

POULTRY DISEASES BASIC INFO/NAVLE REVIEW

OUTLINE

A) Neoplastic:

Marek's Disease:	Herpesvirus (range paralysis)
Lymphoid Leukosis:	Retrovirus (big liver disease)

B) Respiratory Diseases:

Newcastle Disease:	Paramyxovirus
Infectious Bronchitis:	Coronavirus
Infection Sinusitis:	<i>Mycoplasma gallisepticum</i> (MG)
Chronic Respiratory Disease:	MG and E. coli
Infectious Coryza:	<i>Avibacterium paragallinarum</i>
Infectious Laryngotracheitis:	Herpesvirus
Avian Influenza:	Orthomyxovirus (fowl plague)
Turkey Coryza:	<i>Bordetella avium</i>
Aspergillosis:	<i>Aspergillus</i> fungus (Brooder Pneumonia)

C) Nervous System Diseases:

Encephalomalacia:	Vitamin "E" deficiency (Crazy Chick Disease)
Avian Encephalomyelitis:	Picornavirus
Botulism:	<i>Clostridium botulinum</i>

D) Enteric Diseases:

Viral enteritis:	Rotavirus, Reovirus, and Astrovirus, Coronavirus
Clostridial:	<i>Clostridium</i> bacteria
Coccidiosis:	<i>Eimeria</i> species
Histomoniasis:	<i>Histomonas meleagridis</i> (Blackhead)

E) Systemic Diseases:

Avian Pox:	Poxvirus
Fowl Cholera:	<i>Pasteurella multocida</i>
Salmonella:	<i>Salmonella</i> species
Colibacillosis:	<i>E. coli</i>
Erysipelas	<i>Erysipelothrix rhusiopathiae</i>

F) Internal Parasites:

<i>Ascaridia galli</i> :	(round worms)
<i>Heterakis gallinae</i> :	(cecal worms)
<i>Syngamus trachea</i> :	(gape worms)
Capillaria	(thread worms)
Coccidiosis	<i>Eimeria</i> species
Histomoniasis	(blackhead, enterohepatitis)

G) External Parasites:

Red Mites:	<i>Dermanyssus gallinae</i>
Northern Fowl Mites:	<i>Ornithonyssus sylvarium</i>
Lice:	Biting Lice

I) Others:

Infectious Bursal Disease
Gout (visceral and articular)
Skeletal:
 Osteomyelitis

Tibial Dyschondroplasia

Rickets:

- Calcium and/or Phosphorus imbalance, Vitamin D₃ deficiency, feed

Twisted Tibia

Other:

- Enteritis, Reovirus, *Mycoplasma synoviae*, *Staphylococcus spp.*

A) NEOPLASTIC: (chickens only)

Comparison Areas	Marek's	VS	Lymphoid Leukosis
Age	3-14 weeks generally		>16 weeks
Paralysis	Yes		No
Gross Lesions: (tumors)			
Nerve	Yes		No
Liver	Yes		Yes
Kidney	Yes		Yes
Spleen	Yes		Yes
Kidney	Yes		Yes
Bursa	Enlarged/Atrophied		Nodular Tumor
Grey Eye	Yes		No
Skin	Yes		No
Agent	DNA Herpesvirus		RNA Retrovirus
Vaccination	Day of Age/inovo		None
Transmission	Horizontal (fluff) 1° feather follicle		Vertical (egg transmitted) Horizontal
Other Names	Range Paralysis		Big Liver

Signs	Asymmetrical Paresis/Paralysis (Wing, neck or leg) Pale, shrunken comb	Non-Specific Emaciated/ Abdominal Masses Penguin Walk Pale, shrunken comb
DX	Histopathology Pleomorphic Lymphocytes Clinical Lesions, Age & Lesions	Histopathology Uniform blast cells

Comments:

Marek's

Most common of the Lymphoproliferative diseases of chickens

Lymphoid Leukosis

Infection occurs in all chicken flocks, with few exceptions. By sexual maturity most birds have been exposed. Incidence of clinical disease is low.

