

WILDLIFE MANAGEMENT

Publication Series



WMS – 12 – 13

September 2012

Deer Fibromas

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What are the tumors seen occasionally on white-tailed deer caused by?

These tumors are caused by papillomaviruses, similar to the papillomaviruses that cause warts in humans. These fibromas typically grow on the surface of the skin and are an uncommon condition in deer populations.

There can be one to many fibromas on an infected deer and they typically appear as firm, round, hairless, nodular masses that can vary in diameter from a quarter of an inch to eight inches (0.64 to 20.32 centimeters), although in rare cases they may expand in excess of 8 inches (Figure 1). The masses are typically smooth but may become wrinkled. Most masses are firmly attached to the skin but some may become peduncled (attached to skin by a thin skin tag). Particularly large masses or those found in irritating areas can lead to scratching or rubbing causing them to become ulcerated or secondarily infected with bacteria. Very rarely, these tumors can become cancerous. Though they may be found anywhere on the body, they are more frequently observed around the face, neck, eyes, and forelegs.

Do these fibromas impact the health of deer?

Generally, animals with fibromas remain active and eventually the tumors will regress over 2-3 months, leading to a complete recovery. In addition, evidence indicates that deer previously infected with this virus become resistant to future infections. Therefore, prevalence of fibromas is typically higher in young deer.

However, in some cases, fibromas may block vision, leading to problems with feeding and predator evasion. In rare cases, the location of a large tumor or cluster of tumors may even interfere with breathing or walking. Fibromas affect individuals and are not considered to have a population-level impact on deer.

How is this virus transmitted from one deer to another?

The virus can be transmitted by one of three ways.

- 1) The fibromas contain large amounts of virus. If fibromas are scratched or rubbed by twigs, briars, or other items, dead skin and fluids containing the virus can transfer to objects. Other deer that come into contact with those items can become infected if the virus contacts broken skin. Situations that encourage high densities of deer, such as feeding stations or bait piles, can lead to increased risk of transmission.

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- 2) Deer, especially males, fight during certain times of the year. During these bouts, fibromas on an infected deer can shed virus that transferred to the uninfected deer. Also, bucks will rub their antlers against trees and objects to remove velvet. Multiple bucks may use the same tree, thereby spreading the virus. Studies have shown that fibromas are more common in bucks.
- 3) Biting arthropods, such as ticks, mosquitos, and biting flies, transfer the virus from one deer to another. Importantly, no development of the virus occurs in these biting arthropods, they simply become contaminated with the virus while feeding on the fibromas.

Do other wildlife get deer fibromas?

In North America, white-tailed deer are the most common host for deer fibromas. White-tailed deer papillomavirus or other related papillomaviruses cause similar fibromas in other species of deer, including native species, such as mule deer, black-tailed deer, moose, elk, and caribou, and non-native species, such as red deer, fallow deer, and roe deer introduced in North America and throughout their natural ranges Europe and Asia.



Figure 1. A. Small fibroma under the eye. B. Two small fibromas on the side of a deer. C. Large numbers of fibromas on deer and D. Several large fibromas on a deer (one has been cut to show inside). Figures 1A and 1B are by Dr. Kevin Keel (UGA) and 1C and 1D are diagnostic submissions to SCWDS.

Numerous other unrelated papillomaviruses can cause similar lesions in domestic and wild animals. Common hosts of other unrelated papillomaviruses include cattle, horses, sheep, llamas, alpaca, cats, pronghorn, and rabbits, including cottontails, domestic rabbits, jackrabbits and snowshoe hares.

Can deer fibromas be treated?

There is no treatment for deer fibromas, nor is one typically needed. Once a deer has been infected with fibroma virus, it will mount an immune response and the tumors usually will regress. Following regression, the animal will become immune to future infection. Only rarely does infection result in death of an animal due to over growth of tumors around the eyes or mouth or very rarely, development into a cancerous growth.

Can my cattle get these tumors from the infected deer I see in the pasture?

No. Papillomaviruses are usually very host-specific. In the case of deer papillomaviruses, researchers have been unable to experimentally infect cattle or other domestic livestock.

Can I get warts from handling the deer?

No. There is no evidence that humans can become infected with deer papillomavirus. Regardless, as a precaution, gloves should be always worn when dressing or skinning any harvested animals. For example, an unrelated virus of white-tailed deer, deer parapoxvirus (DPV), can infect humans and cause nodules. DPV, at certain stages of its development, can superficially resemble cutaneous fibromas but are generally very small and difficult to see with the naked eye.

Is it safe to eat a deer with these tumors?

Yes. Since the papillomaviruses are specific to deer and they only grow on the surface of the skin, there is no danger in consuming the meat if the deer appears otherwise healthy. Deer with numerous fibromas that block sight, eating, or drinking may be malnourished and therefore susceptible to other diseases or parasites. These deer may not be the best choice for consumption. Very large tumors may have secondary infections that could spread to other parts of the deer's body causing that meat to be unfit for consumption. Irregular, broken, or bloody fibromas or those that are scabby or exuding pus may have developed secondary infections.

Editor

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