

## Feline Gross Pathology

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#	Tissue	Morphologic diagnosis	Condition/disease name/cause	Additional information
1-2	Introduction			
3	Alimentary system			
4	Tongue	Multifocal vesicular glossitis	Cause: Feline calicivirus	
5	Tongue	Multifocal ulcerative glossitis	Cause: Feline herpesvirus-1	
6	Oral cavity	Multifocal ulcerative stomatitis/glossitis	Condition: Uremic stomatitis/glossitis	
7	Tongue	Regionally extensive lingual squamous cell carcinoma	Squamous cell carcinoma	SCC most common oral malignancy of cats followed by fibrosarcoma
8	Stomach	Intraluminal gastric nematodes	Cause: Physaloptera rara	Usually subclinical, but can see ulcerative gastritis
9	Stomach	Multifocal lymphofollicular gastritis		
10	Stomach	Gastric lymphoma with multifocal ulcerations	Gastric lymphoma	Most common gastric neoplasm of cats; B-cell>>T-cell
11	Stomach	Gastric lymphoma	Gastric lymphoma	
12	Intestine	Segmental intestinal plication with ulceration (right)	Condition: Intestinal linear foreign body	Sequella: perforation leading to septic peritonitis
13	Intestine	Diffuse necrohemorrhagic enteritis	Cause: Feline parvovirus	
14	Intestine	Segmental hemorrhagic enteritis with focal intussusception	Cause: Feline parvovirus	Other predisposing causes: linear foreign body, parasitism, intestinal sx, intramural lesions
15	Intestine	Hemorrhagic enteritis with intralesional nematodes	Cause: Ancylostoma tubaeforme	
16	Intestine	Segmental intestinal lymphoma	Intestinal lymphoma	T-cell>>B-cell
17	Intestine	Intestinal adenocarcinoma with lymph node metastasis	Intestinal adenocarcinoma	
18	Colon	Segmental distal colonic dilation and atony	Megacolon	Manx cats associated with sarcococcygeal

				spinal dysplasia or agenesis; other cases are idiopathic, traumatic, or caused by dysautonomia
19	Pancreas	Chronic interstitial pancreatitis with fibrosis	Chronic pancreatitis	Possible concurrent lesions: cholangiohepatitis and inflammatory bowel disease
20	Cardiovascular system			
21	Thorax/pericardial sac	Peritoneopericardial diaphragmatic hernia	Condition: Peritoneopericardial diaphragmatic hernia	Most common congenital anomaly of pericardial sac. Some related to trauma
22	Heart	Right atrioventricular valve dysplasia with right atrial dilation and right ventricular eccentric hypertrophy	Condition: Right AV valve dysplasia	
23	Heart	Diffuse concentric hypertrophy of interventricular septum and left ventricular free wall	Condition: Hypertrophic cardiomyopathy	Autosomal dominant in Maine Coon and Ragdoll cats; mutation in myosin binding protein C3
24	Heart	Diffuse left ventricular endocardial fibrosis	Condition: Restrictive cardiomyopathy	
25	Heart	Diffuse left ventricular endocardial fibrosis with left ventricular hypertrophy	Condition: Endocardial fibroelastosis	Likely inherited in Burmese kittens; Can see with prolonged dilation of any chamber
26	Heart	Diffuse biventricular dilation	Condition: Dilated cardiomyopathy	Most related to taurine deficiency
27	Heart	Diffuse biventricular dilation	Condition: Dilated cardiomyopathy	
28	Heart:	Multifocal granulomatous to pyogranulomatous epicarditis and vasculitis	Cause: Mutated feline enteric coronavirus (Feline infectious peritonitis virus)	
29	Heart/pericardium	Fibrinous pericarditis/epicarditis	Cause: Mutated feline enteric coronavirus	
30	Aortic trifurcation	Regionally extensive aortic trifurcation thromboembolus	Condition: Saddle thromboemboli	Often sequella to left atrial dilation caused by cardiomyopathy
31	Hemolymphatic system			
32	Mediastinum	Mediastinal/thymic lymphoma	Cause: FeLV	Up to 90% related to FeLV infection; majority are lymphoblastic T-cell lymphomas

