Welcome to the third newsletter from the Veterinary Pathology Centre (VPC) at the University of Surrey.

I am pleased to announce that from 30th October 2017, camelids will be accepted following the completion of our containment level 3 post-mortem facility.

Please don’t forget that we are also offering a reduced rate for batch submissions (where multiple casualties occur as part of the same disease event) - please see our website for more details.

As you may recall, from 3rd January 2017, the APHA expanded its free carcass collection services in England, and this has included the Veterinary Pathology Centre at the University of Surrey in Guildford.

To date, carcases have been received from all over the SE of England including the Isle of Wight. This report provides details of some of the more interesting and significant cases encountered.

To check if you are in an area where free collection is now available, follow the link below.
http://ahvla.defra.gov.uk/postcode/pme.asp

Please do not hesitate to contact us if you would like to provide feedback or have any questions about using our service. It is important that the responsible veterinary surgeon calls us to discuss a case before submission, to ensure that it is eligible for a surveillance post-mortem examination. Eligible cases are heavily subsidised by the APHA and do not incur additional fees for routine diagnostic tests.

Finally, I would also like to say a warm welcome to Pernille Jorgensen who joined us as a Veterinary Surveillance Officer (VIO) this summer; some of you may have met her at the BCVA Congress. Pernille is also our ‘Featured Staff Member’ this issue.

We look forward to working with you all.

Dr Chris Palgrave, BSc(Hons) BVM&S PhD FRCPath FHEA MRCVS
Lead Pathologist: Farm Animal Pathology and Disease Surveillance
Deputy Director, Surrey Veterinary Pathology Centre
EVENTS:

16-17 Nov 17: **London Vet Show – stand B54**
Pay us, and the ArroGen Veterinary Forensics team, a visit on stand B54.

22 Nov 17: **Sheep Health, Wealth and Production Conference - NSA South East Region**
After a successful inaugural Sheep Health and Welfare Conference in February 2016, NSA South East Region is holding the event again this year on Wednesday 22nd November, at the University of Surrey’s School of Veterinary Medicine, in Guildford. The Vet School’s Dr Chris Palgrave & Mr David Tisdall will both be presenting at this well-attended event.
For more information, please follow this link: [http://NSA_SE2017](http://NSA_SE2017)

Feb/Mar 18: **Surrey Veterinary Pathology Centre: Open Evening**
Please register your interest with: j.gerhold@surrey.ac.uk

FEATURED STAFF MEMBER:

Pernille Jorgensen, CandMedVet MRCVS

Pernille trained to be a veterinary surgeon at Copenhagen University in Denmark. After graduation, she spent several months working in South-West Norway, where she was immersed in large animal work with cattle, sheep and horses, including artificial insemination.

Since that time, Pernille has been in the UK, working in a mixed practice in Cumbria, before moving to Cornwall to take a role as a large animal veterinary assistant. She joined the Veterinary Pathology Team at the University of Surrey, as a Farm Animal Pathology and VIO, in Summer 2017.
NEWS ITEMS:

Following the successful launch of the sheep disease surveillance dashboard in June, APHA has now launched a new cattle disease surveillance dashboard and pig disease surveillance dashboard.

NADIS parasite forecast: http://www.nadis.org.uk/parasite-forecast.aspx

Bluetongue infection:

The Animal and Plant Health Agency (APHA) and the Pirbright Institute identified BTV infection in cattle after they were brought to Preston and Kendal in England and two locations in Scotland. A total of 32 animals came from the same assembly centre in France, in an area where multiple cases of bluetongue have been confirmed since September this year.

Action is being taken to ensure there is no spread of the disease, with movement restrictions at the affected premises, targeted surveillance and the humane culling of animals where necessary. The UK currently remains BTV free.


Strict rules on the movement of livestock from regions affected by bluetongue are already in place. Farmers are reminded that animals from these regions must be accompanied by the relevant paperwork to clearly show they meet certain conditions designed to reduce disease risk, such as correct vaccination.

Defra and APHA have issued guidance notes on the disease at:

https://www.gov.uk/guidance/bluetongue

WATCH OUT FOR:

Cases of Parasitic Gastroenteritis (PGE) in sheep will continue as long as the weather remains fairly mild. The risk of Ostertagia at housing in young cattle should also be considered, thus predisposing to Type II Ostertagiasis in the Spring.

As stated later in this newsletter – the acorn crop is particularly heavy this autumn, and as long as acorns remain visible on the pasture, the risk to cattle and sheep will continue.

