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**Avian Gross Pathology with Special emphasis on Poultry Diseases**  
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Slide NO.	Disease Name	Cause	System/organ	Gross lesion	Morphologic diagnosis	Notes
3,4	OVERALL VIEW OF BACTERIAL DISEASES	BACTERIAL	ALL	EXUDATIVE/INF-LAMMATORY		DIFFERENTIAL LISTS
5	<b>FOWL CHOLERA</b> (avian pasteurellosis or avian hemorrhagic septicemia)	<i>Pasteurella multocida</i>	Head/Resp Septicemia	Chicken: Nasal discharge facial swelling	Catarrhal rhinitis/sinusitis and conjunctivitis	Infectious sinusitis Infectious coryza NCDV HPAI IBD Pox ILT Cryptosporidiosis
6	Acute “ “	<i>P. multocida</i>	Head subcutis, turkey	Caseous exudate	Facial cellulitis	Colibacillosis
7	Chronic “ “	“ “	Head/wattles	Severe wattle swelling	Diffuse wattle edema and heterophilic (necrolycerative) dermatitis	HPAI
8	“ “ “	“ “	Head/eye	Opaque eyes	Heterophilic conjunctivitis and hypopyon	Infectious coryza NCDV Colibacillosis Aizonosis encephalomyelitis
9	“ “ “	“ “	Infraorbital sinus	Caseous exudate	Heterophilic (purulent) sinusitis	Turkey coryza
10-13	<b>INFECTIOUS CORYZA</b> (Roup)	<i>Hemophilus paragallinarum</i>	Head with foul smelling caseous exudate (plug)	swollen wattles and face pheasant, guinea fowl	Acute sinusitis, conjunctivitis and facial edema	Fowl cholera Mycoplasmosis

14-17	<b>INFECTIOUS SINUSITIS</b>	<i>Mycoplasma gallisepticum</i>	Turkey: Head/ Infra orbital sinus	Swollen sinuses	Heterophilic to lymphocytic sinusitis	Fowl cholera Turkey coryza
	(CRD in chickens)		peacock, pheasant and finches			
18	<b>TURKEY CORYZA</b>	<i>Bordetella avium</i>	Head, turkey and cockatiel	Swollen sinus Open mouth breathing	Acute sinusitis	Fowl cholera Infectious sinusitis Coryza HPAI NCDV Pox
19	“ “	“ “	Trachea	Compare normal (left) to affected trachea (right)	Tracheal collapse	
20	<b>INFECTIOUS CORYZA</b>	<i>H. paragallinarum</i>	Air sacs	Exudate fills air sacs	Exudative (heterophilic) air sacculitis	Exotic NCD HPAI Aspergillosis Mycoplasmosis
21,22	<b>FOWL CHOLERA</b>	<i>P. multocida</i>	Lungs and pleura Unilateral in turkey	Fibrinous inflammation In parabronchi and on the pleura	Acute-to-chronic fibrinopurulent pleuropneumonia Or (pneumonia and pleuritis)	Ornithobacterium rhinotracheale, E. Coli HPAI
23	“ “	“ “	Spleen	Multifocal white foci	Multifocal splenic necrosis (splenitis)	Marble spleen (pheasant)
24	“ “	“ “	Liver	White foci of necrosis	Multifocal necrotizing hepatitis	bact septicaemia: E coli, S. pullorum/ gallinarum/typhimurium,, Chlamydothila , E. rhusipathiae, Y.pseudotuberculos O rhinotracheale, S zooepidemicus
25	<b>FOWL CHOLERA</b>	<i>P. multocida</i>	Ovary	Discolored nodular ovarian follicles	Subacute to chronic oophoritis	Mycoplasmas

26	“ “	“ “	Leg joints	Copious fibrinous exudate	Acute serofibrinous arthritis	M. synoviae
27	“ “	“ “	“ “	Skin, synovium and tendon	Subacute to chronic cellulitis, tendinitis and	Mycoplasmas Salmonellas
					synovitis	
28	“ “	“ “	Coelomic cavity	Fibrinous inflamm.	Fibrinous coelomitis (pericarditis, perihepatitis and air sacculitis)	Colibacillosis Pseudomonas Aspergillosis
29	<b>COLIBACILLOSIS</b>	<i>E. coli</i>	Coelomic cavity	Fibrinous inflamm.	Acute fibrinous coelomitis (polyserositis)	“ “
30,31	“	“ “	Visceral organs	“ “	Acute fibrinous Pericarditis, perihepatitis and air sacculitis or egg yolk peritonitis	Fowl cholera Mycoplasma Chlamydiosis Infectious sinusitis
32	“	“ “	Trachea	Hemorrhage and fibrin	Fibrinohemorrhagic tracheitis	ILT Syngyamiasis IB Exotic NCD
33	“	“ “	Lungs	“ “ “	Fibrinohemorrhagic pneumonia	Fowl cholera Ornithobacterium HPAI
34	“ (inflammatory process)	“ “	Subcutis	Fibrinous exudate	Fibrinous cellulitis	Staphylococcosis Clostridiosis
35,36	“ (salpingitis)	“ “	Oviducts	Caseous exudate	Fibrinopurulent salpingitis	Mycoplasma Fowl cholera Egg binding IB
37	“ (omphalitis)	“ “	Yolk sac	Inflamed navel	Fibrinous omphalitis	Acute septicemia Staphylococcosis Salmonellosis Pseudomonas
38	“ (endophthalmitis)	“ “	Eye	Heterophilic inf	Acute fibrinopurulent endophthalmitis	Septicemia NCD

