Abscesses

College of Veterinary Medicine

BASICS

An abscess is a pocket of pus, a collection of white blood cells and dead tissue, that forms within the body, usually in response to a **BACTERIAL INFECTION.**

Species of bacteria most commonly associated with abscesses include *Streptococcus sp., Staphylococcus sp., Pseudomonas sp.,* and *Trueperella pyogenes*. Abscesses can occur in any animal and are typically a **RESULT OF INJURIES AND WOUNDS.**

Abscesses may remain localized with minimal adverse effects to the animal. However, abscesses that spread along muscle layers or into organs can lead to serious illness, including pain, tissue damage, septicemia (bacteria in the blood stream), and **DEATH.**

In **WHITE-TAILED DEER**, abscesses caused by the bacteria *Trueperella pyogenes* may cause a serious disease known as brain abscess syndrome. In **BIRDS**, injuries to the foot pads may lead to abscesses, a condition known as bumblefoot. In **REPTILES**, abscesses in the ears of turtles commonly occur.

DIAGNOSIS of the bacteria causing an abscess can be performed by culture. In deer with brain abscesses, diagnosis is done post-mortem.

There is **NO TREATMENT** for free-ranging deer. Once an abscess has penetrated through the skull into the tissue of the brain, the infection is **FATAL.**

People handling tissues with abscesses should take **PRECAUTIONS** to limit contact with potentially infectious material.

DETAILS

TRANSMISSION of bacteria is through open wounds or injuries. *Trueperella pyogenes* is normally found on the skin and mucous membranes of deer. The bacteria can enter wounds in antlers or abrasions on the head when antlers or velvet is shed or when bucks lock antlers or knock their heads against each other. The bacteria form abscesses in the superficial layers of the head and skull.

As the abscesses progress, they cause damage to the underlying skull bone, and the bacteria form abscesses in the brain. Eventually, these intracranial abscesses damage brain tissue leading to **NEUROLOGICAL SIGNS**, including loss of coordination, circling, lack of fear or aggression, paralysis, and death.

Septicemia may also occur in deer with brain abscesses when *T. pyogenes* invades the blood stream. Thus, as a **PRECAUTION**, meat of deer with brain abscesses should not be consumed.

Because transmission of *T. pyogenes* is linked to **REPRODUCTIVE BEHAVIOR**, intracranial abscesses are more common in antlered male deer than fawns or females, and most cases occur from October through April when competing males lock antlers during the reproductive season. Brain abscess syndrome accounts for approximately 9% of deaths of adult and yearling male white-tailed deer.

In **BIRDS**, injuries to the foot pads may lead to abscesses, a condition known as bumblefoot. While it is more often seen in captive birds and is associated with inadequate perches, cases of bumblefoot have been reported in wild turkeys and raptors, including a great horned owl and red-tailed hawks. Depending on the **SEVERITY OF THE INFECTION**, affected birds may be limited in their ability to stand and capture prey, leading to emaciation and death.

In **REPTILES**, the pus within abscesses is a more solid and cheese-like material and is usually surrounded by a fibrous capsule. Abscesses in the ears of wild Eastern box turtles are common and may present as visible swellings on the turtle's head just behind the eyes. If the abscess becomes very large, the turtle may have difficulty opening its mouth and may not be able to draw its head back into its shell.

In **WILD TURTLES**, aural abscesses are associated with environmental exposure to organochlorines, an ingredient of pesticides, which leads to changes in the metabolism of vitamin A in the turtles. Subsequent vitamin A deficiency causes changes in the tissues of the middle ear. These tissue changes may result in bacteria from the mouth spreading through the Eustachian tube to the middle ear where an abscess forms. Deaths resulting from aural abscesses typically do not cause population declines of affected reptiles.

TREATMENT of abscesses in wildlife species depends on the severity of the infection and may involve surgical removal of the abscess, cleaning of the affected area, and possible antibiotic therapy. There is no treatment of brain abscess syndrome for affected deer. Once an abscess has penetrated through the skull into the tissue of the brain, the infection is fatal.

Eastern box turtle, *Terrapene c. carolina*