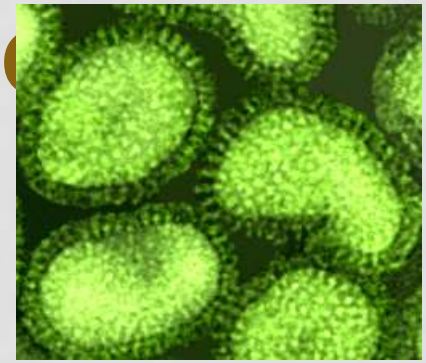
COMMON POULTRY DISEASES

WHAT IS A *DISEASE*

Any condition that results in deviation from normal function

AGENT

HOW DO DISEASES



HOST

ENVIRONMENT

ETIOLOGY

Infectious Agents

- Bacteria
- Viruses
- Parasites
- Fungi

Non-infectious agents

- Chemical
- Physical
- Lack or excess of certain vitamins and minerals
- Toxins

GENERAL SIGNS OF DISEASE

- Poor appetite
- Huddling
- Depression
- Runting/stunting
- poor uniformity
- Ruffled feathers
- Coughing, sneezing,
- oculo-nasal discharge,
- difficult breathing
- Bloody or wet litter
- Increased mortality

VIRAL DISEASES

- **Marek’s disease**
- **Ranikhet (new castle) disease**
- **Infectious bursal disease (IBD) or gumboro**
- **Infectious bronchitis**
- **Fowl pox**
- **Avian encephalomyelitis**
- **Infectious laryngotracheitis (ILT)**
- **Lymphoid leucosis**
- **Inclusion body heapatitis**
- **Infectious viral arthritis**
- **Egg drop syndrome**

BACTERIAL DISEASES

- **Pullorum**
- **Omphalitis**
- **Fowl coryza**
- **Chronic respiratory disease**
- **Fowl typhoid**
- **Fowl paratyphoid**
- **Fowl cholera (pasturellosis)**
- **Avian tuberculosis**
- **Avian paratuberculosis**
- **Coliform infection**
- **Clostridial infections (botulinum)**

PROTOZOAN DISEASES

- Coccidiosis
- Avian trichomoniasis
- Avian maleria

- **FUNGAL DISEASES:**
- ASPERGILLOSIS OR BROODER PNUMONIA,
- AFLATOXICOSIS.

PARASITIC DISEASE

1) Internal parasites: round worms. Tape worms, gape warms, spirachetosis.

2) External parasites: lice, mites, bugs, fleas.

NUTRITIONAL DEFICIENCY DISEASES

- Nutrional roup
- Polyneuritis
- Curled toe paralysis
- Dermatitis
- Encephalo malacia
- Haemarrhagic disease
- Perosis
- Fatty liver kidney syndrome
- Other mineral deficiencies

MISCELLANEOUS

- Cannibolism
- Pasty vents in chicks
- Crop impaction
- Cage layer fatigue

NEW CASTLE DISEASE

- It is one of the most dreaded diseases of poultry
- cause very heavy mortality at a very high speed.
- caused by **paramyxo virus**
- classified into many serotypes based on the virulence.
- Chicken is the natural host but vast majority of birds are susceptible to infection including ducks and turkey .

- **Signs**
- Depression, prostration, loss of appetite
- Greenish/yellowish diarrhea
- Nervous signs like in coordination, twitching of neck
- Mortality heavy in acute outbreak