39	<b>MYCOPLASMOSIS</b>	<i>M. gallisepticum</i>	Air sacs	Opaque and may contain lymphoid follicles	Fibrinous to fibrinopurulent airsacculitis	Fowl cholera Colibacillosis Chlamydiosis HPAI Exotic NCD
40	“	“ “	Liver, heart, air sacs	Triad inflammation	airsacculitis, fibrinous perihepatitis, and adhesive pericarditis	Fowl cholera Colibacillosis Chlamydiosis HPAI, NCD
41,42	“	<i>M. meleagridis</i>	Abdominal air sacs Newly hatched poults	Caseous inflamm.	Multifocal fibrinopurulent acute to lymphocytic air sacculitis	“ “ “ “ “ “
43	“ (turkey syndrome 65)	<i>M. meleagridis</i>	Legs	deformity	chondrodystrophy, or unilateral to bilateral varus deformities and perosis	Slipped tendons due to manganese and vit. B defic.
44	“ (arthritis/synovitis or silent air sac)	<i>M. synoviae</i>	Leg joints, tendons	Copious synovium	Acute serofibrinous synovitis	Colibacillosis Salmonellosis
45	“ “	“ “	Foot joints	Swollen joints	Chronic arthritis	Articular gout Salmonellosis
46	“ “	“ “	Multiple joints	Broiler leg joint inflamm.	Chronic polyarthritis	“ “
47,48	<b>SALMONELLOSIS</b> Fowl typhoid	<i>Salmonella gallinarum</i>	Liver	A bile-stained ("bronzed") enlarged liver with or without small necrotic foci	Multifocal necrogranulomatous hepatitis	Pullorum disease Septicemias Leukosis Marek's
49,50	Pullorum disease	<i>S. pullorum</i>	Gonads	Discolored follicles	Ovarian atrophy (involution) with hemorrhagic oophoritis	NCD HPAI Colibacillosis O rhinotracheale
51,52	“ “	“ “	Heart	Nodules, opacity	Chronic fibrinous to granulomatous pericarditis	TB, leukosis, Marek's Chlamydiosis
53	“ “	“ “	Liver	Nodules, necrosis	Necrogranulomatous hepatitis	TB, Leukosis, Marek's

54	“ “	“ “	Spleen	Nodules	Granulomatous splenitis	“ “
55	“ “		Intestines, ceca, spleen	Necrosis, cecal cores	Necrotizing enterotyphlitis splenomegaly	Histomoniasis
56,57	“ “	“ “	Leg joints	Swollen, inflamed	Fibrinous arthritis	Infectious synovitis
58	Arizonosis	<i>S. arizonae</i>	Head	Neurologic symptoms	Torticollis	NCD Encephalomalacia Aspergillosis Dactylriosis
59	“ “	“ “	Meninges	Cloudy meninges	Purulent meningitis	Dactylriosis
60	“ “	“ “	Eyes	Lenticular opacity	Fibrinopurulent ophthalmitis (hypopyon and	Aspergillosis Avian

					endophthalmitis)	encephalomyelitis Colibacillosis Paratyphoid
61	<b>CHLAMYDIOSIS</b> (Ornithosis, psittacosis)	<i>Chlamydophila psittaci</i>	Water fowl, young	Multiple organs	Pneumonia, airsacculitis, pericarditis, hepatitis and splenitis, fibrinous (polyserositis)	Fowl cholera Mycoplasmosis Salmonellosis New duck disease
62	”	“ “	Severe in turkey	Thickened pericardium	Subacute to chronic fibrinous pericarditis	“
63	<b>AVIAN MYCOBACTERIOSIS</b> (Tuberculosis)	<i>Mycobacterium avium/intracellulare</i> complex	Chickens, game b	Tubercles	Multifocal granulomas	Mycoplasmosis Fowl cholera Pullorum disease Leukosis Marek's
64	“ “	“ “	Intestines, ceca	Yellow tubercles	Multifocal granulomatous enterotyphlitis	Reticuloendotheliosis/neoplasia
65	“ “	“ “	Chronic stage	Disseminated TB	Granulomatous sinusitis, hepatitis, splenitis and osteomyelitis	Leukosis Marek's

66-70	<b>CLOSTRIDIOSIS</b> Ulcerative enteritis Quail disease	<i>Clostridium colinum</i>	Intestines of captive quail, turkey and chickens	Upper intestines ceca and occasionally cloaca have "bull's eye" ulcers May contain blood	Necroulcerative enteritis May induce peritonitis and involve spleen and liver	<i>C. difficile</i> <i>C. perfringens</i> Coccidiosis
71	" "	" "	Intestines	Round ulcers	Multifocal and coalescing ulcerative enteritis	"
72,73	Necrotic enteritis	<i>C. perfringens</i> type A or C	Intestines	Congestion/hemorrhage Crumbled friable mucosa. Foul odor	Necrohemorrhagic enteritis	<i>Difficile, colinum</i> Coccidiosis, viruses
74	" "	" " " "	Liver	Necrosis	Necrotizing hepatitis	Histomoniasis
75,76	Gangrenous dermatitis	Clostridia Spp. Especially <i>septicum, perfringens</i>	Skin, subcutis	Gas, necrosis Feather loss	Emphysematous and serosanguineous cellulitis	Staphylococcosis Colibacillosis Vit. E. deficiency
77,78	Botulism	<i>C. botulinum</i>	Water fowl, chickens	Flaccid paralysis	NO GROSS LESIONS	Toxicity

