February 2019 VOLUME 2 | ISSUE 1

CITYU VETERINARY DIAGNOSTIC LABORATORY

MESSAGE FROM THE DIRECTOR

Welcome to the 1st edition of the 2019 CityU VDL newsletter. Our new service and price list has just been released (effective March 1) and includes 36 new tests and panel combinations.

Welcome to our new board certified clinical pathologist Dr Daniela Hernandez Muguiro who joined us in January. Dr Hernandez Muguiro brings the latest knowledge in veterinary clinical pathology to Hong Kong and will be a great asset to CityU VDL. More information on Dr Hernandez Muguiro is included in the newsletter 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

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WHAT'S NEW AT CITYU VDL

Haematology and Biochemistry Quality Assurance Programme Available Now

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.

CityU VDL is pleased to announce an external In-Clinic Analyser quality assurance programme is available now to Hong Kong veterinarians. 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).

Molecular Diagnostics Statistics

Testing of canine blood samples from dogs suspected of being infected with the tick borne pathogens *Babesia* and *Ehrlichia* species have revealed some interesting findings. *Babesia gibosoni* was the most common pathogen detected (33%), *Babesia canis vogeli* was detected in 5% of samples and *Babesia canis* was not detected. *Ehrlichia canis* was detected in 11% of samples.

Blood borne parasite	Percentage Positive
Babesia gibsoni	33%
Ehrlichia canis	11%
Babesia canis vogeli	5%
Babesia canis canis	0%

Cross checking of samples from dogs suspected of being infected with *Anaplasma* species by benchtop snap tests, revealed the pathogen present was *Ehrlichia canis* suggesting there is cross reaction occurring within the kit.

The most frequent molecular test undertaken in cats is checking for the presence of feline coronavirus, inducing feline infectious peritonitis (FIP). Of the samples tested, virus was detected in 54%. Abdominal or pleural fluid is the most common sample used for testing cats suspected to have FIP.

New Submission Form Available

Our new upgraded submission form is available on-line at our website now. Look out for a new range of testing options.

Services and Price List

Our services and price list have been updated and are available on-line and in clinic (effective March 1, 2019). Look out for new panels and a wider range of test options.

TESTING TIPS

Gastrointestinal panel

For investigation of gastrointestinal (GIT) diseases in dogs, CityU VDL has established a GIT panel including; Trypsin-Like Immunoreactivity (TLI), Folate and Cobalamin (Vitamin B12) for convenience. Collect a minimum of 1.3 ml of clotted whole blood in a serum tube and send to the laboratory. Results are available within 24 hours. Contact the laboratory for pricing.

Canine Lymphoma Testing Panels

Lymphoma is a common neoplasm in canines, predominantly affecting middle aged and older dogs, and more common in medium to large sized dogs. It comprises a number of clinically and morphologically distinct forms.

The neoplasm arises within lymphocytes, and since there are many subtypes of lymphocytes, there are also many subtypes of lymphoma, phenotypically, clinically, and presumably genetically different from each other.

Lymphoma can be sub-divided clinically into multicentric, mediastinal, gastrointestinal, hepatic, cutaneous, ocular, nervous system, and pulmonary forms. They can also be subdivided based on their broad immunophenotype into either B or T cell lymphoma, and further subdivided by the appearance of the neoplastic cell, both in its individual features (small, medium, and large) and its histological appearance and behaviour including infiltration into local tissue, grade and mitotic rate.

All these ways of classifying canine lymphoma do have clinical and prognostic significance and have been combined into the World Health Organisation (WHO) system of classification, based on the system used in classifying human lymphomas.

Veterinarians considering treating individual dogs with lymphoma will benefit from accurate WHO classification of that lymphoma, as it can assist with decisions about treatment options and prognosis. CityU VDL is implementing the WHO lymphoma classification based on the criteria described below.

At present most lymphoma diagnosis in Hong Kong is made by cytology, but for accurate WHO classification, immunophenotyping and biopsy plus histopathology is required. Please note that true cut biopsies may not be adequate, so it is recommended to collect half of the affected lymph node or a wedge of the affected tissue.

CityU VDL recommended approach to lymphoma diagnosis in the dog

(NB: Steps 1-3 below are considered the minimum requirement, and in many cases step 4 will be required for accurate classification)

Step 1: Provide an accurate signalment and history

Step 2: Collect at least four fine needle aspirates from affected lymph node or tissues

Step 3: If lymphoma is confirmed cytologically, (and the slides are of sufficient quality and sufficient neoplastic cells are undamaged), the veterinarian should request immunophenotyping including CD 3 (T cells) and CD 79a (B cells). This incurs an additional cost.

Step 4: The reporting pathologist will advise the submitting veterinarian in the cytology report if a biopsy of the affected tissue is required. Collected biopsy tissue should be examined by haematoxylin and eosin (H&E) staining as well as immunohistochemical staining for CD 3 (for T cells) and CD 79a (for B cells). This incurs an additional cost.

