

## **File 1: Case Report**

### **A dog with severe anemia**

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Submitted materials: Case description, photomicrographs of blood, bone marrow aspirate, DVD with digital copies of histologic sections of liver, lymph node and bone marrow, Aperio software for virtual microscope reading of the digital histologic sections.

### **Case Presentation**

A 4-year-old, intact, male Cocker Spaniel was presented to Strömsholm Referral Animal Hospital for lethargy, anorexia and mild diarrhoea of two weeks duration. The dog had a history of dermatitis and *Pseudomonas* otitis. Two months earlier, he had suffered from an episode of uveitis, and at presentation the dog was treated with 2.5 mg Prednisolone per os every other day. Physical examination revealed weight loss, pale mucous membranes, lymphadenopathy, tense abdomen, hepatomegaly and splenomegaly. Results of a CBC included severe anemia (HCT / PCV 12.5%) and thrombocytopenia (platelets  $7 \times 10^9/L$ ). A reticulocyte count was not performed but no polychromasia was present and the anemia was regarded as non-regenerative. The WBC count was  $2.2 \times 10^9/L$  of which  $0.7 \times 10^9/L$  (32%) were cells with round nuclei (Fig 1-3). There were three NRBC per 100 WBC. Serum chemistry findings included glucose, alanine aminotransferase, alkaline phosphatase, creatinine and amylase within reference limits. Hemostatic evaluation with prothrombin time and activated partial thromboplastin time was unremarkable.

### **Task**

Make a diagnosis from the morphology of cells in the blood smear, bone marrow aspirate and histologic sections of liver, lymph node and bone marrow.

## Figures

Figure 1 Peripheral blood smear with a large round cell and a lysed cell.

