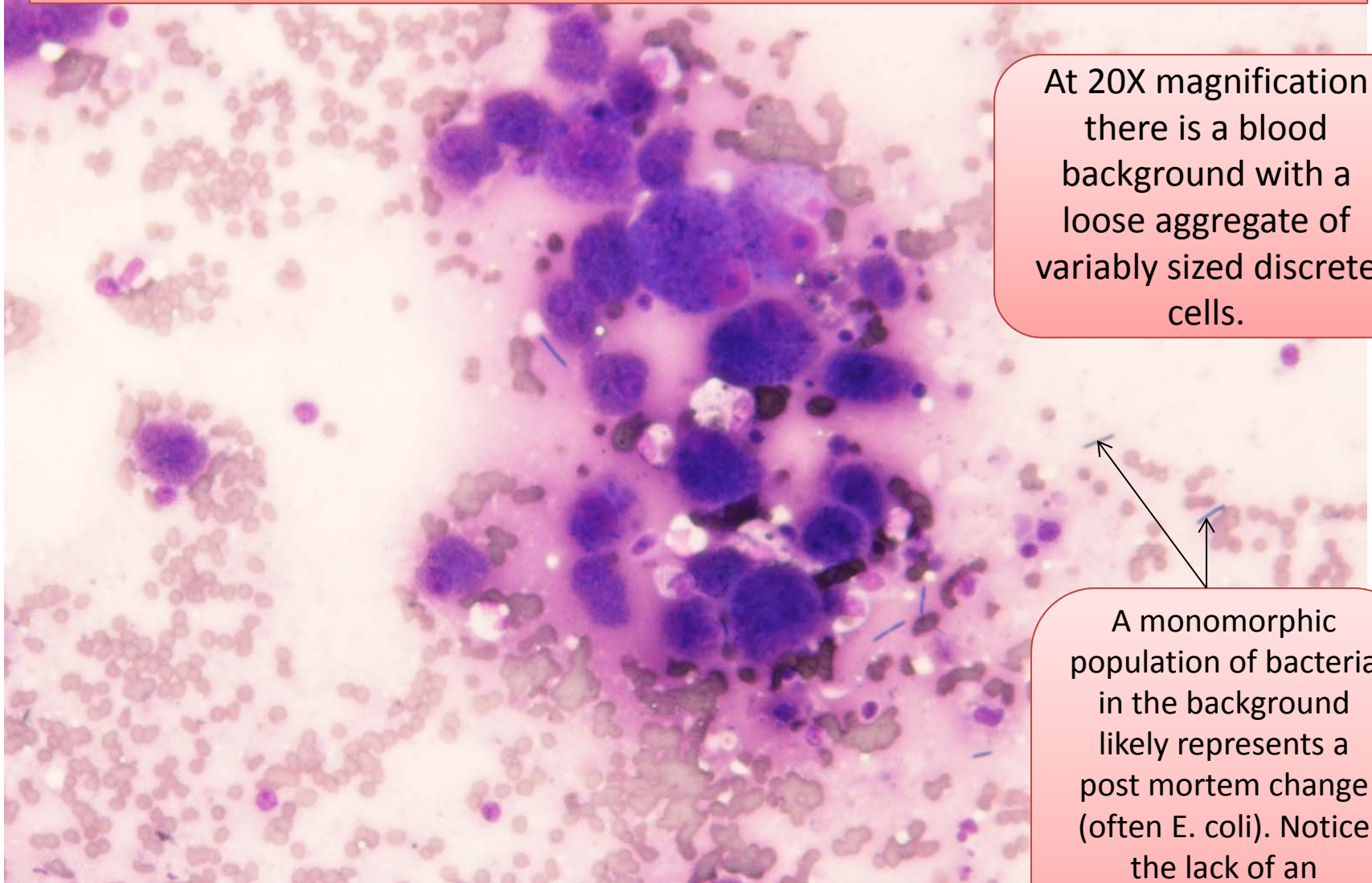


2 year old male neutered DSH received for necropsy. Impression smears of cut section from lung.

