



## Equine Granulocytic Anaplasmosis

**Disease Name:** Equine Granulocytic Anaplasmosis (EGA)

**Disease definition:** An acute, seasonal, non-contagious, tick transmitted disease via infection with the rickettsial parasite *Anaplasma phagocytophilum*.

**Transmission:** Tick borne (late Fall, Winter and Spring) with Ixodes ticks common vectors in the USA. White-footed mice, dusky-footed woodrats, Moose/Deer, lizards, and birds are likely reservoirs. *Ixodes scapularis* is found in the eastern half of the United States, while *Ixodes pacificus* is found along the entire west coast. Equine anaplasmosis has been reported in the United States, Canada, South America, Europe, Asia, and North Africa. EGA is not naturally contagious between horses. Blood inoculation through sharing needles or sharps can transmit the infection. Transplacental infection is possible and congenital anaplasmosis has been reported in a foal born to a mare with EGA in late gestation.

**Frequency:** EGA is endemic in regions in the USA. Horses have a relatively high seroprevalence rate, with 17% to 67% of apparently healthy horses being serum reactive and 8% of these being PCR positive.

**Incubation period:** 6-12 days following tick exposure.

**Carrier status:** None.

**Shedding period:** None; Rickettsia are obligately intracellular gram-negative bacteria (i.e. they cannot freely live in the environment).

**Latency:** None.

**Severity:** May be severe in aged horses (high fever and limb swelling), mild in horses < 4 years of age, but can be self-limiting in both age groups. Severe cases (e.g. profound neurological signs) are only sporadically reported.

**Clinical signs and symptoms:** Fever (102-106° F), lethargy, reduced appetite, distal limb edema (limb swelling) and Petechiation (tiny bruises on the gums and mucous membranes). Laboratory abnormalities include low platelets (thrombocytopenia), low white blood lymphocyte numbers (lymphopenia) and anemia (low RBC, PCV, and hemoglobin).

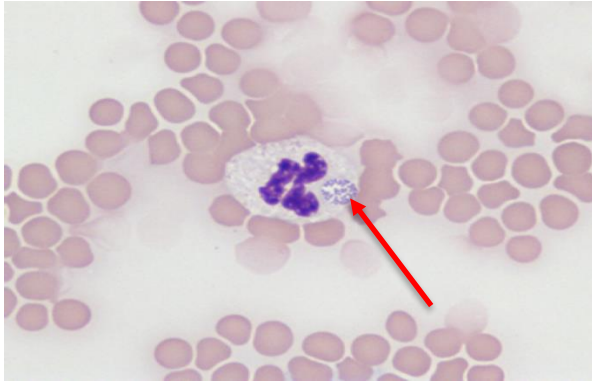
**Complication can occur in rare cases:** Neurological signs (ataxia to recumbency), tying-up (myositis), and difficulty in breathing (respiratory distress). Rarely, fluid will accumulate in the chest cavity and around the heart (pleuritis & pericarditis)

**Diagnoses:**

1. Buffy coat smear with “inclusion bodies” in white blood cells (neutrophils). (i.e. morulae found at > 3-5 days post infection; see photo)



2. Polymerase Chain Reaction(PCR) from white blood cells (EDTA buffy coat samples) (3-6 days post exposure),
3. Serology with a 4x increase in titers 2-4 weeks apart (in some cases there are delays of 19-81 days to initial seroconversion).
4. Stall side testing platforms (e.g. Idexx 4DX Snap test) are not recommended for acute infections but can be supportive if appropriate clinical symptoms are present.



**Treatment:** Tetracycline antibiotics

1. Oxytetracycline intravenously (7 mg/kg once daily for 7-10 days).
2. Doxycycline orally (10mg/kg 2x a day)
3. Minocycline orally (4 mg/kg 2x a day).

Total treatment length varies, but improvement is seen within 24-72 hours. Occasionally horses treated for less than a week have been seen to relapse within a month of discontinuing the antibiotic [2]

**Prognosis:** Excellent in uncomplicated cases

**Prevention:** Tick control should reduce exposure and infection levels. Do not share needles, syringes, or IV lines, etc. between horses as this is a known risk of transmission.

**Biosecurity:** Anaplasmosis is non-contagious between horses, so strict biosecurity is not required with this disease