33	Thymus	Thymoma	Thymoma	Sequella include myasthenia gravis, megaesophagus, polymyositis, keratoconjunctivitis sicca, and exfoliative dermatitis
34	Spleen and adipose tissue	Splenomegaly with moderate diffuse icterus	Cause: Mycoplasma haemofelis	
35	Spleen	Diffuse splenic lymphoma	Splenic lymphoma	Ddx: other round cell tumors and granulomatous disease
36	Spleen, liver, lymph node	Multifocal necrotizing splenitis/hepatitis/lymphadenitis	Cause: Francisella tularensis	DDX: Yersina pestis, mycobacteriosis, nocardiosis, disseminated fungal infection
37	Spleen	Multifocal granulomatous splenic capsulitis	Cause: Mutated feline enteric coronavirus	
38	Peritoneal cavity	Multifocal granulomatous serosal vasculitis with fibrinous exudative serositis	Cause: Mutated feline enteric coronavirus	
39	Intestine/mesentery	Multifocal granulomatous serositis, vasculitis, and lymphadenitis	Cause: Mutated feline enteric coronavirus	
40	Respiratory system			
41	Nasal cavity	Granulomatous rhinitis with cribriform plate lysis	Etiologic diagnosis: Nasal cryptococcosis; Cause: Cryptococcus neoformans or C. gatti	Ddx: Any primary nasal neoplasm
42	Oral cavity/nasopharynx	Nasopharyngeal polyp	Nasopharyngeal polyp	
43	Thorax	Chylothorax	Chylothorax	Usually idiopathic in cats; can be related to right-sided heart failure, vena caval thrombosis, obstruction of thoracic duct by various masses, traumatic rupture of thoracic duct; Antemortem diagnosis: triglyceride levels in effusion > serum
44	Thorax	Pyothorax with multifocal pulmonary atelectasis	Pyothorax	Can be idiopathic or caused by penetrating bite wounds, extension from bacterial

				pneumonia, migrating plant awns, or penetrating FB from the esophagus
45	Thorax	Pyothorax with proliferative pleuritis and focal pulmonary atelectasis	Pyothorax	
46	Lungs	Lung lobe torsion with venous infarction	Lung lobe torsion	
47	Lungs	Multifocal pulmonary emphysema with eosinophilic bronchitis	Condition: Feline asthma	
48	Lungs	Multifocal chronic proliferative bronchitis	Condition: Feline asthma	Histo- smooth muscle hypertrophy, goblet cells and bronchial gland hypertrophy/hyperplasia, lymphoplasmacytic and/or eosinophilic bronchitis/peribronchitis
49	Lungs	Diffuse hemorrhagic interstitial pneumonia	Cause: Feline calicivirus	
50	Lungs	Multifocal granulomatous pneumonia	Cause: Toxoplasma gondii	Ddx- FIP or fungal pneumonia
51	Lungs	Multifocal to coalescing eosinophilic and granulomatous pneumonia	Condition: Feline lungworm; Cause: Aelurostrongylus abstrusus	Intermediate host is snail or slug
52	Lungs	Multifocal pulmonary eosinophilic granulomas	Cause: Paragonimus kellicotti	
53	Lungs	Multifocal eosinophilic granulomas with intralesional trematodes	Cause: Paragonimus kellicotti	
54	Lungs/thorax	Pulmonary carcinoma with carcinomatosis		Most commonly in caudal lung lobes; 75-80% metastatic rate; carcinomatosis seen in ~30%
55	Urinary system			
56	Kidney	Horseshoe kidney	Condition: Horseshoe kidney	Kidneys have normal function
57	Kidney	Multifocal renal cysts with interstitial fibrosis	Condition: Polycystic kidney disease	Persian cats- autosomal dominant defect in PKD1; Himalayans and British shorthairs also predisposed; Associated lesions- hepatic and pancreatic