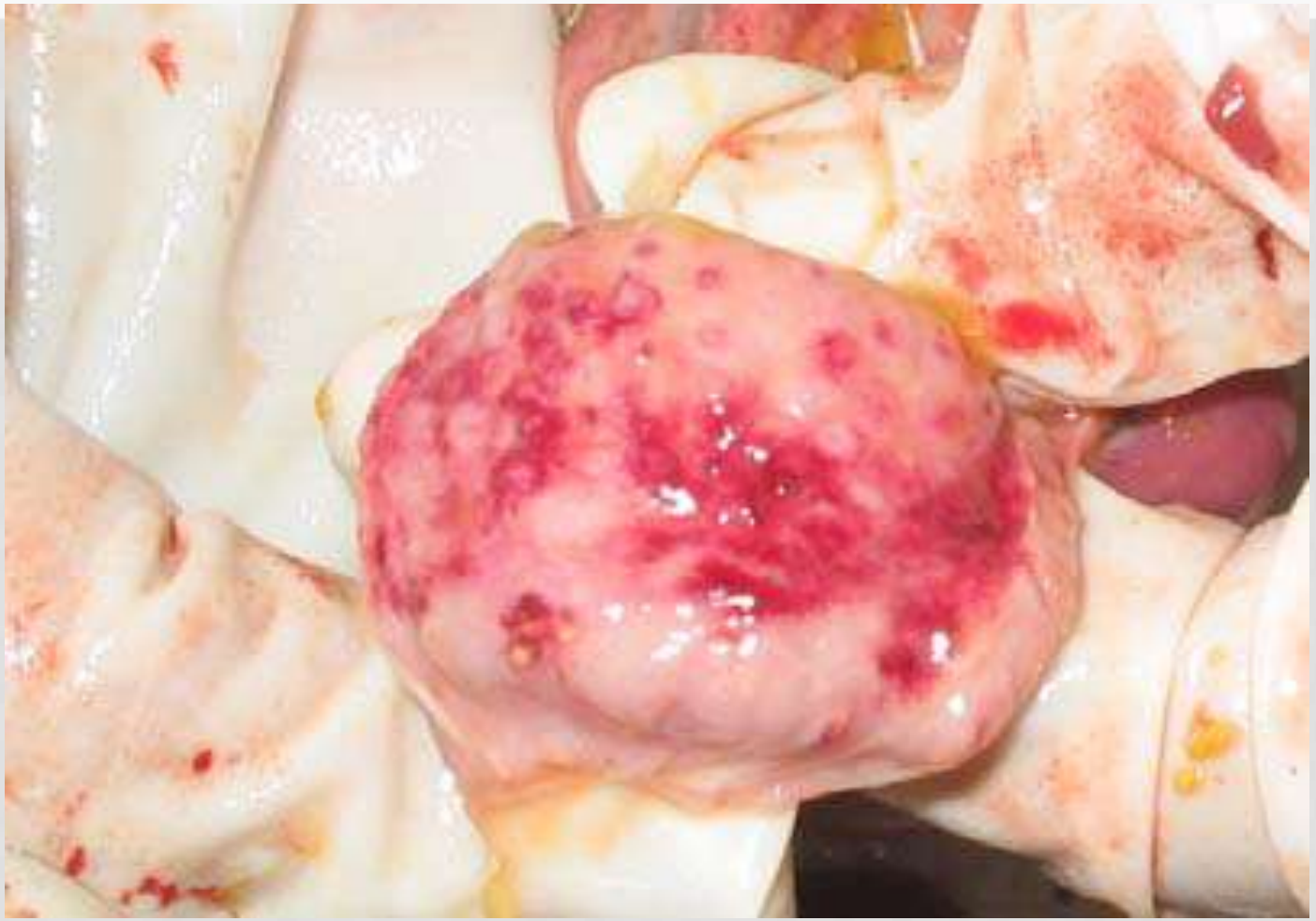
- The neurotropic form of the disease is clinically manifested by ataxia, opisthotonus, torticolis, paresis and paralysis of legs.