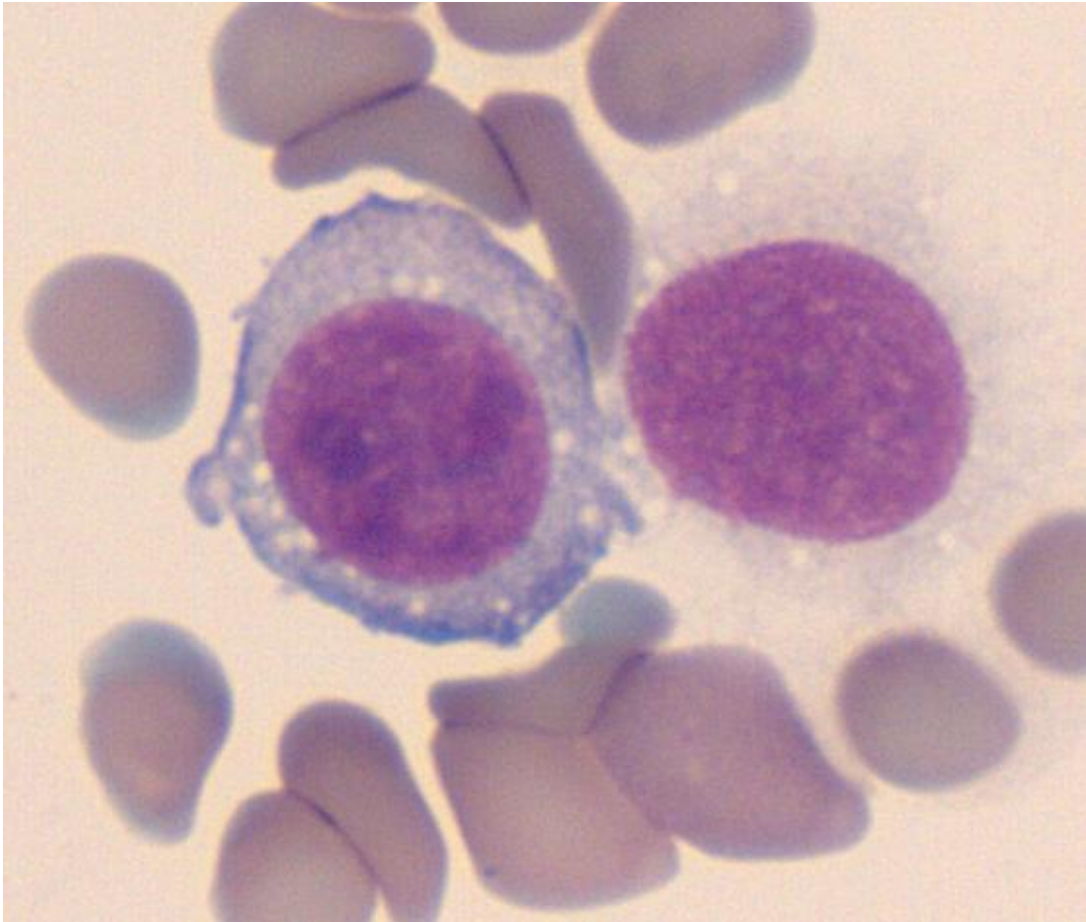


Figure 2 Peripheral blood smear photo showing 4 cells and a large cytoplasmic fragment.

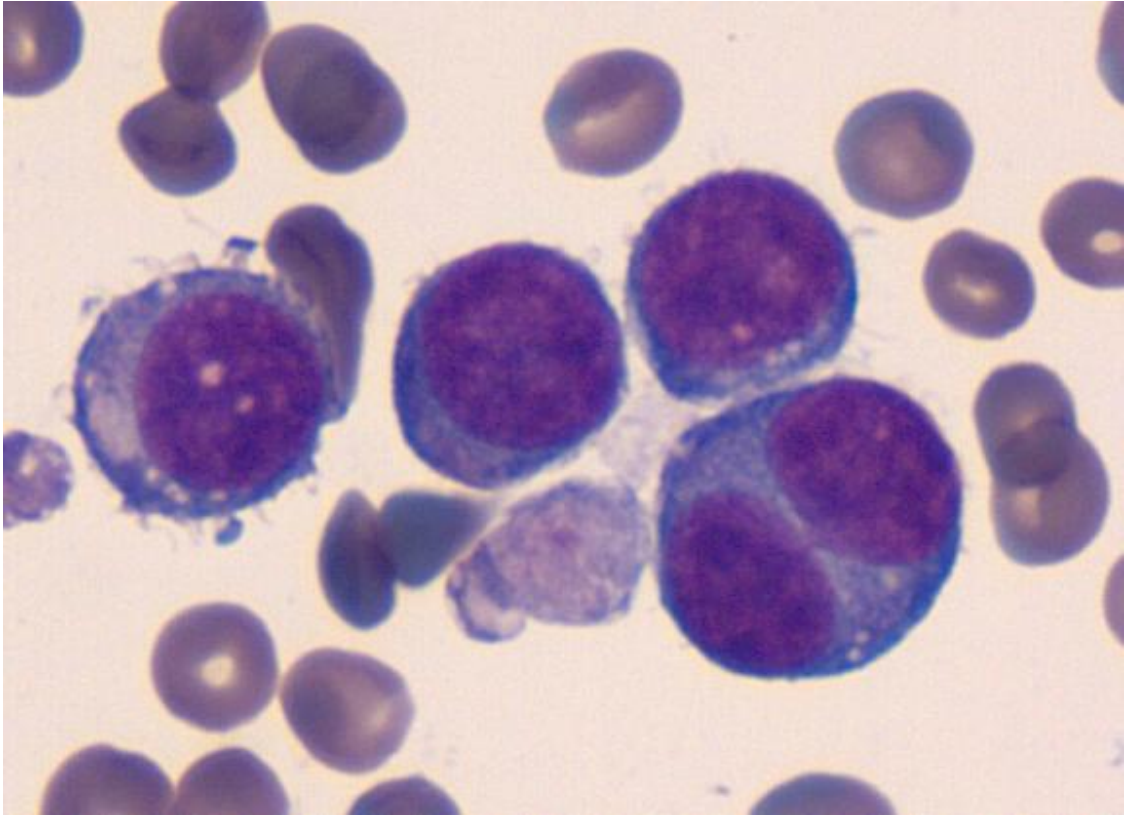


Figure 3 Peripheral blood smear with 8 cells and 2 large cytoplasmic fragments.

