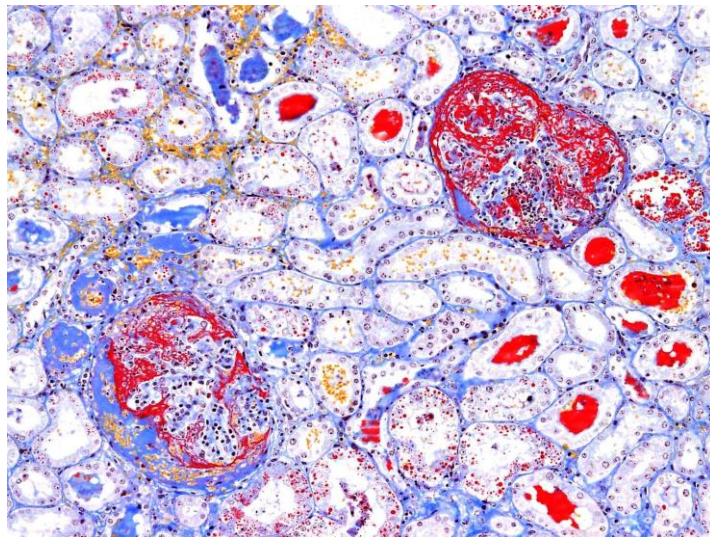


**Certificate in Advanced Veterinary Practice**  
**C-VP.1 Veterinary Pathology**  
**Basic Tissue Pathology, Necropsy and Biopsy**  
**Module Outline**



**Module Leader:**

**Ms Norelene Theresa Harrington**  
**BSc Vet Path, MVB, MVetMed, Dip ACVP, PG Cert (VetEd), FHEA, MRCVS**  
**Lecturer in Veterinary Anatomic Pathology**

## Enrolment guidance

Veterinary pathology is pivotal to enhancing our comprehension of the complexity of animal diseases, which will support medical and surgical therapies and progression of clinical veterinary research. There is a need for improved understanding of pathological techniques to augment the interpretation of surgical biopsy reports and confidence in performing and assessing necropsies.

This module is aimed at veterinary practitioners intending to consolidate knowledge of the subject gained at undergraduate level, and to develop an in-depth understanding of the application of that knowledge in a practice environment in relation to basic tissue pathology.

Before embarking on this module, you should fulfil the following criteria:

- a) You should ideally have completed a B Practice module.
- b) If you have completed a B Practice module at another institution, you may submit one report for feedback by RVC assessors. If you are only enrolling for the VP C modules it is highly recommended that you write one report from a relevant B Practice module, and this will be reviewed by the assessors prior to assessment of any C module work.
- c) It is your responsibility to ensure that you have access to sufficient critical care cases to both produce adequate material for the case reports and to allow sufficient experience to develop in this area as this will greatly enhance your ability to pass the written examination.

Coverage of this module may be integrated with others, particularly other B and C modules. All candidates will normally have completed A-FAVP.1 Foundations of Advanced Veterinary Practice module, and at least one of the practice B modules, before undertaking a C module. Compliance with best practice for all the topics covered by module A-FAVP.1 will be expected whenever these are appropriate in C modules. For example, awareness of, and compliance with, all relevant legislation, welfare and ethical principles will be required throughout.

You are encouraged to establish contact with an experienced pathologist working in a diagnostic laboratory to assist you in some aspects of the module. You are advised to plan a structured programme of continuing professional development to help you achieve your objectives.

## **Aims**

This module will endeavour to enable the student to develop the following:

1. Review and optimisation of pathological techniques for selection and submission of samples to relevant diagnostic pathologists.
2. An expanded understanding of the molecular and cellular basis of disease processes in animals.
3. Application of a greater appreciation of these fundamental pathological processes to improve the ability to interpret abnormal events at a macroscopic and histological level.

## **Structure**

The specific areas within the module will include:

1. Health and safety
2. Welfare and ethic.
3. Cytology and biopsy
4. Necropsy examination
5. General tissue pathology theory

## **Learning outcomes**

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

1. Understand the basic principles of general tissue pathology.
2. Organise and safely conduct a thorough necropsy in the context of the clinical environment.
3. Organise, collect, and submit appropriate samples from biopsies, cytology, and necropsy examination for subsequent pathological evaluation.
4. Collate relevant information from the clinical presentation for the pathologist to optimise evaluation of tissue samples.
5. Review and integrate findings from the clinical history, macroscopic examination, clinical pathology, and histopathology.
6. Be capable of critically appraising pathological reports and utilising current literature to interpret the findings in the context of the clinical presentation.
7. Review the outcomes of the cases to improve future performance.

