
Oral papilloma virus

Summer 2024

Significance

Oral papillomas are small round cauliflower-like warts that occur in the mouth and on the lips of young coyotes. For the most part, these growths are harmless to the coyote unless they directly interfere with catching or chewing food items. The warts dry up and drop off, and the coyote remains immune to future infection. These warts do not infect people.



What? Where? How?

Warts on mammals are associated with specific papilloma-viruses that infect cells in skin tissues. The close relationship between these viruses and the species they infect suggests they are ancient viruses that co-evolved with mammals over millennia and tailored their ability to infect only certain groups. The virus that infects coyotes and wolves (and dogs) is officially called canine oral papilloma virus (COPV) and as the name suggests, it infects members of the canid family and tissues in the mouth. COPV probably occurs in dogs around the world.

Transmission of oral papilloma virus involves direct contact with the warts or with virus-laden cells that can persist in the environment, often on scratching posts or at rendezvous sites used repeatedly by coyotes or wolves. The virus is able to infect skin cells and the warm moist cells in the mouth and on the inner surface of the lips provide perfect habitat for COPV. After invading a cell, the viruses take over the cell's metabolic processes and send new signals that result in significantly increased cell growth or proliferation, giving rise to a tumour or wart that bulges above the skin surface. With COPV, the new growth looks like small white or yellow round cauliflowers growing on the lips, tongue, cheeks, gums, and other mucous membranes in the mouth. These masses sometimes merge into a continuous mat of knobby warts.

The underlying predisposition to this infection lies in the immune system. Young mammals in general have an incomplete immune system in their early months and thus can be more susceptible to various infections. Whether papilloma viruses establish in an individual depends on the success or failure of each pup's immune defense. However, infection or exposure to the virus in early life results in life-time immunity. Nearly all cases of visible oral papilloma virus in coyotes involve pups.

Distribution in Alberta

Although relatively rare, reports of oral papillomas are spread widely in various habitat types, suggesting that the virus is widespread and infected coyotes likely can occur anywhere in the province. Although they are susceptible to the virus, very few infected wolves are seen and/or reported.

Importance for wildlife management

Oral papilloma virus infections appear to be relatively harmless in most coyotes. It is likely that coyote pups are exposed to the virus in their first year and often mount a protective immune response that limits the size and number of warts in their mouth. Most pups probably are exposed but are able to prevent infection. But once the protective barrier is breached and the virus establishes, it takes off and multiplies to the extent seen in the current pictures. In such cases, the warts may interfere with a pup's success in hunting, chewing, or swallowing. Severe infections can lead to emaciation.

The few cases of oral papillomas in an adult coyote are believed to involve an individual that did not encounter the virus when it was a pup.

Public significance

Canine oral papilloma virus does not infect people. Depending on their immune system, domestic dogs may or may not be susceptible to this virus.

Prevention/control

There are no preventative or control measures available to limit oral papillomas in coyotes. Nor are any warranted. While unsightly to us, these warts rarely cause problems for infected individuals. In fact, the effect is just the opposite. Once the warts dry up and drop off, the infected coyote has a life-time immunity that prevents further infection.

Summary

Canine oral papillomas are part of the natural biodiversity of the province. The virus is widespread and causes limited damage to most infected coyotes. It is passed among susceptible young coyotes and once the warts disappear there is a life-time immunity against any further infection.



Additional Information

Samuel, W.M., G.A. Chalmers, and J.R. Gunson. 1978. Oral papillomatosis in coyotes (*Canis latrans*) and wolves (*Canis lupus*) of Alberta. *Journal of Wildlife Diseases*, 14(2), pp.165-169.

Government of Alberta. 2004. Online resource.

[Skin tumours of mammals \(variety of papillomaviruses\) in Alberta](#)