79	<b>ERYSIPELAS</b>	<i>Erysipelothrix rhusiopathiae</i>	Snood, dewlap, head	Multiple infarcts	Vegetative valvular endocarditis with necrotizing myocarditis and dermatitis	Septicemias <i>Pasteurella</i> <i>Staphylococcus</i> <i>Streptococcus</i>
80	"	" "	Spleen	Enlargement, congestion	Marked splenomegaly and congestion	
81	<b>NEW DUCK DISEASE</b>	<i>Reimerella anatipestifer</i>	Heart, liver	Fibrinous inflammation	Fibrinous perihepatitis and pericarditis	Furazolidone tox. Septicemic bacteria
82	" " "	" "	Thoracic vertebrae	Joined vertebrae	Osteomyelitis with spondylitis	Staphylococcosis
83	" " "	" "	joints	Swollen, inflamed	Fibrinosuppurative arthritis	Septicemic diseases
84	<b>STAPHYLOCOCCOSIS</b>	<i>Staphylococcus aureus</i>	joints	Copious amounts of exudate	Suppurative arthritis	Septicemias Infectious synovitis

85	Bumble foot	“ “ “	Plantar surface	Foot abscess	Plantar foot abscess	
86	<b>MISCELLANEOUS BACTERIAL DISEASES</b>	<i>Ornithobacterium rhinotracheale</i>	Lungs	Fibrinous inflammation	Fibrinopurulent pneumonia	Fowl cholera
87	“ “ “	<i>O. rhinotracheale</i>	Ovaries Turkey breeders	Suppurative inflammation Congestion/hemorrh	Ovarian congestion and involution with suppurative coelomitis	Mycoplasmosis Colibacillosis Fowl cholera IB
88,89	<b>OVERALL VIEW OF BACTERIAL DISEASES</b>	<b>VIRAL</b>	<b>ALL</b>	<b>NEOPLASTIC INFILTRATIVE</b>		<b>DIFFERENTIAL LISTS</b>
90	<b>NEOPLASTIC VIRUSES LEUKOSIS/SARCOMA VIRUS COMPLEX</b>	Avian leukosis virus - <i>Alpharetrovirus</i> - Subgroup A is most common ( <i>ALV-A</i> )	Long bones	“Boot” shanks	Osteopetrosis	Pathognomonic
91	Avian lymphoma (lymphoid	“ “ “	Liver, heart, spleen	Multiple round neoplasia in multiple	Disseminated visceral lymphoma (hepatic, cardiac	Marek’s Pullorum disease

	leukosis)			organs	and splenic)	Erythroblastosis Nephroblastoma
92	“ “	“ “ “	Kidneys, ovaries and bursa	“ “	“ “	“ “
93	Myelocytomatosis (myeloblastosis)	<i>ALV-J</i>	Liver	Severely enlarge liver	Hepatic myelocytomatosis	Marek’s Amyloidosis
94, 95	Myeloid leukosis	“	Head bones	Massive enlargement	Cranial myeloid leukosis	
96 - 100	Reticuloendotheliosis	Non-defective avian retrovirus	Intestines, heart Liver, kidneys and rarely lungs	Chronic lymphoma	Intestinal and hepatic disseminated lymphoma	Marek’s Pullorum d.

101 - 104	<b>MAREK'S DISEASE</b>	Cell-associated gallid <i>alpha herpesvirus</i> serotype 1 of subgroup a3. Serotype 3 is turkey herpesvirus	Peripheral nerves,	Asymmetric paralysis Sciatic nerves Brachial and pelvic plexi	Lymphocytic neuritis to neural lymphoma	Leukosis Encephalomalacia Epidemic tremor Splay leg
105	“ “	<i>AHV-a3</i>	Eyes	Discolored iris	Iris lymphoma	ophthalmitis
106 , 107	“ “	“	Skin, comb	Enlarged feather follicles	Follicular lymphoma	Pox
108, 109	“ “	“	Liver, could be massively enlarged	Round white neoplasia to diffuse infiltrative disease	Hepatic lymphoma	Leukosis
110	“ “	“	Kidney, intestines	variable sized tan to white nodules	Renal and intestinal lymphoma	“ Pullorum disease
111	“ “	“	Heart	“ “ “	Cardiac lymphoma	“ “
112	“ “	“	Proventriculus, intestines	Marked thickening	Alimentary lymphoma	Leukosis
113	“ “	“	Ovaries		Ovarian lymphoma	Nephroblastoma
114	<b>New Castle Disease (NCD)</b>	<i>Avian paramyxovirus type 1</i>	Torticollis	Neurologic	Encephalitis	Encephalomalacia Encephalomyelitis Fungal infections WNV Alpha viruses
115, 116	“ “ “	“ “ “	Eyes	Cloudy cornea, edema hemorrhages	Acute keratoconjunctivitis with diffuse facial edema	Marek's disease
117	“ “ “	“ “ “	Larynx and trachea	Necrosis and hemorr.	Necrohemorrhagic laryngotracheitis	ILT Syngymiasis
118	“ “ “	“ “ “	Oropharynx and esophagus	“ “ “	Necrohemorrhagic pharyngitis and esophagitis	Wet pox
119	“ “ “	“ “ “	Cecal tonsils	Enlarged and reddened	Marked acute hemorrhage and edema	HPAI

