Transmission of African swine fever virus from infected pigs by direct contact and aerosol routes - DTU Orbit (02/12/2018)

Transmission of African swine fever virus from infected pigs by direct contact and aerosol routes

In 2014, African swine fever virus (ASFV) was introduced into the Baltic states and Poland. Since then, the disease has continued to spread within these regions, and recently, cases were reported in the Czech Republic and Romania. Currently, there is an increasing risk of ASFV introduction into Western Europe. Hence, there is an urgent need to assess current contingency plans. For this purpose, knowledge of modes-of-transmission and clinical outcome in pigs infected with new European ASFV strains is needed. In the present study, two experiments were conducted in pigs using an isolate of ASFV from Poland (designated here POL/2015/Podlaskie/Lindholm). In both studies, pigs were inoculated intranasally with the virus and contact pigs were exposed to the experimentally infected pigs, either directly (contact within and between pens) or by air. Pigs exposed to the virus by intranasal inoculation, by direct contact to infected animals and by aerosol developed acute disease characterized by viremia, fever and depression. Infectious virus was first detected in blood obtained from the inoculated pigs and then sequentially among the within-pen, between-pen and air-contact pigs. ASFV DNA and occasionally infectious virus was found in nasal-, oral-, and rectal swabs obtained from the pigs, and ASFV DNA was detected in air samples. No anti-ASFV antibodies were detected in sera. In conclusion, the study shows that the currently circulating strain of ASFV can be efficiently transmitted via direct contact and by aerosols. Also, the results provide quantitative transmission parameters and knowledge of infection stages in pigs infected with this ASFV.

General information
State: Published
Organisations: National Veterinary Institute, Virology, Epidemiology, National Veterinary Research Institute, Centro de Investigación en Sanidad Animal
Pages: 92-102
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Veterinary Microbiology
Volume: 211
ISSN (Print): 0378-1135
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.7 SJR 1.175 SNIP 1.241
Web of Science (2017): Impact factor 2.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.65 SJR 1.363 SNIP 1.206
Web of Science (2016): Impact factor 2.628
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.56 SJR 1.413 SNIP 1.21
Web of Science (2015): Impact factor 2.564
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.54 SJR 1.291 SNIP 1.256
Web of Science (2014): Impact factor 2.511
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3 SJR 1.459 SNIP 1.471
Web of Science (2013): Impact factor 2.726
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.18 SJR 1.441 SNIP 1.569
Web of Science (2012): Impact factor 3.127
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.27 SJR 1.56 SNIP 1.729
Web of Science (2011): Impact factor 3.327
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.39 SNIP 1.474
Web of Science (2010): Impact factor 3.256
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.309 SNIP 1.466
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.164 SNIP 1.29
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.048 SNIP 1.315
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.03 SNIP 1.396
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.089 SNIP 1.259
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.873 SNIP 1.248
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.905 SNIP 1.181
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.905 SNIP 1.13
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.828 SNIP 1.051
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 0.699 SNIP 1.066
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 0.714 SNIP 1.089
Original language: English
Keywords: ASF, Poland, Virus transmission, Air sampling, Haemorrhagic disease
Electronic versions:
BEFO_1_s2.0_S0378113517307757_main1.pdf. Embargo ended: 05/10/2018
DOIs:
10.1016/j.vetmic.2017.10.004
Research output: Research - peer-review › Journal article – Annual report year: 2017