B) RESPIRATORY

1) **Newcastle Disease (ND)** – also called pseudofowl pest

Paramyxovirus

3 pathogenic classifications

LETOGENIC: Few or no clinical signs
Little or no mortality

MESOGENIC: Moderately pathogenic, Respiratory signs
Decrease egg production, +/- Central nervous system (CNS), +/- Mortality

VELOGENIC: Acute respiratory distress
 CNS signs (paresis, paralysis, circling, tremors, & torticollis)
 Mortality & morbidity are high – up to 100%
 VVND (exotic Newcastle), Hemorrhagic lesions in intestinal tracts

Most endemic strains are lentogenic
 ND: Hemagglutinates RBC

Can be found in chickens, turkeys, & pigeons.

ENZOOTIC (mesogenic)

EXOTIC (VVND)

Sudden onset	Short course
Mild respiratory signs	Severe respiratory signs
Low or no mortality	Up to 100% morbidity and mortality
CNS signs may follow	CNS (torticollis)
Respiratory signs	Diarrhea, Paralysis, and Conjunctivitis
Sudden ↓ egg production	↓ egg production or cessation of lay
Low quality eggs	
Soft shells	

Sudden onset, marked depression and respiratory signs (gasping, coughing, nasal discharge), signs of CNS (usually 0-25%) show signs	Similar to mesogenic strains, but mortality is very high (50-100%) more acute.
-------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------

Young: Later – paralysis, prostration
 Death, mortality up to 50%

Lesions: None to minimal +/- Tracheitis	Tracheitis, airsacculitis Hemorrhagic or focal
--------------------------------------------	---------------------------------------------------

Airsacculitis necrotic lesions in mucosa,
Conjunctivitis surface of intestines,
Proventriculus, cecal tonsils,
gizzard

*Turkeys – signs and lesions similar to chickens

DX Lab: Virus isolation:
Swab trachea or cloaca
Lung, spleen, bone marrow
Histopath – CNS, systemic lesions

Serology: Paired serum
Hemagglutination – inhibition tests (HI)
Virus isolation

RX: "NO TREATMENT"
Antibiotics – prevent 2° bacterial infections
Vaccination
VVND — REPORTABLE DISEASE, USDA SELECT AGENT
Biosecurity

2) Infectious Bronchitis

Coronavirus

Acute: Highly contagious (36 hours) respiratory disease

Nephrotropic strain

Marked drop in egg production, misshapen eggs, poor internal
egg quality

Chickens Only:

Does not hemagglutinate RBC

Two common serotypes (Connecticut and Massachusetts)

Signs:

Coughing, sneezing, nasal discharge

High morbidity
Up to 50% decrease in egg production
 Soft shell and misshapen eggs
 Watery whites (albumin)
 False layers

“Air sac” Airsacculitis with complications
Swollen kidneys
Peritonitis (egg yolk)

DX: Virus isolation – tracheal swabs
 Lung/trachea
 Serology – paired serum (ELISA + Virus Neutralization)
 Fluorescent Antibody (FA)

RX: Similar to ND
 Vaccinate only “clean” birds (birds free of Mycoplasma or other
 Respiratory disease)
 Increase temperature of house
 TLC, antibiotics to prevent 2° bacterial infection

3) Avian Influenza (fowl plague)

Causative Agent – Orthomyxovirus
 Many avian species can be affected
 Water fowl (stable/no mutations) > Shore birds > Game Birds > Turkeys
 >> Chickens (uncommon)

Classified groups A (humans, avian, swine, horses), B (humans), C; (humans)

Introduction: Defined by 16 HA (hemagglutinin) & 9 NA (Neuraminidase)

H5 & H7 Important for Highly Pathogenic AI

Signs / Lesions:

Low Path - None to mild

High Path - Severe drop in egg production, increased mortality,
hemorrhage and edema

DX: Serology, virus isolation, no treatment may have regulatory consequences

Prevention: BIOSECURITY!