120	“ “ “	“ “ “	Ceca	Crumbled and friable mucosa	Cecal mucosal necrosis and hemorrhage	HPAI Coccidiosis Histomoniasis Clostridiosis Colibacillosis
121	“ “ “	“ “ “	Proventriculus	Ulcers and hemorrhage	Necrohemorrhagic proventriculitis	HPAI
122	“ “ “	“ “ “	Ovaries	Red and small	Ovarian congestion and involution	HPAI IB Ornithobacterium Colibacilloosis and other bacterial septicemias
123-126	<b>AVIAN INFLUENZA</b> Highly pathogenic avian influenza (HPAI)	<i>Avian influenza type A</i>	Head Comb, wattle Conjunctiva	Swelling and redness	Acute diffuse wattle and comb edema with congestion (cyanosis) and hemorrhage hemorrhagic conjunctivitis	Exotic NCD Fowl cholera Turkey coryza
127	“ “ “	“ “ “ “	Shanks	Redness and swelling	Subcutaneous hemorrhage and edema	Reovirus
128	“ “ “	“ “ “ “	Subcutis	Fluctuant	“ “ “	Inflammatory process
129	“ “ “	“ “ “ “	Crop	Ecchymoses	Marked multifocal hemorrhages	Exotic NCD
130	“ “ “	“ “ “ “	Proventriculus	“	“ “ “	” “
131	“ “ “	“ “ “ “	Heart and great vessels	Hemorrhages	Epicardial and adventitial vascular hemorrhages	“ “
132	“ “ “	“ “ “ “	Pancreas	Widened interlobular septa	Interstitial edema and congestion	NCD Colibacillosis
133	“ “ “	“ “ “ “	“	Red spots	Multifocal pancreatic necrosis with hemorrhage	Encephalomyelitis

134	<b>INFECTIOUS LARYNGOTRACHEITIS (ILT)</b>	<i>Gallid herpesvirus type 1</i>	Extended neck Expectoration of blood	Mucoid to bloody discharge	Mucohemorrhagic tracheitis	IB NCDV Pox Syngymaisis
135	“ “ “	“ “ “	Trachea	Diphthritic membrane	Necrohemorrhagic tracheitis	
136	“ “ “	“ “ “	Cloaca	Congested	Hemorrhagic cloacitis	NCD Cannibalism
137	<b>INFECTIOUS BRONCHITIS (IB)</b>	<i>Avian coronavirus</i>	Eyes	Excessive lacrimation Ocular discharge	Mucopurulent conjunctivitis with epiphora	Cryptosporidiosis Ammonia Bacterial
138	“ “	“ “	Trachea, syrinx, main bronchi	Caseous exudate	Necropurulent tracheobronchitis	Aspergillosis
139, 140	“ “	“ “	Kidneys and ureters	Retention of urates	Bilateral renomegaly with ureteral urolithiasis	Visceral gout
141	“ “	“ “	Pericardium and liver	Gritty chalky plaques	Pericardial and perihepatic urate deposition	“ “
142, 143	“ “	“ “	Eggs	Poor quality Misshapen, soft shells, watery albumin	Egg drop and abnormalities	D deficiency Ca:P imbalance NCD
144	<b>AVIAN PNEUMOVIRUS INFECTION</b> Swollen head syndrome or turkey rhniotracheitis	<i>Avian metapneumovirus type C</i>	Head	Head swelling	Acute locally extensive subcutaneous edema with conjunctivitis	Fowl cholera Colibacillosis
145-147	<b>INFECTIOUS BURSAL DISEASE (IBD: GUMBORO DISEASE)</b>	<i>Avian birnavirus</i>	Bursa	Edema, enlarged Hemorrhage Depletion	Acute diffuse bursal edema to diffuse hemorrhage and atrophy	Leukosis
148	“ “ “	“ “	Thigh	Hemorrhages	Muscular ecchymoses (multifocal hemorrhage)	Hemorrhagic syndrome
149	<b>DUCK VIRAL HEPATITIS (DVH)</b>	<i>Type 1 enterovirus</i>	Newly hatched	Mortality	opisthotonus	NCD
150	“ “ “	“ “ “	Liver	Hemorrhage	Multifocal hepatic necrosis with hemorrhage	Bacterial septicemias Histomoniasis

151	<b>DUCK VIRAL ENTERITIS</b>	<i>Anatid herpesvirus 1</i>	Intestines and liver	Necrosis	Necrotizing enteritis with	Clostridiosis
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	<b>(DVE: DUCK PLAGUE)</b>				multifocal hepatic necrosis	HPAI Coccidiosis
152	“ “	“ “	Digestive tract especially intestines	Annular bands of necrosis	Multifocal annular intestinal lymphoid necrosis and hemorrhage	Pathognomonic with Inclusion bodies
153	“ “	“ “	Ovaries	Congested, hemorrhagic, involuted	Ovarian congestion and hemorrhage	Bacterial septicemias
154	“ “	“ “	Penis	Prolapse	Penile (phallus) prolapse	Trauma
155, 156	<b>FOWL POX</b> (Dry, cutaneous form)	<i>Avian pox virus</i>	Head, beak and legs	Plaques, papules and scabs	Locally extensive necrotizing and proliferative dermatitis	Pathognomonic with inclusion bodies
157	“ “	<i>Turkey pox</i>	“ “	“ “	“ “	” “
185	“ “	<i>Pigeon pox</i>	“ “	“ “	“ “	” “
159, 160	(Wet, diphtheritic form)	<i>fowl poxvirus</i> (type species)	Oral cavity, oropharynx, esophagus, Laryngeal aperture	Diphtheritic plaques	Necrotizing and hyperplastic inflammation (specify organs)	Hypovitaminosis A Candidiasis ILT Trichothecene Canker Capillariasis
161	Water fowl dry pox	<i>Avian pox virus</i>	Web	Plaques, papules and scabs	Necrotizing and hyperplastic dermatitis	Papillomatosis
162	<b>PAPILLOMATOSIS</b>	<i>Avian papilloma virus</i>	Web	Nodules with hyperkeratosis	Multifocal dermal papillomas	Pox
163	Turkey viral hepatitis	Believed to be a novel <i>picorna virus</i>	Liver	White foci and bile staining	Multifocal hepatic necrosis	Histomoniasis
164	“ “ “	<i>Picorna v.</i>	Pancreas	White to grey spots	Multifocal pancreatic necrosis	Avian encephalomyelitis HPAI
165	<b>ADENOVIRAL INFECTIONS</b> Quail bronchitis (QB)	Quail <i>adenovirus 1</i>	Trachea	Thick mucus	Mucopurulent tracheitis with focal hyperplasia	Pox NCD Aspergillosis

