



Diagnosis of Bovine Tuberculosis: Current practice and Future innovations.



The inaugural AberTB Conference will be held at 9.00am on 17th September 2019 at Aberystwyth University.

To book, or for more details, search for "AberTB" at the university shop website - <https://shop.aber.ac.uk/>

Tick-borne fever (TBF) and Louping Ill virus (LIV)

were both diagnosed in a flock where 55 ewes and ewe-lambs had died. The findings from post-mortem examination (PME) of four ewe-lambs were largely unremarkable, although lymphadenopathy and enlarged spleens was a consistent finding. PCR testing on samples from all three carcasses was positive for *Anaplasma phagocytophilum* (bacterium causing TBF). LIV was also suspected and confirmed, in two lambs, by brain histology and immunohistochemistry. LIV was diagnosed in the third lamb, by hemagglutination inhibition. The immunosuppressive nature of TBF infection can predispose to LIV viraemia.



Figure 1. Tick infestation in a ewe-lamb

Two further cases of TBF have also been confirmed from two separate submissions in June.

Dystocia was diagnosed as the cause of death of two stillborn calves. Extensive oedema and haemorrhage in the subcutaneous tissues of the head, neck, shoulders, hips and ribs was seen at post-mortem examination. Gross lesions of haemorrhages and oedema are consistent with anoxia during stage two labour also known as bradytocia. Causes of bradytocia include foetal oversize, uterine inertia due to micromineral imbalance or poor condition, and late intervention.



Fig. 2. Intramuscular haemorrhage suggestive of dystocia

Swine dysentery caused by *Brachyspira hyodysenteriae* was the cause of diarrhoea in a 13-week-old-pig submitted for PME. The group had been suffering from haemorrhagic diarrhoea previously and improved on antibiotic treatment. This pig was found dead a few weeks later. Large intestinal (LI) content was a red liquid at PME. *Brachyspira hyodysenteriae* was confirmed by culture of LI content. Swine dysentery results in diarrhoea and weight loss of growing pigs which subsequently take longer to reach slaughter weight. Spread of infection is by infected faeces which contaminates boots as well as equipment. Biosecurity is key to preventing an outbreak and limiting spread.

Figure 3. Haemorrhagic intestinal content



Pulmonary abscessation was diagnosed in one ram that had been losing weight over the last 12-18months. At postmortem examination, there was an accumulation of yellow caseous pus throughout the

trachea. A severe pleurisy was seen, and both the right middle and right accessory lung lobes were firm and contained multiple encapsulated abscesses containing pus. The other lobes were also affected.

Secondary abscesses are usually caused by opportunistic bacteria following previous lung damage or embolic spread from another focus of infection. Histology confirmed the PME findings but was unable to establish the primary insult.

Mycoplasma ovipneumoniae* and *Mannheimia haemolytica were isolated from a four-month-old lamb submitted for PME. The lamb had been observed coughing at grass for around five days and had been treated with antibiotics and anti-inflammatories. At PME, the lung lobes were consolidated and adhered to the body wall, with coalescing abscesses.

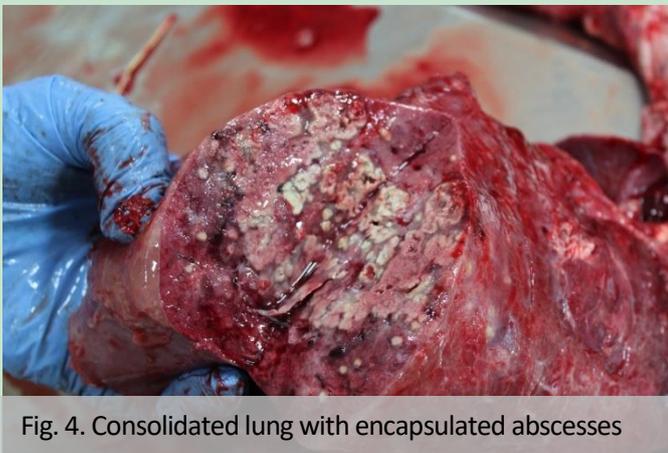


Fig. 4. Consolidated lung with encapsulated abscesses

DGGE detected *Mycoplasma ovipneumoniae* and *Mannheimia haemolytica* was cultured. Introduction of new animals, high-density stocking and poor ventilation are all stress factors that can predispose to development of pneumonia.

Cobalt deficiency was diagnosed in a two-year-old wether which isolated itself, become inappetent and had a swollen head. The liver appeared uniformly pale brown at PME and cobalt analysis of the liver confirmed deficiency. This can give rise to photosensitisation, but in this case, histology confirmed that the swollen head was caused by cellulitis. This could have been due to a penetrating wound but, with no evidence of this at PME, the cause remains unexplained. Supplementation of the rest of the group with cobalt was advised.

Infectious bronchitis virus (IBV) and egg peritonitis was the cause of death of chickens in a free-range egg laying unit. Five birds were submitted for PME where there was evidence of peritonitis and perihepatitis in two of the birds submitted. Three of the birds had caseous egg-yolk material in the peritoneal

cavity consistent with egg peritonitis. A cloacal swab from one of the birds was positive for IBV. IBV is usually characterised with respiratory signs and is an important cause of economic loss in the poultry industry. IBV is an acute disease that rapidly spreads through the flock increasing mortality when complicated with other bacterial infections.

Coccidiosis was diagnosed from intestinal wet preparations from three nine-week-old pheasants submitted for PME. The pheasants were in poor condition with a lack of ingesta noted within the GIT. Coccidial oocysts were seen in significant numbers throughout the GIT. Several *Eimeria* sp are known to infect pheasants particularly in the warm wet weather. Treatment was advised by adding coccidiostats into growing feeds while also allowing immunity to develop. Environmental hygiene and stocking densities are very important factors in game bird production. It was not possible to look for motile protozoa in this submission as this is best done soon after death, but *Spironucleus* (*Hexamita*) is commonly found in gamebird submissions at this time. Submission of live birds is required for prompt collection of samples after euthanasia.

Upcoming CPD

Cattle Modular CPD with Dai Grove-White and Joanne Oultram from Liverpool University. Starting 2nd October. Nutrition, health of pre-weaned calves, lameness, reproduction and mastitis.

9th October - Flock Health – Kate Hovers

22nd October - Ovine Lameness – Dr Joe Angell and Kate Hovers

WVSC VIOs: Beverley Hopkins & Jon. King
Roger Daniel, Kate Hovers and Ian Davies

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Please check the eligibility for **free carcase collection** via this link:

ahvla.defra.gov.uk/postcode/pme.asp

The suitability of submissions for post mortem examination must be discussed with the WVSC duty vet.