Module C

Veterinary Pathology
Clinical Pathology - Laboratory Diagnostics (C-VP.2)

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Lecturer in Clinical Pathology

LEARNING OUTCOMES

The objective of the module is to enable the candidate to consolidate clinical knowledge gained at undergraduate level, and to develop an in depth understanding of the application of that knowledge in a practice environment in relation to laboratory medicine diagnostics.

LEARNING TOPICS

At the end of the module, candidates should be able to:

- Thoroughly understand the pathophysiological basis of changes in laboratory test results
- Show thorough familiarity with the interpretation of laboratory test results in relation to other test results and the clinical condition
- Review and constructively criticise current literature on the specialty, to enable them to determine the relevance to their current practice
- Utilise their understanding of evidence based medicine and decision analysis to develop practical diagnostic protocols for their patients
- Recognise when a case is truly unusual and become familiar with information resources available to enable them to deal with such cases
- Recognise when a case is beyond their personal or practice capabilities for continued testing and monitoring
UNDERPINNING KNOWLEDGE

1. Basic guidelines for set up and maintenance of an in practice laboratory
   - Choosing and evaluating equipment and its performance for haematology, biochemistry, for in house/office/near patient testing
   - Routine maintenance and calibration of equipment
   - Standardisation and quality control of laboratory tests, internal and external quality control schemes. Quality assurance schemes. Procedures to apply when these are out of control
   - Standard operating procedures (SOP'S) for all tests and equipment
   - Preparation of good quality blood films, cytology smears from fine needle aspirates (FNA) and fluid samples
   - Microscopy, blood films, urine analysis and identification of common endo and ecto parasites
   - Handling and evaluation of haematology, chemistry, microbiology, and cytology samples for their condition and suitability for shipping to reference laboratories for testing
   - Guidelines for choosing an external testing laboratory for both routine testing and special tests (for example, endocrinology, immunology)

2. Cytology
   - Understand the relative advantages/disadvantages of FNA and cytology, needle aspirate and biopsies, impression smear cytology and histology, and their integration in case analysis

3. Laboratory data analysis; general principles
   - Quality of samples
   - Effects of interferences, for example, aging, haemolysis, lipidaemia, drugs on test results
   - Use of reference intervals (normal values) for interpretation of results

4. Evaluation of results in relation to clinical and historical information
   - Evaluation of initial in house and/or external haematology and chemistry results as a basis for assessing the need for further special testing (for example, endocrinology, immunology, virology)

5. Special species (select one of the following)
   - Small companion animals (including rabbits)
   - Large companion animals (including horses)
   - Food and production animals (including poultry)
   - Other – birds, reptiles etc (including smallholders’ poultry)

For the chosen group:
   - Use of laboratory tests in the diagnosis of anaemia and other haematopoietic abnormalities and an understanding of the pathophysiology of the changes
   - Evaluation of blood films
   - Cytological evaluation of common samples (for example, fluids, FNA, aspirates)
   - Use of laboratory tests as aids in the diagnosis and monitoring of diseases i.e. renal, hepatic, gastrointestinal, endocrine, neoplasia, infectious disease
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ASSESSMENT

- A case diary of 20 cases that documents the candidate’s experience. Cases can be collected from up to 12 months prior to the date of enrolment on the CertAVP programme. At the end of the case diary candidates should include a 1,000 word synopsis of what they have learned from the cases. This might include what has changed in their approach to a case, any new procedures or investigations that are now considered, any additional reading which was helpful, and/or any unexpected features of a case which will influence decision making in the future.

- Three case studies, each of up to 1,750 words in length. These cases should be selected to demonstrate the candidate’s ability to evaluate and integrate haematological, clinical chemistry, urinalysis and endocrine data, to identifying the abnormal (or normal, but unexpected) results, list the differentials for the abnormal values, and describe the pathomechanisms behind the changes in the context of the most relevant differentials.

- Practical exam to evaluate blood smears and cytology images with common abnormalities
## ANNUAL ASSESSMENT TIMETABLE

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
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<tbody>
<tr>
<td>11\textsuperscript{th} February</td>
<td>Submit case diary, synopsis and case studies by 11\textsuperscript{th} February</td>
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<tr>
<td>Mid March</td>
<td>Practical examination to be held (date to be confirmed)</td>
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## LEARNING SUPPORT ACTIVITIES

- Case report posted every month by Module Leader
- Interesting paper posted every month by Module Leader
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INSTRUCTIONS FOR SUBMITTING CASE STUDIES / SYNOPSIS / CASE DIARY

Please ensure that at the beginning of your case study/synopsis is included:

- Your name
- Module name
- Case study/synopsis title
- Word count (excluding the above, tables, photo titles and references)

Case study/synopsis should be referenced and references cited in a standard format.
- Use *The Veterinary Record* or *The Journal of Small Animal Practice* as guidance to both
citation of references within the text and format of references in the reference list.
- *The Harvard Guide to Referencing* is also available to candidates enrolled for learning
support or online (various web sites allow the guide to be downloaded).

Please submit your synopsis as a

- MS Word document (97-2003 format or later)*

and your case diary as a

- MS Excel spreadsheet (97-2003 format or later)*

attached to an e-mail and send it to: certavp@rvc.ac.uk

*(Please note that as case studies / synopsis / case diary in alternative formats have been unreadable in
MS Office any other format will be sent back to the candidate)
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SUGGESTED READING

Haematology and Biochemistry:

- Stockham and Scott: Fundamentals of Veterinary Clinical Pathology (2nd Ed)
- John W. Harvey: Atlas of Veterinary Haematology: Blood and Bone Marrow of Domestic Animals

Cytology:

- Raskin and Meyer: Atlas of Canine and Feline Cytology
- Cowell et al: Diagnostic Cytology and Haematology of the Dog and Cat (3rd Ed)
- Baker and Lumsden: Color Atlas of Cytology of the Dog and Cat