166	Inclusion Body Hepatitis	Avian (IBH) <i>adenovirus type I</i>	Liver	Mottled	Multifocal hepatic necrosis with hemorrhage	Vibriosis in turkey IBH Fowl cholera
167-	Hemorrhagic enteritis (turkey)	Turkey type <i>II adenovirus</i>	Intestines, spleen	Hemorrhage	Segmental to diffuse	Clostridiosis
171	Marble spleen (pheasants)	Fowl <i>adenovirus type II</i>		Splenic enlargement	hemorrhagic enteritis with splenomegaly	Salmonellosis
172	Egg Drop Syndrome-76 (EDS-76)	Believed to be <i>adenovirus Type III</i>	Eggs	Misshapen, soft shelled	De-pigmented soft shelled eggs	D deficiency Ca:P imbalance Cu deficiency IB NCDV HPAI
173, 174	<b>INFECTIOUS ANEMIA</b> (Blue Wing Disease)	<i>Avian circovirus</i>	Wing	Hemorrhage and cyanosis	Subcutaneous hemorrhage	Clostridium perfringens
175	“ “ “	“ “	Bone marrow	Fatty	Aplastic anemia	
176- 178	<b>VIRAL ARTHRITIS</b> (Tenosynovitis; Ruptured Gastrocnemius Tendon)	<i>Reovirus type 3</i>	Immobilization	Hock joint	Gastrocnemius tendon rupture with periarticular hemorrhage	Slipped tendon Infectious synovitis
179- 180	<b>CORONAVIRAL ENTERITIS</b> (Transmissible Enteritis of Turkeys; Blue Comb)	Turkey <i>coronavirus</i>	Intesine	Thin-walled Fluid-filled	Catarrhal enteritis	<b>Young (&lt; 7week):</b> Salmonellosis Hexamitiasis Coccidiosis Starve outs Water deprivation <b>Growing-mature:</b> Rota, astro, entero, reo viruses Fowl cholera Erysipelas Black head Trichomoniasis Hemorrhagic enteritis

181,	<b>AV. ENCEPHALOMYELITIS</b> (epidemic tremor)	<i>Hepatovirus,</i> <i>Picornaviridae</i> family	Multiple birds are affected Brain	Paralysis and prostration	Lymphocytic encephalomyelitis	NCDV Encephalomalacia Dactylariosis Aspeigilosis Marek's
182	“ “	“ “	Eye	Bluish opacity	Iridocyclitis with cataract	NCD Arizonosis Septicemias

183	OVERALL VIEW OF FUNGAL AND PROTOZOAL DISEASES	FUNGI PROTOZOA	ALL	NECROTIZING/ INFLAMMATORY	MORPHOLOGIC/ ETIOLOGIC DIAGNOSIS	DIFFERENTIAL LISTS
184	<b>ASPERGILLOSIS</b> Brooder Pneumonia; Mycotic Pneumonia; Pneumomycosis)	<i>Aspergillus fumigatus</i>	Chicks	Open mouth breathing and gaspings	Dyspnea with cyanosis	<i>Mycobacteriosis</i> <i>M. gallisepticum</i> <i>D. gallopava</i>
185	“ “	“ “	Syrinx	Nodules and plaques	Fibrinopurulent tracheobronchitis	“ “
186- 189	“ “	“ “	Lungs and air sacs	“ “	Multifocally extensive granulomatous pneumonia and fibrinous air sacculitis	“ “
190	<b>FAVUS</b> (Avian ringworm, Avian dermatophytosis)	<i>Microsporium gallinae</i> <i>M. gypseum</i> and <i>Trichophyton simii</i>	Comb and wattle	White crusting	Locally extensive hyperkeratotic (crusting) dermatitis	Pathognomonic with pseudohyphae
191- 193	<b>CANDIDIASIS</b> (Thrush; moniliasis, crop mycosis, sour crop, muguet, soor, levurosis)	<i>Candida albicans</i>	Crop	Diphthretic patches Shallow ulcers	Multifocal and coalescing necrotizing to proliferative ingluvitis	Wet Pox Hypovitaminosis A Trichomoniasis Capillarisis
194, 195	<b>DACTYLARIOSIS</b>	<i>Dactylaria gallopava</i> (neurotropic in turkey)	Brain and eyes	Cloudy plaques Cerebellum	Locally extensive pyogranulomatous encephalitis with unilateral atrophy of optic tract and lobe and cataract	Aspergillosis Colibacillosis Salmonellosis