## Module content

### Health and Safety

- Legislation regarding safety at work and COSHH
- Forensic pathology and evidence
- Notifiable diseases
- Zoonoses
- Organisation and responsibility in a team environment
- Disposal of waste and handling of hazardous materials
- Chemical safety (fixatives, processing chemicals, stains)
- Packaging and handling of pathology materials

### Welfare and Ethics

- Professional relationships
- Consent for necropsy examination
- Retention of tissues
- Euthanasia and impact on sampling
- Identification and labelling

### Biopsy and Cytology

- Choice of sample – needle, excision, endoscopy
- Preparation of samples
- Preservation and choice of fixatives
- Processing for examination
- Understand the relative advantages/disadvantages of fine needle aspirates, needle biopsies and excisional biopsies and their integrative roles in case diagnosis

### Necropsy Examination

- Preparation and equipment
- Necropsy techniques
- Description and recording of findings (manual and computer based)
- Sampling and preservation of tissues and choice of fixatives for paraffin wax embedding, frozen sections, bone marrow, bacteriology, virology, parasitology, electron microscopy, PCR
- Sampling for toxicology/poisoning

### **General pathology tissue theory**

- Processing and sectioning
- Staining including special stains, immunohistochemistry (IHC) and in situ hybridisation (ISH)
- Basic pathological processes of cellular adaptation, injury and death, inflammation, tissue renewal, healing and repair, haemodynamic disorders, immune diseases, and neoplasia
- Histological appearance of basic pathological changes in organ systems
- Integration of pathology findings with the clinical presentation and other diagnostic findings
- Interpretation of pathology diagnostic reports

### **Mentors**

You are strongly advised to have a supervisor with which you can discuss cases. Ideal supervisors would have post-graduate qualifications in your area of interest. The module leader will not be discussing case management with any candidate.

## Assessment

- A case diary of 20 cases that documents your experience.
- *One case report can be submitted for review prior to being marked. This is only permitted once per candidate per discipline.*
- A casebook of four case reports, each of up to 1,500 words in length. These cases should be selected to demonstrate your ability to use the competences that have been acquired to cope with a challenging situation, with the use of tissue pathology, rather than necessarily using classic textbook cases of conditions.
- A reflective essay of 1,500 words, completed at the end of the module, reflecting upon how the course of study has resulted in a more competent practitioner.

Further guidance is given below for preparation of case reports. Examples of a previous successful case report and essay are available on Learn. Please use the forum to ask any questions you have about these submissions.

## Assessment weighting

- |                |     |
|----------------|-----|
| • Case diary   | 25% |
| • Case reports | 60% |
| • Essay        | 15% |

## Annual assessment timetable

<b>1<sup>st</sup> January</b>	If you are submitting work for assessment on the following dates, please inform the CertAVP office.
<b>31<sup>st</sup> January</b>	Case diary to be submitted You are given the opportunity to have one case report reviewed prior to marking. Please submit your report by this date if you haven't already had a review.
<b>15<sup>th</sup> March</b>	Case diary result and case report feedback (if submitted) returned to you
<b>30<sup>th</sup> April</b>	Four case reports to be submitted
<b>15<sup>th</sup> June</b>	You will be notified of your case report results
<b>30<sup>th</sup> July</b>	Reflective essay to be submitted
<b>Early September</b>	You will be notified of your essay result and module pass

## Learning support activities

Learning support is provided to aid self-directed learning and to provide easy access to published articles. You will be given a username and password which will allow you to log on to 4 different systems:

### 1. RVC Learn (<http://learn.rvc.ac.uk/>)

- Sample essay, case diary and case report
- Interesting articles to read
- Access to discussion forums that are used by all CertAVP candidates as well as RVC tutors. The forums can be used to discuss any topic relevant to the CertAVP VP modules or simply to find out who else is out there!
- Access to presentations from the CertAVP Survival Tips day
- Access to the RVC online library. This is invaluable when researching literature for writing up case reports. This means that (with rare exception) all journal articles that you want to view can be downloaded to your PC with a few mouse clicks. This includes original research articles as well as review articles and case reports. IT and Library support is available for this facility (email [library@rvc.ac.uk](mailto:library@rvc.ac.uk) or [helpdesk@rvc.ac.uk](mailto:helpdesk@rvc.ac.uk)).
- There are also several CPD courses run each year at the RVC that support some of the learning outcomes for ECC modules. CertAVP candidates receive a 20% discount on RVC CPD courses – please contact the CertAVP office for further details.

### 2. RVC Intranet (<https://intranet.rvc.ac.uk>)

Access to all information available to all RVC students and employees, for example, news, events, policies, committees, services, Library, IT helpdesk, etc.

### 3. Athens (<http://www.openathens.net/>)

A huge amount of any library's information is now available online, e.g. electronic journals, e-books and databases. 'Athens' is a system used by UK universities for controlling access to these type of online services and with your username and password, you can access many of a library's online databases, electronic journals and e-books seamlessly.