GREENISH DIARRHOEA

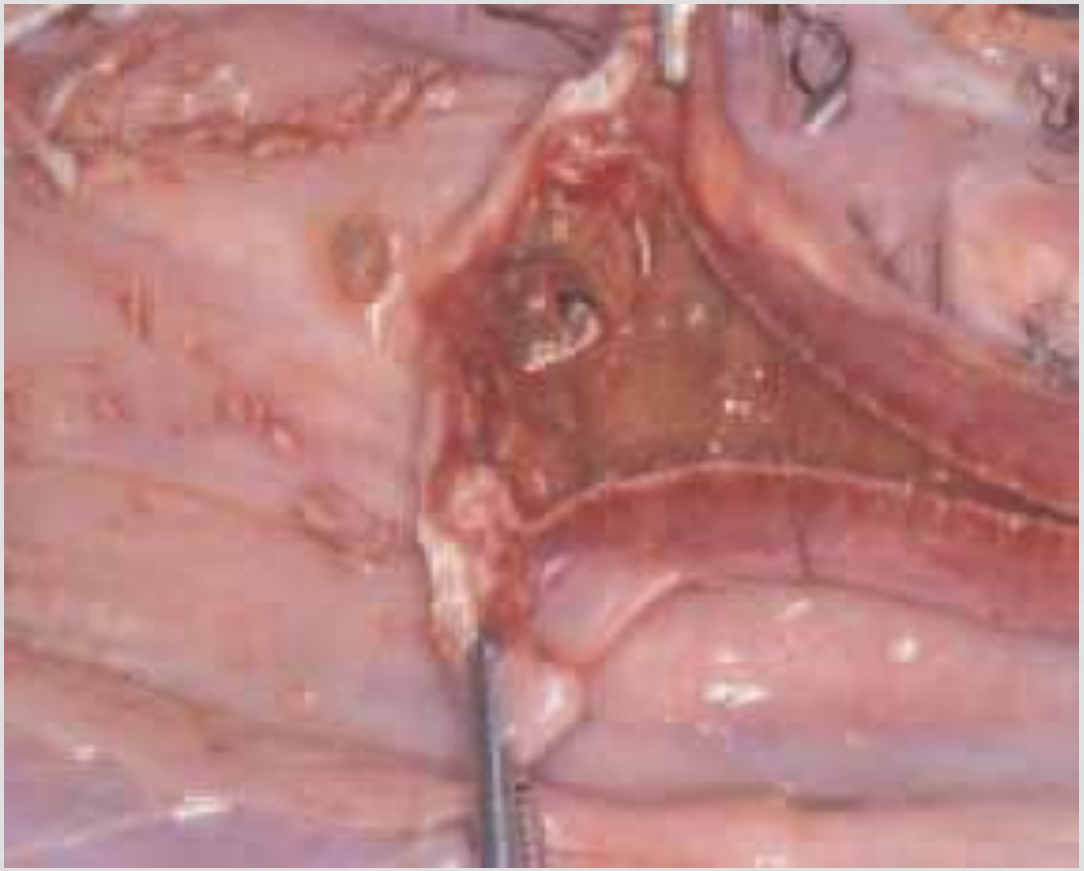
POST MORTEM LESIONS

- Pin pointed hemorrhages at the tip of proventricular glands
- Hemorrhagic/ diphtheritic ulcers on the intestine and caecal tonsils

PRO VENTRICULAR HEMORRHAGE



DIPHTHERITIC ULCERS ON THE INTESTINE



DIPHTHERITIC ULCERS ON THE INTESTINE

ENLARGEMENT AND HAEMORRHAGES OF CAECAL TONSILS

DIAGNOSIS

- Typical lesions are diagnostic.
- Laboratory diagnosis with hemagglutination and Inhibition tests can be used.

PROPHYLACTIC VACCINATION

- Lentogenic strain (F or B1)
- chicks(5 -7 d)
- intranasal
- intraocular route
- drinking water.

- Mesogenic strain (R2B)
- intramuscular
- Subcutaneous route.

AVIAN INFLUENZA (BIRD FLU)

- Highly Pathogenic Avian Influenza(HPAI) is a highly lethal systemic disease affecting vast majority of birds.
- caused by the Influenza Type A virus.
- **H5N1 causes bird flu**
- Because of the zoonotic as well as pandemic potential, the disease gained much public health importance.
- .

