Sheep scab remains a problem  
APHA Disease Surveillance Report  
June 2015

- Babesiosis in cattle
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CATTLE

Systemic disease
Portocaval thromboembolism was diagnosed at Shrewsbury by postmortem examination of a 3 year 8 month old Holstein-Friesian. It was the ninth cow which had died in the last year in a milking herd of 220 cows. The animal had performed well until the day it died: in the morning she milked normally, but in the afternoon became dyspnoeic with discharge from the nose, became recumbent and died within an hour. The animal was in very good condition, weighing in excess of 626 kg. A large abscess had eroded into the posterior vena cava within the liver (fig 1), and the lungs had multifocal haemorrhages throughout all lobes (fig 2) The herd is fed using a cake and grass or silage diet, which is considered more likely to cause ruminal acidosis, the likely originating source of the hepatic abscessation.
Babesiosis or ‘redwater’ was diagnosed in a group of cattle which comprised six purchased heifers and calves in addition to 27 yearlings. Two of the three year old heifers were found dead after a 24 hour period of malaise. The animals were on rented land which had not previously been used by the farmer. Postmortem examination of one of the animals which died revealed generalised jaundice and haemoglobinuria. Ticks were present in the axilla. Examination of blood smears stained using Giemsa was inconclusive, but a PCR for *Babesia* species was positive and subsequent sequencing confirmed *Babesia divergens*, the cause of babesiosis in the UK. The case highlighted the interesting epidemiology of this disease: the previous resident cattle population of 30 years had reached endemic stability and were likely immune, while the incoming young cattle (yearlings and calves) were not affected because of the age-related immunity, whereas the incoming older naïve cattle developed clinical disease.

**Reproductive disease**

The University of Bristol identified placental dysplasia as the cause of an abortion in a dairy herd. A spate of abortions had occurred two months previously. The placenta had no recognisable cotyledons, being grossly oedematous with multifocal irregular nodular swellings (pic). Histopathological examination confirmed dysplastic pathology which was unlikely to be associated with infectious aetiology and consequently indicating no risk to the remainder of the herd. The underlying cause of this condition is uncertain and it was considered possible that the cow could produce similarly affected placentae in future pregnancies.
Anaemia caused by heavy suckling louse infestation was diagnosed at Bristol in calves on a rearing unit. Weakness leading to recumbency was reported. Louse infestations were identified on two carcases received for postmortem examination, a six week old having large numbers of long-nosed sucking lice (*Linognathus vituli*). This calf had very pale mucous membranes and the carcase was markedly pale with watery blood. Heavy sucking louse infestation has previously been reported by the APHA as a cause of anaemia and death in calves (Otter and others 2003). The lice can easily be missed on affected calves, especially if black-coated, but are more obvious in white coated areas (Fig 4). The second calf was only ten day old and had small circular raised red lesions on the tongue and hard palate which were typical of bovine papular stomatitis (BPS). It was in very poor condition with no fat reserves, no milk in the abomasum and partial impaction of the pylorus with forage and concentrate. As BPS lesions are usually self-resolving and considered to cause only mild discomfort, the emaciation was likely due to poor access to milk, and ZST testing indicated minimal colostral intake. Advice was given on feeding, including colostrum, and treatment for louse infestation.
SMALL RUMINANTS

Skin disease
Caseous lymphadenitis was diagnosed by Carmarthen in a ram and a ewe from a flock of 20 sheep. The ram had a recurring popliteal abscess and both had prescapular abscesses. The diagnosis was confirmed by culture of the causal organism, Corynebacterium pseudotuberculosis, from swabs from the affected lymph nodes. Both affected animals were in isolation and had recently been professionally groomed in preparation for a show. The grooming equipment used was considered to be a possible source of infection. Penrith also diagnosed CLA on clinical history and positive serology, although culture of the abscess in this case was sterile.

Sheep scab: Carmarthen diagnosed sheep scab in three-month-old lambs from a flock of 200 sheep in North Wales. It was reported that about 100 lambs were affected and that the ewes were largely unaffected. Shrewsbury also received samples from a 12 week old lamb which was itching and fitting and where over half the flock of 600 ewes with 1000 lambs was affected. Diagnosis was made by detection of Psoroptes species mites by microscopy of a skin scraping.
APHA comments that free testing for sheep scab is still available to help validate a test that has been developed by the Moredun Institute. A clotted blood sample and a skin scrape are required from affected sheep and these samples should be sent to Shrewsbury VIC for testing.

Respiratory disease
Three lambs were submitted to Starcross to investigate recent deaths. Mycoplasma ovipneumoniae, Mycoplasma arginini and Mannheimia
*haemolytica* were isolated from lung tissue of two 2-month-old lambs. One lamb had approximately 90% of total lung volume consolidated. In addition, in a third lamb there was gross evidence of septic arthritis in which laboratory testing confirmed the presence of *Erysipelas rhusiopathiae* and a faecal egg count of 6250 epg. *Mannheimia haemolytica* and mycoplasmosis, erysipelas and severe parasitic gastroenteritis were confirmed as a multifactorial problem on this farm.

