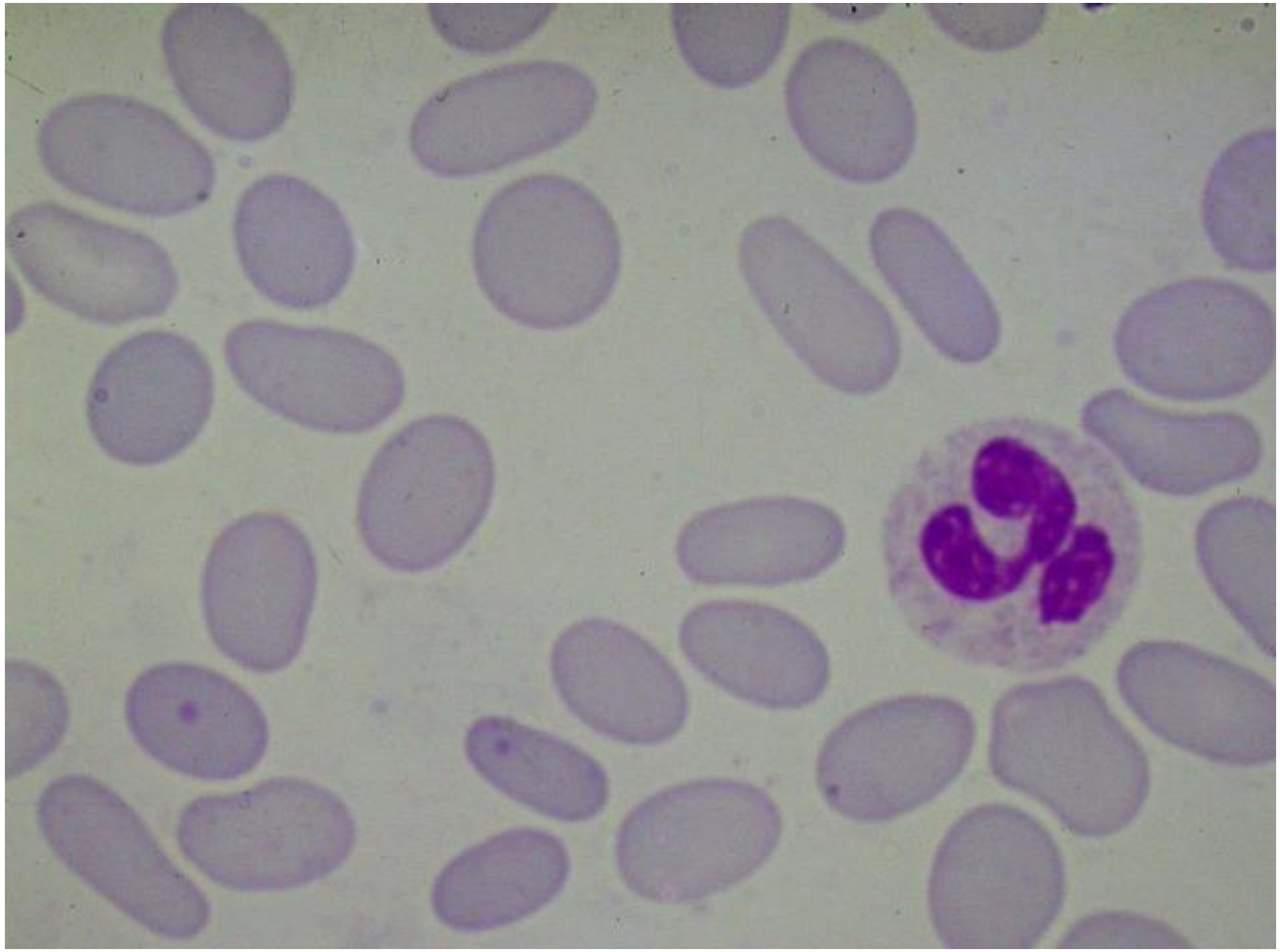
Hypochromia, target cells, sickle cell (arrow), nucleated rbc (arrow)

Congenital spherocytosis



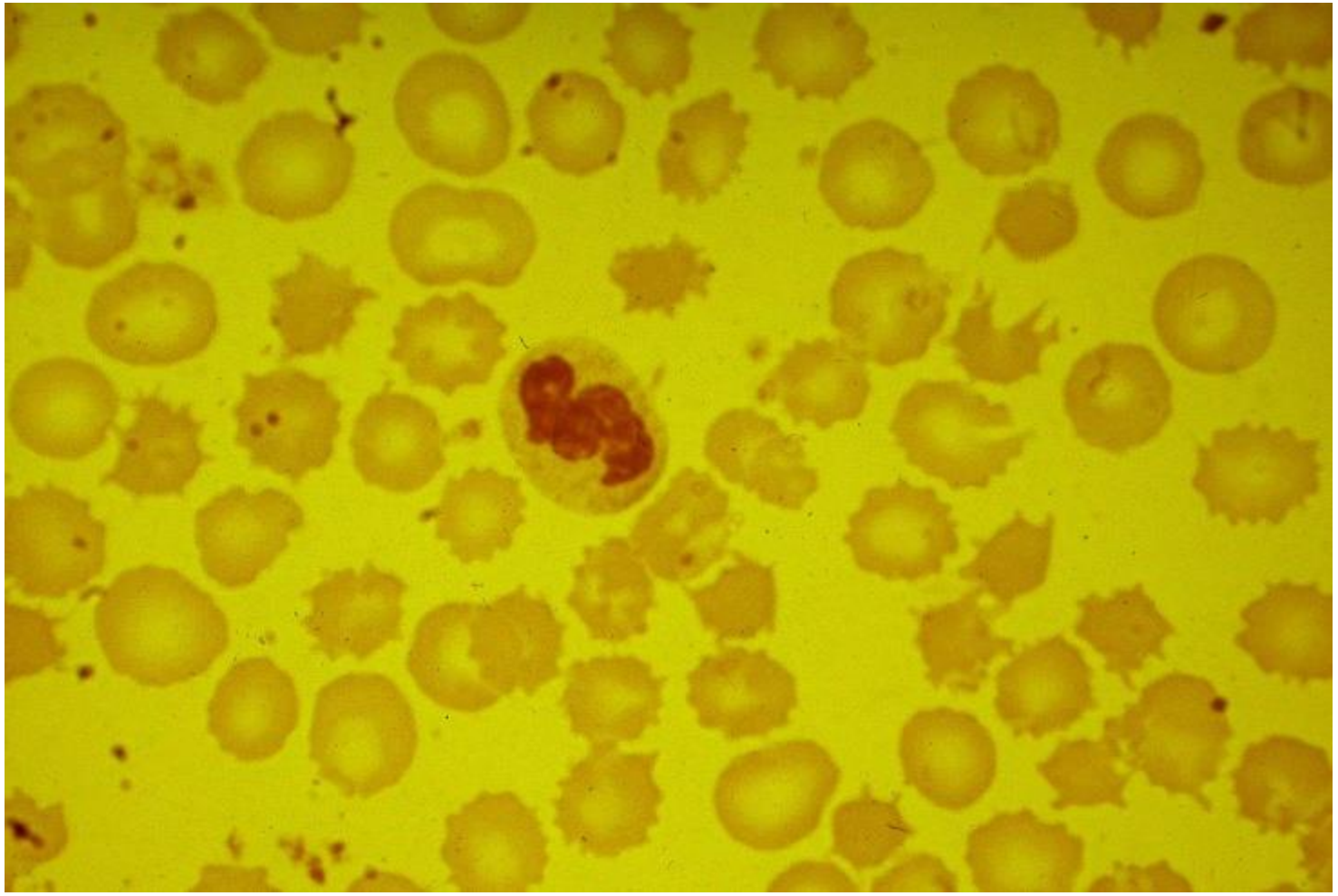
Spherocytes, and micro-spherocytes

Congenital elliptocytosis (ovalocytosis)