				cysts
58	Kidneys	Renal hypoplasia (left kidney); renal hypertrophy with focal chronic infarction (right kidney)	Renal hypoplasia	
59	Kidney	Renal amyloidosis	Condition: Renal amyloidosis	Familiar in Abyssinian and Siamese cats
60	Kidney	Regionally extensive renal papillary necrosis	Cause: NSAID	Other causes include severe dehydration, urinary obstruction, pyelonephritis, amyloidosis
61	Kidney	Multifocal to coalescing chronic renal infarcts		
62	Kidney	Multifocal granulomatous to pyogranulomatous nephritis and vasculitis	Cause: Mutated enteric coronavirus	
63	Kidney	Multifocal to coalescing renal lymphoma	Renal lymphoma	Most common metastatic neoplasia to the feline kidney
64	Urinary bladder/urethra	Regionally extensive hemorrhagic urethritis and multifocal mild hemorrhagic cystitis	Urolithiasis	Oxalate and struvite calculi most common in cats
65	Urinary bladder	Transitional cell carcinoma	Transitional cell carcinoma	
66	Nervous system			
67	Brain	Diffuse Cerebellar hypoplasia (bottom image is normal)	In utero feline parvovirus infection	
68	Spinal cord	Cauda equina dysplasia		Manx cats associated with sacroccygeal agenesis
69	Brain	Regionally extensive chronic cerebrocortical necrosis and cavitation	Condition: Feline ischemic encephalopathy Cause: Aberrant migration of Cuterebra larvae	Lesions usually occur in the distribution of the middle cerebral artery
70	Brain	Multifocal granulomatous and cavitating encephalitis	Condition: cerebral cryptococcosis Cause: Cryptococcus neoformans variant neoformans or variant gatti	Cryptococcus grubii variant uncommon
71	Brain	Regionally extensive granulomatous encephalitis	Condition: Cerebellar phaeophycomycosis Cause: Cladophialophora	Immunosuppression common in systemic cases

			bantiana	
72	Brain	Regionally extensive granulomatous encephalitis	Cause: Cladophialophora bantiana	
73	Brain	Pyogranulomatous and exudative ventriculitis/periventricular encephalitis	Cause: Mutated enteric coronavirus	Ocular and CNS involvement usually seen with dry form
74	Brain	Bilaterally symmetrical malacia of caudal colliculi	Thiamine deficiency	Periventricular gray matter most susceptible, especially caudal colliculi
75	Brain	Multifocal hemorrhagic cerebral infarcts	Cause: metastatic transitional cell carcinoma	
76	Brain	Transtentorial occipital cortical herniation	Condition: Transtentorial herniation	
77	Brain	Meningioma with cerebrocortical atrophy	Meningioma	Can have multiple; usually less invasive than canine meningiomas; supratentorial meninges and tela choroidea of 3 <sup>rd</sup> or 4 <sup>th</sup> ventricles
78	Integument system			
79	Skin	Congenital- Diffuse collagen hypoplasia and dysplasia Acquired- Diffuse dermal atrophy	Condition: Ehlers-Danlos syndrome (aka dermatospraxis)	Congenital or acquired (spontaneous or iatrogenic hyperglucocorticism, diabetes mellitus, excessive progestational compounds, or uncommonly liver disease)
80	Skin	Multifocal exfoliative and ulcerative dermatitis	Condition: Thymoma associated exfoliative dermatitis	
81	Skin	Multifocal bilateral ulcerative, granulomatous and eosinophilic dermatitis	Condition: Feline eosinophilic plaque	Part of the eosinophilic granuloma complex
82	Skin	Regionally extensive bilateral ulcerative, granulomatous and eosinophilic dermatitis	Condition: Rodent ulcer	Part of the eosinophilic granuloma complex
83	Skin	Multifocal to coalescing ulcerative and pyogranulomatous dermatitis	Condition: Sporotrichosis Cause: Sporothrix schenkii	
84	Skin	Locally extensive granulomatous	Condition: Cutaneous	