- Water birds and migratory birds, ducks act as carriers and spread the infection
- bird flu is highly contagious among birds and also effects ducks, and turkeys

SIGNS

- Sudden, heavy and unusual mortality reaching almost 100% without any clinical signs.
- Combs and wattles are cyanotic and oedematous, and may have petechial or ecchymotic haemorrhages at their tips.
- Profuse watery diarrhoea is frequently present and birds are excessively thirsty.

- Respiration may be laboured.
- Haemorrhages may occur on unfeathered areas of skin.
- The mortality rate varies from 50 to 100%.
- Nervous disorders like tremors, torticollis and opisthotonus

EDEMA OF FACE

- In broilers, the signs of disease are frequently less obvious with severe depression, lack of appetite, and a marked increase in mortality.
- Edema of the face and neck and neurological signs such as torticollis and ataxia may also be seen.

POST MORTEM LESIONS

- Extremely variable depending on the severity.
- Hemorrhagic lesions (petechial to ecchymotic) on all the visceral organs, serous membranes, skin and muscles in acute cases
- Lungs pneumonic
- Enteritis, air saculitis, spleenomegali

HUMANS

- The first avian influenza virus to infect humans occurred in Hong Kong in 1997. The epidemic was linked to chickens and classified as avian influenza A (H5N1).
- Human cases of avian influenza A (H5N1) have since been reported in Asia, Africa, Europe, Indonesia, Vietnman, the Pacific.

THE FOLLOWING PEOPLE HAVE A HIGHER RISK FOR DEVELOPING THE BIRD FLU:

- Farmers and others who work with poultry
- Travelers visiting affected countries
- Those who touch an infected bird
- Those who **eat raw or undercooked poultry meat,** eggs, or blood from infected birds
- Infection may be spread simply by touching contaminated surfaces.

H5N1 VIRUS IN HUMANS CAUSES TYPICAL FLU-LIKE SYMPTOM

- Cough (dry or productive)
- Diarrhea
- Difficulty breathing
- Fever greater than 100.4°F (38°C)
- Headache
- Muscle aches
- Runny nose
- Sore throat

TREATMENT IN HUMANS

- **antiviral medication** like oseltamivir (Tamiflu) or zanamivir (Relenza), Amantadine and Rimantadine.
- **Prevention**
- Currently vaccines are not used in India.
- By following biosecurity measures

INFECTIOUS BRONCHITIS

- It is a highly infectious viral disease of poultry of worldwide distribution.
- It can affect any age, breed or type. Chicken is the only bird that is naturally infected by this virus.

SIGNS

- Respiratory signs like coughing, sneezing and rales in chicks, discharges from eyes and nostrils.
- Drop in egg production (drops by 60-90 %)and hatchability
- Production of deformed, thin shelled, rough eggs with low internal egg quality
- Mortality low in uncomplicated case

EGGSHELL ABNORMALITIES IN IB

POST MORTEM LESIONS

- Catarrhal exudates in nasal cavity, caseous plugs in bronchi in chicks
- Enlargement of kidney with urates deposition and distention of ureters with pasty uric acid in uraemic form
- Egg peritonitis in layers

Prevention

- Inactivated or attenuated live Vaccines are available for prevention.

GUMBORO (IBD)

- Infectious Bursal Disease(IBD) is a highly contagious viral disease of young chicken causing serious economic losses.
- The virus targets the Bursa of Fabricius, an important part of immune system making the bird susceptible to other infections.
- Inflammation of bursa.