The only exceptions will be where the information gathered in steps 1-3 is sufficient to allow accurate WHO sub-classification. Such a case may be:

1. a T zone lymphoma (which are indolent and in the majority of cases do not require treatment),

2. some diffuse high grade large cell B lymphomas. These are the commonest sub-classification of lymphoma and usually respond to chemotherapy for 6-24 months.

DR. DANIELA HERNANDEZ MUGUIRO – AN INTRODUCTION

CityU Veterinary Diagnostic Laboratory is pleased to welcome Dr Daniela Hernandez Muguiro (BSc Vet Med, MClin Path, Dip ACVP (Clinical Pathology) to Hong Kong. Dr Hernandez Muguiro studied veterinary science at the Universidad de Guadalajera in Mexico before undertaking clinical pathology residency studies at the National Autonomous University of Mexico and the College of Veterinary Medicine, Cornell University. Dr Hernandez Muguiro successfully completed the American board examinations in veterinary clinical pathology in 2018.

Dr Hernandez Muguiro enjoys all aspects of clinical pathology with a special interest in leukaemia, acute myeloid leukaemia, cytochemistry and flow cytometry.
She is looking forward to meeting and working with CityU VDL customers.

Dr Daniela Hernandez Maguiro can be contacted:

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SOME RECENT CASES

Case 1

Feline Infectious Peritonitis (FIP) in a cat:

A three-year-old female British Short Hair cat presented with weight loss and anorexia of six months duration, along with diarrhoea for one month. An enlarged mass was palpable in the abdomen and euthanasia was elected. A post mortem examination by the submitting veterinarian revealed diffuse swelling in the intestines. Samples of caecum, mesenteric lymph node, ileum and liver were submitted for histopathology. All tissues show similar changes, consisting of multifocal fibrinonecrotising pyogranulomatous inflammation. Figure 1 shows the H&E staining of the liver revealing foci of necrosis, and fibrin precipitates surrounded by an inflammatory infiltrate. Figure 2 at a higher magnification shows the FIP coronavirus highlighted and stained brown by the immunohistochemical stain available at CityU VDL. This confirmed the diagnosis of FIP; a fairly common disease not only limited to young cats, but also occurring in middle to older aged cats in Hong Kong.

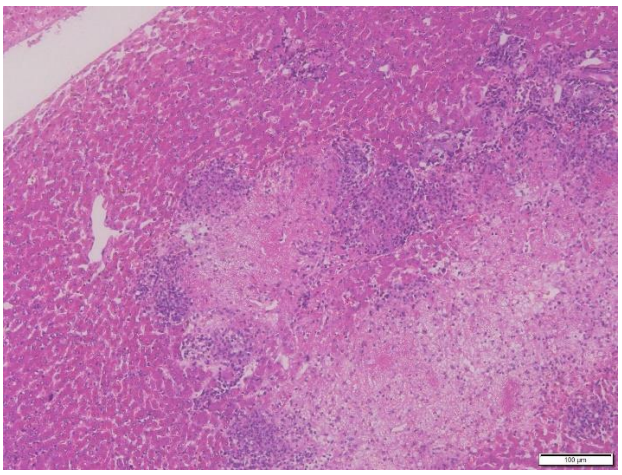

Figure 1. Liver, cat with FIP, necrosis and inflammation in the liver. HE 100x

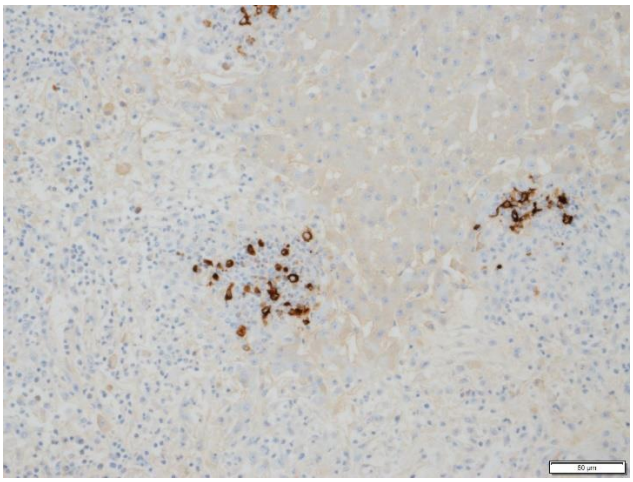

Figure 2. FIP immunohistochemical staining revealing the virus as dark brown staining material within inflammatory cells. IHC FIP 200x

Case 2

Lymphocytic early destructive cholangiohepatitis in a cat:

An 11-year-old female spayed Domestic Short Hair cat was evaluated because of elevated liver enzyme concentrations of alanine transaminase (ALT) and alkaline phosphatase (ALP). Liver lobe wedge biopsy revealed multifocal to coalescing, early destructive lymphocytic cholangiohepatitis with lymphoid follicles. Figure 3 shows inflammatory infiltrates forming aggregates centred on portal tracts. Figure 4 shows the distribution of bile ducts in the portal tracts highlighted and stained brown by the immunohistochemical stain CKAE1/3, available at CityU VDL. Small bile ducts are either peripheral or inapparent in the affected portal tracts in the sections examined, hence the diagnosis of early destructive cholangitis. Destructive cholangitis may be associated with a poor prognosis.

