



Skin tumours of mammals

(variety of papillomaviruses)

in Alberta



Common name

papillomatosis, fibromatosis, warts, papillomas, fibromas, skin tumours, oral papillomatosis

Scientific name

a variety of papillomaviruses

What's Bugging Wild Critters?

Fact sheet #24:
Skin tumours of mammals

Significance

Skin tumours (warts) on wildlife are growths that occur when papillomaviruses live in the skin tissues. They occur commonly on a wide range of species throughout the world. The warts on wildlife generally are harmless and are NOT infective to people.

What? Where? How?

Warts on mammals are the result of species-specific papillomaviruses or pox viruses. That is, different species of virus find suitable habitat in different species of mammals. The optimal place for these viruses to live is the cells of the skin (including the mouth and lips), where they cause excessive cellular growth and proliferation (a tumour) and result in a lump or wart on the skin surface. Each infected cell can contain millions of virus particles.

Skin tumours vary in size from small pinpoints to large grapefruits. They may be single or in large clusters, broadly attached to the skin or attached by a thin stem and hanging loosely like a grape. They are dry, firm, usually dark-coloured, and often irregular in shape. Some tumours are smooth, but most are wrinkled or roughened like a cauliflower or broccoli. When you cut into one of the warts, you find a solid smooth glistening white inner surface.

Transmission Cycle

The viruses can only survive within skin cells. Thus, they must be passed on to another individual by direct contact or on surfaces contaminated with infected cells (such as rubbing posts). Puncture wounds or small cuts in the skin allow the infected cells to enter a new individual. Once inside, enzymes break down the original cells and release the virus particles, which then enter new cells. In deer and moose, skin growths usually occur in males and on the face, neck, and chest. In coyotes and wolves, the warts occur in the mouth and on the lips. This suggests transfer by biting one another and probably involves small cuts in the mouth caused by eating bones and bone fragments. The warts are most often seen in young pups (which are known to bite and chew a lot during play and mock attacks).

Distribution in Alberta

Skin tumours occur widely in the province and are most often seen on moose, mule deer, and white-tailed deer. Younger individuals (less than 2.5 yrs) and males tend to have more warts. Occasionally we see oral papillomas in the mouth and on the lips of young coyotes and wolves. Sporadic cases of skin growths can occur in almost any species, including red squirrel, snowshoe hare, black bear, and cougar.



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Importance for Wildlife Management

Most skin tumours are harmless and do not affect the health of the individual. Infections tend to be self-limiting; that is, the immune system gradually overcomes the virus and prevents any further growth. The warts then dry up and drop off. Previously infected individuals generally are resistant to new infections; thus younger animals are more likely to provide suitable environments for the virus to survive. Males also tend to have more warts, perhaps because injuries during the rut or while rubbing against trees to remove antler velvet allow the virus to enter the skin cells. Occasionally, an individual that cannot mount an immune response may become heavily infected. Tumours around the eyes can limit vision and interfere with hunting success (as recently seen in an emaciated cougar) and excessive numbers of warts in the mouth and on the tongue can result in starvation (as seen in a few coyote pups).

Fish & Wildlife Alberta SRD



Summary

The viruses associated with skin tumours on the biodiversity of the province. They are cause little or no lasting effects. They are passed among susceptible individuals within species and result in a short-term case of warts. They are not infective to people and do not affect the edibility of meat.

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Additional Information

Infectious Diseases of Wild Mammals, Third Edition. Edited by Elizabeth S. Williams and Ian K. Barker. 2001. Chapter 11 - Papillomavirus Infections.

University of Northern British Columbia: http://www.unbc.ca/nlui/wildlife_diseases_bc/papillomavirus.htm

Merck Veterinary Manual - Online: <http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/72215.htm&word=papillomas>

Northwest Territories Resources, Wildlife and Economic Development: <http://www.nwtwildlife.com/Publications/diseasepamphletweb/papillomas.htm>

Alaska Department of Fish and Game: <http://www.wildlife.alaska.gov/aawildlife/disease/guide/skin2.cfm>

For more information on wildlife diseases in Alberta: <http://www3.gov.ab.ca/srd/fw/diseases/index.html>