Swinepox Virus: A sporadic outbreak on a German sow farm

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Background & Objectives

The Swinepox Virus belongs to the family *Poxviridae* and can infect swine of all age groups. The infection occurs only sporadically which is why data and literature on Swinepox Virus cases in Germany is rare.

The presented case is about a conventional piglet producer with 2.000 sows and a connected gilt-rearing area that was confronted with a sudden outbreak of severe, round and slightly elevated skin-lesions in suckling piglets. Three piglets from the same litter were born with typical lesions, the other piglets from the same litter as well as all piglets from 2 other litters developed skin lesions within the first 3 weeks of life. Since the lesions weren´t consistent with the typical picture of exudative epidermitis and the onset was partly in a very early stage of life, additional investigations were initiated.



Figure 1: Affected piglet from the first litter with multifocal roundish encrusted foci spread over the entire skin-surface area.

Material & Methods

Two suckling piglets with characteristic symptoms were euthanised and a necropsy was carried out. Swab samples of brain, pericardium, lungs, pleura, kidney and skin were bacteriologically examined by routine standard techniques for aerobic and anaerobic bacteria. Samples for a molecular biological investigation were taken and a real time PCR for Swinepox Virus (EXOone qPCR) was carried out as described in the manufacturer´s instructions. Additionally, histological samples of the skin were obtained and microscopically investigated by the IVD GmbH, Seelze-Letter, Germany.

Results

The pathological investigation showed focal as well as diffuse roundish encrusted foci, spread over the entire skin-surface area. The histological investigation showed a pustular and purulent dermatitis as well as a hydrophic degeneration of the stratum spinosum. Intracytoplasmic viral inclusion bodies were suspected but could not be determined with certainty. The real time PCR investigation of the skin lesions was positive for Swine Poxvirus (CT-value 17). Additionally, the bacteriological investigation showed the growth of *St. hyicus* in swab samples of brain, pericardium, lung, kidney and skin.

Overall, about 50 % of the piglets that were born with the infection or developed symptoms within the first 2 days of life either died or were euthanized due to poor general condition. The other 50 % and those that became infected later managed to overcome the infection and perform comparable to all other piglets. The occurring secondary infections with *St. hycius* could be controlled with the use of trimethoprim-sulfonamide. No further spread of the infection was observed once the piglets were weaned and put together in groups with other piglets.

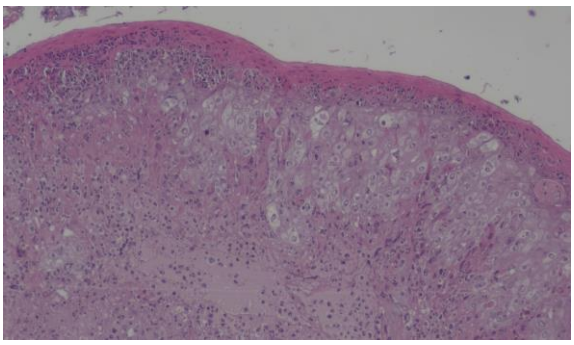


Figure 2: Histological examination, H&E staining 100X: suspected intracytoplasmic viral inclusion bodies (source: IVD GmbH, Seelze-Letter, Germany)

Discussion & Conclusion

The presented case study demonstrates how neglected infections like Swine Poxvirus can still occur and should continue to receive attention, especially because of occurring piglet losses and following secondary infections but also because of possible differential diagnoses that belong to notifiable diseases and should be ruled out.

In this case, an early onset of the disease was correlated with severe losses of piglets in the first days of life. Secondary bacterial infections – e. g. with *St. hyicus* – intensified the situation on top.

No source of entry of the Swinepox Virus could be determined. Since Swinepox Virus cases seem to pop up sporadically in Germany again, further investigations to determine possible entry ways and biosecurity lacs should be established.

References:
Pereira Freitas et al. (2019): Swinepox Virus. In (Publ.) Zimmermann et al.: Diseases of swine, 709 – 714
Mariano et al. (2015): Poxvirus in a swine farm in Italy: a sporadic outbreak?, Large Animal Review, 21; 219-220