OPHIDIAN PARAMYXOVIRUS (OPMV)

Animal Group(s) Affected	Transmission	Clinical Signs	Severity	Treatment	Prevention and Control	Zoonotic
All snakes, especially Viperidae.	Primarily airborne, but fomite, waterborne, fecal-oral transmission can occur. Vertical transmission may occur, but uncertain at this time.	Respiratory compromise; neurologic signs; anorexia, regurgitation; chronic "poor doer"; sudden death.	Severe; animals can survive infection with supportive care but death is common.	Supportive care, including broad spectrum antibiotics, fluid admini-stration and nutritional support. Ensure proper husbandry, especially correct thermal gradient.	Strict quarantine with separate airspace and utensils. PCR testing on tracheal lavage. Proper husbandry.	No.

Fact Sheet compiled by: Christopher S. Hanley

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Fact Sheet Reviewed by: Randy Junge; Ellen Bronson; Juergen Schumacher

Susceptible animal groups: All snakes, especially Viperidae

Causative organism: Ophidian paramyxovirus

Zoonotic potential: None

Distribution: Outbreaks have been documented worldwide in private and zoological collections of snakes. Seroconversion has been documented in wild snakes however the importance of this finding is uncertain. Some sources have reported seasonal outbreaks as more common January through May.

Incubation period: Seroconversion takes at least 8 weeks but the incubation period has been documented to be at least 10 months in some specimens.

Clinical signs: This disease is primarily one of the respiratory tract and clinical signs include open mouth breathing, nasal discharge, blood from oral cavity or nares, and labored breathing. However, in progressive disease, neurologic signs present including, including head tremors, star gazing, flaccid paralysis, convulsions, and loss of righting reflex, and may end in acute death. In more chronic cases, anorexia, regurgitation, cachexia, lethargy, and abnormal feces are common. As with other paramyxoviruses, OPMV causes immunosuppression and secondary bacterial infections are common.

Post mortem, gross, or histologic findings: No pathognomonic lesions occur with this disease. Gross findings range from no lesions to respiratory lesions including pulmonary congestion, hemorrhage, respiratory exudates, and pneumonia. Pancreatic duct hyperplasia – and may be grossly present as splenopancreatomegaly, and diffuse hepatic necrosis with multifocal pyogranulomatous inflammation may also be macroscopically present.. Histologic lesions include hyperplasia of the respiratory epithelium, thickening of the pulmonary septa, inflammatory cell infiltration, evidence of exudates and edema, and rarely eosinophilic intracytoplasmic inclusions. If the CNS is involved, there can be encephalitis with multifocal gliosis, moderate ballooning of axon fibers in the brain stem and spinal cord. Hepatic necrosis or multifocal pyogranulomatous inflammation is often observed. Hyperplasia of pancreatic ducts and acinar cells with cystic dilatation has been observed. The salivary glands can be affected by ductular dilatation, flattening of the ductular epithelium, and accumulation of cellular debris and secretory material in the lumen.

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Diagnosis: Definitive diagnosis requires viral isolation from tissues, PCR for viral nucleic acid, immunohistochemical staining for viral antigen, and/or electron microscopy. Tracheal washes submitted for PCR analysis may provide an antemortem diagnosis.

Material required for laboratory analysis: Tracheal lavage fluid can be submitted for PCR analysis as a screening tool and tissue samples collected at necropsy (especially lung, liver, and pancreas) – both formalin fixed and frozen, depending on test.

Relevant diagnostic laboratories:

University of Florida Diagnostic Laboratories
c/o April Childress
2015 SW 16th Avenue, Bldg 1017, Room V2-238
Gainesville, Florida 32608
(352) 392-4700 ext. 5775

University of TN Veterinary Diagnostic Laboratories Virology/Serology Service
Biomedical and Diagnostic Sciences
2407 River Drive, Room C239
Knoxville, TN 37996-4543
Phone: (865) 974-5643
Fax: (865) 974-5644
virology@utk.edu

Treatment: Supportive care, including broad spectrum antibiotics, fluid therapy and nutritional support. Ensure proper husbandry, especially correct thermal gradient.

Prevention and control: Maintain proper husbandry, especially correct thermal gradients. Quarantine all new snakes for a minimum of 60-90 days, using separate utensils and supplies, disinfection or destruction of all cage materials at the end of quarantine, and usage of a footbath. Perform OPMV PCR via tracheal wash during quarantine period. Monitor animals closely for abnormal behaviors. Necropsy all snakes that die. While OPMV serology is available from multiple laboratories, question has been raised as to the value of this method of testing, especially when comparing results between different laboratories.

Suggested disinfectant for housing facilities: Bleach (32ml/L) is recommended for disinfection.

Notification: None

Measures required under the Animal Disease Surveillance Plan: None

Measures required for introducing animals to infected animal: Due to the fact that PCR positive animals would be actively shedding the virus, it is not recommended to introduce new animals to those that are infected. A minimum of 60 days (and ideally longer) after the last OPMV death should pass before the introduction of new specimens.

Conditions for restoring disease-free status after an outbreak: PCR positive animals should be isolated and those that are PCR negative and appear healthy should have recheck tracheal wash after 90 days before new animals are introduced into the collection.

Experts who may be consulted:

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