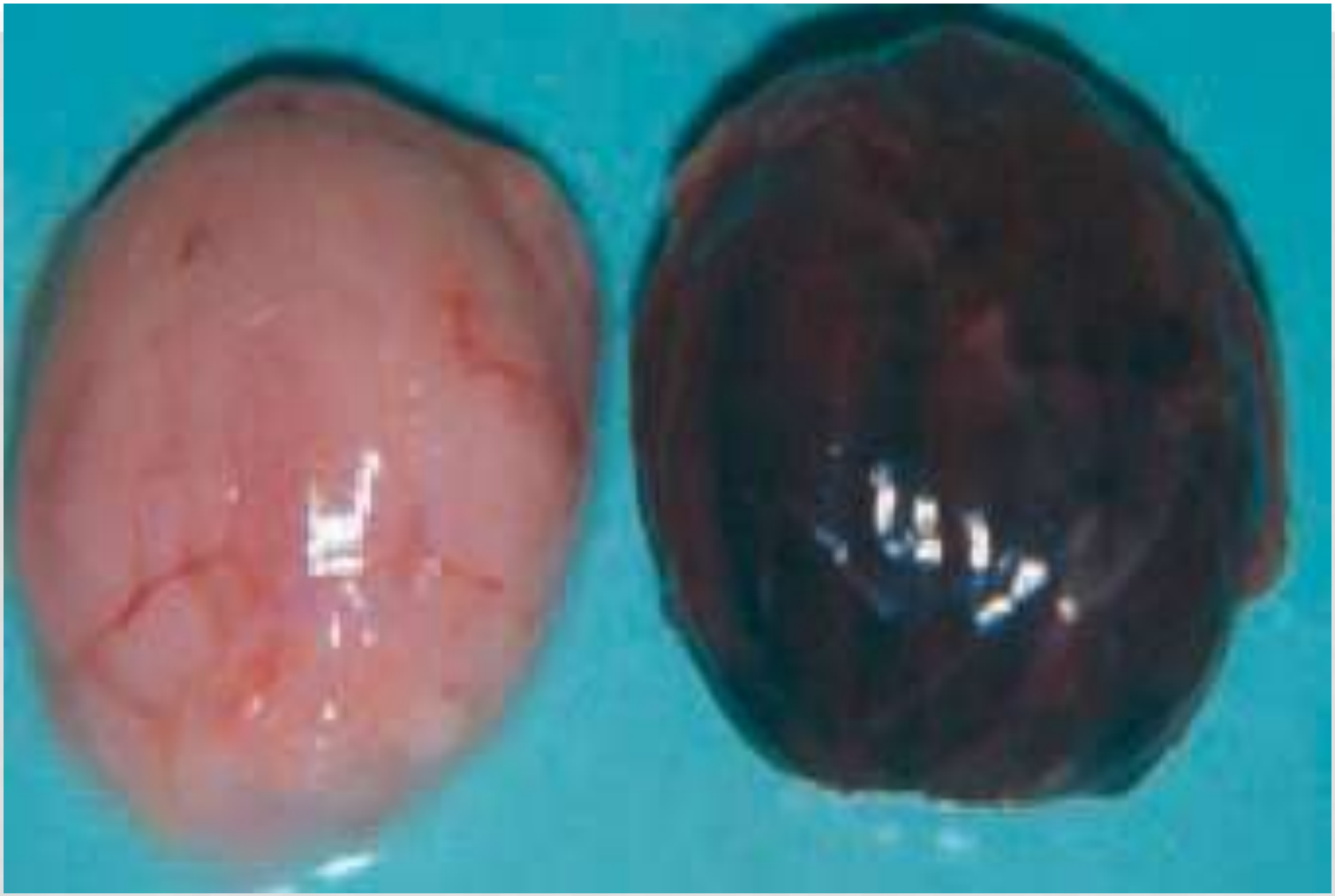
- **Signs**
- Dullness, depression and death
- Whitish diarrhea
- Mortality heavy in the initial out breaks in a farm
- **Post Mortem Lesions**
- Hemorrhages in the thigh and pectoral muscles
- Bursa enlarged, edematous and hyperemic with bloody or mucoid contents inside.
- Bursa firm and atrophic in chronic form
- Kidney may show nephrosis and mottling.