### 4. Email (<http://mail.rvc.ac.uk>)

You are given an RVC email address, which is **compulsory** to use for CertAVP communication and submission of work.



## **Case diary guidelines**

The case diary should include the following details

- Case name
- Date
- Relevant clinical findings
- Relevant clinical pathology
- Pre-biopsy/post mortem diagnostic assessment and differential diagnoses considered
- Gross pathology observations
- Histopathological diagnosis (summary, not full details)
- Final diagnosis
- Comments

## **Case report guidelines**

These cases should be selected to demonstrate your ability to use the competences that have been acquired to cope with a challenging situation, with the use of tissue pathology, rather than necessarily using classic textbook cases of conditions.

The case reports should be written in the third person in a style suitable for publication in a Journal (for example Journal of Small Animal Practice). You are expected to demonstrate a high standard of literacy and please ensure that any spelling and grammatical errors have been corrected. You may use well-known abbreviations if these are explained in an appendix. Cases seen up to 12 months prior to the date of enrolment on the CertAVP programme will be accepted.

The following framework should be used as a guide to the structure of the case report:

- Identification of patient
- History
- Clinical signs
- Problem list and differential diagnoses
- Investigation
- Diagnosis
- Treatment
- Outcome

- Discussion
- References

## Images

Images may be used where they provide valuable information for the case. For radiographs lateral views of any part should be orientated with the cranial or rostral part to the viewers left. Ventrodorsal and dorsoventral images should be viewed with the left side on the viewers right. Lateral and medial should be consistent throughout the report. For ultrasound images cranial should be to the left with ventral surface at the top of the image.

## References

- These should be properly cited in the text, in accordance with the style in the Journal of Small Animal Practice (JSAP). Avoided listing references that were not cited in the text or vice versa.
- We recommend using Harvard referencing as described by the Anglia-Ruskin University (<http://libweb.anglia.ac.uk/referencing/harvard.htm>).
- You will find it very helpful to use a program such as Endnote® or Reference manager® to organise your references.

## Appendices

- You may include appendices but please note that the examiners are not obliged to read them (so please don't include essential case information).
- Images may be included here or in the main body of text. Include any images that you think are relevant as these generally enhance your report and enable examiners to assess your interpretation. Normal ultrasound images need not be included unless you would like to do so but clear abnormal images should be included if possible.
- Laboratory reports may be included here but all abnormalities need to be written in the text and reference ranges must be included. It is acceptable to scan printed reports rather than re-type them if you prefer, but any case details or details of your name or practice must be blanked out.

The word limit is 1,500 words per case report. Tables, figure legends, appendices and reference list are NOT included in the word count. The report title and titles within the report ARE included. You should not put important information, such as the physical examination, in to a table to avoid the word count; only numerical data should appear within a table (such

as laboratory results). In the interests of fairness to all candidates the word count is strictly adhered to and reports that exceed it will be returned unmarked.

All written work submitted to the Royal Veterinary College is passed through plagiarism detection software. Work submitted for this module should not have been submitted for any other courses at RVC or other institutions.

## **Instructions for submitting work**

Each piece of work you submit must be anonymous and should be uploaded to Learn for marking.

The case diary should preferably be written in Excel and the commentaries, synopsis and case reports should be in Word. Please ensure that the beginning of each piece of work includes:

1. your student number
2. module name
3. title of work
4. word count (excluding the above, tables, photo titles and references)

## Recommended reading list

The following list is given as a guide as to where to start and for this reason cannot be considered 'complete'. We also don't expect you to read texts from cover to cover or to use all the texts listed; however we do recommend you make use of the most recent edition of textbooks where available. We apologise if you feel a particular favourite is missing - feel free to use the Learn discussion board to pass on additional suggestions to other candidates.

Most of the textbooks on veterinary pathology (tissue pathology) are written for the qualified pathologist or pathologist in training programmes. Those that cover the underlying mechanisms of disease and how this relates to different organ systems - without being too specialist - include:

- McGavin, M and Zachery, J. (2016). Pathologic Basis of Veterinary Disease.
- Mosby Kumar, V. (2020). Robbins & Cotran Pathologic Basis of Disease. Elsevier.
- Maxie, G. (2015). Jubb, Kennedy & Palmer's Pathology of Domestic Animals. Saunders Ltd.
- Meuton, D. (2020). Tumors in Domestic Animals. Ames, IA, United States: Iowa State University Press.
- The British Society of Veterinary Pathology **[www.bsvp.org](http://www.bsvp.org)** run a series of one or two-day modules on veterinary pathology aimed at pathologists training for specialist FRCPath or ECVP or ACVP qualifications.

The Davies-Thomson foundation **[davisthompsonfoundation.org](http://davisthompsonfoundation.org)** is an excellent veterinary pathology resource providing a wide range of available courses across various diseases processes and species.