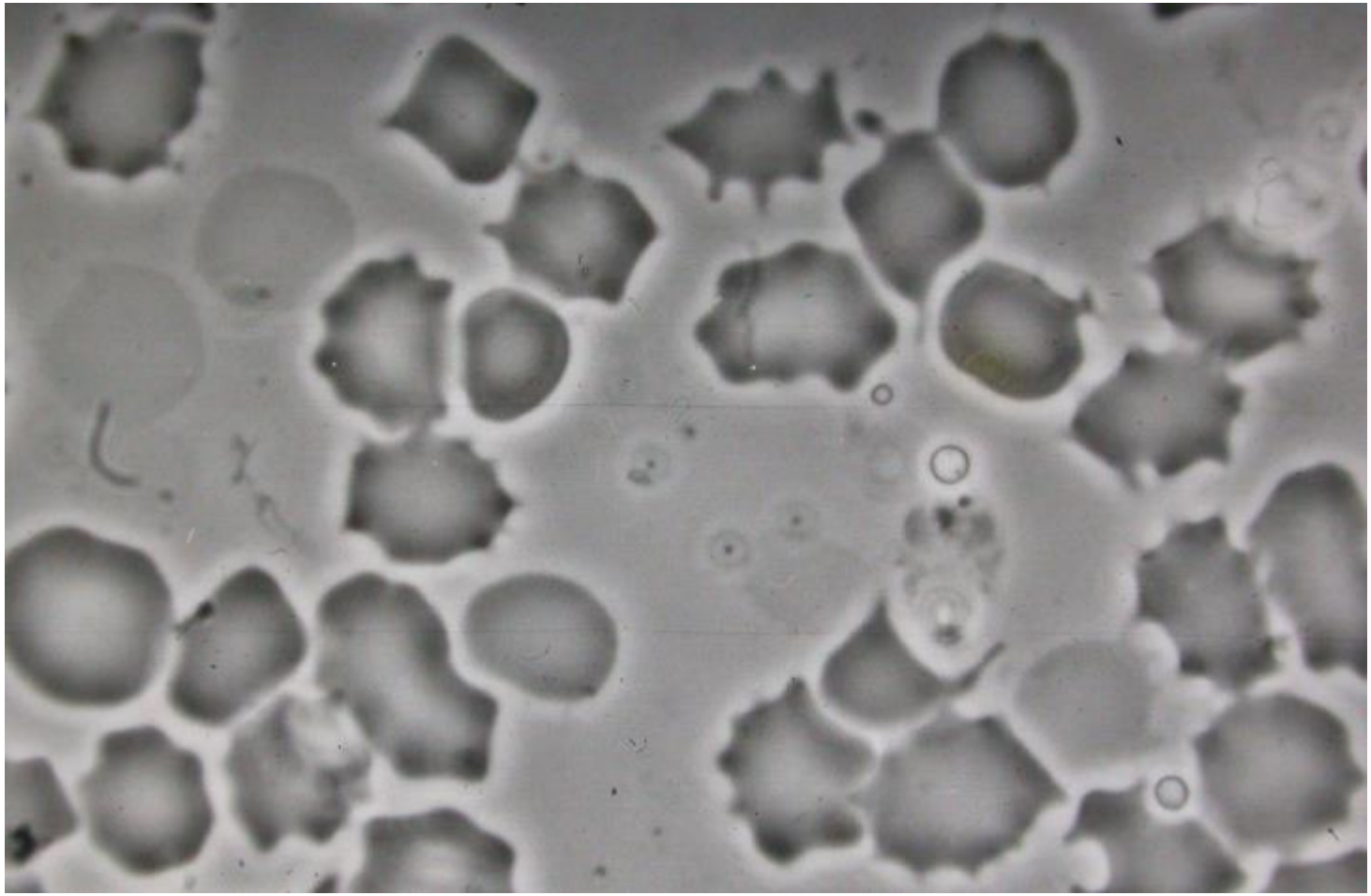


Up to 15% elliptocytes can be found in: IDA, Megaloblastic anemia, Thalassemia

Acanthocytosis

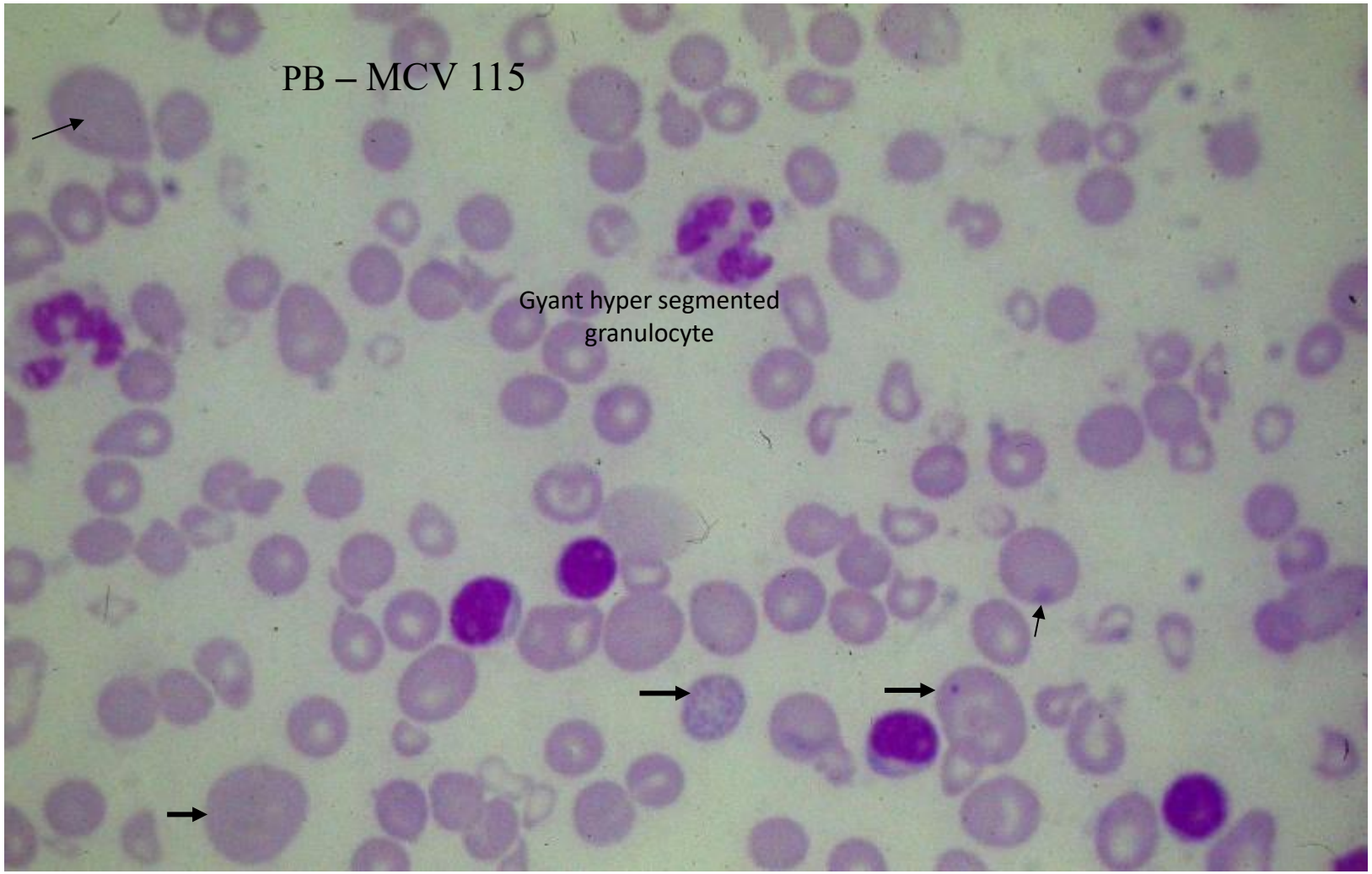


Acanthocytosis

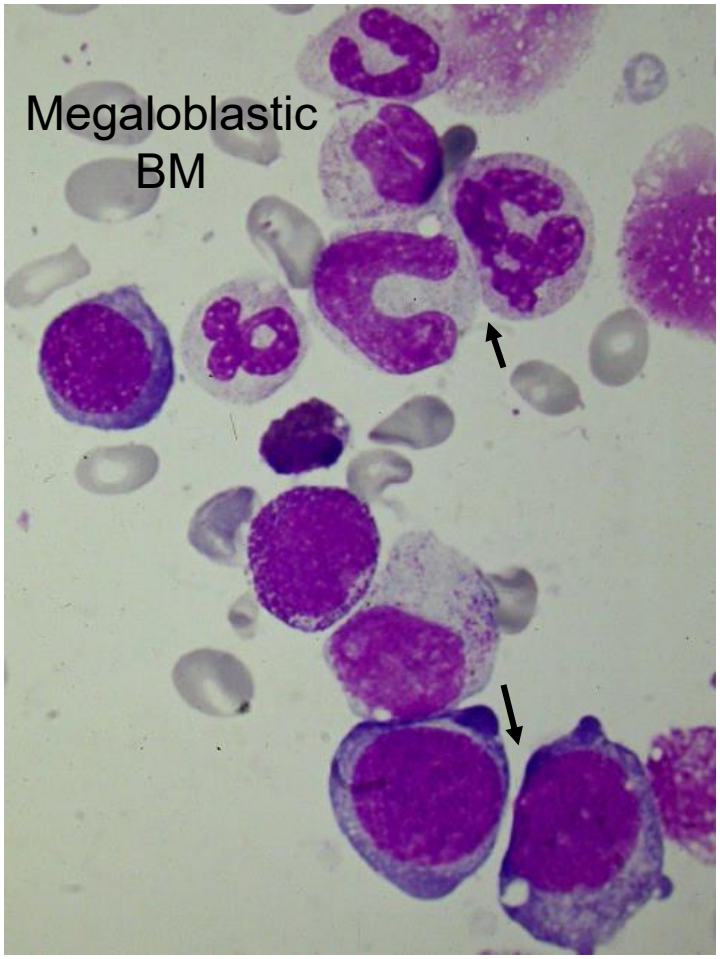


Phase contrast microscopy

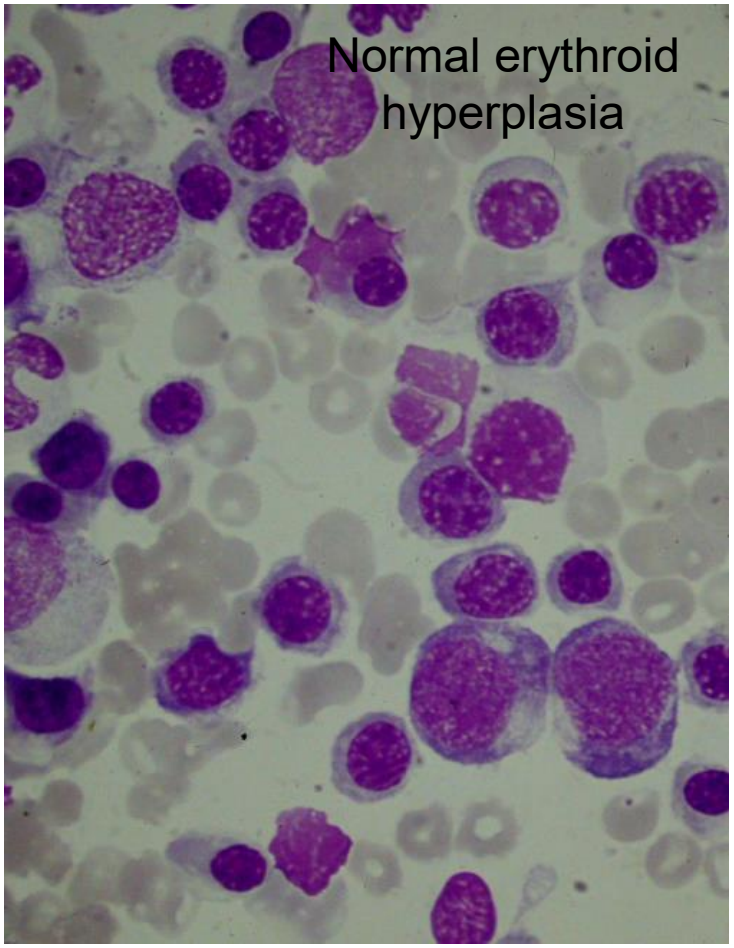
PB in Megaloblastic anemia



Macrocytes, Howell Jolly bodies, basophilic stippling (arrows). Marked aniso-poikilocytosis

