Intranasal vaccination: a comparison of a new nozzle versus administration via syringe

Andy Bulay[1], Carlo Maala[2], Rodney Marante[1], Lou-Anne Dumalag[1] and Marika Genzow[2]
[1]Boehringer Ingelheim Philippines, [2]Boehringer Ingelheim Animal Health GmbH, Germany
Key words: intranasal vaccination, handling

INTRODUCTION

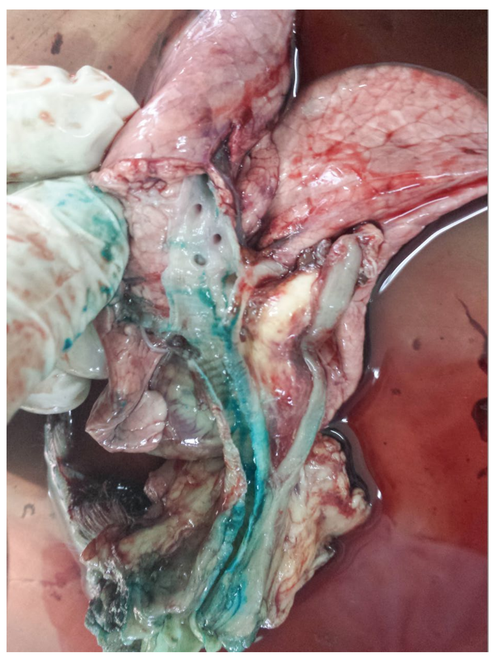
The intranasal administration is a routine way for administering vaccines to young pigs. There is a need for better administration devices that enable a consistent dispersion of the products in the upper respiratory tract.

MATERIALS AND METHODS

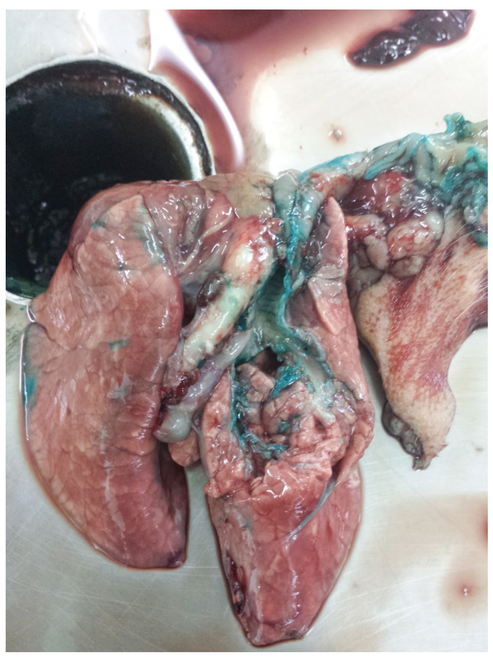
Ten 3 – 5 healthy pigs were used to investigate the distribution of a blue dye (McCormick® Bright Blue Food Color) given intranasally either by normal syringe or a nozzle that has been tailor made to fit on a vaccine "gun" (Primatech, Neogen Corporation). One ml per nostril was given to 8 pigs via the nozzle and two animals received 1ml per nostril per 2 ml plastic syringe.

RESULTS

Administering 1 ml per nostril with the nozzle attached to the vaccine "gun" lead to a consistent distribution of the blue dye in pigs and colored the upper respiratory tract up to the primary bronchi including the tonsils, whereas administrating the dye via a syringe resulted in distribution up to the bronchioli and into the lung tissue.