VACCINES ARE AVAILABLE FOR PREVENTION

MUSCULAR HEMORRHAGE

BURSAL HEMORRHAGE

HAEMORRAHAGIC BURSA



MAREK'S DISEASE

- Marek's Disease is an economically important viral disease but more or less effectively controlled by vaccination.
- Caused by Herpes virus
- Neoplastic disease (due to proliferation of lymphoid tissues).
- It is principally a disease of young chicken but rarely affects other birds also. Chicken below 3 to 4 months are more susceptible.

SYMPTOMS

- Dullness, depression and sudden death in acute form (MD lymphomas).
- Incordination, staggered gait, paralysis of one or more extremities in classical form (Neural form).
- Unilateral or bilateral blindness with ocular involvement.

POST MORTEM LESIONS

- Tumors (lymphomas) are present in one or more of visceral organs and tissues. Gonads (ovary), liver, spleen, lungs, kidney, skin etc may be involved.
- Tumors cause nodular or diffuse enlargement of the affected organ.
- In classical form, nerves become thickened slightly or as much as 3 or 4 times the normal and becomes rounded instead of the normally

  striated appearance

PREVENTION

- Preventive vaccination is available.
- Herpes Virus Turkey strain is used in vaccine
- This is live attenuated vaccine
- There is no effective treatment.

FOWL POX

- development of nodular proliferative Skin lesions on the featherless parts of the body.
- fibrino necrotic and proliferative lesions in the mucous membranes

- Family: Pox viridae
- Genus: avipoxvirus
- Double stranded DNA

ET

CLINICAL SIGNS

- Appearance of nodular lesions
- combs
- wattles
- eyelids
- other unfeathered areas of the body.

PREVENTION AND CONTROL

- Prophylactic vaccination

INCLUSION BODY HEPATITIS (IBH)

- Broilers of 4 to 8 weeks are affected mainly
- Anaemia, depression and sudden mortality
- Hepatitis
- Pale muscles and bone marrow
- Hemorrhages in the muscles

EGG DROP SYNDROME

- Caused by adeno virus
- Sudden and variable drop in egg production (30- 40%) in laying hens
- Production of depigmented, cracked or shell less eggs
- Disease runs for a few weeks and egg production returns to normal.

TYPES OF VACCINES

- Live/ activated vaccines
- Killed or inactivated vaccines

1)Live/ activated vaccines: they contain live attenuated organisms (attenuation is aprocess by which the pathogenicity/ capability of producing a disease is brought down with out disturbing the immunogenecity.

ex: lasota vaccine, F1, R2B, IBD live vaccine

2) KILLED OR INACTIVATED VACCINES

- These vaccines contain pathogens (virus/bacteria) that have been chemically inactivated so that they will produce immunity, but are unable to transmit the disease.
- Ex: ND killed vaccine

VACCINES ALSO CLASSIFIED BASED ON THEIR CONTENTS

1)Viral vaccines: ND, IBD, IB vaccine

2) Bacterial vaccines: coryza killed vaccine

3) Parasitic vaccines: coccivin (againist Coccidiosis)

METHOD OF ADMINISTRATION

1) Intra occular (I/O) : administerd by putting drops in eye. IBD, IB Live, Lasota
2) Intra nasal : administered through nostrils or mouth. Birds should not be supplied water for 2 hours. Ex: Lasota, IBD Live
3) Drinking water: now a days popular.

- the temperature of water brought down to temperature of vaccine by ice and stabilizer like skimmed milk powder.

- For 10 litr of water 1 kg ice and 60gm skimmed milk powder used.

- Birds made thristy for 2-3 hours before vaccination , so that they drink water immediately.

ex: Lasota, IBD Live

4) Wing web: Fowl pox

5) Vent: vaccine is rubbed to upper part of cloaca with a small glass rod. Ex: ILT

6) Sub cutaneous: deposited under skin by injection with insertion of needle. Ex:marek's disease

7) Intra muscular: deposited in between muscle fibres by injection. Ex: ND killes, R2B, IBD killed.