196, 197	<b>TRICHOMONIASIS</b> (Canker in pigeons and founce raptors)	<i>Trichomonas gallinae</i>	Mouth, pharynx, esophagus, crop	Plaques, nodules	Necrogranulomatous to proliferative stomatitis, esophagitis, ingluvitis	Wet pox Hypovitaminosis
198-201	<b>HISTOMONIASIS</b> (Blackhead disease; Enterohepatitis)	<i>Histomonas meleagridis</i> ,	Ceca, liver	Targetoid lesions Cecal cores	Necrogranulomatous hepatitis and fibrinonecrotic enteritis (cecal core)	Erysipelas
202-211	<b>COCCIDIOSIS</b> (Chicken Eimeriosis)	<b>Anterior 1/3</b> <i>E. acervulina</i> <i>E. praecox</i> <i>E. mivati</i> <b>Middle 1/3</b> <i>E. necatrix</i> <i>E. maxima</i>	230, 231 Duodenum  232, 235 - Mid gut	Discolored, thickened, white foci  Bloody contents	Catarrhal to fibrinonecrotic enteritis  Necrohemorrhagic to fibrinonecrotic enteritis	Clostridiosis Salmonellosis Histomoniasis Exotic NCD HPAVI
		<b>Lower 1/3</b> <i>E. brunetti</i> <i>E. mitis</i> <b>Ceca</b> <i>E. tenella</i>	236-238 Ceca	Bloody contents, severe necrosis	Severe diffuse hemorrhagic and necrotizing enteritis	
212, 2413	Turkey Eimeriosis	<b>Anterior 2/3</b> <i>E. meleagrimitis</i> . <b>Mid gut</b> <i>E. dispersa</i> . <b>Distal 1/3</b> <i>E. gallapovonis</i> <i>E. adenoides</i>	Anterior intestine	Diphthretic membrane	Fibrinohemorrhagic and necrotizing enteritis  Catarrhal to fibrinomuroid enteritis	Salmonellosis Histomoniasis
214, 215	<b>SARCOCYTOSIS</b> (Sarcosporidiosis)	<i>S. horwathi</i> in chickens <i>S. anatina</i> and <i>S. rileyi</i> in ducks	Breast muscles of wild ducks	Rice grains Pale large sarcocysts arranged in parallel with muscle fibers	Muscular sarcocytosis	No reaction to the cysts in muscles
216, 217	OVERALL VIEW OF ECTOPARASITIS AND METAZOAL DISEASES	ECTOPARASITES HELMINTHS	ALL	ANEMIA HEMORRHAGE MECHANICAL OBSTRUCTIONS		DIFFERENTIAL LISTS

218	<b>NEMATODES</b> (Nematodiasis)	<i>Ascaridia galli</i> in chickens <i>A. dissimilis</i> in turkey	Small intestine	obstruction	Eosinophilic enteritis → Intestinal obstruction	
219		<i>Heterax gallinarum</i> <i>Hetrakis isolonche</i> (pheasants)	Cecal pouches	Carrier for <i>H. meleagridis</i>	Mild to severe chronic typhlohepatitis (fibrous and granulomatous in pheasants)	
220		<i>Capillaria annulata</i> in chickens and owls <i>Capillaria contorta</i>	esophagus, crop  Oral cavity, esophagus, crop	White plaques/ thickening Earth worms are I.H.	Fibrinonecrotic and proliferative inflammation	Wet pox Hypovitaminosis A Canker
221		<i>Syngamus trachea</i>	Trachea	Male and female in permanent copulation	Hemorrhagic tracheitis	ILT
222	<b>ACANTHOCEPHELIASIS</b>	<i>Plagiorhynchus cylindraceus</i>	Passerine birds	Thorny headed worms	Intestinal acanthocephaliasis	Pathognomonic
223	<b>SCALY LEG MITE.</b>	<i>Knemidokoptes mutans</i> “ <i>pilae</i> (pstitacines)	Leg	White scales	Hyperkeratotic and proliferative epidermitis and dermatitis	Riboflavin d.
224	<b>CHICKEN MITE –RED MITE</b>	<i>Dermanyssus gallinae</i> 0.7 mm long x 0.4 mm	Under wings, pericloaca	Small red mites appear black or gray	Cuaneous acariasis with locally extensive alopecia	

	<b>DEPLUMING MITES</b>	<i>Knemidokoptes gallinae</i>	Back Feet	or red if engorged with blood		
	<b>NORTHERN FOWL MITE</b>	<i>Ornithonyssus sylviarum</i>		Breakage or feather loss		

225	<b>PEDICULOSIS</b> Head louse Shaft louse Wing louse	<i>Culclotogaste heterographa</i> <i>Menopon gallinae</i> <i>Lipeurus caponis</i>	Feathers	Adult lice	Wing feather pediculosis	Acariasis
226, 227	Fluff louse Brown Chicken louse  Large turkey louse  Slender pigeon louse	<i>Gonicocotes gallinae</i> <i>Goniodes dissimilis</i>  <i>Chelopistes meleagridis</i>  <i>Columbicola columabae</i>	“	Eggs (nits)	Locally extensive alopecia	
228	<b>OVERALL VIEW OF NUTRITIONAL AND MISCELLANEOUS DISEASES</b>	<b>NUTRITIONAL DEFICIENCIES GENETIC/UNKNOWN</b>	ALL	DEGENERATIVE		<b>DIFFERENTIAL LISTS</b>
229 233	<b>AVIAN ENCEPHALOMALACIA</b> (Crazy chick disease)	Hypovitaaminosis E/selenium deficiency	Paralyzed birds Cerebellum	Sudden onset of lateral prostration with heads retracted, legs outstretched and toes flexed and continue to eat	Cerebellar hemorrhagic malacia with vascular necrosis	Neurologic diseases
234	Exudative diathesis	“ “	Skin		Subcutaneous hemorrhage and edema	HPAI Gang. dermatitis
235- 237	Muscular dystrophy	“ “	Skeletal muscles Pectoral muscles and gizzard (poults)	White pale areas	Multifocally extensive muscular degeneration/necrosis	
238	<b>HYPOVITAMONIOSIS A</b>	Vitamin A deficiency	Crop	White pustules	Glandular squamous metaplasia and hyperkeratosis	Pox Capillaris Thrush Visceral gout