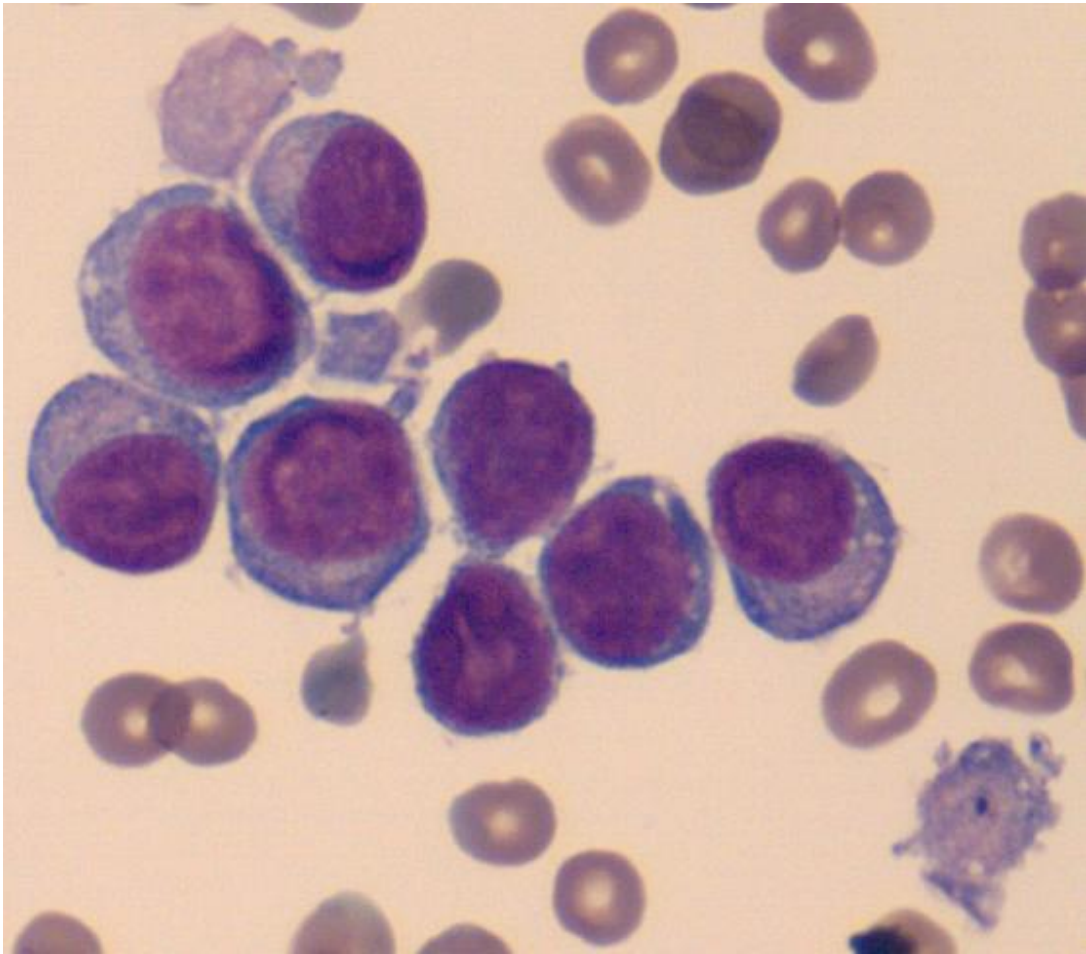


Figure 4 Bone marrow smear with large cell with 3 nuclei, small indistinct red granules, small vacuoles and thin hair-like pseudopods.