**Alimentary disease**

*Salmonella Montevideo* was isolated from a faeces sample from a scouring yearling Texel ram in south Shropshire. The ram been purchased 6 months earlier. This is an unusual isolate from sheep and is more often seen in dairy herds.

**Goats**

Eight mixed breed (Saanen / Toggenburg) housed dairy goats which were soon to be dried off had aborted in a group of 200. They were due to kid in July / August. Samples were received following a practitioner postmortem abortion examination including blood samples from six of the aborted goats. *Chlamydia abortus*, *Campylobacter* sp. and *Toxoplasma gondii* were not detected; however, *Coxiella burnetii* was detected by PCR performed on the placenta. Unfortunately histopathological examination of placenta was compromised by the degree of autolysis present. Advice was given about Q fever regarding the zoonotic implications with a recommendation to submit freshly aborted fetuses with placenta should further abortions occur.

**PIGS**

**Alimentary Disease**

*Increase in salmonellosis due to monophasic Salmonella Typhimurium-like variants*

There was an increase in the GB rate of diagnosis of salmonellosis in this quarter from 11.2% in the first three months of 2014 to 17.8% in the same period in 2015 as shown in Figure 1. This was due to an increased rate of incidents due to monophasic *Salmonella Typhimurium*-like variants (4,12:i:- and 4,5,12:i:-). The diagnostic rate of incidents due to *Salmonella Typhimurium* (STM) remained fairly constant and of incidents due to other (non-STM, non-monophasic) *Salmonella* was reduced compared to Q1, 2014. Figures 5 and 6 illustrate this. This was the first quarter that the monophasic variants were responsible for a greater proportion of disease incidents than *S. Typhimurium* reflecting the increasing prevalence of these variants in the pig population since 2010.
Salmonella 4,12:i:- has typically been less common than the S. 4,5,12:i:- variant. However, reports of S. 4,12:i:- increased almost six-fold compared to the first quarter of 2014 while reports of S. 4,5,12:i:- and S. Typhimurium remained stable, making Salmonella 4,12:i:- the most common serovar isolated from pigs in the first three months of 2015. Phage type U288 was found in 83% of the S. Typhimurium incidents whilst DT193 was found in 71% of the Salmonella 4,12:i:- incidents and all of the Salmonella 4,5,12:i:- incidents. It is of note that in 60% of salmonellosis incidents diagnosed in pigs between 2005 and 2014 in APHA post-mortem examinations, at least
one other disease was also diagnosed indicating that salmonellosis in post-
weaned pigs is often part of more complex disease and emphasising the need for comprehensive diagnostic investigations in more severe, unusual or non-
responsive disease outbreaks.

MISCELLANEOUS EXOTIC AND FARmed SPECIES

Two one-year-old female rabbits were submitted to investigate three deaths in a group of 20 does over a three-day period. A further group of 20 does was not affected. Some of the affected rabbits showed lethargy and non-specific malaise before death. Postmortem findings in both rabbits included a haemorrhagic tracheitis, congestion and haemorrhage in the lungs and firm, tan-coloured livers. There were no significant bacteriological findings on culture of the liver and lung. Electron microscopy on one of the livers gave a positive result for calicivirus confirming Rabbit Haemorrhagic Disease, and subsequent PCR testing confirmed this as the new variant strain. Current vaccines do not provide protection for this new variant.

WILDLIFE

Mammals

There were two submissions of deer carcases in poor body condition. In the first, a red deer (Cervus elaphus) from an area where sick and dead deer had been seen, lung worm were found, while in the animal’s stomach, a significant proportion of the ingesta appeared to comprise moss of presumably low nutritional value. The area had been recently opened to the public and red deer were thought to be regularly disturbed by field sports and walkers and this may have affected their feeding behaviour. The second case was a roe deer (Capreolus capreolus) with a severe foot abscess from which Truperella pyogenes was cultured.

A fallow deer (Dama dama) pluck was submitted by a hunter in Devon and found to have abscesses from which Mycobacterium bovis was subsequently isolated, these findings were consistent with a diagnosis of bovine tuberculosis. In a similar but unrelated case in a roe deer (Capreolus capreolus), a hunter submitted a pluck with unusual focal lung lesions these however were caused by lungworms.

A dead harbour seal (Phoca vitulina) pup was submitted for postmortem examination from the North-Eastern coast of England. It was autolysed and there was a minimal blubber fat layer. The lack of milk within the gastrointestinal tract suggested agalactia in the dam, stillbirth/unviable pup or a consequence of abandonment.