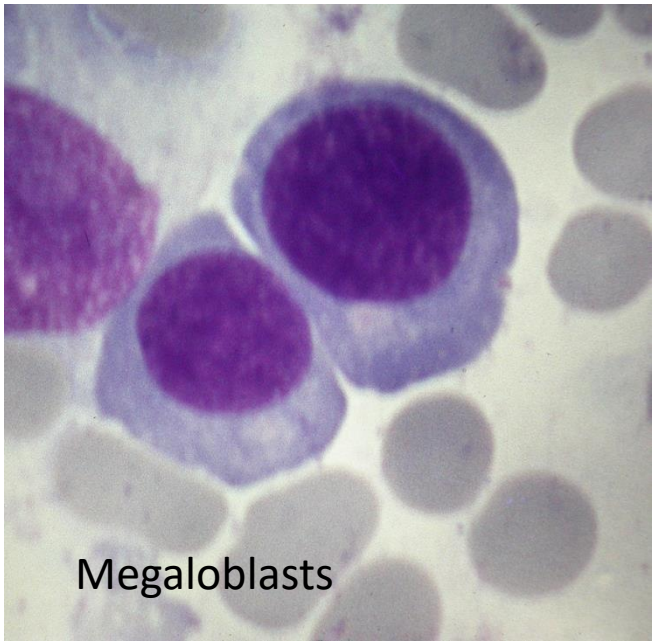


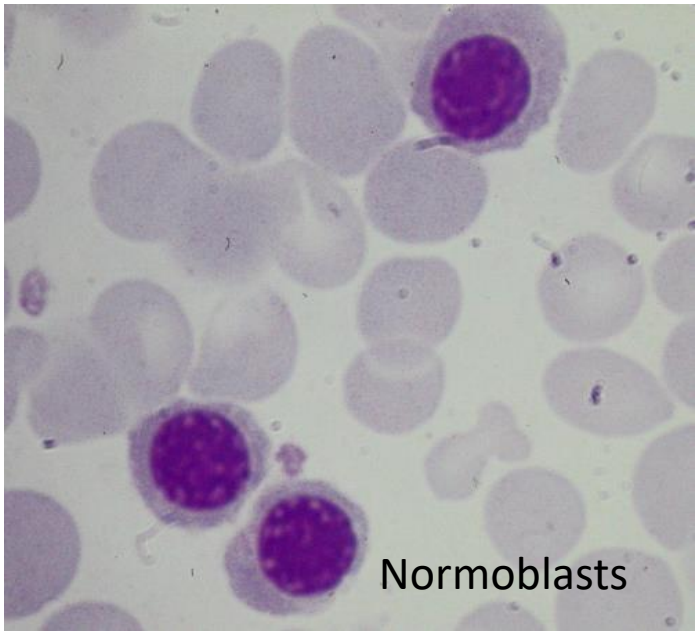
BM



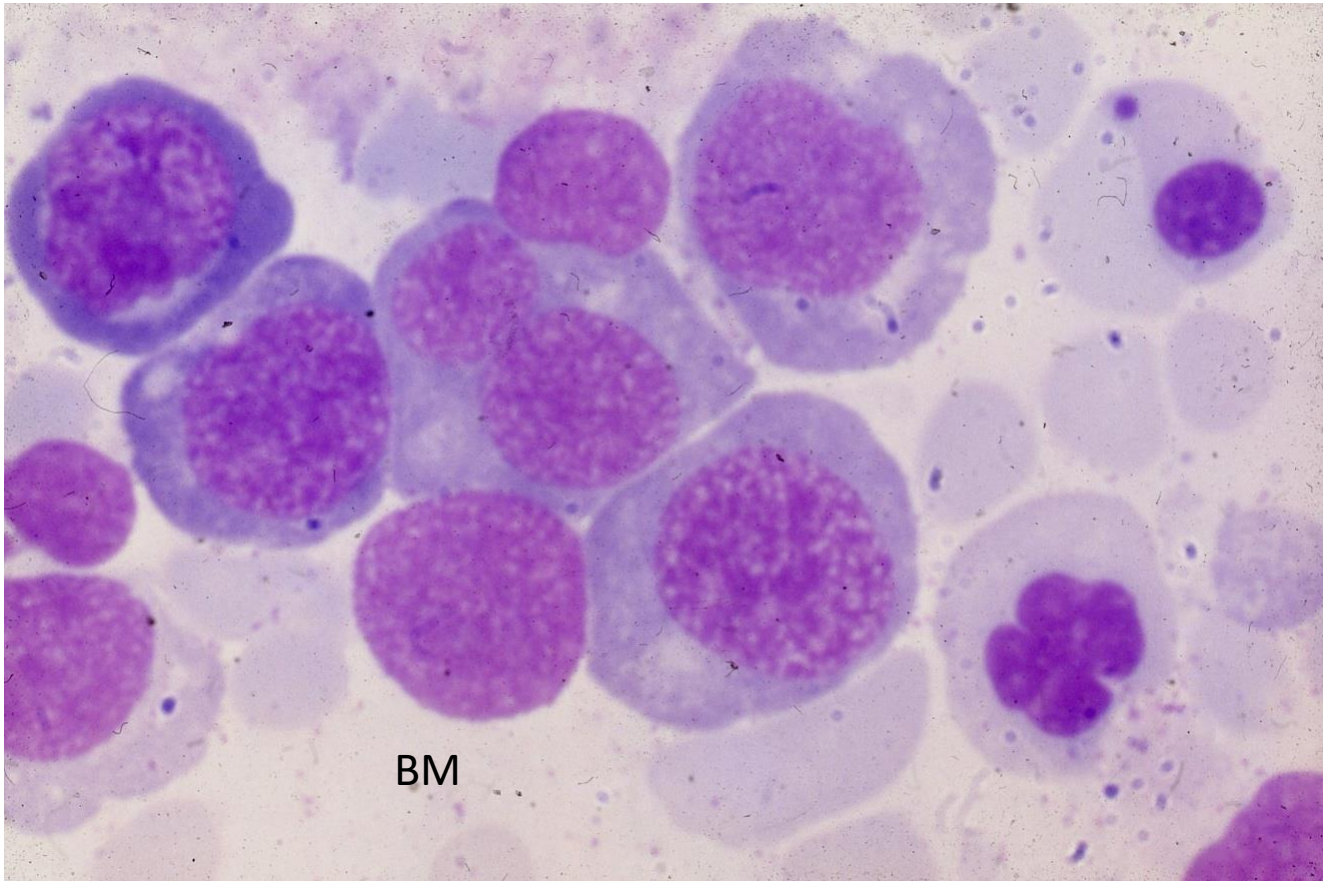
Gyant stab, gyant hypersegmented neutrophil and two pro-megaloblasts

