

The infectivity and pathogenicity of a foot-and-mouth disease virus persistent infection strain from oesophageal-pharyngeal fluid of a Chinese cattle in 2010

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Background: Foot-and mouth disease(FMD) is an acute, febrile, and contagious vesicular disease affecting cloven-hoofed animals. Some animals may become persistent infected carriers when they contact FMD virus(FMDV),and persistent infected animals are a dangerous factor to cause FMD outbreak.

Findings: 300 OP(oesophageal-pharyngeal) fluid samples were collected from cattle without clinic symptom after one month FMD circulated in 2010 in China. A FMDV strain was isolated when a positive OP sample was passed in BHK21 cell line.The strain,named O/CHN/2010/33-OP, was detected to be O/Myanmar/1998 lineage with VP1 DNA sequence comparison.In order to testify its infectivity, two cattle were challenged with OP fluid and three pigs were put into the same pen for direct contact infection.The result showed that one of the cattle and one of the pigs appeared FMD clinic symptoms respectively. Further more, two cattle(three pigs were also put into the same pen for direct contact infection) and three pigs were inoculated with O/CHN/2010/33-OP cell passaged strain. The result showed that one of the challenged pigs appeared FMD clinic symptoms. Two cattle and three pigs in the same pen did not appeared FMD clinic symptoms,but the sera antibody and their OP fluid of two cattle were positive. Meanwhile,the spinal cords of three pigs in the same pen with two cattle were positive detected with multiplex-RT-PCR.

Conclusion: The persistent infection strain O/CHN/2010/33-OP has infectivity and pathogenicity to cattle and pigs, and infected cattle may transmit the virus to pigs although its virulence was lower than the circulated strain O/CHN/Mya98/2010.

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