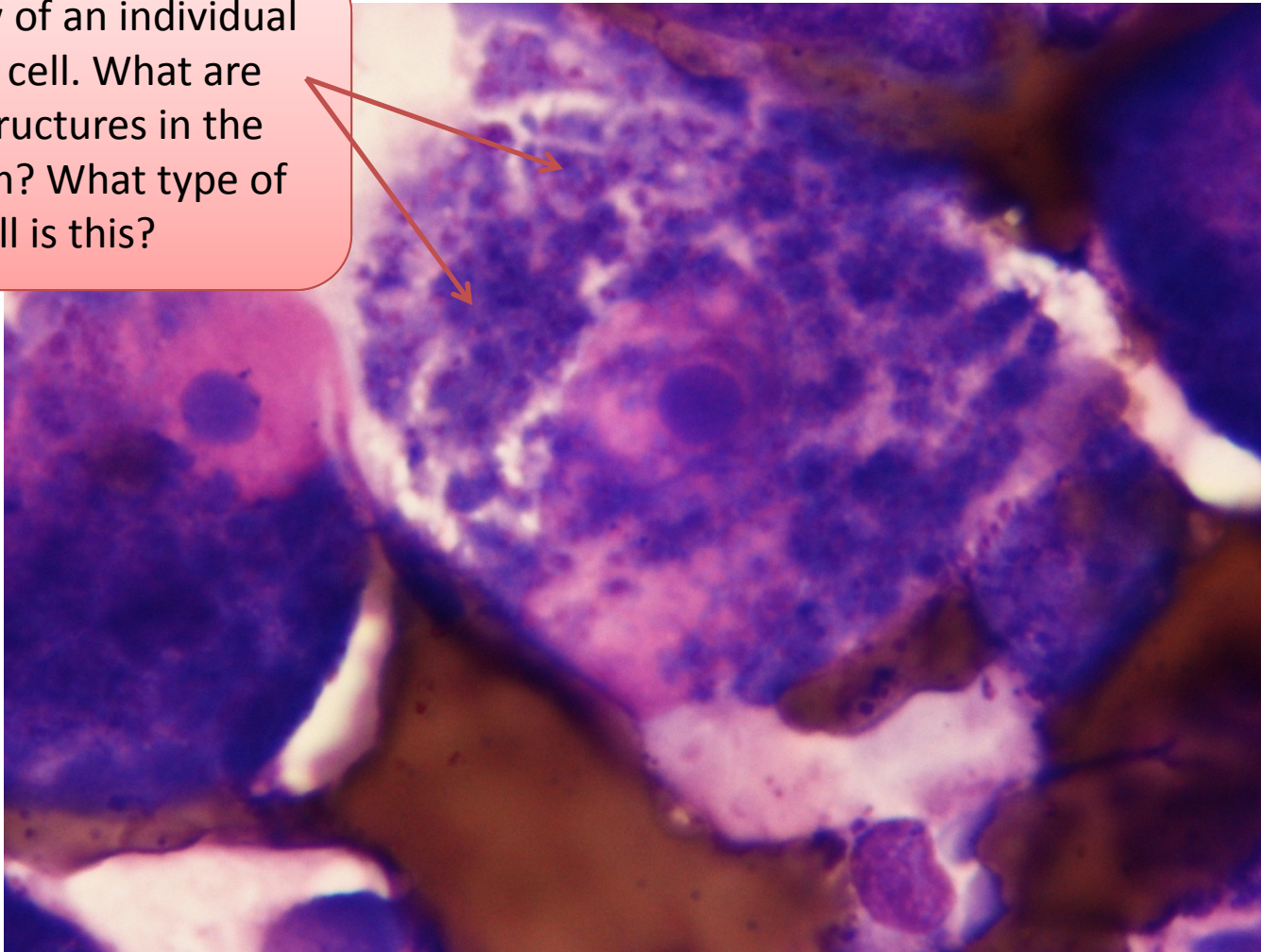


At 20X magnification there is a blood background with a loose aggregate of variably sized discrete cells.