239	<b>CURLED TOE PARALYSIS</b>	Vitamin B <sub>2</sub> deficiency	Toes	Inward curling	Neural dystrophy due to myelin degeneration	Marek's
240, 241	<b>BIOTIN DEFECIENCY</b>	Vitamin B <sub>7</sub> deficiency	Beak and legs	Thickening and cracking	Exudative dermatitis	Pantothenic acid deficiency
242 - 244	<b>CHONDRODYSTROPHY</b> Slipped tendon (perosis)	Deficiency of manganese or one of four vitamin B biotin, folic acid, niacin, or pyridoxine	Hocks	Displaced, thickened	Tendonopathy with displacement	Viral arthritis
245- 248	<b>RICKETS</b>	Deficiency of vitamin D <sub>3</sub>	Beak  Ribs  Long bones	Malleable  Racketic rosary  Flared, irregular growth plate	Osteopenia and decreased mineralization Failure of endochondral mineralization Retention of pyhsal cartilage with failure of endochondral ossification	Tibial dyschondroplasia
249- 251	<b>TIBIAL DYSCHONDROPLASIA</b>	Multifcatorial? Genetic/nutritional/mycotoxins (fusarium toxicity)	Tibia/proximal tibiotarsus  Comparison	an abnormal mass of cartilage below the growth plate	Tibial to tibiotrasal dyschondroplasia due to failure of cartilage ossification and removal (decreased chondroclasts)	Rickets
252,	<b>SPONDYLOLISTHESIS</b> (Kinky back)	Developmental problem/trauma (heavy weight)	T 4-6 thoracic vertebra	Deformation and displacement	Vertebral luxation/dislocation with stenotic myelopathy	Fracture due to broken back
253	<b>SCOLIOSIS</b>	Genetic	Thoracic	Multiple veretbrae	Vertebral scoliosis	Kinky back Rickets
254	<b>TIBIAL ROTATION</b> (Twisted legs)	Unknown	90° rotation distal tibia	Unilateral	Lateral rotation of distal tibia	Slipped tendon
255, 256	<b>OSTEOPOROSIS</b> (Cage layer fatigue or adult rickets)	Deficiency of vitamin D <sub>3</sub> , calcium or phosphorus (imbalance)	Decreased volume but no loss in density	Deformed keel  Long bones brittle with thin cortices	Sternal deformity due to osteopenia Cortical osteopenia with pathologic fracture	Rickets

257,	<b>OSTEOMYELITIS</b>	<i>Escherichia coli</i> and <i>Staphylococcus aureus</i> are most commonly isolated; less commonly, <i>Salmonella</i> , <i>Yersinia</i> , <i>Streptococcus</i> , <i>Pasteurella</i> , and <i>Arizona</i>	Long bones and may be associated with synovitis	Femoral neck	Locally extensive ecrosuppurative osteomyelitis	Bacterial
258, 259	<b>DEEP PECTORAL MYOPATHY</b> (Green muscle disease)	Mechanical (vigorous wing beating) exertion	supracoracoideus (deep pectoral) muscle	Green necrosis	Ischemic muscular necrosis	
260	<b>CROP DILATION</b> (Pendulous crop)	Vagal nerve damage Crop mycosis Altered diet Excessive water intake	Crop	Markedly distended and pendulous	Severe diffuse crop dilation	Lead poisoning Marek's
261- 263	<b>GRAIN OVERLOAD</b>	Excessive intake of carbohydrates	Crop  Proventriculus	Distended  Ulcerated	Crop dilation with grain impaction  Ulcerative ingluvitis and proventriculitis	Crop dilation
264	<b>STUNTING AND RUNTING SYNDROME</b> (infectious proventriculitis)	Viral (adeno, parvo, reo...) Bacterial?	Proventriculus	Enlarged	Lymphocytic proventriculitis with glandular necrosis and ductular epithelial hyperplasia	Inclusion body hepatitis
265	<b>TOXICITY AND METABOLIC DISORDERS</b>	<b>LEAD, MYCOTOXINS AND CHEMICALS</b>	ALL	DEGENERATIVE		<b>DIFFERENTIAL LISTS</b>
266	<b>LEAD TOXICITY</b>	Lead poisoning	Heart Brain  Kidneys Nerves	Distended Hyalinosis of cerebral vessels Nephrosis demyelination	Hydropericardium with myocardial degeneration	Ascites syndrome Round heart disease
267- 269	<b>TRICHOHECENE MYCOTOXICOSIS</b> (Fusariotoxicosis)	T-2 toxin produced by toxigenic species of <i>Fusarium</i>	Feathers  Beak, oral cavity, esophagus, gizzard	Smaller and fewer  Burns	Reduced abnormal feathering  Focal to multifocal necrosis	Pox Canker Hypovitaminosis A

