VETERINARY MEDICINES

## Suspected adverse reaction to erysipelas vaccine in sheep

THE APHA and the Veterinary Medicines Directorate (VMD) would like to draw vets' attention to potential adverse reactions associated with the use of porcine vaccines in sheep, especially if footrot vaccines have previously been administered.

The APHA Bury St Edmunds Veterinary Investigation Centre was called on to investigate a number of sheep deaths in a lowland flock of mixed age crossbred ewes. Lameness due to erysipelas had been diagnosed in a previous lamb crop, so in January 2020, following cascade principles, ewes were vaccinated with Porcilis Ery (MSD Animal Health) (2 ml intramuscularly) six to seven weeks before the start of lambing. A group of 400 triplet-bearing ewes were vaccinated on one day and a further 600 twin-bearing ewes were vaccinated the following day.

In the 24–48 hours after vaccination, 10 ewes from the triplet-bearing group presented with signs of malaise that were attributed to hypocalcaemia. They were treated with calcium, multivitamins and meloxicam. Three died and seven recovered; two other sheep aborted.

In the twin-bearing group, within 48 hours of vaccination, four sheep had died, 18 had aborted and 12 showed signs of severe lethargy and anorexia. Approximately half of the ewes in both groups showed mild lethargy and inappetence 24 hours after vaccination with some mild respiratory signs observed within 24–48 hours. Most recovered 36 hours after vaccination.

By one week after vaccination eight ewes had died and by the last prelambing week, 150 ewes (15 per cent) had aborted. A further 100 ewes that lambed produced at least one mummified fetus – the size indicated fetal death around the time of erysipelas vaccination.

Over the same time period in a group of 1300 ewes with the same management that did not receive the Porcilis Ery vaccine, abortions were less than 1 per cent.

The ewes in the first flock had received a first dose of vaccination for clostridial disease (Heptavac-P plus; MSD Animal Health) two to three weeks before the incident. Sheep entering the flock at 18 months of age were vaccinated against enzootic abortion (Cevac Chlamydia; Ceva), toxoplasmosis (Toxovax; MSD Animal Health) and campylobacter abortion (Campyvax; MSD Animal Health) and in December 2019 all ewes were vaccinated against footrot (Footvax; MSD Animal Health).

Three ewes and six fetuses were submitted for postmortem examination. The lungs of all the ewes were diffusely dark red with a rubbery texture. Microscopically, there was pulmonary congestion and

oedema; one ewe had disseminated intravascular coagulation.

In conjunction with the clinical history, an anaphylactoid reaction to erysipelas vaccine was deemed a plausible explanation for the lung lesions. The abortions were attributed to the suspected adverse reaction and a report was submitted to the VMD.

The case is similar to cases seen following the use of moxidectin (Cydectin 1% injection for sheep; Zoetis) in sheep that have previously been vaccinated against footrot.[1] Cydectin 1% has a contraindication for use in animals that have previously been vaccinated against footrot.[2] It is postulated that the presence of polysorbate 80 (PS-80), an excipient in Cydectin 1% and the mineral oil base of Footvax, produces a non-immunological anaphylactoid reaction.[3] Similar reactions have been reported in cattle[1] and people.[4] PS-80 is a component of Porcilis Ery.

There have been a small number of adverse reaction reports made to the VMD following the use of porcine erysipelas vaccine in sheep. If sheep are reacting to PS-80 alone this would suggest they are more sensitive to it than other species in which it is widely used.

Since 2009 there have been no vaccines authorised in the UK to control erysipelas in sheep. Subsequently, erysipelas vaccines authorised for use in other species have been used in sheep under cascade principles.

While there is no proven link between anaphylaxis and the use of these porcine vaccines in sheep, veterinary surgeons should be cautious when prescribing unauthorised vaccines in sheep and determine whether footrot vaccines have been previously administered.

In addition, veterinary surgeons are reminded to report any suspected adverse reactions to the VMD at www.gov.uk/report-veterinary-medicine-problem

**Cornelia Bidewell,** veterinary investigation officer

APHA, Rougham Hill, Bury St Edmunds, Suffolk IP33 2RX

**Vets should be cautious when prescribing unauthorised vaccines in sheep**

**Amanda Carson,** veterinary lead for the Small Ruminant Expert Group

APHA, Merrythought, Calthwaite, Penrith, Cumbria CA11 9RR

email: amanda.carson@apha.gov.uk

**Gillian Diesel,** head of pharmacovigilance

Veterinary Medicines Directorate, Woodham Lane, New Haw, Addlestone, Surrey KT15 3LS

**Tobias Floyd**, veterinary research pathologist

APHA, Weybridge, Woodham Lane, New Haw, Addlestone, Surrey KT15 3NB

**References**

1 Lovatt F. Vaccines not authorised for use in sheep – the responsibilities of vets. *Sheep Veterinary Society Proceedings* 2016;40:93–4
2 Cydectin 1% w/v solution for injection for sheep. www.noahcompendium.co.uk/?id=-456793&template=template_printview (accessed 25 April 2020)
3 Maggio, E. Polysorbates, biotherapeutics, and anaphylaxis: a review. 2017. https://bioprocessintl.com/manufacturing/formulation/polysorbates-biotherapeutics-and-anaphylaxis-a-review (accessed 25 April 2020)
4 Coors E, Seybold H, Merk H, *et al*. Polysorbate 80 in medical products and nonimmunologic anaphylactoid reactions. *Ann Allergy Asthma Immunol* 2005;95:593–9

doi: 10.1136/vr.m1482