4) Mycoplasma

Smallest free-living organism

No cell wall

Fragile

Poor antigen

MG (gallisepticum) MS (synoviae)

MM (meleagridis) (turkeys only)

(MG):

Turkeys (T): Severe sinusitis (coughing)

Chickens (C): CRD (Chronic Respiratory Disease) or not apparent

Signs:

“T” (Turkeys) – Nasal discharge (clear, viscous)

Foaming ocular discharge

“Saddle ring”

Swollen sinuses

“C” (Chickens) – Nasal discharge, coughing

Depressed egg production (gradual)

Severe signs – accompanying infections

ND, E. coli, Airsacculitis

Immunity:

Infection persists

Sheds – horizontally + vertically (egg transmitted)

Immune depressant

DX:

Clinical signs

Culture Blood agar / Mycoplasma agar
(rule out bacterial causes)

Serology Rapid plate agglutination, PCR (polymerase chain reaction)
HI (Hemagglutination inhibition]

Control:

Breeder level

Backyard

Depopulate
(Egg transmitted)

Depopulate
(Egg transmitted)

or

or

Dip + inject eggs

*Antibiotics

Inject poults

Tylan

Test progeny
(Serology & culture)
(Test & slaughter)

Erythromycin

*Difficult to clear infection
(Serology positive)

5) Coryza

5.A) Chicken Coryza

(*Avibacterium paragallinarum*)

Small gram negative rod or coccobacilli

Acute – subacute disease of chickens

Signs:

Conjunctivitis

Sinusitis, edema of the face

Sneezing

Foul odor

Affects birds 8-20 weeks of age

Decrease egg production

Lasts several weeks – longer if complicated (E. coli, MG)

DX: History & Signs

Differentiate from other respiratory diseases of chickens

Smear of sinus exudates

G-bipolar rods

Blood agar with *Staph aureus* streak

V-factor

Candle jar

Catalase negative

RX:

Depopulate – Remove Carriers or

Antibiotics:

Sulfadimethoxine

Tylan

Erythromycin

Bacterin (USDA licensed)

5.B) Turkey Coryza

Avian Bordetellosis (*Bordetella avium*)

Adhesion to respiratory epithelium

Heat-labile toxin and cytotoxin production

4-6 week duration. This will be longer when occurring with with concurrent disease.

High morbidity (80-100%). Primarily seen in young turkeys under 4-5 woa

Mortality is relatively low. Can reach up to 40% in complicated cases (E.coli) >4-5 wks of age poults become refractory to the disease, but may continue being carriers

DX: Sinusitis
snick or cough
tracheal rales
airsacculitis seen in complicated cases

TX: Antibiotics not very effective. Resistance is common
Bacterin and Live Mutant Vaccine: Best given at >3woa
Not commonly used in breeder flocks

6) Infectious Laryngotracheitis

Causative agent – herpesvirus

Signs:

Severe dyspnea with bloody exudates from nares or mouth
Coughing and sneezing
Spreads slowly through flock
Mild drop in egg production
1° affects adult birds
Not egg transmitted

Lesion:

Hemorrhagic tracheitis
Cheesy tracheal plus (dead birds)

Treatment – None, Can vaccinate in face of outbreak
Eye drop, water or spray application

DX:

Histopathology, PCR, Virus Neutralization, Virus Isolation

RX:

None (viral), can vaccinate in face of outbreak

7) Other

Turkey coryza (*Bordetella*)

Aspergillosis (brooder pneumonia)

CRD (*Mycoplasma*, *E. coli*, Viral)

Management

Dust, Ammonia (litter and ventilation management)

Day/Night Temperature Fluctuations

C) NERVOUS SYSTEM

Disease Agents

Viral

Avian Encephalomyelitis

Avian Influenza

Arboviruses

Newcastle Disease

Marek's Disease

Bacterial

Arizonosis (localized)

Pasteurella (localized)

Salmonella (localized)

Clostridial (Botulism)

Mycotic

Aspergillosis

Dactylaria

Nutrition

Vit. B₁, B₂, deficiency

Vit. E deficiency

Other

Musculoskeletal problems

Trauma

Parasitic
Toxoplasma
Baylisascaris

Toxicosis
Various drugs, metals and insecticides

1) Encephalomalacia (Crazy Chick Disease) - Vitamin E Deficiency,

How – Feed: Oxidation – heat/moisture, rancid fats, etc.

