



CITYU VETERINARY DIAGNOSTIC LABORATORY
城大動物醫療檢驗中心

CITYU VETERINARY DIAGNOSTIC LABORATORY

MESSAGE FROM THE DIRECTOR

Welcome to issue 2 of the 2019 CityU VDL newsletter. Thank you for all your interesting submissions and support of the laboratory. Our caseload continues to grow and new services and tests are added regularly.

In this newsletter we highlight Leptospirosis, some testing tips and an interesting case from Dr. Allan Kessell. Dr. Kessell left us at the end of May as he enters retirement back in Australia. See more below.

Our Hong Kong based pathologists enjoy assisting practitioners with case investigations and welcome your contact by telephone or email to discuss cases.

- Dr. Fraser Hill, Anatomic Pathologist, Director of CityU VDL

Haematology and Biochemistry Quality Assurance Programme

CityU VDL has introduced an external In-Clinic Analyser Quality Assurance programme. If you use an In-Clinic analyser you will be aware of the need for quality control (QC) of your test results to feel confident in your analyser and the service you provide to your clients. Regular QC checking allows you to build up a history of your instruments repeatability, enhancing your confidence in the instrument and alerting you when your analysers result may be drifting or servicing is required. Simply send suitable blood samples, a history of the case, and your in-clinic analyser results to CityU VDL for testing and comparison.

For details see previous email information or our website

(www6.cityu.edu.hk/CityUVDL).

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Leptospira interrogans serogroup Hebdomadis confirmed in Hong Kong

Ten cases of leptospirosis in Hong Kong dogs were diagnosed during last year's rainy season. Serum samples from six dogs tested by microscopic agglutination titres (MAT) confirmed infection was due to *Leptospira interrogans* serogroup Hebdomadis with cross-reaction to serogroup Mini. This is the first time these serogroups have been reported in Hong Kong. The clinical signalment included mostly anorexia, lethargy and vomiting and occasionally jaundice. If you suspect leptospirosis in any of your patients collect EDTA blood and urine for PCR testing (test both as results vary depending of the length of infection). Follow up a few weeks later with MAT serology to confirm the infective serogroup, as this influences vaccination strategies.

TESTING TIPS

Anaerobic culture



Anaerobic bacteria are fastidious and require special care to ensure good growth in the laboratory. CityU VDL is pleased to introduce the BBL Port-A-Cul tube to enhance your ability to isolate anaerobes from your patients.

Consider testing for anaerobes in abscesses, cellulitis, osteomyelitis, arthritis, teeth and jaw lesions, post-operative wounds, surgical implants, pleural and peritoneal infections and bacteraemia. Pus, aspirates, fluids, implants and tissue are all suitable samples.

Call the laboratory to arrange deliver of the BBL Port-A-Cul to put the sample in (preferred) or send your sample to the laboratory as quickly as possible without refrigeration.












In addition, CityU VDL now offers on-site minimum inhibitory concentration (MIC) testing for anaerobic isolates to assist you in deciding on therapy.

Collection tube order of draw

Following an order of blood draw ensures the integrity of the specimens by avoiding cross-contamination of additives between tubes. Even small amounts of EDTA can interfere with several of the chemistry results and samples in EDTA are unsuitable for microbiology culture. Cross-contamination of plain tubes for chemistry panels with EDTA will cause false hypocalcemia, hypomagnesemia, and false decreases in iron. Potassium-EDTA will also cause a false hyperkalemia.

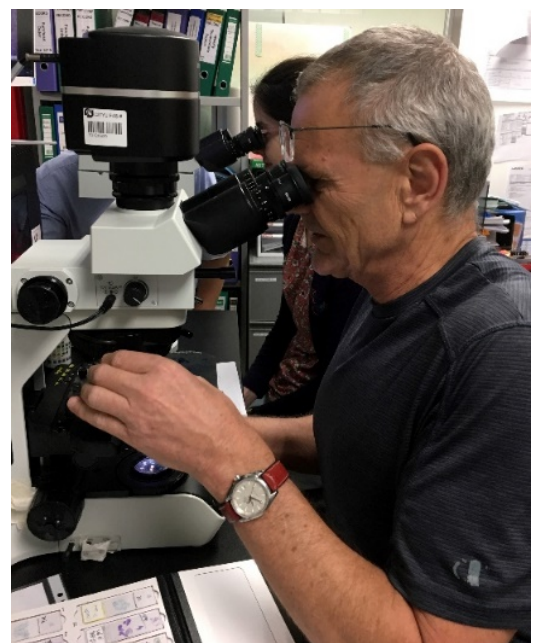
The Clinical Laboratory Standards Institute (CLSI) has established a recommended order of draw to prevent such errors. The order is the same whether the blood is collected by vacutainers, syringe, or a winged collection set.

