

28423 - General Pathological Anatomy

Syllabus Information

Academic year: 2023/24

Subject: 28423 - General Pathological Anatomy

Faculty / School: 105 - Facultad de Veterinaria

Degree: 451 - Degree in Veterinary Science

ECTS: 8.0

Year: 3

Semester: Annual

Subject type: Compulsory

Module:

1. General information

The objective of the subject is the study of the lesions that occur in cells, tissues and organs in the course of the disease, by means of appropriate techniques, such as necropsy, and the use of specific terminology. These aspects will make it possible to infer the pathogenic mechanisms involved in the diseases and to suggest the pathogens involved.

The knowledge acquired will enable the student to base the subsequent knowledge of the rest of the degree, which will also allow them to directly comply with most of the SDGs of the 2030 Agenda.

To take this subject, it is advisable to have basic knowledge acquired in previous years.

It will be necessary to follow some basic safety recommendations for the realization of the practices. This information is available in the course ADD (Anillo Digital Docente).

2. Learning results

The student, in order to pass this subject, must demonstrate that:

Knows and correctly uses the basic terminology of macro and microscopic General Pathological Anatomy.

Is able to identify and describe the most frequent types of macro and microscopic lesions in cells, tissues and organs.

Knows the pathogenic mechanisms that are activated in the animal organism when different pathogenic agents act, as well as their evolution and consequences.

Knows and knows how to perform the necropsy technique in animals, as well as the correct collection and sending of samples for anatomopathological diagnosis.

Knows the anatomopathological bases of post-mortem veterinary inspection.

Correctly handles the sources of bibliographic information related to the subject.

3. Syllabus

The subject consists of 44 theoretical topics, structured in 8 thematic parts.

Part I - Introduction.

01. Objectives of the subject: Teaching guide of the subject - Access and existing contents in the Digital Teaching Ring (ADD).

02. General concepts: Methods of study of the Pathological Anatomy - Antemortem study - Post-mortem study - Types of lesions - Description and denomination of the lesions.

Part II - Adaptation, cell damage and cell death.

03. Somatic or organic death - Signs of death - Adaptation, damage and cell death: Cellular adaptation - Causes and mechanisms of cell damage -

04. Irreversible cell damage: Apoptosis - Necrosis: Types and evolution.

05. Pathological deposits: Alterations in water exchange - Pathological deposits of glycogen.

06. Pathological lipid deposits: Lipidosis - Lipoidosis

07. Pathological protein deposits: Hyalinosis. Fibrinoid deposits - Amyloidosis - Uric acid, keratin and glycoprotein deposits.

08. Pathological pigment deposits: Endogenous hemoglobinogenous pigments - Endogenous anhemoglobinogenous pigments -

Exogenous pigments

09. Pathological mineral deposits: Pathological calcifications - Metabolic osteopathies - Lithiasis: Stones, pseudoconcrements and conglobates.

Part III - Circulatory disorders.

10. Active hyperemia, congestion (passive hyperemia) and edema: Etiopathogenesis, types and consequences.

11. Hemorrhage: Types - Consequences - Evolution.

12. Thrombosis: Etiopathogenesis - Types - Evolution and consequences - Disseminated intravascular coagulation (DIC).

13. Embolism - Types and consequences.

14. Anemia, ischemia and infarction: Concept - Types - Consequences and evolution.

15. Lymphatic circulation disorders: Lymphangiectasia, lymphorrhage and thrombosis.

16- General disorders of blood circulation: Disorders of cardiac origin - Shock: concept and types - Morphological manifestations of shock.

Part IV - Inflammation and repair.

17- Inflammation: General concepts - Beneficial and harmful aspects - Biological significance of inflammation - Causes of inflammation - Terminology of inflammation - Classification and naming of inflammation.

18- Acute inflammation: Elements involved in inflammation: cells, plasma and connective tissue - Vascular changes - Cellular changes.

19- Chemical mediators of inflammation: Mediators of plasma and cellular origin - Systemic effects of acute inflammation.

20- Morphological patterns of acute inflammation (I): Serous inflammation - Fibrinous inflammation.

21- Morphological patterns of acute inflammation (II): Catarrhal inflammation - Purulent inflammation - Hemorrhagic inflammation.

22. Morphological patterns of acute inflammation (III): Mixed forms of acute inflammation - Necrotic inflammation - Gangrenous inflammation - Evolution of acute inflammation.

23. Chronic inflammation: Concept - Etiology - Elements involved in chronic inflammation - Morphological patterns of chronic inflammation.