Low levels of antioxidizing agents in feed

Enteritis (decreases absorption of fat-soluble vitamins)

Clinical Signs:

15-30 days of age

Ataxia – contractions – prostration – death

Lesions:

Cerebellum

Hemorrhage

Swollen

DX: Gross lesions and signs – Histopath

RX: Vitamin E supplement in water

Chemical antioxidants in feed

2) Avian Encephalomyelitis (Epidemic Tremors) - Picornavirus

Adults

Young

Rare to see signs

1-2 weeks of age

Production drop in eggs

Progressive Ataxia

5-25% drop

Fine tremors

Lasts approximately 2 weeks

40% - 60 % morbidity

+/- lens opacity

Gross Lesions:

None +/- white focal areas in muscle of proventriculus or gizzard

DX: Paired serology – Lab
FA (brain, pancreas)

Control:

Live vaccine

Vaccinate 10-18 weeks of age (egg transmitted)

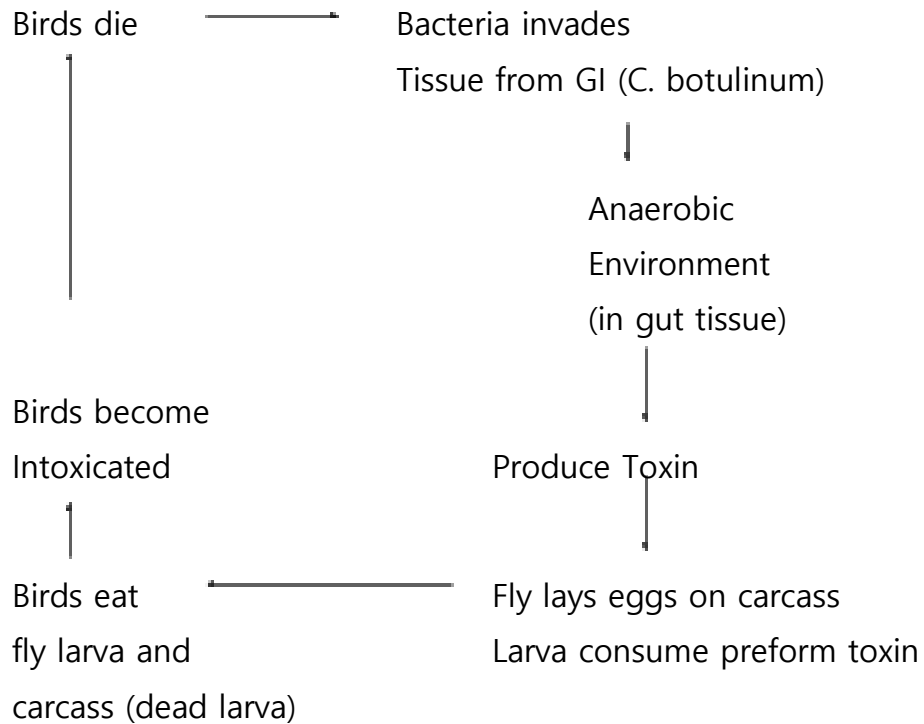
3) Botulism (*Clostridium botulinum*)