Unexpected losses on Christmas turkey rearing units should be investigated – infectious disease problems such as, Blackhead (Histomoniasis), Pasteurellosis and Erysipelas, can rapidly escalate.
CATTLE

Alimentary:

**Jejunal haemorrhage syndrome (JHS)** – an adult Holstein Friesian cow was submitted for PME, following signs of dehydration, milk drop and generalised weakness, before being found dead. The most significant finding was of segmental jejunal haemorrhage and necrosis with large blood clots filling the lumen (Fig 1), consistent with a diagnosis of jejunal haemorrhagic syndrome (JHS). The aetiology is unknown, however SAC Consulting Veterinary Services (SACCVS) is currently carrying out increased surveillance for this condition by examining specific samples taken during PME. The syndrome occurs sporadically, but has a high mortality rate, and adult cattle are often found dead or have a history of a short period of milk drop, anorexia, cold extremities, reduced faecal output, melena and colic.

![Fig 1: Segmental length of jejunum filled with clotted blood.](image)

Respiratory:

**Lungworm** - a nine month old Hereford heifer had been showing clinical signs of respiratory distress whilst at pasture, alongside three other animals in the group. The animal died despite antibiotic administration. The cattle lungworm *Dictyocaulus viviparous* was seen in the nasal secretions, and in the frothy contents of the tracheal (Fig 2) and bronchial lumen on gross pathology. In addition, highly oedematous abomasal mucosa (Fig 3) was observed (Moroccan leather appearance), which was confirmed by histology to be due to hyperplasia of mucous cells, characteristic of an *Ostertagia ostertagi* infection (brown stomach worm).
Sinusitis - an adult bull showed a fairly sudden change in temperament, and was reportedly “irritable”, butting lambs in his paddock and was picking at food. There was no response to antibiotic medication and in view of his rapid deterioration, the bull was destroyed. At PME, the most significant finding was a severe purulent sinusitis, with pus released under pressure as the frontal sinus was opened. It was suspected that the discomfort of pus building up under some pressure in the frontal and associated sinuses on the left side of the skull, may well have caused the change in behaviour described. As to the exact cause, this can only be speculative – possibilities include an ascending infection from nasal cavity (e.g. inhaled foreign body), or perhaps from a tooth root abscess.

Miscellaneous:

Portocaval thrombosis (Fig 4) was diagnosed to be the cause of sudden death in a dairy heifer. A single hepatic abscess was seen in the region of the liver hilus with extension into the vena cava, which contained a large dark red thrombus admixed with pus. The most common primary agent isolated from hepatic abscess is *Fusobacterium necrophorum*. This bacteria is a component of normal rumen flora, and can alone, or with other bacteria, be transported to the liver by means of the portal venous system in cases of compromised ruminal mucosa, often due to ruminal acidosis. The primary agent could not be confirmed in this case most likely to overgrowth of *post-mortem* bacteria.

Fig 2: Lungworms seen in bronchi  
Fig 3: Oedematous abomasal mucosa with “Morrocan leather” appearance

Fig 4 – Thrombus present in the caudal vena cava.
**Cystitis and pyelonephritis** - a 14 month old Holstein bull was submitted for PME due to chronic wasting over a period of three weeks. The post-mortem examination showed chronic cystitis, bilateral pyelonephritis and hydronephrosis (Figs 5, 6, 7, 8 and 9), and dark, foul smelling diarrhoea. *Salmonella Dublin* group D1 was isolated from the faeces, kidneys and bladder. The urinary tract infection may be the result of a septicaemia or following an ascending infection. This isolation is significant as *Salmonella dublin* can become endemic within a herd causing pneumonia, septicaemia, abortions and reduced production and may also present a zoonotic risk. Cases/outbreaks of *Salmonella dublin* are most often seen in animals during times of stress, such as in the peripartum period or during management changes, when the animals’ immune system is weakened.

Infection with *Salmonella dublin* can be difficult to diagnose and manage, as chronic carriers only shed the bacteria in faeces intermittently, despite the infection persisting in lymph nodes or tonsils.

*Fig 5: Abdominal organs in situ. Note the grossly enlarged bladder and kidney.*

*Figs 6 and 7: Left kidney, weighing just over 7 kg. Left kidney. Fluid-filled cysts bulging from the cortical surface.*
**Yew toxicity** - three heifers were found dead close to some discarded yew clippings. Yew poisoning was confirmed by the identification of a significant number of yew fragments and branch fronds in rumen content (Fig 10). Yew contains the powerful alkaloid toxin taxine, very small amounts of which can cause cardio-depression. In the individual heifer examined, there was also a significant pre-mortem bloat that would have further exacerbated the effects of the toxin.