Megaloblasts vs normoblasts

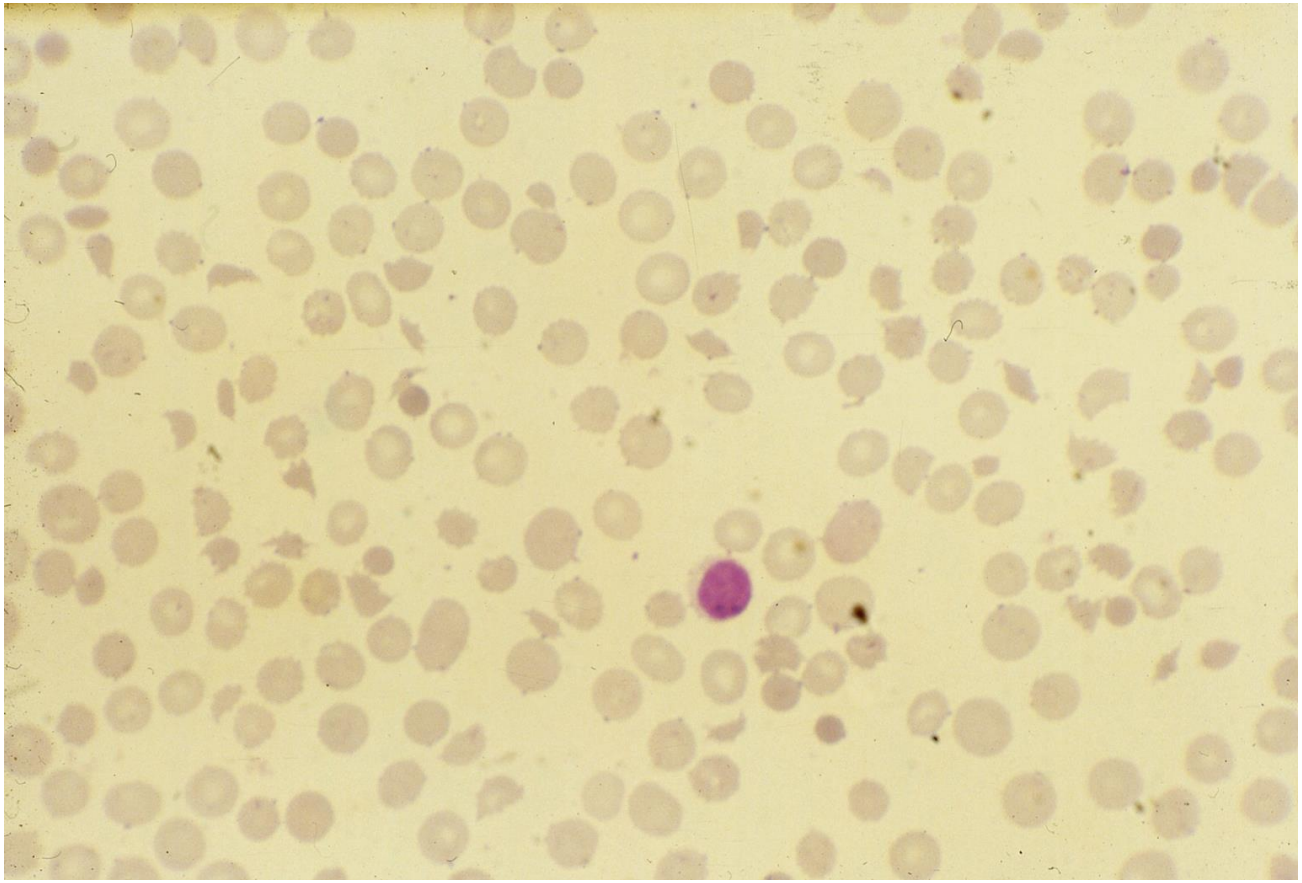




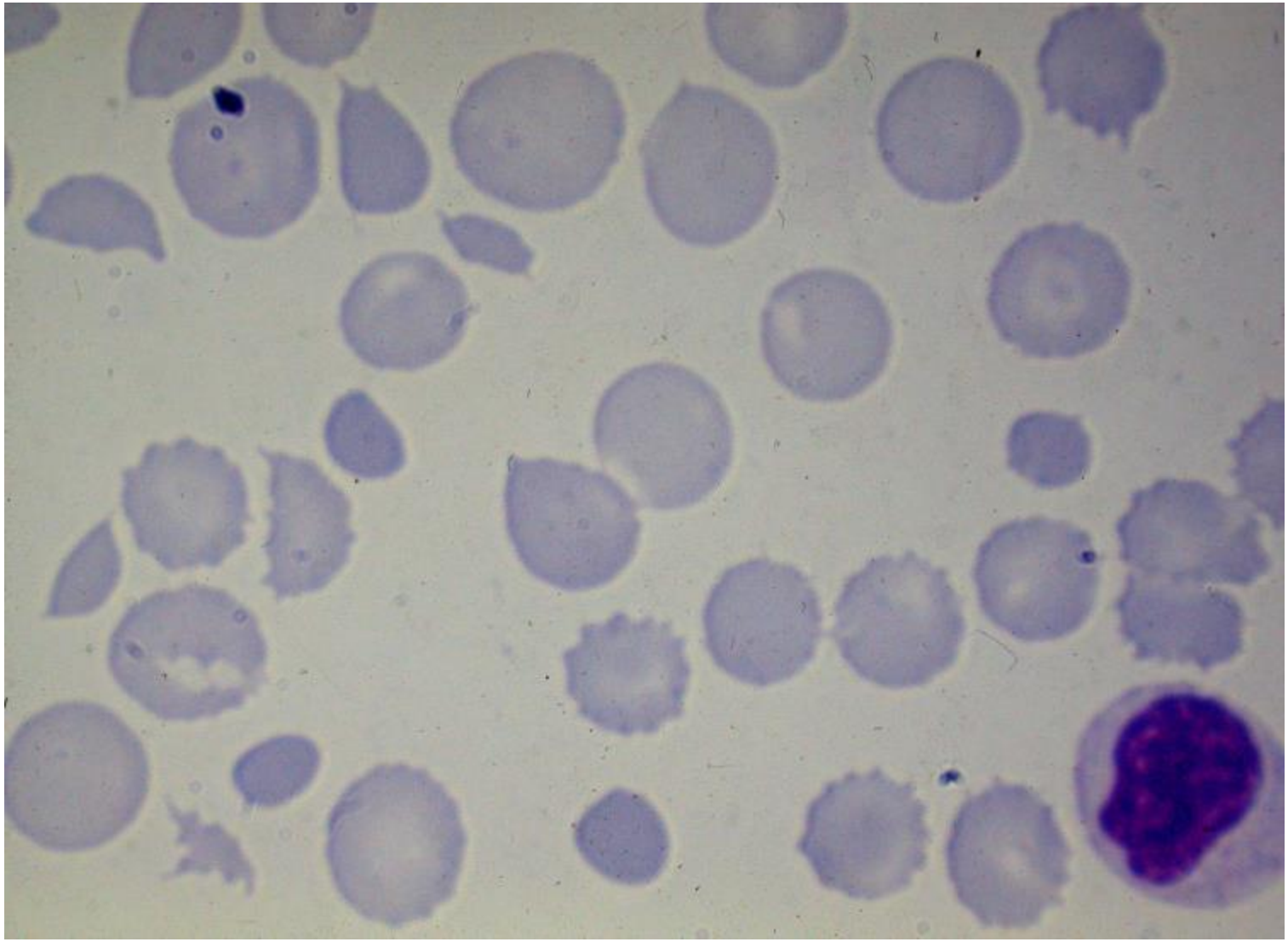
Megaloblasts in different stages of maturation