Types A and C

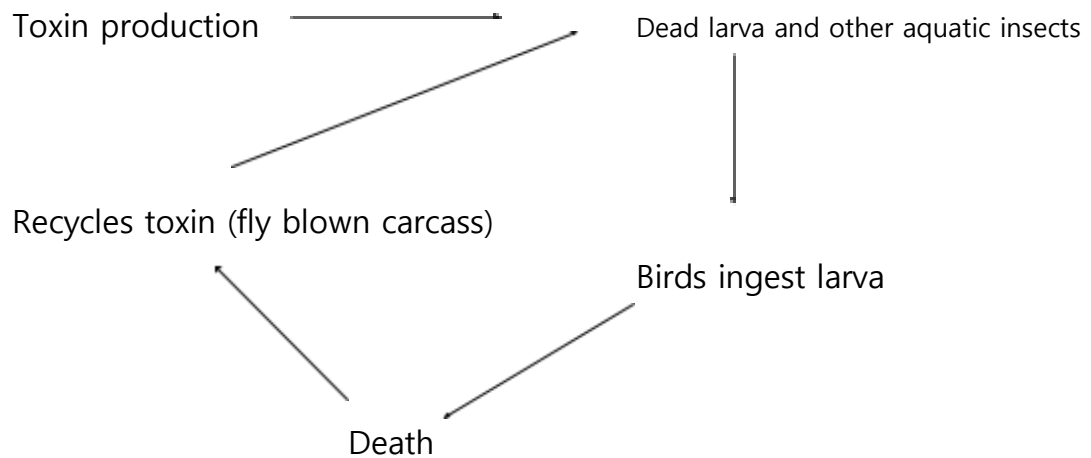
Neurotoxin

Epizootology

a) Epizootology:



b) Warm alkaline water & decaying organic matter



Clinical Signs:

Intoxicated:

Drowsy, weak

*Neck paralysis (limber neck)

"Floaters" – found dead on surface of lakes or ponds

No gross lesions

Pathology:

Neuromuscular transmission impeded

Interference with secretion of Acetyl cholinesterase

Efferent parasympathetic somatic motor nerves affected

Flaccid paralysis

Prevention / Treatment

Remove dead birds

Remove source stagnate water (gravel)

Toxoid – Type C

Epsom salt

D) ENTERITIS

1) Disease Agents

A) Viral

Rotavirus Corona

Rota-like Reo

Astro virus Adenovirus (HE)

Astro-like

B) Bacterial

a. Ulcerative Enteritis – Quail Disease

Clostridium colinum

Crater-like lesions

RX Bacitracin Zn (H₂O)

Penicillin (H₂O)

b. Necrotic Enteritis

Clostridium perfringens, close association with initial cocci
or IBD infection

RX Penicillin + Amprolium (H₂O)
Penicillin or Bacitracin and Amprolium

c. Others

Salmonella Staph / strep
E. coli Mycobacterium

C) Protozoan

1. Coccidia
2. Histomonas (covered with cecal worms under internal parasites)
3. Cryptosporidia
4. Hexamitas
5. Giardia

D) Helminths

1. Ascarids
2. Capillariasis
3. Heterakis

2) Feed ingredients

Sodium content of feeds/diet

3) Brooder House Management

Litter Quality

Water Quality

Ventilation
Humidity

Sanitation
Stress

More information on specific enteric diseases:

A) Coccidiosis

Young birds primarily, characterized
by diarrhea and enteritis

Single cell protozoan

Host specific/site specific

Eimeria genus

Direct/complicated life cycle

One sporulated oocyst may produce 100,000 offspring

Oocyst very resistant/ survives 18 months.

Common Species of Coccidia

Chickens

Type	Description of Lesions
<i>Eimeria acervulina</i> (moderately severe pathogen)	Upper intestines – mild to severe enteritis Thickening of mucosa. Transverse white to gray striations or plaques on mucosa
<i>E. necatrix</i> (severe pathogen)	Mid intestines – severe enteritis, congestion, hemorrhage, necrosis and bloody feces White to yellow foci and petechial Hemorrhages seen through serosa. Oocysts develop only in ceca

E. brunetti
(moderately severe pathogen) Lower intestines – fibrinous or
Fibrinonecrotic mass of debris may
Cover mucosa or produce caseous
Caseous cores in cecum or rectum

E. tenella
(severe pathogen) Cecum – marked typhlitis.
Blood often apparent in ceca and feces,
later cheesy cecal cores may be found.

