Encephalitis caused by natural OvHV-2 infection in a pig

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Objectives

Ovine Herpesvirus-2 (OvHV-2), member of the *Gammaherpesvirinae* subfamily, *Rhadinovirus* genus is the causative agent of malignant catarrhal fever (MCF) of ruminants. The virus is transmitted from infected but asymptomatic sheep to other species. The present case report describes a natural MCF case in a pig that has been in close contact with sheep. OvHV-2 infection and MCF in pigs has previously been described in Norway, Switzerland and recently in the United States.

Materials and Methods

High fever (40.5°C – 41.5°C), lethargy, lack of appetite and recurrent ataxia was observed in a finisher pig of approximately 100kg. The animal was kept in a backyard farm along with two other pigs showing no similar symptoms. In the same farm 15 sheep were also kept in close contact with the pigs.
The animal was submitted for necropsy to the CAO-VDD. Due to the CNS symptoms, and the lack of macroscopic lesions in the parenchymatous and other organs of the animal brain was submitted for routine histopathology.
Polymerase chain reaction was performed to detect the following viruses: Aujeszky Disease Virus, African Swine Fever, Classical Swine Fever, Rabies and Porcine Enteroviruses as recommended by OIE. A broadly applicable primer pair was used to detect large DNA (herpes and adeno) viruses (4) (Table 1).
Direct sequencing was used to identify the amplicon generated by the above mentioned large DNA detecting primer pair.

Table 1. Primer sequences used for the detection of OvHV-2.

Gene	Dir.	Sequence (5'-3')	Genomic position on OvHV-2	Size bps.
Polymerase	**Fw**	cccgaattcagatc-TCNGTRTCNCCRTA	22421	530
	Rev	gggaattcta-GAYATHTGYGGNATGTAYGC	22450	

Results

The histopathological investigations revealed diffuse, mononuclear, predominantly lympho-plasmocytic perivascular inflammation in the gray and in the white matter of the brain, with multifocal glial cell proliferation.
The sequence analysis of the amplicon generated by the large DNA virus polymerase specific primer pair, and the subsequent BLAST identification revealed 97% nucleotide and 95% amino acid similarity to a North American OvHV-2 isolate (DQ198083).
A phylogenetic tree has been created with our porcine isolate (14014) and the most important gammaherpesvirus species, using SuidHV-1 (ADV, AlphaHV) as an outgroup.

Conclusions and Discussion

A single case of porcine MCF has been identified in a pig suffering from high fever and central nervous symptoms. After the exclusion of the most important encephalitis-causing viruses with their specific, OIE-validated detection methods, a recently described, broadly applicable primer pair has been applied on the brain tissue for the detection of possible large DNA viruses and/or adenoviruses.
Our case draws the attention to the dangers of keeping pigs in close contact with other species.

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