Microangiopathic hemolytic anemia

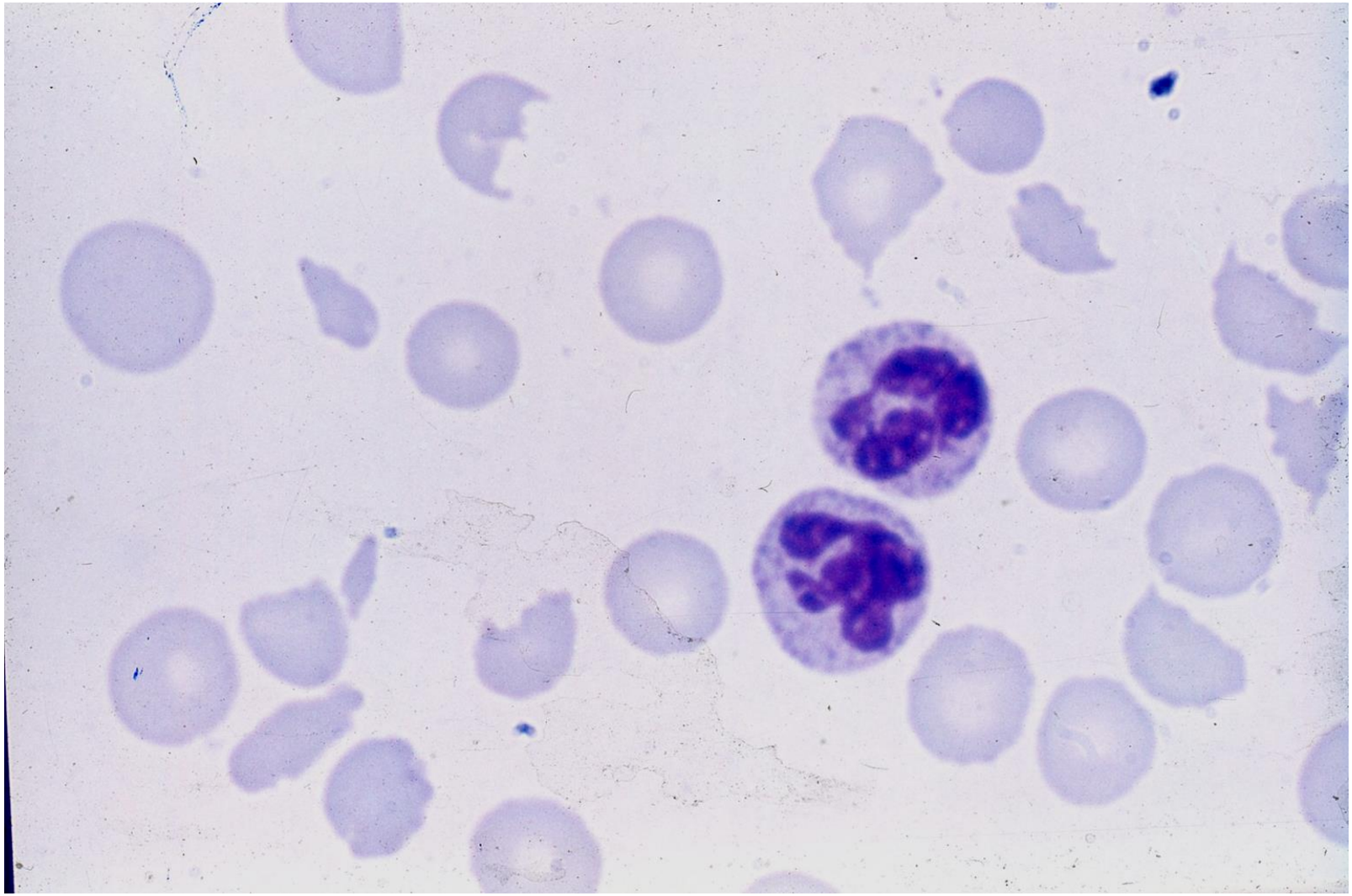


Microangiopathic hemolytic anemia



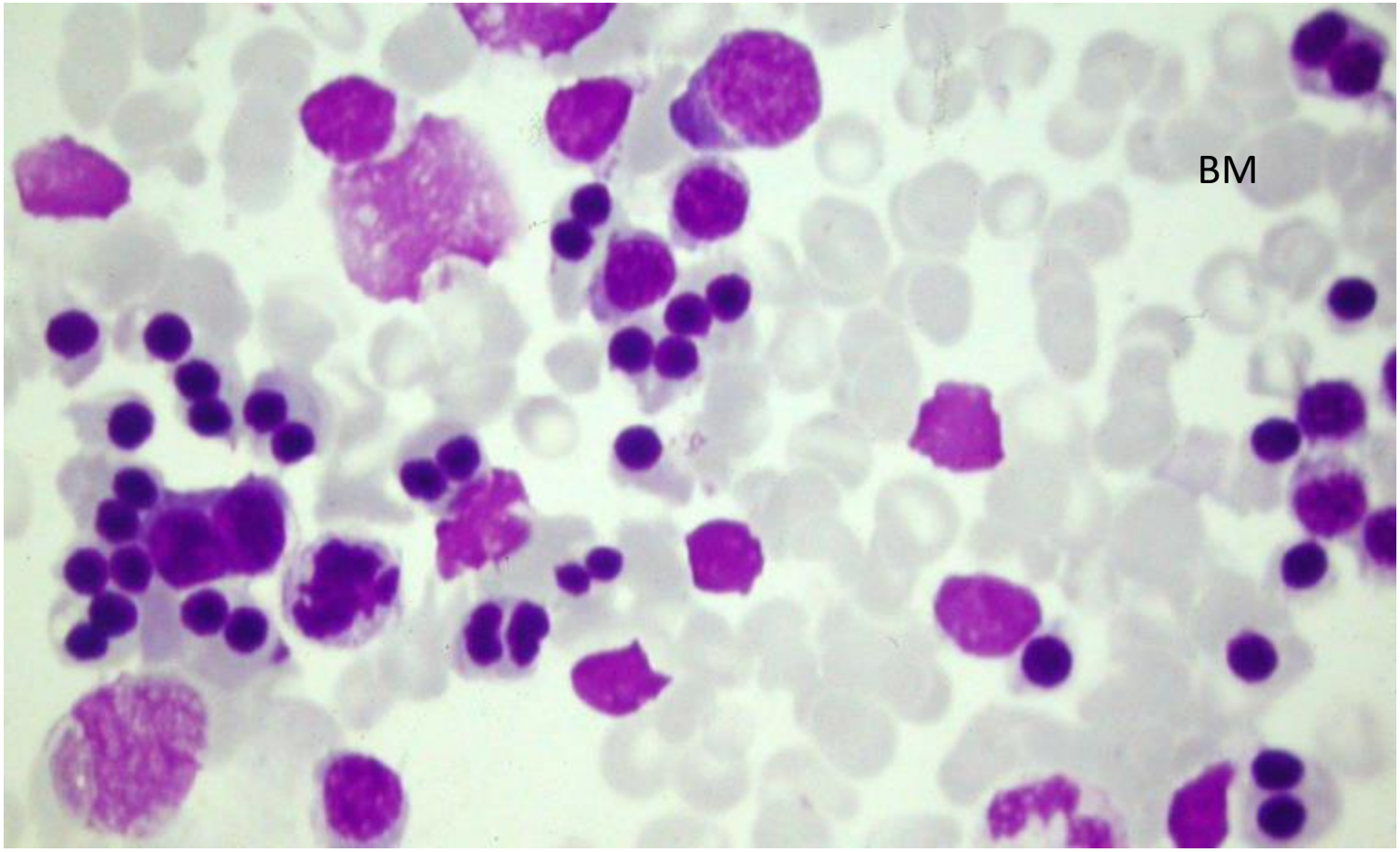
Helmet and fragmented rbc, microspherocytes

Microangiopathic hemolytic anemia