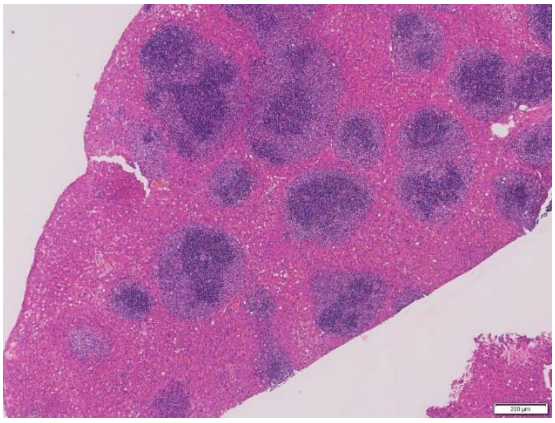

Figure 3. Liver containing multiple inflammatory foci (dark purple stained areas). HE 40x

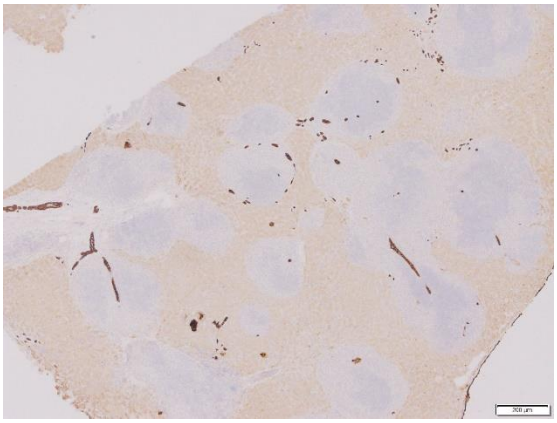

Figure 4. Bile ducts stained brown by the IHC stain. IHC CKA1/E3 40x

The main differential in this case is lymphoma. Figures 5 and 6 show the inflammatory foci are composed of a mix of T-lymphocytes and B-lymphocytes which sometimes organize as lymphoid follicles, both highlighted and stained brown respectively by the immunohistochemical stain CD3 (figure 5) and PAX5 (figure 6), available at CityU VDL. This distribution supports the diagnosis of lymphocytic cholangiohepatitis, and the diagnosis of lymphoma is unlikely in this case. Feline lymphocytic cholangitis or cholangiohepatitis is a slow progressive disease. An immune-mediated pathogenesis has been proposed.

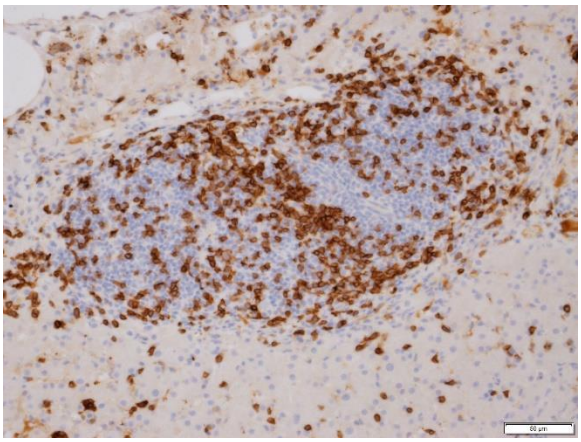

Figure 5. The CD3 immunohistochemical stain highlights T lymphocytes with brown staining. IHC CD3 200x

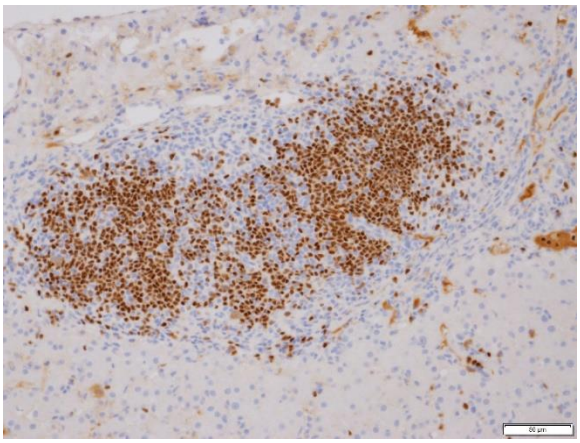

Figure 6. The PAX5 stain highlights T lymphocytes with a brown colour. IHC PAX5 200x

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