

## Veterinary Pathology II

- 45 Hrs frontal lessons
- 15 Hrs practical lessons

**Learning outcomes:** Acquisition of knowledge on the aetiopathogenesis and macro-microscopic morphology of the most important congenital and acquired organic modifications and on the multi-organic involvement in systemic diseases. The student will be enabled to use these information to plan a differential diagnosis.

### Frontal lessons

Topics and skills acquired	General topics	Specific topics	hrs
	<i>Information on the course</i>	Presentation of the course and explanation on the organization of the practical part. Presentation of the procedures concerning the student evaluation during the examination.	0,5
<p style="color: red; text-align: center;"><b>1. PATHOLOGY OF THE RESPIRATORY SYSTEM (TOT. 14 HOURS)</b></p> <p>[On airways and lung knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the etiopathogenesis]</p>	<i>Nasal cavities</i>	Nasal cavity: haemorrhages. Phlogosis: aetiology, pathogenesis and morphological types. Infectious bovine rhinotracheitis (IBR), equine adenitis, glanders. Inflammation of the guttural pouch. Swine atrophic rhinitis. Parasitic diseases and enzootic and sporadic tumours of nasal cavities.	1,5
	<i>Airways</i>	Larynx and trachea: haemorrhages, oedema, phlogosis: aetiology, pathogenesis and morphological types.	0,5
		Airways: stenosis, bronchiectasia (aetiopathogenesis and morphological macroscopic patterns); bronchitis and bronchiolitis (classification and pulmonary consequences).	1
	<i>Non-inflammatory lung pathology</i>	Lung: variation of pulmonary air content: classification, pathogenesis, gross examination and histological aspects of atelectasis (congenital and acquired) and of emphysema (parenchymatous and interstitial, acute and chronic).	1,5
		Pulmonary oedema: aetiopathogenesis, macroscopic and microscopic features.	0,5
		Lung abnormalities of blood flow: gross examination and pathogenesis of hyperaemia, hischemia, pulmonary embolism and thrombosis.	0,5
	<i>Pneumonias</i>	Pneumonias: classification. Aetiopathogenesis and gross examination of bronchopneumonia.	1
		Aetiopathogenesis and gross examination of fibrinous pneumonia.	1
		Aetiopathogenesis and gross examination of interstitial pneumonia.	0,5
		Aetiopathogenesis and gross examination purulent and gangrenous pneumonias	0,5
		Granulomatous pneumonia: pathogenesis of tuberculosis in domestic mammals. Bovine, equine, swine, canine and feline pulmonary tuberculosis.	1
		Bovine pneumonias: enzootic pneumonia, shipping fever, ARDS-BRSV, fog fever, extrinsic allergic alveolitis. Swine pneumonias: enzootic pneumonia, pleuropneumonia, interstitial pneumonia. Canine and feline pneumonias: CDV, FHV and FCV.	1,5
<i>Pulmonary parasitic lesion</i>	Pulmonary parasitic diseases of the airways (Strongyloidosis), of the pulmonary circulation (Filariasis, Angiostrongylosis) and lung pathologies caused by parasites migration (Ascarioidea) or erratic localization (Distomatosis).	1,5	
<i>Lung tumours</i>	Primary and secondary lung cancer. Primary: anaplastic carcinoma and lung adenocarcinoma. Ovine pulmonary carcinoma: etiology, macroscopic and microscopic features. Pleural neoplasms: mesothelioma.	1	
<p style="color: red; text-align: center;"><b>2. PATHOLOGIES OF THE THORACIC CAVITY (TOT. 1,5 HOURS)</b></p>	<i>Thoracopathies</i>	Pneumothorax. Hydrothorax, haemothorax, Chylothorax, Pleuritis (classification, pathogenesis). Tuberculous pleuritis. Canine pleural actinomycosis.	1,5