270-272	<b>AFLATOXICOSIS</b>	aflatoxin group (B1, B2, G1, G2) produced by <i>Aspergillus flavus</i> - <i>Aspergillus parasiticu</i>	Liver, kidneys	Pale and enlarged	Hepatic and renal fatty degeneration with necrosis, fibrosis and biliary hyperplasia	Fatty liver syndrome
273-276	<b>ASCITES SYNDROME</b> (pulmonary hypertension syndrome)	Increased hydrostatic pressure. Rapid growth, elevated metabolic rate, and therefore a high oxygen demand impose an	Heart, coelomic cavity of young fast growing chickens	Gelatinous fluid and rounded heart	Right ventricular dilation and hypertrophy	Round heart disease in turkey (biventricular dilation)
		increased workload on the heart. This, combined with the insufficient pulmonary capillary capacity of the modern broiler chicken, aggravates the pulmonary hypertension				
277-279	<b>ROUND HEART DISEASE</b>	Possibly toxic agents in turkeys (antitrypsin and furazolidone) associated with built-up litter	Heart	Rounded (globoid)	Biventricular dilation	Ascites syndrome
280	<b>AORTIC RUPTURE</b>	Nutritional deficiencies possibly copper Genetic hypertension	Aorta of turkeys	Massive coelomic hemorrhage	Aortic rupture with severe coelomoc hemorrhage	Hemorrhagic syndrome
281	<b>PERIRENAL HEMORRHAGE</b>	Unknown	Both kidneys of rapidly growing turkeys 8-14 w	Foacl hemorrhage	Bilateral moderate to severe perirenal hemorrhage	”

282	<b>AMMONIA TOXICITY</b>		Eyes	Edematous, red	Keratoconjunctivitis to ulcerative keratitis	NCD HPAI H. paragallinarum, M. gallisepticum
283- 285	<b>AMYLOIDOIS</b>	Associated with chronic infections	Liver, kidneys	Most common in ducks and finches	Severe diffuse hepatic/renal amyloidosis with ascites	Aspergillosis
286	<b>UROLITHIASIS</b>	dietary protein (30-40%), calcium excess (> 3%), sodium bicarbonate toxicity, mycotoxins (oosporin, ochratoxin), vitamin A deficiency,	Urters Cloaca	Chalky, gritty white material	Ureteral urolithiasis	IB
287	<b>VISCERAL GOUT</b>		Serosal surfaces		Diffuse serosal urate deposition	
288, 289	<b>ARTICULAR GOUT</b>	“ “	Synovial membranes	Chalky, gritty white material	Articular urate deposition	“ Arthritis
290	<b>GOITER</b>	Iodine deficiency Genetics suspected	Thyroids (around syrinx)	Male mature Buff Cochin	Bilateral diffuse thyroid hyperplasia	Thyroid adenoma
291	<b>CYSTIC OVARIES</b>	Hormonal	Ovary	Multiple, variably sized cysts		Internal layers Egg binding
						Ovarian carcinoma
292	<b>PROVENTRICULAR INTUSSUSCEPTION</b>	Incidental	Proventriculus telescopes into gizzard			None
293	<b>MECKEL'S DIVERTICULUM</b>	Congenital (embryonic)	Yolk sac	appendage of the small intestine	Extramedullary myelopoiesis	None

294	<b>CEREBELLAR HYPOPLASIA</b>	<i>Avian parvovirus</i>	Cerebellum	Small with less distinct folia	Cerebellar hypoplasia	Salmonella E. coli, P. aeruginosa, Enterococcus encephalomalacia encephalocele/ exencephaly, and pox vaccination reaction
295	<b>MELANOSIS</b>	Breed genetics	Brain	Black Aracauna hen	Diffuse meningeal melanosis	None
296	<b>RENAL AGENESIS</b>	Congenital Blockage of the migration of the mesonephric duct in Day 2 chick embryos	One kidney	Absent	Unilateral renal agenesis	“
297	<b>POLYDACTYLY</b>	Hereditary	Supernumerary digits	Both feet	Bilateral polydactyly	“
298	NEOPLASIA	MULTIFACTORIAL/ VIRAL	ALL	PROLIFERATIVE/ INFILTRATIVE		DIFFERENTIAL LISTS
300	<b>OVARIAN AND OVIDUCT CARCINOMA</b>	Hyperovulation	Ovaries → coelomic cavity	Nodular	Ovarian/oviduct carcinoma (carcinomatosis)	Pancreatic carcinomatosis Leukosis Marek's
301	<b>GRANULOSA CELL TUMOR</b>	Non-hormonal	Follicles of atrophic ovaries	Solitary large to nodular	Ovarian granulosa cell tumor	Ovarian adenocarcinoma
302	<b>THYMOMA</b>	Unknown	Thymus in young birds	Nodular, smooth	Lymphocytic to epithelial thymoma	None
303	<b>NEPHROBLASTOMA</b>	<i>Avian alpharetrovirus</i>	Back, kidneys, bursa	Large variegated mass	Nephroblastoma	Leukosis complex Marek's
304	<b>SQUAMOUS CELL CARCINOMA</b>	Spontaneous	Skin broilers	Yellow irregular ulcers in broilers	Dermal squamous cell carcinoma	None
305	<b>SERTOLI CELL TUMOR</b>	“	Testicles	Round, smooth	Sertoli cell tumor	Teratoma
306	<b>THYROID ADENOMA</b>	Iodine deficiency or excess	One thyroid gland around syrinx or ventral column	Large, smooth	Unilateral thyroid adenoma	Goiter

307, 308	<b>HEMANGIOSARCOMA</b>	Spontaneous				Hemangiomas caused by avian leukosis V.
309	<b>XANTHOMATOSIS</b>	Uncertain etiology (possibly toxic materials in animal fats)	Wing, legs	Nodular yellow skin	Cutaneous xanthomatosis	Tuton's giant cells Cholesterol clefts
310	<b>MYXOMAS RHABDOMYOSARCOMA</b>	Spontaneous	Intestine Pectoral muscles	Multiple, mucoid Firm	Intestinal myxomas Pectoral muscle rhabdomyosarcoma	