Poxvirus Infection in Birds: Causes, Signs, Treatment, and Prevention

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Poxvirus infection is most commonly observed in canaries housed outdoors, young parrots, and recently caught wild birds. There are many different types of poxviruses; some affect only particular species of birds, others affect several species. For instance, the canary poxvirus only affects canaries and birds that can interbreed with canaries.

How is poxvirus transmitted?

Poxvirus is transmitted by ingesting or inhaling the virus. Mosquitoes can transmit the virus, and outbreaks are more common in birds housed in outside cages or aviaries. The virus can also enter the bird's body through a pre-existing wound or open sore. Finally, instruments and equipment used in hand feeding baby birds can transmit the virus. The incubation period is five to ten days.

What are the signs of poxvirus infection?

Clinical signs can vary, but there are three general forms of the disease. In an outbreak, more than one form of the disease may be seen.

Form of Disease	Birds Commonly Affected	Signs
Cutaneous (Dry Pox)	Raptors, Psittacines	Nodules develop on the featherless areas of the bird including the legs, feet, nares, beak, and around the eyes. The nodules develop into pustules that break open and form scabs, and may become secondarily infected with bacteria or fungi. If the eye is involved, reddened lids, discharge, inflammation of the cornea, cataracts, and a shrunken eye may occur. Some lesions can be very large and may be present up to 6 weeks or more.
Diphtheroid (Wet Pox)	Passerines, Blue-fronted Amazons, Pionus Parrots	Conjunctivitis is often the first sign of the disease. Then, gray to brown lesions develop in the inside of the mouth, on the tongue, and may extend down into the esophagus. The bird may have difficulty eating and drinking. Lesions may form on and around the eyes, sometimes causing severe corneal ulcers and permanent damage to the eye.
Septicemic	Canaries, Finches	Signs generally occur suddenly and many body systems can be involved. The bird may show multiple signs of illness including fluffed feathers, loss of appetite, and lethargy. They develop pneumonia, with resulting cyanosis, and many die within 2 to 3 days.

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How is a poxvirus infection diagnosed?

Diagnosis of a poxvirus infection is often made by microscopic examination of cells acquired by swabbing a lesion, placing the material on a slide and staining it. Microscopic examinations of biopsies, and isolating the virus from affected tissues can also be diagnostic.

How is a poxvirus infection treated?

There are no medications that will kill the virus, so treatment involves supportive care to help the bird recover. Vitamin A may be administered to parrots to improve the health of the skin and lining of the mouth and esophagus. Antibiotics and antifungals may be used to prevent or treat any secondary infections. Tube feeding may be necessary in some birds who will not eat. Scabs around the eyes can be softened with moist compresses. Do NOT attempt to remove the scabs. Ophthalmic ointments may be used if the eyes are affected.

How is poxvirus infection prevented?

To control an outbreak of poxvirus:

- Prevent exposure of birds to mosquitoes with the use of screens.
- Use the poxvirus vaccine that is available for the specific species, e.g., pigeons, doves, canaries, or psittacines, to vaccinate healthy birds.
- Isolate affected birds from the others. Always feed and handle the healthy birds before taking care of the sick birds. Wash hands well after handling sick birds.
- Use separate equipment for the hand feeding of each bird. Clean and disinfect food and water dishes, any instruments or materials used in hand feeding, and any other equipment that would come in contact with oral secretions of birds. Appropriate disinfectants include 1% potassium hydroxide (KOH), 2% sodium hydroxide (NaOH), and 5% phenol.
- Protect birds from wounds, since the poxvirus can enter the body through a break in the skin or open sore.

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