Blood culture bottles should always be drawn **first**. After collection of this specimen, the recommended order is:

Order of Draw	EU color code	Type of tube	US color code
1		Blood culture bottle 	
2		Sodium citrate tubes	
3		Serum tubes (with or without clot activator or gel)	
4		Heparin tubes	
5		EDTA tubes	
6		Sodium fluoride/potassium oxalate with antiglycolytic inhibitor	

DR. ALLAN KESSELL - A FAREWELL

CityU Veterinary Diagnostic Laboratory farewelled Dr Allan Kessell as he heads back to retirement in Australia. Dr Kessell joined CityU VDL in 2017. He was instrumental in assisting with the establishment of the histology section, clinical pathology section and post mortem room. With a broad range of skills and interests, Dr Kessell has made a huge contribution to the success of the laboratory in the establishment of facilities and training of staff. He has provided countless high quality reports to Hong Kong veterinarians and he will be sorely missed. Farewell Dr Kessell and enjoy your retirement in the sun in South Australia.



Dr Allan Kessell hard at work sharing cases on the multiheaded microscope at CityU VDL

INTERESTING CASE

Small Cell T Lymphoma and Multiple Congenital Abnormalities in a British Bulldog

Dr Allan Kessell

Signalment and History

CityU VDL received a call from a local veterinarian requesting a post mortem examination. The previous day a 30-month-old, male, entire, British Bulldog had presented to the veterinarian with reported vomiting. Physical examination revealed the animal was normothermic, and had a normal respiratory rate and heart rate. The dog was judged to be well hydrated, and capillary refill time was <2 seconds. No abnormalities were auscultated on examination of the thoracic cavity. The abdomen was tense on palpation, and the veterinarian suspected gas filled intestines.

In house tests were limited to an electrolyte panel (Na, K, Cl were within normal limits), cPLI (abnormal), and a C reactive protein (CRP) of 35mg/L. The veterinarian interpreted these results as pancreatitis (abnormal cPLI) accompanied by inflammation (CRP >30 mg/L).

The dog was treated with broad-spectrum antibiotics and analgesics, and placed in a cage with “nil per os” instructions for overnight observation. After a short period of cage time the animal was observed to “panting very badly”, the cause of which was suspected by the veterinarian to be psychological. The veterinarian suggested the animal be transferred to a 24 hour emergency clinic, but the owner refused, and the animal was housed in the veterinary clinic overnight.

Unfortunately the dog was found deceased next morning in the cage; a pool of vomitus was next to the dog. After consultation with the owner the veterinarian arranged for CityU VDL to pick up the carcass and perform a full, gross post mortem examination.

CityU VDL Findings

There were mild autolytic changes, and the animal was in good body condition (weighed 21 kgs). There were plenty of fat reserves subcutaneously, and in the abdominal and thoracic cavity. The only external abnormality noted was a focal 2 x 2 cm area of alopecia below the left external ear canal. On internal examination, the trachea was moderately hypoplastic throughout its entire length, with an external diameter of approximately 15mm. The lungs were diffusely mottled dark pink to red, and oozed a red tinged fluid on section (interpreted as diffuse congestion and oedema). The brain was removed and shown to have a moderate hydrocephalus, with bilateral moderate expansion of the lateral ventricles. No abnormalities were noted on

gross examination of all abdominal organs (including the pancreas), although the gastrointestinal tract contained no ingesta.

The gross morphological diagnoses reported to the veterinarian were:

- 1) Congenital tracheal hypoplasia (figure 1)
- 2) Acute diffuse pulmonary congestion and oedema (figure 2)
- 3) Congenital hydrocephalus (figure 3)

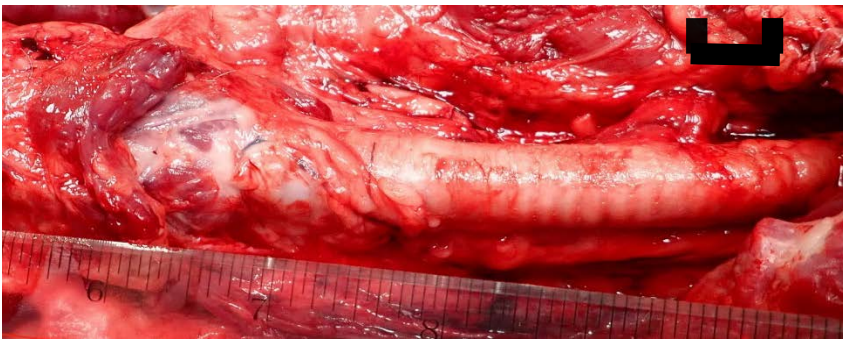


Figure 1. Hypoplastic trachea. (Bar = 1 cm)

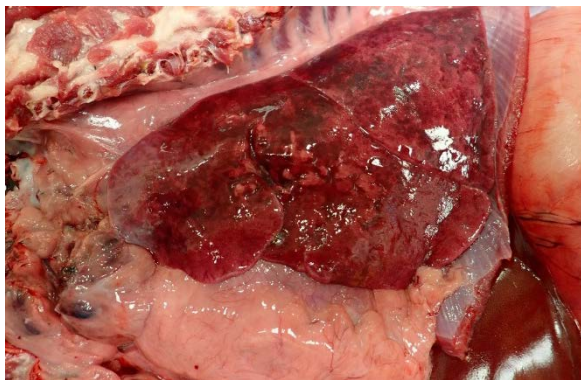


Figure 2. Diffusely congested and oedematous lungs. Note good fat reserves, and the normal appearance of the liver



Figure 3. Opened brain (after fixation). Note moderate expansion of lateral ventricles

It was presumed, based on the history and gross post mortem findings, that the combination of moderate diffuse tracheal hypoplasia, other anatomical features of this breed that restrict airflow, and a nervous disposition/distress at kenneling had led to acute pulmonary congestion and oedema, and death.

