



Pigeon Paramyxovirus: A potential threat for poultry in Switzerland?

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Key words

Avian paramyxovirus-1 (APMV-1); Pigeon paramyxovirus-1 (PPMV-1); pigeon; poultry; Switzerland; diagnostics

Aim of the study

The aims of our project are (a) to investigate the infectivity of PPMV-1 strains for chickens and pigeons (b) to get new insights into important epidemiological factors such as duration and amount of PPMV-1 shedding as well as antibody production (c) to evaluate the suitability of different samples for diagnostic purposes (d) to improve serological methods in order to be able to differentiate between anti-PPMV-1 and anti-APMV-1 antibodies (e) to enhance the disease awareness concerning PPMV-1 infections in chickens and finally (f) to give insight into the pathological changes induced in with PPMV-1 infected pigeons and chickens.

Material and methods

Recent PPMV-1 outbreaks in Switzerland in pigeons prompted us to investigate the infectivity and pathogenicity of a currently circulating Swiss PPMV-1 isolate for chickens. In order to address these issues chickens were experimentally infected with a Swiss PPMV-1 isolate via the natural route. The aims of our study included the determination of parameters of PPMV-1 infections in chickens such as the duration of viral shedding as well as the induction of an immune response. Moreover, currently used diagnostic techniques were evaluated for their suitability to diagnose a PPMV-1 infection in chickens. Additionally, RT-PCR and qRT-PCR assays were evaluated for the detection of different Swiss PPMV-1 isolates

Results and significance

In summary, the current routinely used APMV-1 qRT-PCR assays showed to be not appropriate to detect PPMV-1 infections in chickens due to the genetic divergence of PPMV-1 or the potentially low level of viral RNA in samples. In contrast, two different not-routinely used methods are more suitable for virus genome detection. The chickens experimentally infected with a Swiss PPMV-1 isolate remained healthy. Prolonged viral shedding up to 60 days post infection was noticed. The study demonstrates the need to investigate several sample materials since the common Swiss practise of investigating only kidney and brain tissue can fail to detect viral RNA. Our investigations point out important insights on PPMV-1 diagnostics.

Publications, posters and presentations

Hüppi, L.; The potential risk of pigeon paramyxovirus-1 infections in chickens – implications for the diagnosis and control. Doctoral Thesis, Vetsuisse faculty, University of Berne
Pigeon paramyxovirus-1 in Switzerland: Investigation about the diagnosis, infectivity and the potential risk for chickens *in preparation*

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