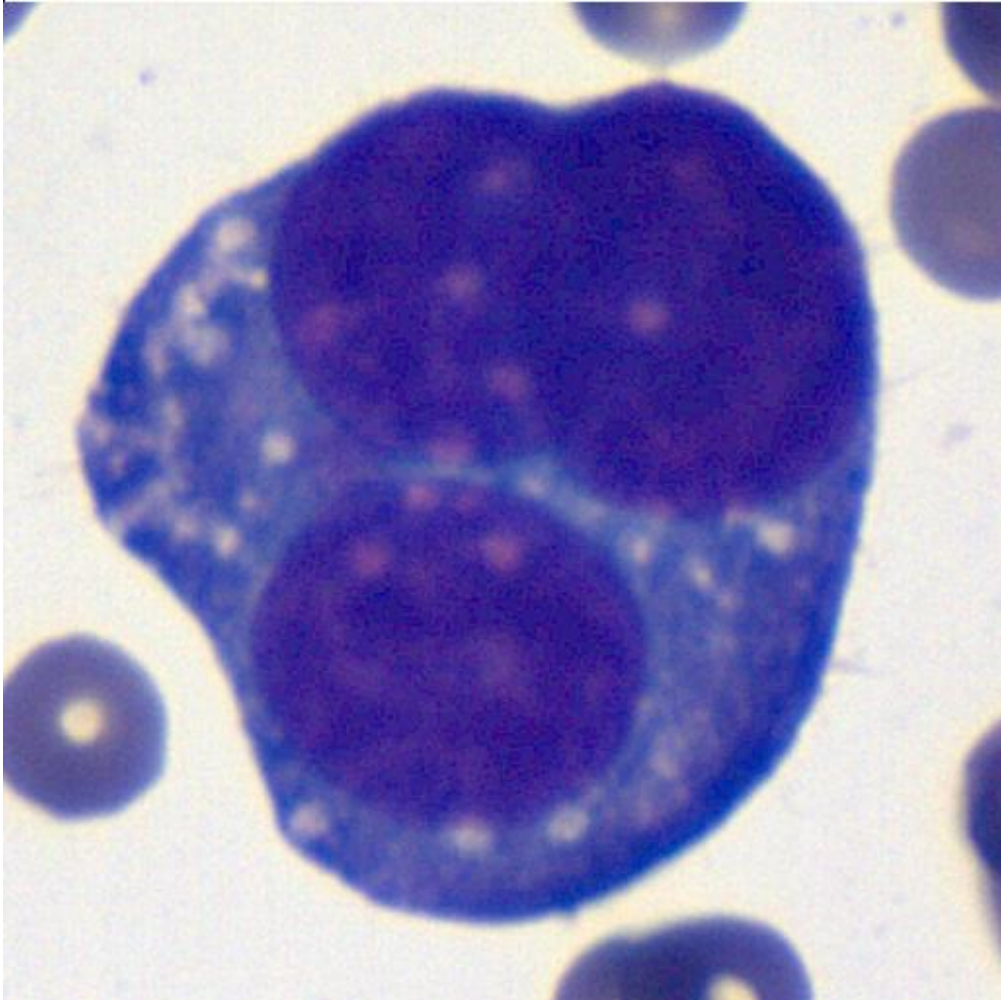




Figure 5

Histologic section of liver stained with H+E from the Aperio digitalized histologic section. The hepatic sinusoids are formed between pink hepatocytes with abundant and red cytoplasm which form linear columns or cords. The sinusoids are filled with darker smaller cells.