Common disease of chickens and sometimes turkeys. Usually seen in young growing birds and susceptible older birds. Occurs under conditions of warmth and high humidity or conditions that lead to wet litter.

Coccidia are host specific, therefore do not pass among the various types of poultry.

Coccidia produce lesions in intestines by destruction of epithelial cells, through their replication process.

Infection with one species of Coccidia stimulates an immune response only to that one species. Host still remains susceptible to other strains of Coccidia.

Host can be infected simultaneously by multiple species

Turkeys – Gross lesions develop with severe infestation

<u>Type</u>	<u>Location</u>
<i>E. adenoides</i>	Cecum
<i>E. gallopavonis</i>	Lower intestines
<i>E. meleagridis</i>	Mid intestines

Clinical signs: Young poults 1-6 weeks +
Bloody / mucoid diarrhea

Ruffled feathers, listless, weak, chirping

Economically Important

DX: Gross lesions, direct scrapings (smear), fecal?

RX: Amprolium – water

Litter Management (20-30% moisture optimum)

Sulfa (Agribon) – water

Vit A and K – water

Prevention #1

Amprolium medicated starter feed, other Coccistats – feed shuttle program

Litter moisture = 20-30 %

Coccidiosis vaccination

B) Necrotic Enteritis

Acute bacterial (*Clostridium perfringens*) disease primarily of chickens & turkeys. Characterized by sudden death, friable and distended intestines and severe necrosis of the mucosal lining of the intestines.

Occurrence:

Chickens: 2 - 10 weeks of age raised on litter

Turkeys: 7 - 10 weeks of age

Associated with the following:

Organic & Antibiotic Free Production practices

Predisposing factors

Enteric conditions – Cocci, worms, HE virus, Salmonella

Microflora changes – Wheat & fish meal based diets, no feed, sudden feed changes

Immunocompromised – Marek's Dz., Infectious Bursal Disease (IBD),

Hemorrhagic enteritis (HE – turkeys)

Etiology:

Clostridium perfringens types A and C

Normal inhabitant of avian intestines

Intestinal mucosal damage is necessary for C. perfringens to multiply and produce toxins.

Control and Treatment:

Good management practices

Clean and disinfect buildings,

Repeat problem flocks

Treat house by adding salt to floor (60 -65 lbs/1000 ft)

Acidify the drinking water

All predisposing factors must be controlled

Administration of an in-feed coccidiostat program

Treat with antibiotics

Penicillin, bacitracin,

Other Options

*Oregano *, Bio-mos

D) SYSTEMIC DISEASES:

1) Pox (Avian)

Large DNA virus

Common Types of Avian Pox:

Fowl Pigeon
Turkey Canary

Bolinger bodies (eosinophilic cytoplasmic inclusion bodies) on histopathology

Slow spreading, 1° mechanical vectors (mosquitoes), trauma (picking)

Dry pox: Cutaneous lesions on unfeathered parts of bird

Wet pox: Oral diphtheritic lesions, associated with higher mortality

Strong immunity

Diagnosis: Signs and Histopathology

Treatment: Isolate bird

Remove scab – Rx for 2° bacterial infection, scab contains live Poxvirus

Topical antibiotic (furox spray), pine tar, alcohol

Vaccinate (in face of outbreak) wing-web

2) Fowl Cholera

#1 disease in California turkeys

Very contagious and causes high mortality

Pasteurella multocida causative agent (gram negative rod, does not grow on MacConkey agar)

Signs/Lesions:

Chickens - sudden death, anorexia, depressed, torticollis, abscesses, ecchymotic hemorrhages (heart), enteritis

Turkeys - same as chickens + consolidated & necrotic lungs

(hard lungs) blood in mouth, airsacculitis

Diagnosis:

Culture, must differentiate from erysipelas (gram & rod) (acute mortality)

Blood agar, gram stain

Treatment:

Agribon (sulfa compound)

Tetracycline / Oxytetracycline [water or injectable]

Naxcel (injectable)

3) Salmonella 2,600 + serotypes

A) Host specific (Avian)