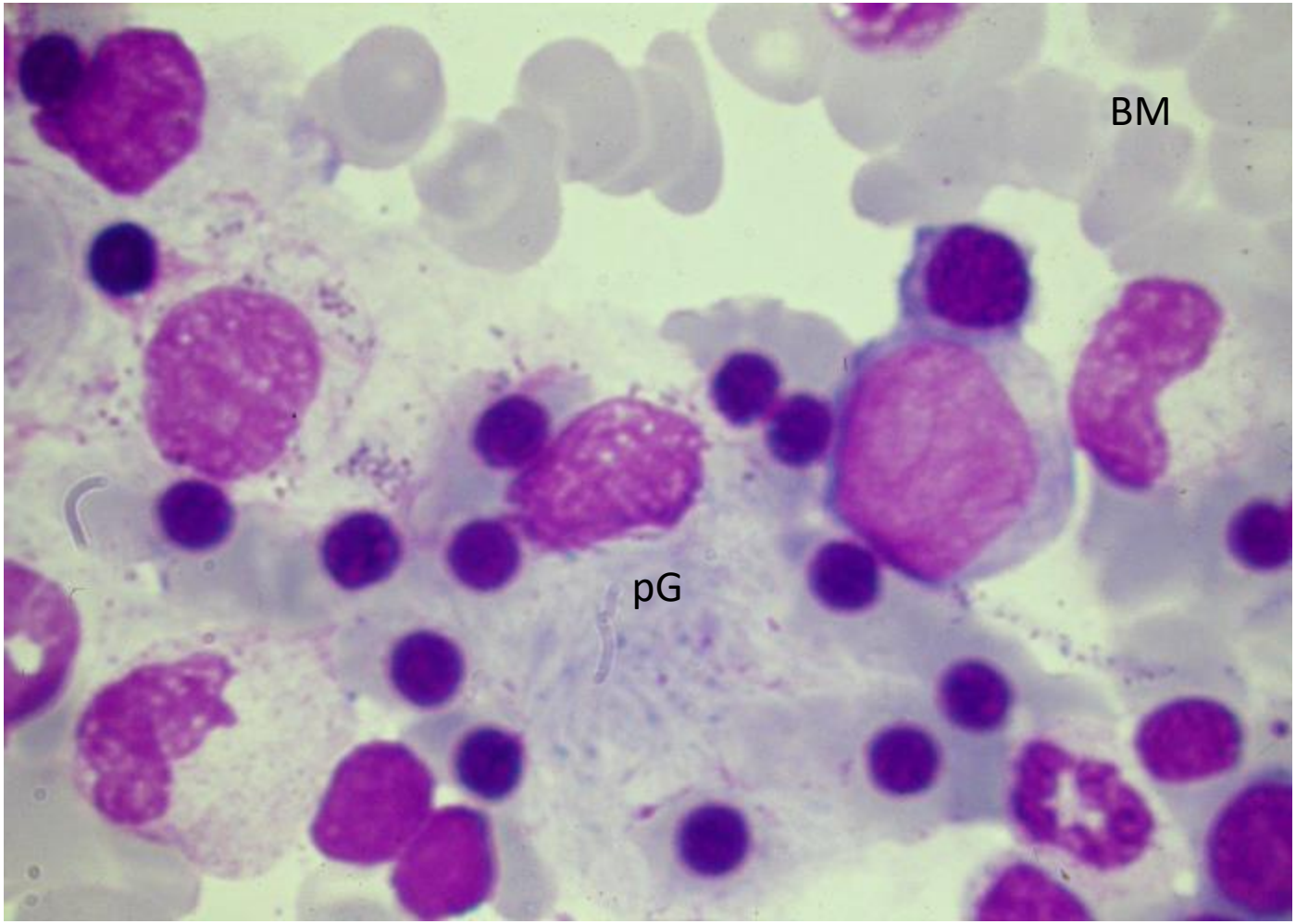
Congenital dyserythropoietic anemia type II

(CDA II - HEMPAS)



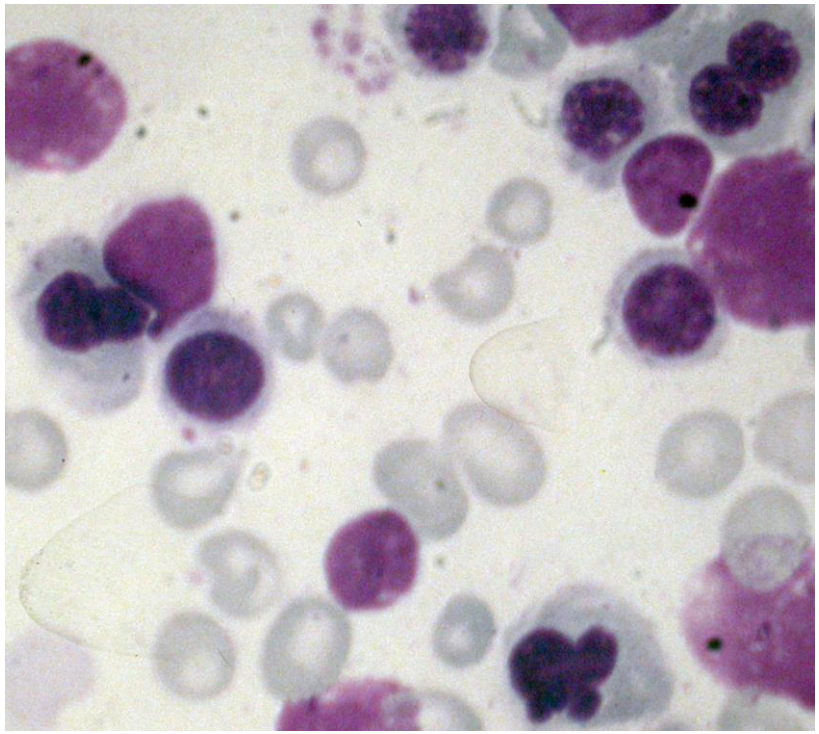
Erythroid hyperplasia with many binucleated late normoblasts