8) Aerosal route: vaccine is sprayed in air in the form of fine mist, which is absorbed by birds through nostrils.

-mass vaccination for large scale poultry farms

- Generally mass vaccination was followed in commercial farms
- A spray vaccination is more invasive and may give better results than a drinking water vaccination.
- And it allows the vaccine to penetrate more deeply into respiratory tract.

DRINKING WATER METHOD

- Vaccine is reconstituted in distilled water in a small volume.
- Then added to the water troughs
- Birds consume the vaccine mixed water and gain immunity.
- Before going to vaccination, birds have to be deprived of normal water supply for 1-2 hours.

VACCINATION PROGRAMME FOR COMMERCIAL BROILERS

1) O day – Marek's disease, HVT strain, strictly sub cutaneous.
2) 5 – 7 days of age- Ranikhet Disease, Lasota strain to be given by occulo-nasal method (one drop each in the eye and nostrils) or drinking water.
3) 14th day – IBD or Gumboro Disease live georgia vaccine (intermediate) by eye drop or drinking water method.
4) 25-28 days of age: RD lasota vaccine through drinking water.

VACCINATION FOR LAYERS

Sno	DISEASE	VACCINE	AGE	ROUTE OF VACCINATION
1	Marek's disease	HVT	0 day	S/C or I/M
2	RD	Lasota	6-7 day	I/O OR WATER
3	IBD	Georgia	15th day	I/O OR WATER
4	RD	Lasota	22 day	I/O OR WATER
5	RD	Lasota	28th day	I/O OR WATER
6	coryza	A/B/C Killed	7th week	S/C
7	Fowl Pox	AP+	8th week	WING WEB METHOD
8	RD	R2B/K	10th week	I/M
9	Coryza	A/B/C Killed	12th week	S/C
10	Infectious Bronchitis	Ma5	13th week	WATER
11	RD	K/Killed Lasota	16th week	S/C OR I/M

PRE VACCINATION CARE

- Vaccinate healthy birds, if birds are sick postpone vaccination
- Handle the birds gently
- Vaccinate in cool hours of the day
- Avoid over crowding
- Maintain cold chain. Store vaccine at 4o C
- Keep record of all vaccinations, including batch no, brand, manufacturer etc.
- Prepare vaccine in suitable diluents, preferably one supplied by manufacturer.
- Use sterile glassware, syringe, needles, vaccine guns.
- Provide 1 week interval between two vaccinations.
- Destroy left over vaccine, empty vials, neeedls etc.
- Use reconstituted vaccine with in 2 hours

PRE VACCINATION CARE

- Do not vaccinate the birds in disease.
- Avoid nasal vaccination in birds of respiratory problems.
- Store vaccine always in deep freeze.
- Vaccinate all birds at one time in a house.
- Increase the level of antibiotics in water/feed 3-4 days before vaccination.
- never mix two vaccines together to save time and labour.
- Use only distilled water for reconstitution of vaccine.
- Vaccinate birds in the evening so that birds may rest over night.
- Provide birds with mycotoxin free diets.

POST VACCINATION CARE

- To reduce stress of vaccination anti stress medicines are used (3 days).
- Anti stress medicines: vit-A & E, probiotics, antibiotics, liver tonics and glucose.
- They are given through water.
- In case of vaccine failure give immunostimulants, vit A & E, selenium preparations and probiotics.

FACTORS THAT GOVERN VACCINATION SCHEDULE

1) Expired vaccines: never use
2) Storage and transport: stored at 2-8 c. never store above 8 c. and transport in ice cubes or ice water is good.
3) Avoid direct sunshine on mixed vaccines
4) Do not vaccinate under high temperature: above 30 c may affect vaccine potency. Vaccinate during cooler periods of the day.
5) Do not vaccinate sick birds: immune system of sick is weak.
6) Vaccines administered via drinking water: should be opened under the water into which it is to be mixed. b/s vaccines are vaccum sealed.