24. Morphologic patterns of chronic inflammation: Granulomatous inflammation - Non-granulomatous inflammation.

25. Resolution of inflammations: Ways of resolving the lesions: (I) Regeneration - (II) Repair or healing - Sequelae.

Part V - Developmental disorders.

26. Agenesis - Aplasia - Hypoplasia - Atrophy - Hypertrophy - Hyperplasia - Metaplasia - Organic or congenital malformations.

Part VI - Neoplasms.

27. Definition and general concepts: Nomenclature of neoplasms - Characteristics of benign and malignant tumours.

28. Evolution of neoplasms: Tumour differentiation and growth rate; - Local invasion; - Recurrence; - Metastasis.

29. Tumour stroma and immune response: Tumour-stroma interaction.- Angiogenesis.- Inflammation.- Tumour immunity.- Tumour antigens.- Antitumor effector mechanisms.- Tumour cell escape mechanisms.

30. Effects of tumours on the host: Direct or local effects - Collateral effects or paraneoplastic syndromes - Cancer cachexia - Immunosuppression.

31. Molecular basis of neoplasms: Oncogenes - Tumour suppressor genes - Apoptosis evasion - Telomerase - Genomic instability and dysregulation - Initiation, promotion and progression of neoplasms.

32. Etiology of neoplasms: Hereditary cancer - Chemical carcinogens - Physical carcinogens - Environmental factors - Viruses, bacteria and parasites.

33. Neoplasms of major incidence in animals: Epithelial and glandular tumours - Most common epithelial tumours in domestic animals.

34. Neoplasms of major incidence in animals: Tumours of connective tissue - Tumours of bone and cartilage tissue.

35. Neoplasms of major incidence in animals: Lymphohemopoietic tumours - Nervous system tumours - Endocrine gland tumours.

Part VII - Immunopathology.

36. Immunodeficiencies: Defects in the physicochemical barriers of the skin and mucous membranes.- Neutrophil and APC cell deficiencies.- Complement deficiencies.- T and B cell deficiencies.

37. Pathological hypersensitivity reactions: Type I Reactions (Anaphylactic) - Type II Reactions (Ig+C-mediated cytotoxicity) - Type III Reactions (Immunocomplex) - Type IV Reactions (Delayed or cell-mediated hypersensitivity).

38. Autoimmune diseases: Mechanisms of induction of autoimmunity - Classification of autoimmune diseases: Organ-specific autoimmune diseases and systemic autoimmune diseases.

Part VIII - Introduction to systemic pathology.

39. Types of circulatory system injuries
40. Types of respiratory tract injuries
41. Types of digestive tract lesions
42. Types of urinary system injuries
43. Types of nervous system injuries
44. Types of locomotor system injuries

The program of the subject be complemented with practices, which will be compulsory (with signature of attendance) and will correspond to four types of practices:

- A. Necropsies
- B. Demonstration of macroscopic lesions
- C. Histopathology
- D. Seminars

4. Academic activities

- Master classes: 100 hours

-Practices:

A. Necropsy: will be performed in the necropsy room and will include the necropsy of one bird, two monogastrics (rabbit and pig) and one polygastric (sheep). 10 hours per student.

B. Demonstration of macroscopic lesions: to be performed in the necropsy room with organs from the slaughterhouse. 4 hours per student.

C. Histopathology: to be performed in the microscopy room of the Histology and Anatomic Pathology Unit. 8 hours per student.

- Seminars: 2 of necropsy technique and 6 of macro and microscopic lesions. 8 hours per student.

5. Assessment system

The exams will have two parts:

- A theory exam that will include multiple-choice, true/false and short-answer questions.
- A practical exam consisting of the identification of macro and microscopic lesions projected on images.

There will be two midterm exams, one in the middle of the term and one at the end. The exam for those who have failed previous exams will be held in July. If the first midterm exam is passed, the grade will be kept until the end.

To pass the subject it will be necessary:

- To pass both midterms.
- In order to pass a midterm exam, it is necessary to pass the theoretical and practical exams separately.
- In order to pass the theoretical and practical exams, 50% of their value must be exceeded.
- To have completed the mandatory practices. Students who have not attended at least 80% of the practices must take a specific exam to certify that they have acquired the practical competencies corresponding to the instruction they have not received.

Assessment criteria:

Out of 100 maximum points to be obtained (50 in each partial), the value of the tests will be as follows:

- Theoretical examination: 60 points (30 in each midterm exam).
- Practical exam on injury identification: 40 points (20 in each midterm exam).