Non-motile organisms

Egg transmitted

Non-zoonotic

*1. *S. pullorum* – Bacillary white diarrhea
young & asymptomatic in adults

*2. *S. gallinarum* – Fowl typhoid
young & affects adults also

*NPIP for breeders – test and slaughter

B) Non-host specific (Paratyphoid)

Motile organisms

Egg transmitted

Zoonotic: examples are *S. typhimurium*, *S. enteritidis*

Signs:

Chicks/Poults: weak, anorexic

pasting of vent (diarrhea)
chirping (shrill)
mortality around 1-4 weeks of age
stunting

Semi-mature (*S. gallinarum*)
Pale comb/wattles
diarrhea

* National Poultry Improvement Plan [NPIP]

Lesions: (1° young birds)

Acute	None
Subacute to chronic -	Cecal cores, enlarged spleen Grey nodules in liver, spleen, intestines, cecum & heart
Paratyphoid -	Marked enteritis, necrotic foci on liver
Adults -	1° intestinal carriers, salpingitis

Diagnosis: Serology / culture (State Lab)

Treatment – Sulfa Compounds, Neomycin (paratyphoids)
Pullorum - Test & slaughter

Prevention – Bio-security, Rodent control, breeders ???
Pullorum - Test & slaughter

4) E. Coli

Associated with Colibacillosis

CRD (Chronic Respiratory Disease)

Colisepticemia

Omphalitis (Mushy Chick Disease)

Common secondary bacterial invader

Environment (dust, ammonia, etc.)

Lesions: Perihepatitis, pericarditis, airsacculitis (trilogy of CRD)

Omphalitis: Associated with young chicks/poults at hatching
Infection of yolk sac.

RX / Control: Tetracycline, CTC, Naxcel (injectable)

Avoid stress (poor ventilation, dust, and ammonia)

Clean litter, air and water

Review flock management

Chick/poult quality

5) Other

Staphylococcus

Associated with Bumble Foot, green liver syndrome (turkeys)

Erysipelas

Acute mortality in turkeys – RX – Penicillin, vaccination (killed
Product)

F) PARASITES

1) Internal Parasites:

a) Round worms

Ascaridia galli – chickens

Ascaridia dissimilis – turkeys

most common, species are host specific
direct life cycle approximate 30 days, eggs remain viable
for up to 3 months (ova carried by worms or
grasshoppers)

enteritis (small intestines)
emaciation

DX: Fecal or gross

RX: Piperazine, Fenbendazole (Safe Guard) and management
Levamisole

b) *Heterakis gallinae* (cecal worms)

Associated with Blackhead
1.5 cm seen at tips of cecum, nodules on cecal wall

Direct L/C (ova carried By Earthworms)

DX: Fecal or gross

RX: Piperazine
Phenothiazine
Ivermectin and management

Histomoniasis (*H. meleagridis*)

Blackhead/infectious enterohepatitis

1° a disease in turkeys, less severe in chickens

Life Cycle

Protozoan → w/in *Heterakis gallinarum* eggs (cecal worm) → w/in *H.gallinarum* worms
Protozoan → feces (fresh)
Protozoan → w/in *H. gallinarum* eggs → w/in earthworms → eaten by
turkeys (cecal worms can be a common inhabitant of chickens)

Signs:

Depressed, listless, sulfur dropping (urine)

Leukocytosis approximately 70,000/ml

Decrease serum protein, increase LDH

*Gross:

Necrotic foci (depressed) "target" lesions – liver

Ulceration / caseation of the cecum (cecal core)

RX: no approved medication for treatment in poultry

–

Prevention:

Raise turkeys away from chickens

c) *Syngamus Trachea* (Gapeworm)

Red nematodes – trachea

Chicken, turkeys, game birds

"Forked worm"

- smaller male is attached to the larger female
- focal tracheitis
- 2.0 cm long

Signs: Gasping, dyspnea, and head shaking

Earthworms, slugs, snails serve as transfer hosts to direct L/C

DX: fecal/gross

RX: Thiabendazole
Ivermectin
Fenbendazole

d) Capillary worms

Small, hair-like round worms
Cause more damage than Ascaridia (large round worms)