[a) to identify the different thoracic pathologic collections and to know their etiopathogenesis]			
<p><b>3. PATHOLOGY OF THE URINARY SYSTEM (TOT.11 HOURS)</b></p> <p>[On kidney and urinary tract knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the microscopic features of nephrosis and nephritis; d) the etiopathogenesis]</p>	<b>Kidney: developmental and circulatory disturbances</b>	Kidney: congenital and acquired renal cysts: macroscopic aspects and pathogenesis. Perirenal pseudocysts.	1
		Kidney: hyperaemia, haemorrhages, ischemia, renal papillary necrosis, infarct.	1
	<b>Nephrosis</b>	Glomerulonephrosis (pathogenesis of glomerular damage, amyloid glomerulonephrosis).	1
		Ischemic and toxic tubulonephrosis (ischemia, mycotoxins, heavy metals, pulpy kidney), hemo-myoglobinuric and colomic tubulonephrosis, mineral deposits (nephrocalcinosis, oxalates, "uric acid infarcts").	1
	<b>Nephritis</b>	Classification of nephritis. Glomerulonephritis (gross examination and pathogenesis); histological aspects of acute and chronic types, aetiology of swine, equine, feline and canine glomerulonephritis.	1,5
		Tubulointerstitial nephritis (gross examination, pathogenesis, aetiology). Bovine tubulointerstitial nephritis (focal, diffuse, maculosa alba, calcinosis). Swine, canine, feline tubulointerstitial nephritis.	1
		Purulent nephritis: classification, apostematous nephritis and disseminate purulent nephritis (gross examination, pathogenesis, aetiology). Pyelonephritis. Granulomatous nephritis.	1,5
	<b>Renal parasitic disease</b>	Renal parasitosis: Klossiellosis, Leishmaniasis, Encephalitozoonosis, Microascariidiosis, halicephalobiasis.	0,5
<b>Renal tumours</b>	Primitive renal epithelial (adenoma, carcinoma) and mesenchymal neoplasms and nephroblastoma; secondary renal neoplasms.	0,5	
<b>Urinary tract</b>	Urinary tract: ureters: malformations, ectasia, occlusions, urolithiasis (classification, pathogenesis, consequences of bovine, canine and feline urolithiasis); cystitis (classification, pathogenesis), hydronephrosis, neoplasms of urinary tract, bovine enzootic hematuria.	2	
<p><b>4. PATHOLOGY OF THE HAEMOPOIETIC SYSTEM (TOT 5,5 HOURS)</b></p> <p>[On spleen and lymph nodes knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the name of the disease; c) the etiopathogenesis]</p>	<b>Bone marrow</b>	Bone marrow: involution, hyperplasia, aplasia, gelatinous atrophy, haemosiderosis, necrosis.	0,5
	<b>Lymph nodes</b>	Lymph-nodes: hypoplasia, atrophy, pathological pigmentations, necrosis, abnormalities of blood flow and pneumatosis. Macroscopic and microscopic features of simple (acute and chronic), purulent, hemorrhagic and necrotizing, granulomatous and piogranulomatous lymphadenitis. Pathology of hemolymphnodes.	2
	<b>Spleen</b>	Spleen: abnormalities of blood flow (passive hyperaemia, haematomas, infarcts), degenerations (atrophy, hyalinosis, amyloidosis, haemosiderosis, necrosis), splenitis ( hyperemic-haemorrhagic, hyperplastic, purulent-gangrenous, necrotizing, fibrous, granulomatous).	1,5
	<b>Lymphoma</b>	Lymphatic leukaemia-lymphoma complex (Kiel, IWF, REAL histologic classification systems). Assessment of the immunophenotype of a lymphoma. Anatomic classification and macroscopic feature of bovine, equine, swine, canine and feline lymphoma.	1,5
<p><b>5. PATHOLOGY OF THE CARDIOCIRCULATORY SYSTEM (TOT 4 HOURS)</b></p> <p>[On heart and vessels knowledge on: a) the pathologic entities; b) the macroscopic features, the proper morphologic diagnosis and, if applicable, also etiology and the</p>	<b>Heart</b>	Heart: malformations, hydropericardium, hemopericardium, pericarditis (classification and aetiology); myocardiosis, myocardial necrosis (causes and effects), myocardial hypertrophy, myocarditis with particular reference to purulent, lymphocytic and granulomatous myocarditis. Endocardium: calcification, endocardiosis, fibroelastosis; endocarditis (pathogenesis, aetiology, classification). Heart parasitic diseases. Heart neoplasms.	2,5
	<b>Vessels</b>	Blood vessels: aneurysm, thrombosis, regressive arteropathies (calcifications, hyalinosis, fibrinoidosis, amyloidosis, arterosclerosis), arteritis (acute and chronic, pathogenesis). Veins: thrombosis,	1,5