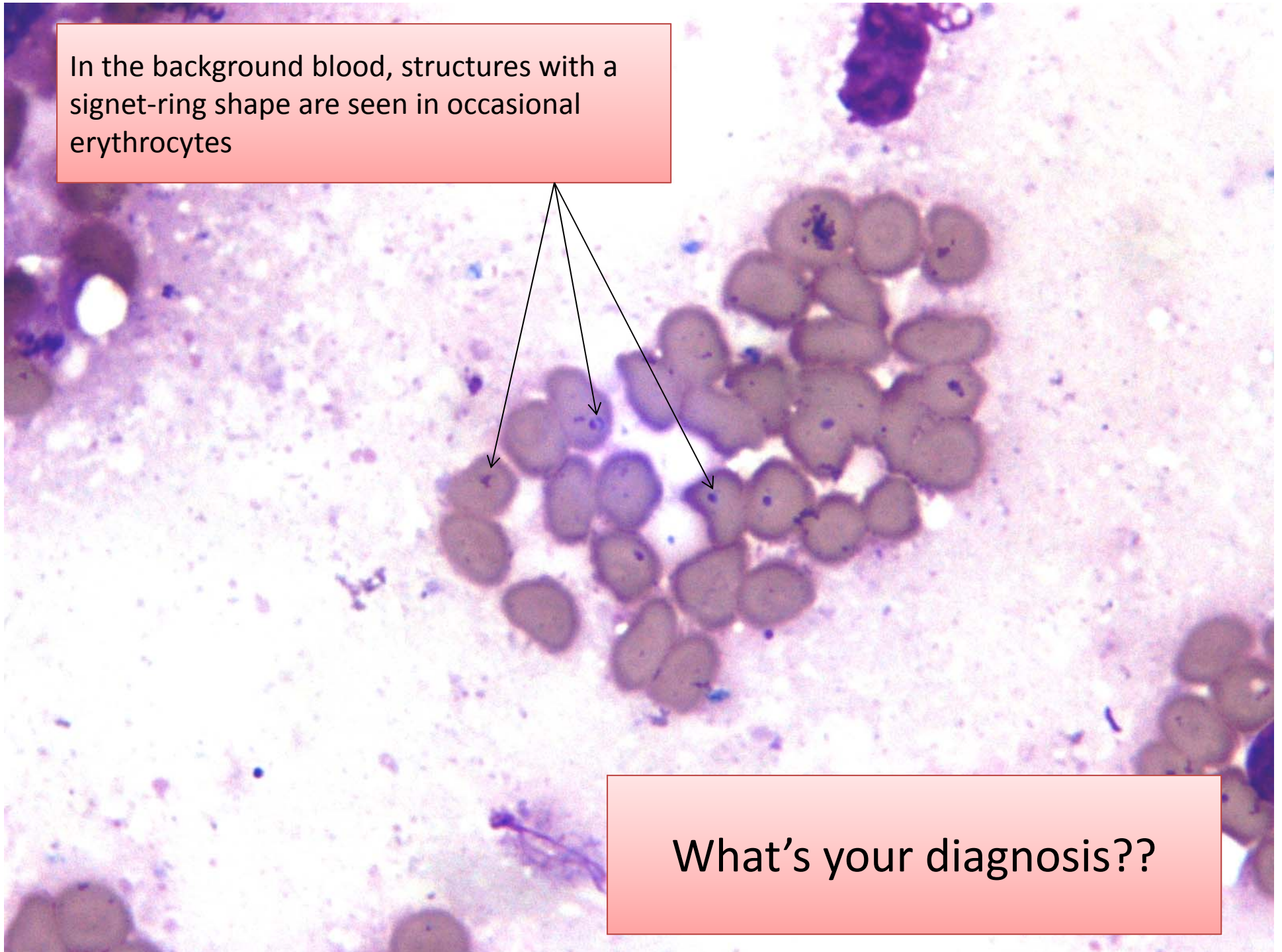
A monomorphic population of bacteria in the background likely represents a post mortem change (often *E. coli*). Notice the lack of an inflammatory response.