		and ulcerative nasal dermatitis	cryptococcosis Cause: Cryptococcus neoformans or gatti	
85	Skin	Locally extensive hyperkeratotic and eosinophilic dermatitis	Etiologic diagnosis: Feline notoedric acariasis Cause: Notoedres cati	
86	Skin	Multifocal auricular and periorbital squamous cell carcinoma		White or light cats; tips of pinna and nose
87	Skin	Subcutaneous sarcoma with cavitation	Condition: post vaccinal sarcoma	Site- dorsal neck, intrascapular region, dorsolateral thorax, hindlimbs and dorsal lumbar region Histo- Sarcoma + macrophages with blue-gray intracytoplasmic material (adjuvant) and lymphoid aggregates along periphery
88	Digit	Digital metastatic carcinoma (pulmonary carcinoma)		
89	Musculoskeletal system			
90	Femur	Erythrocytic porphyria	Porphyria	2 forms in cats; congenital caused by mutation in uroporphyrin III cosynthetase; acute intermittent porphyria caused by mutation in hydroxymethylbilane synthase gene
91	Skull	Fascial dysmorphia	Condition: Mucopolysaccharidosis I	Domestic shorthaired cats predisposed- autosomal recessive; Associated lesions- Corneal opacity, bilateral coxofemoral subluxation, pectus excavatum, and fusion of cervical vertebra
92	Spine	Sacrococcygeal dysgenesis/aplasia	Sacrococcygeal dysgenesis	Breed: Manx cat
93	Spine	Severe cervical ankylosing spondylosis	Cause: Vitamin A toxicity	Mechanism unclear
94	Several bones	Multifocal exostoses	Condition: Hypervitaminosis A	

95	Several bones	Multifocal osteochondromas	Condition: Osteochondromatosis	Histo: multifocal periosteal osteocartilaginous hyperplasia without continuity with the marrow cavity
96	Hepatobiliary system			
97	Liver	Multifocal hepatic cysts	Condition: Polycystic disease	Persian cats; defect in PKD1
98	Liver/gall bladder	Bilobed gallbladder		Incidental anatomic variation in cats
99	Liver/pancreas	Multifocal hepatic telangiectasia; multifocal pancreatic exocrine hyperplasia		Incidental finding in older cats.
100	Liver	Locally extensive hepatic lipidosis	Condition: Tension lipidosis	
101	Liver/peritoneum	Hepatic amyloidosis with focal fracture and hemoabdomen	Condition: Hepatic amyloidosis	
102	Liver	Diffuse hepatic lipidosis	Condition: Hepatic lipidosis	Idiopathic or secondary to various diseases such as diabetes mellitus, pancreatitis, neoplasia
103	Liver	Multifocal pyogranulomatous hepatitis	Cause: Mutated enteric coronavirus	
104	Liver	Multifocal suppurative cholangiohepatitis	Condition: Cholangiohepatitis	Extrahepatic bile duct obstruction, pancreatitis, and inflammatory bowel disease can be seen concurrently.
105	Liver	Hepatocellular loss (necrosis), fibrosis and macronodular regeneration	Condition: Hepatic cirrhosis	
106	Liver	Focal biliary cystadenoma		
107	Liver/peritoneum	Cholangiocellular carcinoma with carcinomatosis		Most common primary liver tumor in cats
108	Liver/peritoneum	Focal biliary cystadenoma; peritoneal sarcomatosis		
109	Liver	Diffuse hepatic lymphoma	Hepatic lymphoma	
110	Liver	Multifocal hepatic lymphoma	Hepatic lymphoma	
111	Liver	Multifocal hepatic lymphoma	Hepatic lymphoma	
112	Reproductive system			
113	Mammary glands	Diffuse fibroadenomatous mammary gland hyperplasia	Condition: Mammary fibroadenomatous hyperplasia	Most often seen after progestin therapy, but can occur spontaneously during the luteal phase of estrus or early in

				pregnancy
114	Uterus	Unilateral uterine torsion with venous infarction	Condition: Uterine torsion	Left horn more common; late in gestation or just prior to parturition
115	Uterus	Multifocal endometrial polyps		Sequella- uterine prolapse
116	Uterus/ovaries	Mucometra with multifocal paraovarian cysts	Condition: Mucometra	Usually seen concurrently with endometrial hyperplasia or secondary to obstruction
117	Uterus	Pyometra	Pyometra	Common causes- E. coli, Strep, Staph, Proteus
118	Endocrine system			
119	Brain/pituitary gland	Pituitary adenoma	Pituitary adenoma	Most often pars distalis; corticotroph or somatotroph- hypersecretion of growth hormone and insulin-like growth factor 1 leading to acromegaly and insulin resistant diabetes mellitus
120	Thyroid gland	Bilateral multifocal adenomatous thyroid hyperplasia	Condition: Hyperthyroidism	
121	Thyroid/parathyroid gland	Diffuse parathyroid hyperplasia	Nutritional or renal secondary hyperparathyroidism	