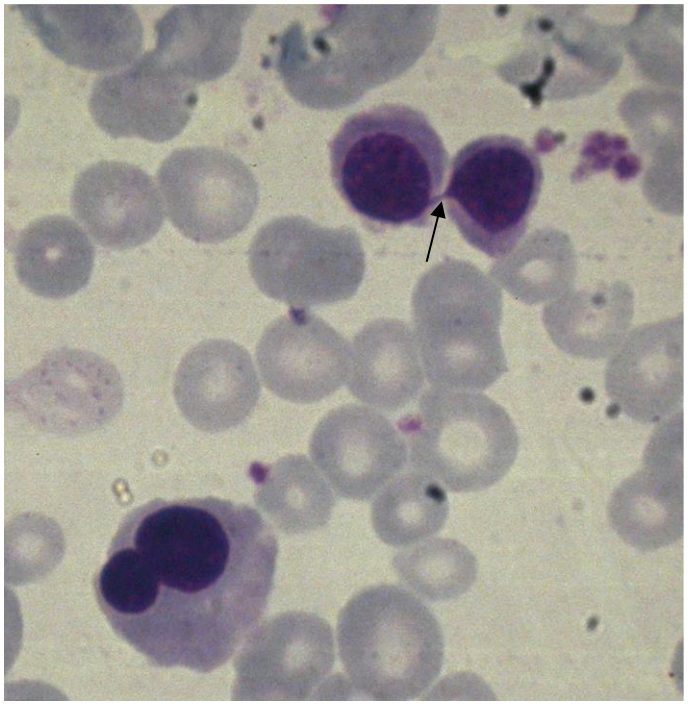
CDA II - HEMPAS



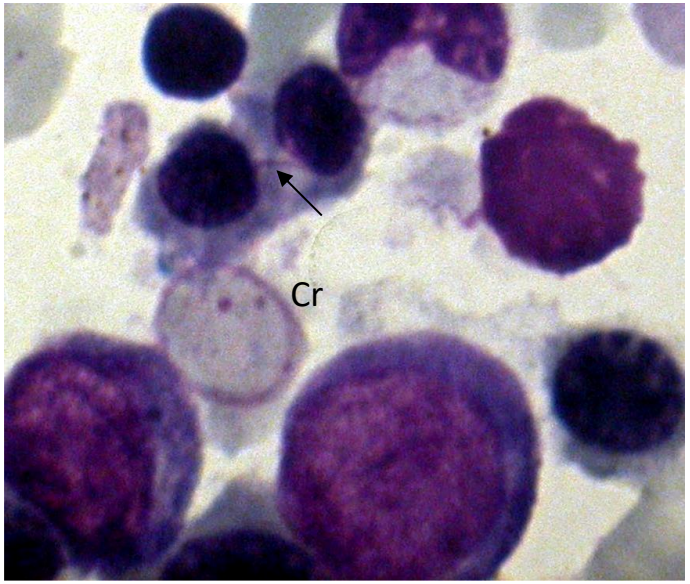
Binucleated normoblasts and pseudo-Gaucher cell (G)

CDAI

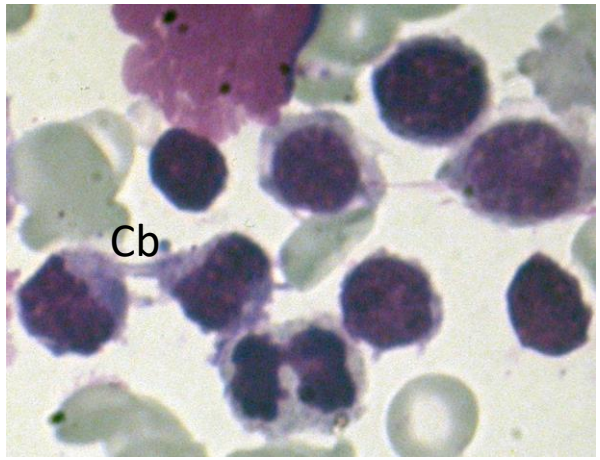




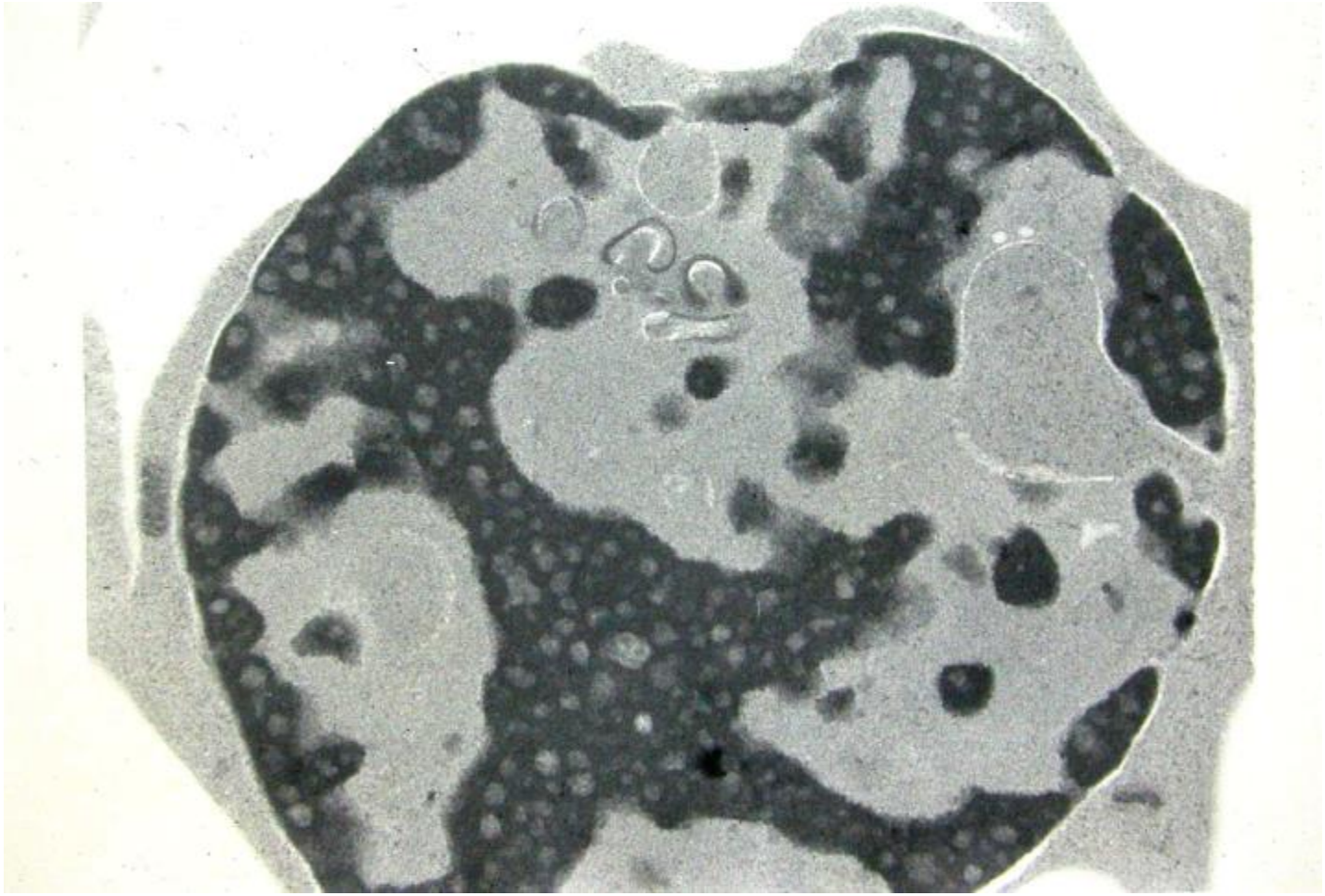
BM



Dyserythropoiesis with binucleated erythroblasts of different sizes and internuclear chromatin bridges (arrow). A Cabot ringe in a rbc (Cr), and cytoplasmic bridges Cb) between eryhroblasts.



