



# Did You Know?

## Slide Review for Anemia

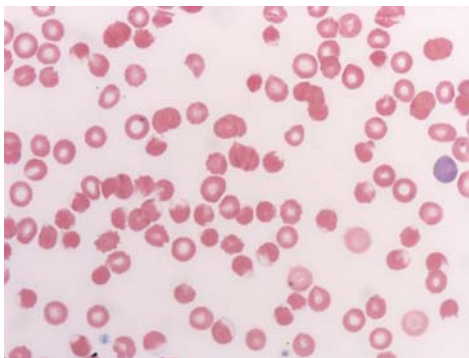
A common cause for anemia in the canine is immune-mediated destruction. But is it not the only cause. A review of the blood smear is critical for diagnosis and treatment of the anemic dog.

History and physical examination often reveal clues to the cause of anemia. Is there hemorrhage? Unless there is marked thrombocytopenia that may be immune-mediated, the finding of hemorrhage suggests that anemia is due to a coagulopathy, or other cause of bleeding such as trauma or neoplasia. Is there chronic weight loss? Is there evidence of neoplasia? Immune-mediated anemia (IMHA) can develop secondarily to underlying neoplasia but a primary IMHA generally presents with an acute history. What is the age of the dog? In a puppy with anemia, are there internal parasites? Pennies in the stomach on radiographs? Immune-mediated anemia is rare in puppies.

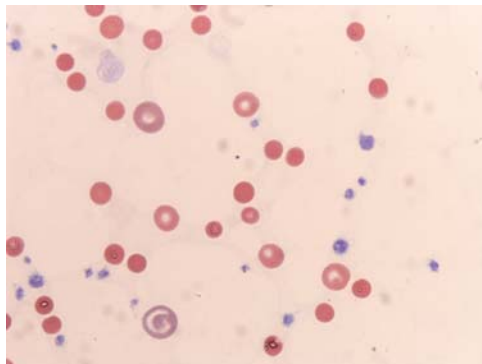
Evaluation of RBC morphology on slide review often provides important clues to the cause of anemia. Hematology analyzers do not detect these changes. In the laboratory, slides are prepared from the lavender top tube, but it is important that clinics also send in freshly made unstained blood smears prepared directly from the blood draw. These slides allow evaluation unaffected by EDTA artifact of cell morphology and platelet adequacy and platelet clumping in the tube.

**Quiz yourself. Look at the pictures below and describe the primary RBC morphologic change and what clinical syndrome it suggests. All are examples of canine blood smears viewed at an objective of 100x oil. The answers are on the back (page two).**

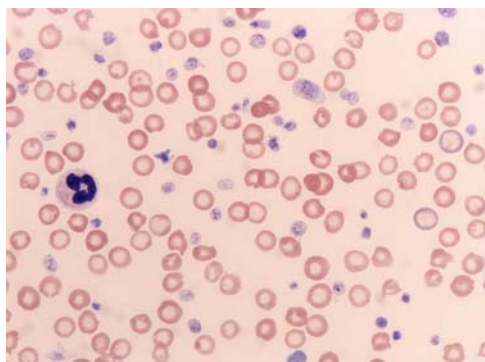
A.



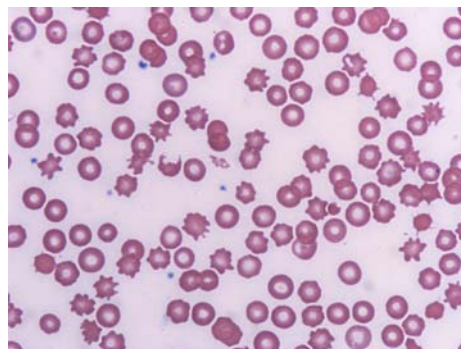
B.



C.



D.



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### ANSWERS:

A. Eccentrocytes. Indicative of oxidative damage to the RBC membrane. Common causes include ingestion of pennies containing zinc minted after 1982 and ingestion of onion or garlic. Can be accompanied by Heinz Bodies.

B. Spherocytes. These RBCs are small, dark and round lacking central pallor. Their presence supports an immune-mediated hemolytic anemia.

C. Microcytosis and hypochromasia. These are small RBCs containing less hemoglobin than normal red cells. This finding supports iron deficiency most often due to chronic blood loss, the gut being a common site.

D. Acanthocytes and schistocytes. Acanthocytes have projections of variable length that are unevenly spaced on the surface of the red cell. These can be seen in varied disease conditions including hepatic and splenic disease, particularly hemangiosarcoma. Schistocytes are red cell fragments that result from microvascular red cell damage in conditions such as hemangiosarcoma, other tumors and DIC.

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