Reproductive failure associated with the co-infection of porcine circovirus type 2 and porcine reproductive and respiratory syndrome virus
Chun Kuen Mak,a Ching Yang,a Chian-Ren Jeng,b Victor Fei Pang,b Kuang-Sheng Yeha
aDepartment of Veterinary Medicine, School of Veterinary Medicine, National Taiwan University, Taipei, Taiwan; bGraduate Institute of Molecular and Comparative Pathobiology, School of Veterinary Medicine, National Taiwan University, Taipei, Taiwan

Spontaneous porcine abortions and stillbirths have a significant economic impact; however, the lesions are usually not pathognomonic and a definitive etiology is often identified in only one-third of abortion cases.1 The recently developed multiplex polymerase chain reaction (PCR) used in this case may be a convenient diagnostic tool for rapid and simultaneous detection of abortifacient pathogens, especially for the case of co-infection.2

Increased incidence of late-term abortions, stillbirths and premature farrowings occurred in a 450-sow, farrow-to-finish, closed farm in Northern Taiwan from November 2016 to January 2017. Abortuses and stillbirths from six litters were necropsied. Gross lesions included cardiomegaly, congested liver and meninges, patchy pulmonary hemorrhage, and pleural and abdominal effusion in the affected fetuses. Histopathological examination revealed mononuclear myocarditis (1 of 6 litters), meningitis (2 of 6), and vasculitis (1 of 6) in some litters. Few protozoa-like organisms were detected in the myocardium (3 of 6). Co-infection of porcine circovirus type 2 (PCV2) and porcine reproductive and respiratory syndrome virus (PRRSV) was demonstrated in two litters by multiplex PCR, sequencing and immunohistochemistry. Infection of PCV2 was found in two other litters. Specific lesions and etiologies were not identified in the remaining two litters. Other abortifacient viruses, including classical swine fever virus, encephalomyocarditis virus, Japanese encephalitis virus, Menangle virus, porcine parvovirus, and pseudorabies virus, were ruled out by the negative result of PCR.

There is no recommended treatment for reproductive failure associated with the co-infection of PCV2 and PRRSV. To eliminate non-immune animals, vaccination of all gilts and sows for PCV2 prior to breeding is recommended since vaccination of only gilts with lower immunity level against PCV2 may not be sufficient.3,4 None of the current vaccines can completely prevent PRRSV infection,5 but vaccination of gilts and sows can improve the reproductive performance,6 which potentially reduces economic loss.

Keywords: Abortion, co-infection, porcine circovirus type 2 (PCV2), porcine reproductive and respiratory syndrome virus (PRRSV), stillbirth, swine

References