



Diagnosing and Treating Animals for Red Imported Fire Ant Injury

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The red imported fire ant, *Solenopsis invicta* (Buren)(Hymenoptera: Formicidae), is an introduced species that arrived in Mobile, Alabama from South America around the 1930s. This species has had an enormous impact in the southeastern United States, and continues to spread into areas of North America with mild climates and adequate moisture and food. The red imported fire ant reached Texas during the 1950s and has spread steadily across the state.

The Texas Veterinarian Survey, Impact of Red Imported Fire Ants on Wildlife (Barr & Drees, 1994) documented losses resulting from multiple ant stings to livestock. This fact sheet discusses diagnosis of fire ant injury and treatment of injured animals.



DIAGNOSING AND TREATING DOMESTIC ANIMALS

Clinical Signs of Fire Ant Stings

Red imported fire ants sometimes may be seen stinging an animal, particularly areas on the animal with little or no hair, such as the muzzle, eyes, ears, ventral abdomen, and perineum. Although fire ants occasionally attack healthy animals, neonates are certainly more susceptible. Animals that are weak and/or sick are easy victims. Clinical signs of a debilitating problem may also be present, and one should examine animals for possible serious underlying disease (i.e., septicemia).

After the sting, the necrotizing toxin causes a 2 to 5 mm red papule with mild swelling. A vesicopustule with a red halo develops over the next 24 to 48 hours. Usually there are bites. If the ants sting the eyes there will be excessive lacrimation, blepharospasm, and mucopurulent exudate on the lid margins and at the medial canthus. Numerous 2 to 4 mm focal necrotic ulcers will be seen on the cornea and conjunctiva.

Treating Fire Ant Stings

Probably the most important aspect of treating fire ant stings is to remove the animal from the source of fire ants (i.e., mound) and to remove any ants from the victim. This prevents further sting damage. This may be all that is necessary with milder attacks. More severe attacks may require local treatment. Ointments containing corticosteroids with or without antibacterial agents can be used to treat the skin bites and pustules that develop. After gently cleansing the skin with a damp cloth or paper towel, ointments can be applied once or twice daily. If the inflammation is severe or extensive, treatment for several days may help.

The eyes and eyelids are often damaged. Gently clean the eyelids of exudates (pus) and dirt. In cattle, sheep and goats carefully apply a combination ophthalmic ointment containing an antibiotic and a corticosteroid topically to the eye without scratching the cornea. Treat the eye 2 to 4 times per day for 3 to 7 days, depending on the amount of damage and response to therapy. Ophthalmic solutions (eye drops) containing these same medications can be used, but increase the frequency of administration to 4 to 6 times per day.



Calf eye showing fire ant stings on pupil. (Joyce)

Do not use medications containing a corticosteroid on horse eyes with acute fire ant bites, as the corticosteroid occasionally causes other eye problems. Instead, for the first 3 to 5 days, use ophthalmic ointments or drops containing only an antibiotic. After the corneal ulcers caused by bites have epithelialized, a corticosteroid may be added to hasten healing. Check to see when this has occurred by applying a fluorescein dye to the cornea to see if the epithelial damage has healed.

Nutrition and supportive nursing care are important, especially in sick or weak neonates. Evaluate vital signs and passive transfer of maternal antibody, with appropriate therapy for any problems present (i.e., fluid therapy, systemic antimicrobials, nutrition, etc.).

DIAGNOSING AND TREATING NONDOMESTIC AND EXOTIC ANIMALS

Occurrence and Clinical Signs of Fire Ant Injury

Infestation of nondomestic species by the red imported fire ant is well documented at the Texas A&M University College of Veterinary medicine. In an 8 year period May 1986 to January 1995, 78 cases of fire ant stings were seen in exotic animal species. Affected animals included a ferret, a mole, screech owl nestlings, a squirrel, white tailed deer, cottontail rabbits, a lizard, and a newborn blackbuck. The majority of fire ant clinical cases were neonatal white tail deer. Sixty-nine white tail deer fawns had significant fire ant lesions. This constituted 25 percent of the 276 fawns brought to the teaching hospital during this period.



Fawn with scars on head from fire ant stings. (Drees)

The clinical signs of fire ant stings in exotic species are like to those in domestic animals. Infested animals usually have multiple sting sites that swell and become inflamed immediately. The diameter of a sting wound is normally 2 to 4 mm. Within 24 to 48 hours, these areas may appear pustular. Cytotoxins and hemolytics in the alkaloid fraction of fire ant venom cause necrosis of the dermis and underlying connective tissue. This creates a characteristic sterile pustule. Fire ant bites can apparently destroy hair follicles, since injection sites often do not grow hair after the epithelium has recovered.