**Acorn poisoning**

Predictably, the very heavy autumn drop of acorns resulted in cases being reported. On one farm, three steers died in fairly quick succession, one of which was submitted for PME. The rumen contained a large number of acorns, kidneys were enlarged and pale (Fig 11) with sub-capsular oedema. The carcase had an overwhelming “uraemic / ammoniacal odour.” Blood urea levels were severely elevated at 103 mmol/l (range 3 – 8 mmol/l).

Autumn is the time of year to be cautious about acorn poisoning in ruminants. It is a sporadic disease, which can appear unexpectedly in animals that has grazed the same pastures for years without any adverse effects. Some animals seem to develop a taste for acorns and oak leaves and will continually crave them, while others won’t consume any. The ingestion of acorns typically cause severe renal failure, which can be diagnosed by gross and microscopic renal changes, alongside biochemistry.
SMALL RUMINANTS

Alimentary tract:

**Concurrent parasitic gastroenteritis (PGE) and pulpy kidney disease** - was found to be the cause of death in a lowland flock of lambs. Worms were clearly evident in the abomasum of the submitted lamb (Fig 10), and abomasal and small intestinal washes revealed a mixed endoparasite infection, predominantly *Haemonchus contortus*. Although the PGE confirmed in this animal is diagnostic as the cause of sudden death, ileal content was submitted to the lab for to test for possible clostridial enterotoxaemia, as the kidneys were found to be very friable (soft) in an otherwise fresh carcass, in good body condition. The ELISA test results confirmed the presence of *Clostridium perfringens* epsilon toxin consistent with pulpy kidney disease. It is uncertain whether the enterotoxaemia or PGE was the primary cause of death. Proliferation of *Clostridium perfringens* type D in the small intestine and the resulting production of epsilon toxin can be triggered by intestinal stasis: It is possible that the heavy worm burden in this lamb, has led to an altered motility/environment of the GI-tract and thereby predisposing to excessive toxin formation, causing Pulpy Kidney Disease.

![Gross worms seen in abomasum](image)

**Fig 10: Gross worms seen in abomasum**

**MISCELLANEOUS AND EXOTIC FARMED SPECIES**

An adult male deer stag was submitted having been found dead, with blood around its anus and eyes. A precautionary anthrax smear was examined, that was negative. At PME, the most significant feature, was marked oedema / congestion of the sub-cutaneous tissue and superficial musculature of the scrotum and inguinal areas and extended down one hind limb to the hock joint. Oedema fluid flowed freely from the cut surfaces. There was no further pathology evident, and a presumptive diagnosis of malignant oedema was made, linked most likely to “fighting,”. The herd was not vaccinated against clostridial disease.
General information about abortions

To investigate cases of ovine abortion, submit:
Representative aborted foetus or foetuses, together with portions of placenta INCLUDING cotyledons – most diagnoses are made from the placenta!

The diagnostic rate achieved for bovine abortions is generally low, averaging about 35 per cent of all cases even when both foetus and placenta are submitted for an abortion investigation. An important reason for this is due to autolysis of the submitted foetus and placenta, due to the delay between foetal death and uterine expulsion. Autolysis can have a significant deleterious effect on the sensitivity of diagnostic tests due to disruption of the tissue parenchyma and overgrowth of post-mortem organisms. It is therefore recommended to submit freshly aborted foetuses and placenta and, if possible, from more than one case (as a batch submission) as this will increase the possibility of identifying a causative agent. Submitting placenta (or even a small part of it) wherever possible will also help with the diagnosis.

FARM ANIMAL PATHOLOGY AND DISEASE SURVEILLANCE TEAM

VPC Director: Prof. Roberto La Ragione
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Dr. Chris Palgrave (Service Lead)
Dr. Barbara Bacci
Dr. David Harwood
Dr. Pernille Jorgensen
Dr. Javier Salguero
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Technical Services Manager: Jon Cooper

Post-mortem (PM) Room Manager: Tom Hussey

Technical Staff: Ian Freeman, Kat Gowan, Emily Tubb, Mike Chaplin, Keith Hiley

Histology Laboratory Manager: Abbe Martyn
Histology Technical Staff: Duncan Grainger, Lucia Lozano White

Business Development Manager: Rachel Hargreaves
SURREY VETERINARY PATHOLOGY CENTRE

Surrey Veterinary Pathology Centre (left) and the main post-mortem room (right)

HOW TO FIND US

If using a Sat Nav, please follow postcode: GU2 7YW and do NOT turn left at the traffic lights after leaving the A3.

http://www.surreyvetpathology.com