Proceedings of the
International Pig Veterinary Society
Congress

June 22 – 26, 2008
Durban, South Africa

Next Congress :

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DIAGNOSING A CASE OF UNILATERAL CORNEAL OPACITY IN SUCKLING PIGS FROM A SOW HERD WITH REPRODUCTIVE FAILURE TO EXCLUDE THE “BLUE EYE DISEASE”

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Introduction
Corneal opacities may be due to different infectious and non-infectious causes. The porcine rubulavirus infection or “Blue Eye Disease” is an emerging disease first seen in La Piedad, Michoacan, Mexico in 1980 (4). Cardinal clinical signs for the Blue Eye Disease are corneal opacity, reproductive failures, and central nervous system disorders. Approximately 1-10% of the piglets develop unilateral or bilateral corneal opacity. Sometimes the corneal opacity occurs without other signs and resolves spontaneously. Other symptoms may include apparent blindness, and conjunctivitis with swollen eyelids or the eyelids are closed and adherent with exudates (5).

Material and Methods
In Northern Germany, twelve suckling pigs out of a group of 900 piglets suffered from unilateral corneal opacity (Fig. 1 & 2). Additionally, 30% of the sows, belonging to the related sow group, showed abortions in the last third of the pregnancy. The sows were vaccinated against PRRSV (attenuated EU genotype vaccine). Necropsies on two affected pigs were performed, samples for histology, bacteriology, and molecular biology were taken and an in-depth herd investigation has been carried out.

Results
The gross pathology showed that both animals had severe corneal opacities (one piglet on the right and one piglet on the left side), serious conjunctivitis, and marked oedemas in the eyelids of the affected eyes. Histologically, we diagnosed severe necrotising inflammation of the affected cornea and/or an ulcerative ceratitis, purulent panophthalmitis, severe diffuse lymphoplasmacellular conjunctivitis, and a severe purulent anterior uveitis, whereas nonsuppurative encephalomycelitis and intracytoplasmatic inclusion bodies in neurons were not found. From each piglet we took three swabs from the affected eye (external and internal site of cornea, and one from the eyewater) and three swabs from the non-affected eye for microbial testing. In all three locations of the affected eyes a high load of Actinobacillus ureae was isolated. In lung tissues of both animals, genome fragments of PRRSV (EU Genotype, wild type virus) were detected by nonaplex-PCR (2). To exclude traumatic causes we investigated the farrowing barn and could not find any reasons such as sharp edges or rough surfaces that could explain eye injuries as triggers for the infection.

Discussion
Corneal opacities in combination with reproductive failures should always be a hint for the Blue Eye Disease. In the presented case, however, we could exclude Blue Eye Disease according to the histological results. Our finding of Actinobacillus ureae as most possible cause for the corneal opacity in sucking pigs seems to be the first reported case. Actinobacillus ureae has been described on rare occasions as a cause of human infections, and most notably in patients with low immunity (3, 1). These cases in human medicine show that Actinobacillus ureae may be an opportunistic pathogen which causes severe infections in immune-compromised patients. In this presented case the Actinobacillus ureae infection of the eyes may have been influenced by the simultaneous infection with PRRSV, although this does not explain why only 12 out of 900 piglets were affected. The reasons for the unilateral appearance in all affected piglets could not be clarified.

Fig. 1 & 2: piglet with corneal opacity

References