Fire ant wounds are often found on the legs, inguinal region, ventral abdomen, perineal region (anus, vulva), the muzzle, and the eyes. The glabrous or poorly haired areas of the body normally have the most sting sites. Lesions around the anus, vulva, lips, nares, and eyes can be very serious and obviously cause great discomfort. Fire ants may be attracted to these orifices while searching for moisture. Multiple bites in these areas can be inflamed and necrotized dramatically.

The eye is the most critical site for fire ant damage. The eyelids may slough along their margins when enough sting sites are present. Fire ants can also sting the corneal surface. This causes 1 to 2 mm areas of cloudy edema that can be seen with direct illumination. Multiple stings on the cornea can create a coalescing ulcer. This may progress from a large, melting ulcer to protrusion of the Descemet's membrane and rupture of the anterior chamber

of the eye. Of the 69 cases of ant stings in white tail deer fawns, 25 (36.2 percent) had appreciable corneal injuries.

The red imported fire ant is of particular medical concern because many ants can sting an infested animal simultaneously. Fire ants infest vertebrates as foragers for food and moisture, rather than as warriors set on destruction. In larger animals, they do not intend to kill nor is their toxin strong enough to do so. When the host animal moves and, that irritates or injures ants on its body, it triggers a stinging episode in which all the ants participate. This combined attack is probably prompted by chemical signals. The results may be dramatic when hundreds of fire ants are on the creature. This explains why animals often have hundreds of fire ant bites. It is suspected that the victims suffering from numerous bites may actually be depressed from the systemic effects of the toxin.



Rumen content from calf that suffered fire ant

Fire ants are often swallowed by animals as they lick or bite at the painful sting sites. This gives the ants an opportunity to cause more injury in the upper gastrointestinal tract of the affected animal. Multiple sting sites have been observed at necropsy in the esophagus and abomasum of suckling white tail deer fawns. They appear markedly similar to the external wounds caused by this insect. The internal lesions inevitably compound these animals discomfort . It is possible that the toxins from many ingested ants may also cause a generalized inflammation of the gastrointestinal lining.

Treating Fire Ant Stings:

- Direct medical attention for fire ant victims toward both the immediate effects of intoxication and the serious sequelae of the sting injuries. Immediate care may include: Spraying the victim with a low toxicity insecticide (e.g., permethrin) or in soapy water to kill any surviving fire ants
- Administration of IV fluids (e.g., Lactated Ringer's solution) for rehydration--white tail deer fawns usually have 5 to 8 percent dehydration when presented
- Non-steroidal anti-inflammatory therapy (i.e., flunixin)--this reduces swelling, provides analgesic relief, and counteracts shock
- Use of fast-acting steroids (i.e., methyl prednisolone succinate) intravenously to treat severe shock--longer acting steroids may retard healing of damaged epithelium (i.e., cornea)
- Systemic antihistamine therapy to counteract the histamine reaction at sting sites--this therapy may be of little use if the insect bites are over 30 minutes old
- Topical treatment of the eyes every 4-hours with antibiotic solutions--steroids should be used only when there is no evidence of corneal ulceration
- Gastric lavage with warmed isotonic fluids to remove remaining ants--up to 200 fire ants and ant fragments have been removed from white tail deer fawns with this method.

Continuing care for fire ant victims may include:

- Systemic antibiotic therapy to control bacteremia that often results from multiple stings
- Gastric protectants such as kaolin pectin solutions to mollify internal irritation
- Orogastric tube feeding if the victim remains depressed or if muzzle lesions are advanced
- Intensive eye therapy if melting ulcers develop--this frequently requires the use of antibiotic/acetylcystine solutions every 2-3 hours around the clock.

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For more information regarding fire ant management, see Extension publications [B-6043](#), *Managing Red Imported Fire Ants in Urban Areas*; [B-6076](#), *Managing Red Imported Fire Ants in Agriculture*; [B-6099](#), *Broadcast Baits for Fire Ant Control*; or [L-5070](#) *The Texas Two-Step Method Do-It-Yourself Fire Ant Control for Homes and Neighborhoods*. Also visit our web site at <http://fireant.tamu.edu>.

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