Two important species

Annulata – requires earthworm as intermediate host

Contorta – direct life cycle causes more damage than Annulata

Signs: Weight loss, decrease egg production

Other non-specific signs

Lesions: Marked thickening of crop and esophagus = crop mycosis
Enteritis.

e) Other

Coccidia

Tape Worms

2) External parasites

a) Mites

Red mites (*Dermanyssus gallinae*)

Blood suckers - anemia

Feed at night (found on birds only at night)

Daytime – cracks/joint of roosts

Northern Fowl Mites (*Ornithonyssus sylviarum*)

Blood suckers

Stay on host continuously

Near vent

Scaly leg (*Knemidokoptes mutans*)

Shanks and feet

Skin thickened and hyperkeratotic

b) Lice

Biting lice (1-6 mm)

Vent area

Entire life cycle on host

Birds become unthrifty

c) External Parasite Treatment & Control

Prevention – Assure that new birds brought to farm or flock are free of external parasites

Control access of wild birds and rodents

RX: Dust bird or coop

Spray

Malathion

Apply via: dust box

Permethrin

spray individually – vent 1°

Inject

Ivermectin (off-label)

H) OTHER DISEASE CONDITIONS

1) IBD

Virus – Birnaviridae

"Aids" of chickens (Lymphocidal)

Affects the Bursa of Fabricius

Age: 3-20 weeks of age

Clinical Disease

Sudden onset, diarrhea, vent picking

Morbidity 100%, mortality 5-30%

Lesions:

Swollen bursa 1-5 days

(Yellow – hemorrhagic)

Atrophies by day 8 of infection

Subclinical Disease

Age: 0-3 weeks of age

No clinical signs

Irreversible damage too bursa

Virus destroys Lymphocytes

Immunosuppressed

Birds are unable to respond to vaccines

Prevention: Management and vaccines are available

2) Gout

Purine metabolism – uric acid – poorly soluble

Increase saturation point – precipitates out on serosal surface and joints (chalky white crystals)

4) Anatomy

Left ovary functional

Female determines the sex of offspring

Uric acid primary component of fecal material

TABLE #1

DISEASES THAT CAN BE EGG TRANSMITTED

A) **Transovarian – Via the Oviduct:**

1. Chronic Respiratory Disease – Mycoplasma gallisepticum (C)
2. Infectious Sinusitis – Mycoplasma gallisepticum (T)
3. Avian Encephalomyelitis – Picornavirus (C,T)
4. Egg – Drop Syndrome – 76 and other Adenovirus (C)
5. Infectious Synovitis – Mycoplasma synoviae (C,T)
6. Airsacculitis – Mycoplasma meleagridis (T)
7. Lymphoid Leukosis – Retrovirus (C)
8. Pullorum – Fowl Typhoid- Salmonella pullorum, S. gallinarum, (C,T)
9. Viral Arthritis – Reovirus (C)
10. +/- E. Coli (C,T)

CONTROL AT THE BREEDER LEVEL

7 Genetic selection; serology to select non-transmitters

3,4,9, ... Vaccination of Breeders

1,2,5,6, . Treatment of eggs with antibiotics or heat, serology, culture, management

procedures, this may include test and slaughter for Mycoplasma

8 Test and slaughter of infected breeders; egg and hatchery sanitation

10 Egg and hatchery sanitation

B) **Shell Transmitted Diseases:**

Contaminants: Occurs while the egg cools – temperature gradient pulls in surface contaminants through the shell pores

1. Arizona paracolon, can be transovarian
2. Paratyphoid – Salmonella sp. (C,T) can be transovarian
3. Omphalitis – E. Coli, Pseudomonas, Proteus, coliforms (C,T)
4. Aspergillosis – Aspergillus fumigatus (C,T)
5. Fecal Contaminants – i.e., ND, AI during acute infection of virulent strains

Controlled through egg and hatchery sanitation