<i>name of the disease; c) the etiopathogenesis]</i>		phlebitis. Lymphatics: lymphangectasia, lymphangitis. Parasites of vessels. Neoplasms of vessels.	
<b>6. PATHOLOGY OF THE MAMMARY GLAND (TOT. 4 HOURS)</b> [On mammary gland knowledge on: a) the pathologic entities in inflammation and neoplasia; b) the macroscopic features of mastitis and the proper morphologic diagnosis; c) the etiopathogenesis]	<b>Mastitis</b>	Mammary gland. Mastitis: aetiology, pathogenesis and classification of the main types of bovine mastitis (fibrinopurulent or gangrenous mastitis, hemorrhagic-necrotizing mastitis, interstitial mastitis, granulomatous and piogranulomatous mastitis; mentions about ovine-caprine mastitis.	2
	<b>Mammary tumours</b>	Epidemiology of mammary tumours, hormone-dependency, dysplastic lesions, concept of simple, complex and mixed tumours, histological grading (histological grade and stage) and TNM system.	2
<b>7. PATHOLOGY OF SKIN (TOT. 5 HOURS)</b> [On skin knowledge on: a) the pathologic entities; b) the macroscopic features of the elementary lesion; c) the histologic features of dermatosis and dermatitis; d) the etiopathogenesis]	<b>Elementary lesion</b>	Macroscopic and microscopic elementary lesions in dermatopathology (spots, papule, pompho, nodule, vesicle, exocytosis, pustula, ortho- and para-keratotic hyperkeratosis, acanthosis, spongiosis, hydropic degeneration, acantolisis, dermic oedema, dermic fibrosis, pigmentary incontinence).	1
	<b>Dermatosis</b>	Dermatosis with endocrine (hypothyroidism, hypercorticism, hyperestrogenism)	1
	<b>Dermatitis</b>	Patterns of dermatitides (perivascular, dermovasculitis, interfacial, nodular-diffuse, vesicular-pustolosa, folliculitis-forunculosis, panniculitis) and associated diseases.	2
	<b>Tumours</b>	Benign and malignant epithelial skin tumours of epidermic or adnexal (hair follicles, sudoriparous and sebaceous glands) origin; mesenchymal tumours (fibroma, fibromatosis, sarcoma, schwannoma, hemangiopericytoma) and round cells tumours (mast-cell tumour, melanoma, histiocytoma, plasmacytoma).	1
<b>Practical lessons</b>			
<b>Topics and skills acquired</b>	<b>General topics</b>	<b>Specific topics</b>	<b>hrs</b>
<b>8. APPLYING KNOWLEDGE AND UNDERSTANDING; MAKING JUDGEMENTS (TOT. 15 ORE)</b> [Acquisition of: a) skills on the identification of the macroscopic morphologic variations of organs; b) ability to identify a lesion and to use a proper terminology; c) ability to give a diagnosis]	<b>Gross pathology</b>	N° 7 lessons (2 hrs each) and n° 1 lesson of 1 hrs. In each lesson: <ul style="list-style-type: none"> <li>Gross pathology (as tutor assisted or group work) in the anatomy room on lung, kidney, heart, spleen, and lymph nodes from slaughtered animals (bovine, horse, swine, ovine). (75% of the time from lessons 1 to 3; 50% of the time from lessons 4 to 7).</li> <li>Gross pathology as tutor assisted work on slides (25% of the time from lesson 1 to 7).</li> <li>Gross pathology as group work on slides (identification of the morphologic diagnosis and, if applicable, etiology and the name of the disease). (25% of the time from lesson 4 to 7).</li> </ul>	15