2 year old male neutered DSH received for necropsy. Impression smears of cut section from lung.

100X view of an individual discrete cell. What are these structures in the cytoplasm? What type of cell is this?

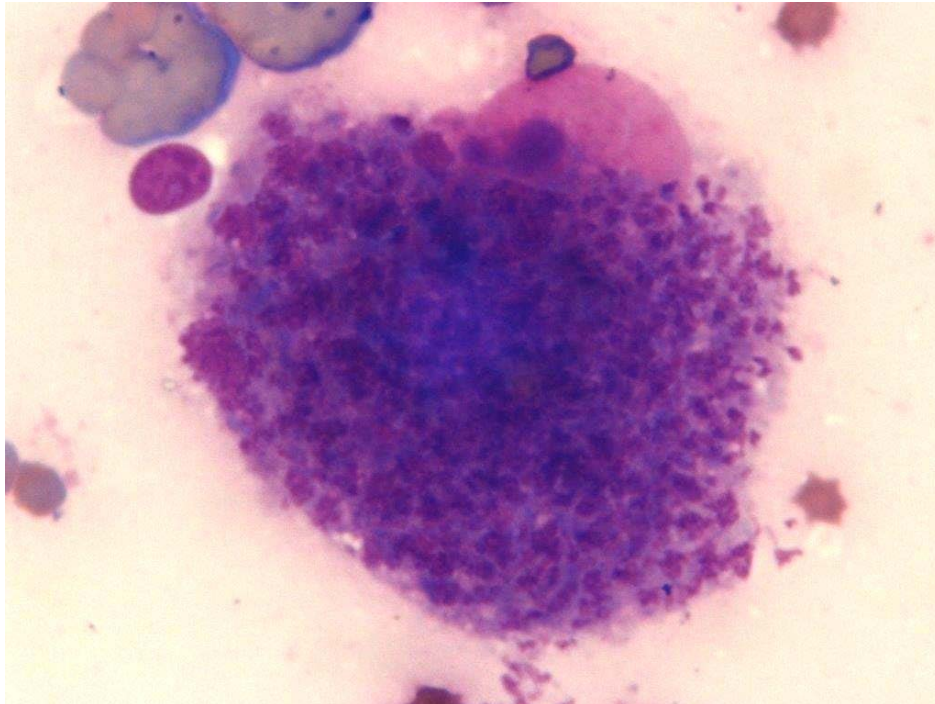


In the background blood, structures with a signet-ring shape are seen in occasional erythrocytes