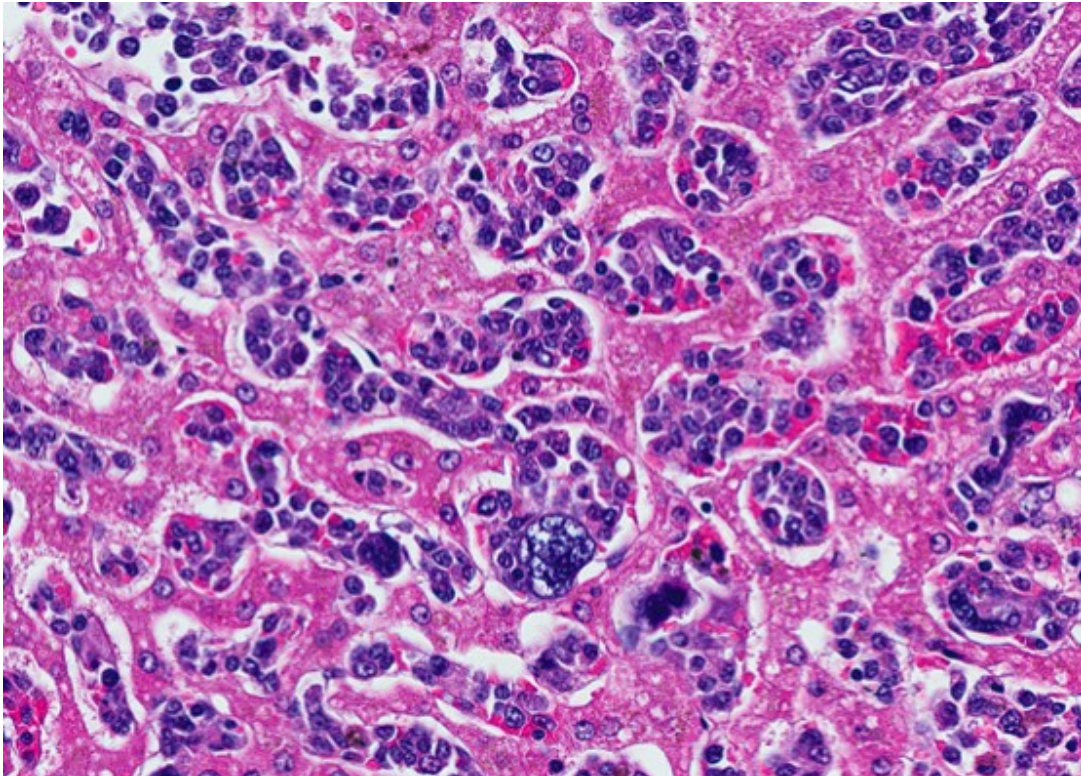


Figure 6

Histologic section of lymph node showing the medullary sinus from the Aperio digitalized histologic section. A medullary cord with normal lymphocytes around a blood vessel is in the middle.