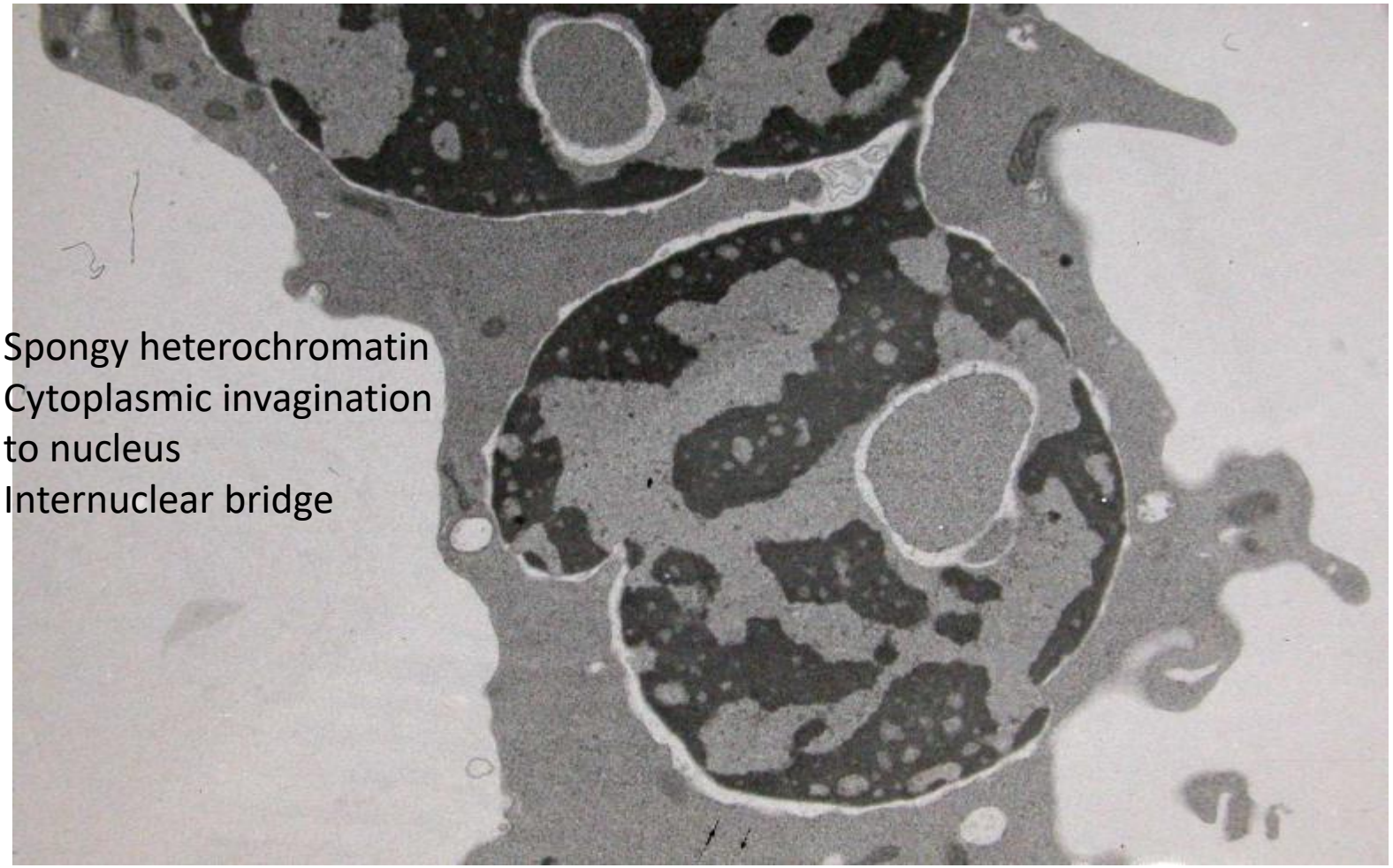
CDA I



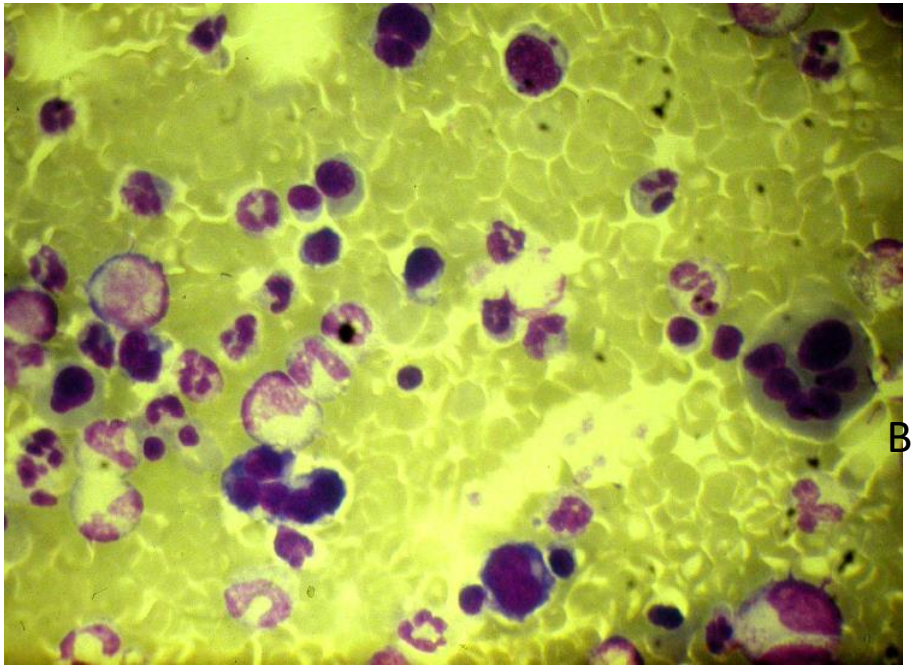
EM

“spongy” heterochromatin, dilatation of nuclear pores and cytoplasmic invagination into the nucleus

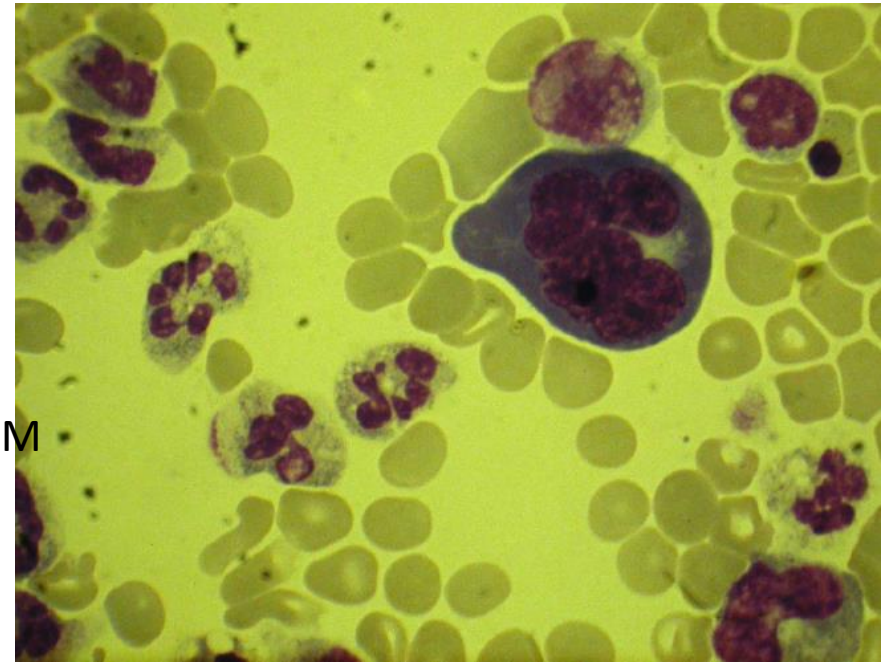
CDA I diagnosed by EM



CD III



BM



Dyserythropoiesis with gyant multinuclear erythroblasts