Picture 1: Aspirated dye in lungs from syringe only

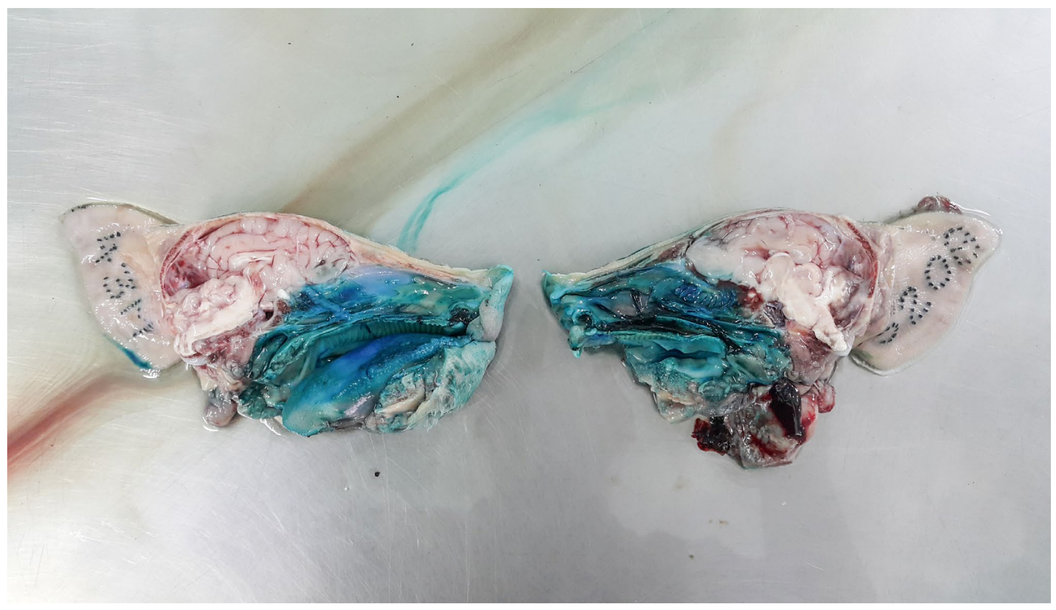


Picture 2: Lungs from vaccinator + nozzle

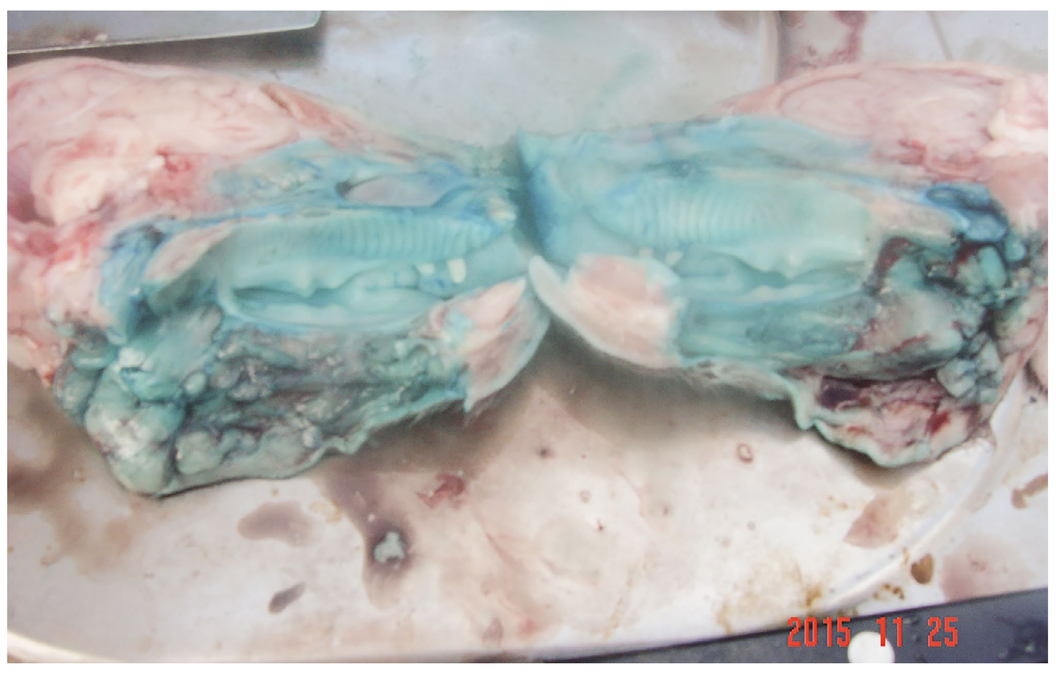
CONCLUSION

Administration of fluids via the new nozzle resulted in a more consistent distribution compared to administering the fluid via a syringe. Using the nozzle may result in less aspiration pneumonia as it can be anticipated with using a vaccine. Using the nozzle with commercial vaccines licensed for intranasal administration need to be conducted to confirm this observation.

Picture 3: Application of the dye via automatic vaccinator with nozzle



Picture 4: Longitudinal Section of head of pig vaccinated with vaccinator with nozzle



Picture 5: Longitudinal section of head of pig vaccinated with syringe only