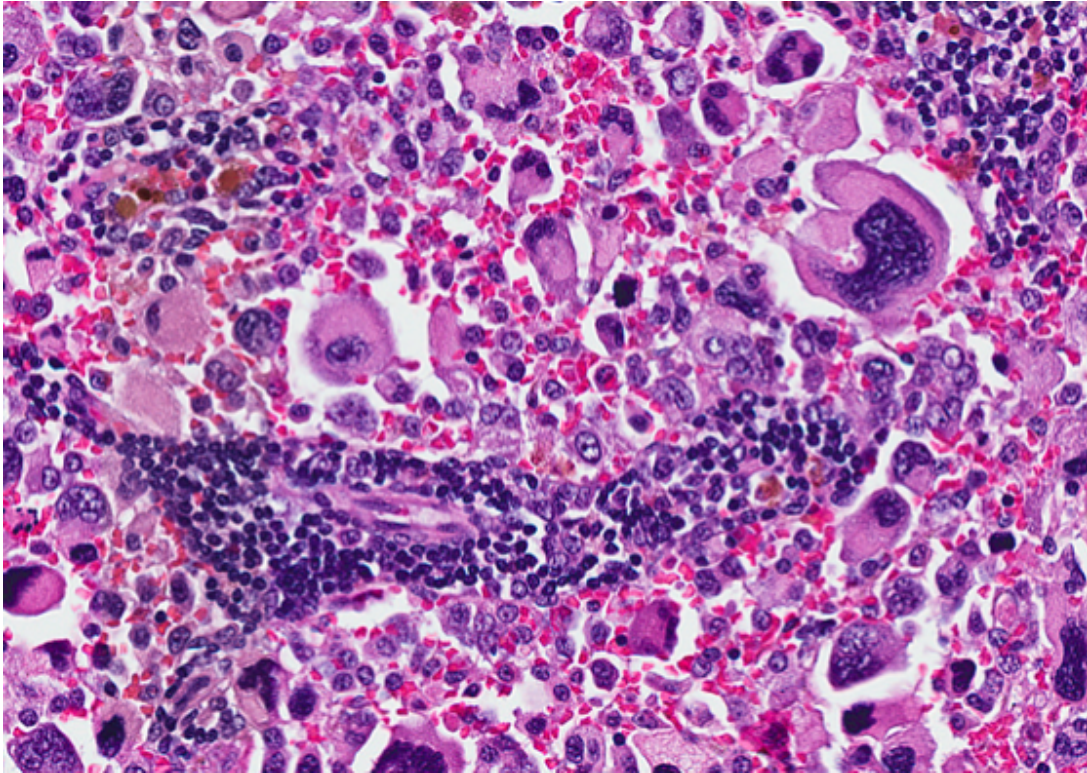




Figure 7

Histologic section of bone marrow.

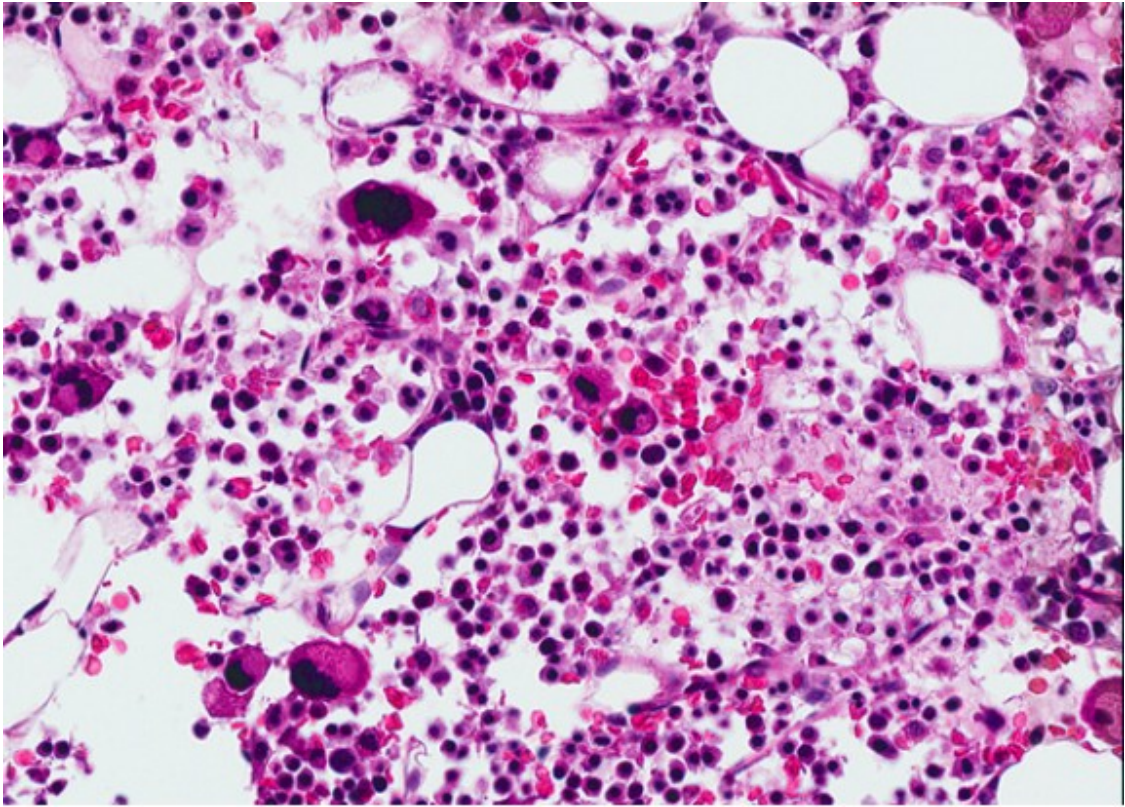




Figure 8

Histologic section of bone marrow. Most cells have a single nucleus. There are 3 multinucleated cells. Note a tripolar atypical mitotic figure in the upper left center.