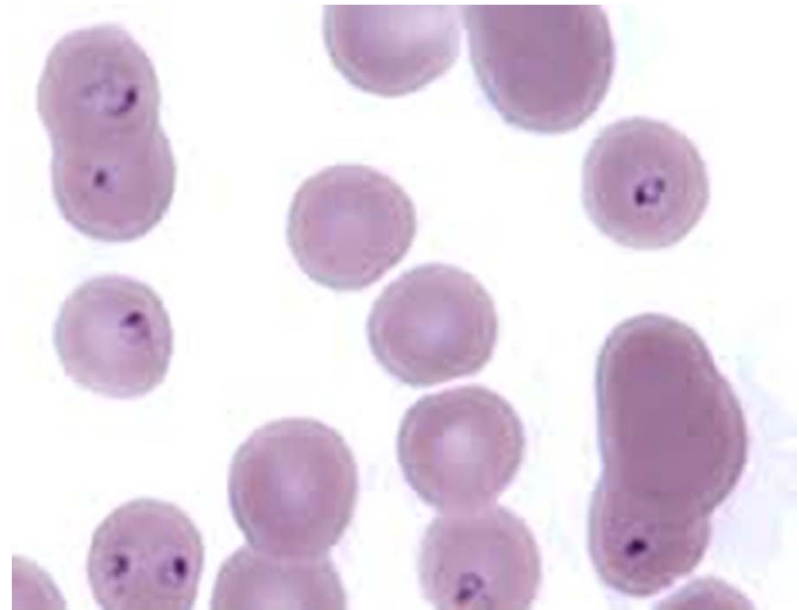


What's your diagnosis??

Cytauxzoon felis



Schizont –macrophage containing many small basophilic particles that resemble platelets—these are **merozoites**. **These are released from the macrophage and are taken up into the erythrocytes by an unknown mechanism.**³



Intraerythrocyte piroplasms (merozoites)- these are ~1 to 1.5 micron in diameter and often have a signet-ring structure, although they can also resemble a safety pin

Cytauxzoon felis

- Protozoal parasite first introduced into US in 1976. ¹ Now found in Missouri, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, **Kansas**, Texas, Kentucky, Tennessee, North and South Carolina, and Virginia ¹
- Natural host is the **bobcat** ^{1, 2, 3}
- **Domestic cats are considered dead end hosts**, having an acute and often fatal infection. Survival rates vary possibly due to different strains of organism. ^{1, 2}
- Reported vectors include the **lone star tick** (*Amblyomma americanum*) ^{1, 2, 3} and *Dermacenter variabilis*³. It is possible undiscovered tick vectors exist.
- **Infects macrophages first**, forming schizonts, which then rupture and release the piroplasms (merozoites) into circulation to **infect the erythrocytes** ^{1, 2, 3}
- **The most consistent clinical signs are nonspecific and include:**
 - **Anorexia, lethargy** and **high fever** initially, but progressing to **hypothermic** as patient becomes moribund²
 - **Within 2-3 days from onset of illness, clinical signs progress to include increased vocalization, icterus, dark yellow urine, respiratory distress** ^{1, 2}

Diagnosis of Cytauzoonosis

- Routine clinicopathologic abnormalities are nonspecific and include:
 - Pancytopenia^{1,2}
 - **Normocytic, normochromic and nonregenerative anemia:** Unlike other erythroparasitemias that typically are associated with a regenerative anemia, the anemia seen with cytauzoonosis is often mild to moderate and is nonregenerative because of the acute nature of the illness²
 - If hemolysis is present it is usually **extravascular** ²
 - Biochemical findings commonly include hyperbilirubinemia, increased hepatic enzymes, pre-renal azotemia, hyperglycemia and electrolyte abnormalities^{2,3}
- Diagnosis can be made by:
 - Identification of **erythroparasitemia** on peripheral blood smears^{1,2, 3}
 - Care must be taken to distinguish the Cytauzoon parasites from Mycoplasma haemofelis, Howell Jolly bodies, and stain precipitate ^{2,3}
 - Repeat blood films may be helpful because of transient parasitemia ³
 - **Schizonts** may also be identified on blood smears or on FNA of lymph nodes, spleen, liver^{1,2,3}
 - These methods are insensitive given the inconsistency of the parasitemia , therefore if clinical suspicion exists despite negative findings on hematologic and cytologic samples, PCR can be performed ^{1,2,3}

References

1. Aiello, Susan E. ed. The Merck Veterinary Manual Online. Whitehouse Station NJ. 2010-2013. Web. Accessed July 2nd, 2014
2. Greene, Craig E. ed. Infectious Diseases of the Dog and Cat, Fourth Edition. W.B. Saunders, St. Louis, Mo. 2012, pp 764-771
3. Holman PJ, Snowden KF. Canine Hepatozoonosis and Babesiosis, and Feline Cytauxzoonosis. Vet Clin North Am Small Anim Pract 2009; 39:1035-1053