Universiteit Utrecht

Faculty of Veterinary Medicine

Department Farm Animal Health

Sneezing in weaned pigs due to non-infectious causes a case report

Tijs Tobias[1,*] | Arie van Nes[1] | Maud Lucassen[1] | Vincent Perney[1] | Marco de Groot[1] | Koen Cirkel[2] | Guy Grinwis[2]

1 Utrecht University, Faculty of Veterinary Medicine, Department Farm Animal Health

2 Utrecht University, Faculty of Veterinary Medicine, Department Pathobiology, Veterinary Pathology Diagnostic Centre

* Corresponding author:
E-mail: T.J.Tobias@uu.nl
Tel.: 00 31 30 253 1248

Background:

Sneezing is induced by chemical, mechanical or allergen factors in the nose, either of infectious or non-infectious origin.

In this case study a diagnostic protocol is presented as well as the findings in a field case of recurrent extensive sneezing in weaned pigs on a 400 sow head farrow-to-finish farm with yearly average mortality of only 1.4%.

Material and Methods

A) cohort study

To determine the incidence of disease and the course of clinical signs

Weekly, prevalence of sneezing and other signs in each room was assessed for 10 minutes

Results

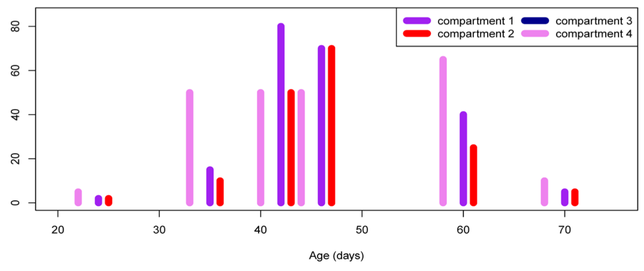

Fig. 1: prevalence of sneezing at different ages

A) Cohort study

- Prevalence of sneezing increased from 2% in 3 wk old piglets to 80% in 6 wk old pigs (Fig. 1 + 3)
- Epiphora was observed in sneezing pigs, but already present in 80% of pigs at 4wks
- Nasal discharge was of serous nature at 4wk and purulent in pigs from 5 wk onwards

B) Additional diagnostics

4 representative pigs were submitted for
- post mortem investigations (PM), including
- histology,
- PCR testing and
- In situ hybridization

B) Additional diagnostics

- PM returned no gross abnormalities (Fig. 2), but
- a multifocal mild subacute histiocytic interstitial pneumonia and a multifocal acute mild purulent and eosinophilic rhinitis was found on histology (Fig. 4)
- Negative PCR results (PCV2, PRRSv & SIV) on lung tissue
- In situ hybridization for *Pneumocystis* spp was negative

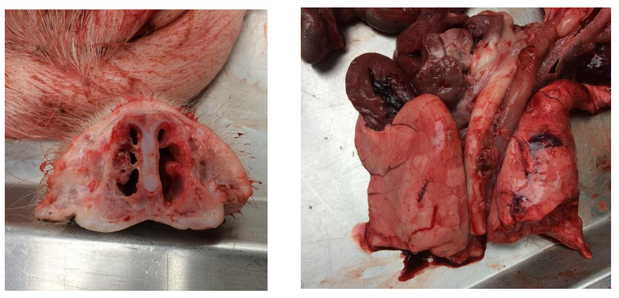

Fig. 5: gross post mortem findings

Fig. 3: clinical examination; cohort study

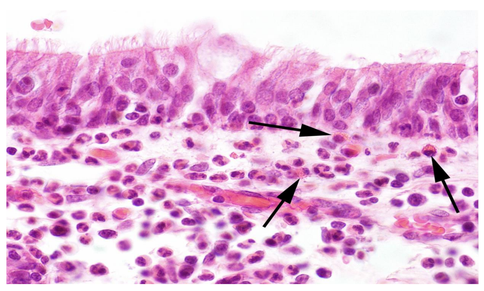

Fig. 4: histological slide of nasal mucosa

Fig. 4: histological slide of nasal mucosa of an affected pig.
Arrows indicate eosinophilic granulocytes.
Inflammatory response is next characterized by neutrophilic granulocytes.
The ciliary epithelium does not indicate abnormalities.

Conclusion: A multifocal acute mild purulent and eosinophilic rhinitis

C) Additional diagnostics (2)

Nasal swabs of 60 pigs were obtained and submitted for PCR testing on SIV

C) Additional diagnostics (2)

1/60 nasal swabs for SIV tested positive (high Ct value)

Conclusion: SIV is not relevant for sneezing in this case

Fig. 5: clinical appearance of weaned piglets on case farm. Apart from sneezing, epiphora and nasal discharge no abnormalities were observed.

D) Environmental and climatic risk factor assessment

- **Aerial NH3**
- **Dust**
- **Climate**
- **Biosecurity risk factors**

Fig. 6: climate assessment

D) Environmental and climatic risk factor assessment (Fig. 6)

- aerial NH3 of 30 ppm at 4 wks age
- high dust levels
- no relevant climatic errors
- low biosecurity score

Conclusion

- Possibly an allergic reaction was the primary cause of sneezing
- purulent rhinitis was considered as a secondary bacterial infection
- Based on the absence of infectious agents tested for and the presence of an eosinophilic inflammation, high dust levels and climatic errors biosecurity are considered the most likely cause of the allergic reaction
- Dust levels nor exact dust composition were measured, but are recommended in future cases

Acknowledgements

Dr. Weissenbacher-Lang from University of Veterinary Medicine Vienna is acknowledged for performing the ISH

IDT-Biologika is acknowledged for the SIV PCR analyses