Little tern (Sterna albifrons) mortality

Three dead little terns, a scarce breeding species on British coasts, were found in a one square meter area of beach in the North-East of England in June. All were female and in poor to emaciated body condition. They had
marked trauma to their beaks but interestingly only one beak on each bird was affected. Feather loss including loss of the primary flight feathers was also noted and one bird had a blood clot between the cerebral hemispheres. A possible cause of the trauma may be an attack by a larger bird species such as a crow which may have caught hold of the Little Terns’ beaks and caused them to break (figure 7) and may also have pulled out the primary flight feathers. The finding of the bodies together would suggest that the terns may have been defending nests. There are currently 40 birds on site and no eggs being incubated. Some eggs were laid but were subsequently scavenged by crows due to the low number of little terns in the colony to defend the nests. In previous years there have been reports of about a hundred breeding pairs in the colony. There are concerns of malnourishment in the colony and birds have been seen courting without sand-eels, which is unusual. Laboratory results including AIV and West Nile virus are still pending.

**Figure 7** – Little terns showing traumatic injury to beaks considered to be caused by attack by crows or larger birds which have caught hold of the beak.

[Birds]

**Ducks and Geese**

**Metabolic disease**

**Metabolic disease** due to an inappropriate diet was suspected to be the cause of death of two goslings. Three, three-week-old goslings had died within a flock of forty over a period of a few days. The affected birds were seen to circle, fall and become recumbent prior to death. Many of the other birds appeared weak and subdued. Organic layer pellets had been fed from a ring feeder. Two goslings were submitted for postmortem examination and showed a marked disparity in bodyweight. Both goslings had little feed in the alimentary tract and the larger bird appeared totally inappetant. They both had
poorly developed skeletal muscles which in one case were pale associated with profuse peritoneal cavity haemorrhage due to a ruptured liver (which may have been of traumatic origin secondary to the neurological signs). No significant pathogens were detected on laboratory examination. Histopathological examination showed no significant lesions in the nervous system of either bird but fatty vacuolation of the hepatic parenchyma raised suspicions of a metabolic disorder. Concerns were raised regarding the suitability of the diet, which was changed. Following this the remaining birds improved in condition and demeanour. The neurological signs observed were likely to have been due to hypoglycaemia.

Game birds

Ulcerative enteritis in quail: Ulcerative enteritis was diagnosed in 12-month-old Bobwhite quail at point of lay, with a history of increased mortality over a two week period. Postmortem examination revealed small necrotic ulcers throughout the small intestine and extending into the caeca. Fibrinous adhesions were present between adjacent bowel loops. In addition, 1-2mm diameter pale necrotic foci were present within the liver, together with pin-point haemorrhagic foci. The histological character of the enteritis and hepatitis was consistent with a diagnosis of ulcerative enteritis associated with *Clostridium colinum* infection; suspect *C. colinum* organisms were isolated on anaerobic bacterial culture. Quail are recognized as being particularly susceptible to this disease (hence its alternative name of ‘quail disease’) and the disease is mainly seen in younger birds although occasionally in adults.

Rotavirus in pheasant chicks: Rotavirus infection was confirmed in several submissions of pheasant chicks with histories of increased mortality. Findings at postmortem examination included distended caeca with yellow-creamy coloured and occasionally gassy contents. Rotavirus involvement was confirmed by polyacrylamide gel electrophoresis (PAGE) in samples of caecal or large intestine contents. The reported mortality varied between different submissions of birds, and included 1.5 per cent out of 3,000 birds, 6 per cent cumulative mortality out of 18,000 birds, both at seven days of age, and 8 per cent mortality out of 6,000 birds by seven to ten days.

Capillaria in black grouse: Parasitic stomatitis and oesophagitis due to *Capillaria* sp. infestation was diagnosed in a young (previous year hatch) captive black grouse (*Tetrao tetrix*) which had died suddenly. Postmortem examination revealed loss of body condition and multiple raised, yellow discoloured plaques at the beak commissure and in the oesophageal mucosa. In addition discrete pale-grey areas were present in the myocardium of the left ventricle of the heart. Histological examination revealed a parasitic stomatitis in the oral and oesophageal mucosa with pseudomembrane formation and
numerous cross and longitudinal sections of nematode parasites with bi-operculated eggs occasionally seen free or within the reproductive tract of the parasites consistent with *Capillaria* sp. Also a chronic focal non-suppurative myocarditis was confirmed. Bacterial cultures of the heart and oral lesions both yielded mixed flora predominantly including *Enterococcus faecalis* supporting the possibility of a secondary systemic bacterial spread from the oral lesions to the heart.

**References**


This summary is produced by the APHA and is drawn from reports provided at the time of reporting by the APHA laboratories at Bury St Edmunds, Carmarthen, Lasswade, Penrith, Shrewsbury, Starcross and Thirsk, and partner external postmortem providers to APHA (University of Bristol School of Veterinary Sciences, Royal Veterinary College, SAC Consulting Veterinary Services St Boswells, University of Surrey, Wales Veterinary Science Centre). APHA laboratory services at Weybridge provide diagnostic testing for surveillance. These providers contribute to the VIDA diagnoses recorded on the APHA FarmFile database and comply with standardised diagnostic criteria and laboratory testing requirements. APHA monthly reports are available online at [https://www.gov.uk/government/publications/disease-surveillance-reports-2015](https://www.gov.uk/government/publications/disease-surveillance-reports-2015)