However the pathologist suggested examination of at least a limited number of tissues (including lung and pancreas). Findings in these tissues led to microscopic examination of a full range of tissues.

The following organ systems showed a moderate infiltrate of small lymphocytes – the interstitium of the pancreas, the gastric basal lamina propria and myenteric plexus (figure 4), and all portal areas in the liver (figure 5). The mesenteric lymph node contained a thick band of small lymphocytes immediately adjacent to the external surface of the capsule, as well as diffuse expansion of paracortical areas and

medullary cords with similar small lymphocytes. Small multifocal infiltrates of small lymphocytes were found in low numbers throughout the small intestines (mainly within the muscle layer), thyroid and lung.

Infiltrating lymphocytes resembled typical small lymphocytes, and no mitoses were seen in 10 HPFs. On immunohistochemistry the cell membrane of all lymphoid infiltrates was positive for CD 3 (figure 6), and negative for Pax 5, confirming a diagnosis of disseminated small cell T lymphoma.

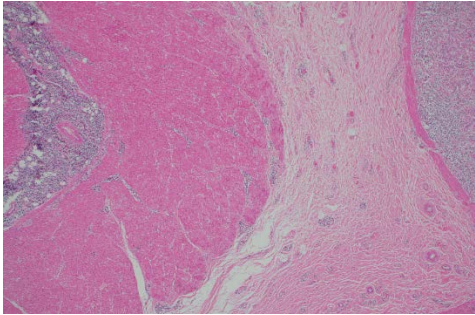


Figure 4 Stomach- note infiltrate into basal lamina propria (right), and myenteric plexus (left)

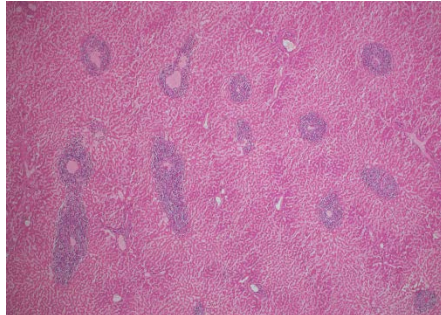


Figure 5. Liver – note diffuse infiltrate of small lymphocytes into portal areas (H and E),

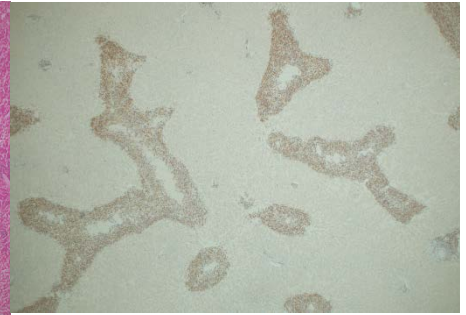


Figure 6. Liver -neoplastic T lymphocytes stain brown with CD3 IHC

Discussion

There were a number of interesting features shown by this post mortem. The animal had been discovered deceased at 8am, and a post mortem was performed at 1pm. There were some autolytic changes within the GIT, pancreas and lymph nodes, emphasizing the importance of performing a post mortem as soon as is possible. Some organ systems (especially GIT) are very sensitive to autolysis, which is made worse by increased temperatures.

Both congenital abnormalities seen in this dog are well reported in British Bulldogs.

Also there were no grossly observable changes within the pancreas and liver, and yet histologically the changes are moderate and diagnostic.

Although there is no obvious inflammation within the pancreas and the animal did not have pancreatitis, it is likely that there was enough necrosis of exocrine cells within the organ to result in an elevated lipase.

This degree of neoplastic infiltration into a number of organ systems was presumably enough to elevate the acute phase protein CRP, although no observable inflammatory cells were found in any organ system. One assumes there is enough anoxia and necrosis at the microscopic levels in infiltrated tissue to result in cytokine stimulated acute phase protein production, and certainly elevation of CRP into the range suggested as “inflammation” has been seen with lymphoma.

Of further interest to the pathologist is that significant infiltration by neoplastic small T cells was largely restricted to abdominal organs that are related to the GIT – the

stomach (and small intestines), liver, pancreas and the draining lymph nodes. This can be a feature of small cell lymphomas that arise within the GIT and liver in cats, but is uncommon in dogs. Also the infiltrate into the mucosa of the glandular stomach was restricted to the basal third of the mucosa (and myenteric plexus), so that pinch biopsies that could have been taken in life would have been difficult to interpret. This does the emphasis the superiority of full thickness intestinal biopsies diagnostically.

CityU VDL thanks the submitting veterinarian for this interesting case.

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