

## **Prevalence and Detection of Porcine Circovirus 2 in Aborted Fetuses and Stillborn Piglets**

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### **Introduction**

Porcine circovirus (PCV) is the smallest virus that replicates autonomously in mammalian cells. PCV2 is recognized as the casual agent of postweaning multisystemic wasting syndrome (PMWS).[1] Although the role of PCV2 in reproductive failure requires further clarification, there have been several reports of PCV2-associated reproductive failure. Consistent clinical signs of affected farms include elevated abortion, stillbirths and fetal mummification. The objective of this study was to determine the prevalence of PCV2 in aborted fetuses and stillborn piglets. Second objective was to determine the distribution of PCV2 DNA and antigen in aborted fetuses and stillborn piglets by in situ hybridisation and immunohistochemistry.

### **Materials and Methods**

A total of 350 aborted fetuses and stillborn piglets, submitted from 321 pig farms during 2 years (October 2000-September 2002) for the diagnosis of reproductive problems, were used and screened for the presence of PCV2, porcine parvovirus (PPV) and porcine reproductive and respiratory syndrome virus (PRRSV) by polymerase chain reaction (PCR). In situ hybridization and immunohistochemistry was performed.

### **Results**

A total of 150 (43%) of 350 aborted fetuses and stillborn piglets were found to be positive at least one of virus tested. Among 150 cases, 137 cases were single infection and 13 cases were dual infection. In the single infection, 90 cases were found to be positive for PPV, 35 cases were found to be positive for PCV2, and 12 cases were found to be positive for PRRSV only. In the dual infection, 9 cases were found to be positive for PCV2 and PPV, 2 cases were found to be positive for both PCV2 and PRRSV, and 2 cases were found to be

positive for both PPV and PRRSV. Among the 35 single infection of PCV2, 12 fetuses from late gestation, 5 premature fetuses and 6 stillborn piglets were examined for PCV2 antigen and nucleic acid in lung, thymus, liver, tonsil, spleen, heart, kidney and lymph node.

### **Discussion**

The results of this study suggest that PCV2 is associated with reproductive failure at all stages of gestation. The reproductive failure was characterized by late-term abortion and delivery of stillborn near-term fetuses or premature piglets. Midgestation abortion, mummified fetuses, early embryonic death was also observed in this study. Simultaneous detection of viral protein and nucleic acid provided a molecular evidence that these cells were infected with PCV2. Detection of PCV2 antigen and nucleic acid in stillborn piglets suggest that PCV2 can be present in large amounts within fetuses infected in utero and vertical transmission may be an important means of viral transmission.

### **References**

1. Kim, J., Choi, C., Chae, C., 2003. **128**, 52-59.