FACTORS THAT GOVERN VACCINATION SCHEDULE

7) Health status of flock: should be done on healthy flock only. Postpone vaccination in event of any disease like coccidiosis.

8) nutrition: malnutrition like deficiency of protein in ration and high concentration of aflatoxins reduces response of birds to a particular disease.

9) stress: reduces production of antibodies in the body.

ASPERGILLOSIS

- Aspergillus fumigatus
- Mostly Effects lungs
- Occurs in brooding stage, so called as brooder pneumonia
- Transmitted by contaminated litter
- Deep litter system
- High moisture content in litter
- Respiratory distress, gasping, huddling prostration (reluctant to move)

OF COAGULATED FIBRINOUS EXUDATE

MULTIPLE GREY WHITISH OR YELLOWISH DENSE NODES IN THE LUNGS

COCCIDIOSIS

- Eimeria tinella- causes bloody caecal coccidiosis
- E .necatrix, e. brunetti- causes intestinal coccidiosis
- Symptoms are bloody droppings, blood tinged diarrhoea, reduced feed intake,
- This is litter born disease

BACTERIAL DISEASES

INFECTIOUS CORYZA

- FOWL CORYZA
- Highly contagious
- acute disease of upper respiratory tract of chickens,
- turns into a chronic respiratory disease.

ETIOLOGY

- Haemophilus paragallinarum
- Small cocoid or gram negative rod
- Non motile
- Exhibits bipolar staining

CLINICAL SIGNS

- Serous to mucoid nasal discharges with foul smelling
- Facial edema
- Conjunctivitis
- Swollen wattles
- Diarrhoea
- Reduced feed and water consumption.

TREATMENT AND CONTROL

- Gentamicin
- Penicillin
- streptomycin
- delivered in feed or drinking water.
- Proper Disinfection

BACILLARY WHITE DIARRHOEA

- PULLORUM DISEASE
- Fatal septicemia of young chicks .
- *Salmonella.pullorum*

CLINICAL SIGNS

- Somnolecence
- Weakness
- Loss of appetite
- Chalky white diarrhoea
- Stained greenish brown(sometimes) in and around vent

TREATMENT

- Enrofloxacin
- Parenteral injections
- Oral liquids
- Supportive therapy

BUMBLE FOOT

PODODERMATITIS

Injury to the lower surface of the foot and subsequent infection with *Staphylococcus bacteria*

Common causes of injury:

- Rough perches
- Splinters
- Wire floors
- Poor litter or bedding
- quality

CLINICAL SIGNS

- Lameness
- Swelling of the foot pad
- Hard, pus-filled abscess on foot pad

TREATMENT

- Soak foot in warm water and Epsom salts.
- disinfect with alcohol.
- If skin is open, drain pus from abscess.
- Flush abscess cavity with hydrogen peroxide to cleanout pus and debris.
- Pack the cavity with antibiotic ointment .
- wrap the footwith gauze and elastic bandage.
- Repeat daily until foot heals.

PREVENTION AND CONTROL

- Provide good quality litter or bedding.
- Keep bedding clean, dry, and deep.
- Keep perches less than 18 inches from the floor to prevent foot damage due to impact from jumping.
- Remove potential sources of injury such as sharp objects and/or surfaces.

- Fowl Cholera Pasteurella
- Mycoplasma MG MS
- Coryza Hemophilus paragallinarum
- Botulism Botulinum toxin
- Gangrenous Dermatitis Clostridium perfringens

• Fowl Cholera	• Swollen face, wattles, sinuses • Pneumonia, Sudden death, swollen joints, torticollis

• Mycoplasma
  • MG
  • MS
	• Coughing, swollen face and sinuses. sticky eye discharge
	• Swollen joints and/or footpad
	• Sticky eyelids, odor, rales, nasal discharge

• Coryza	• Limberneck, flaccid paralysis
• Botulism	• Blue.black skin lesions, high mortality
• Dermatitis	


Coryza


MS


Dermatiti


Cholera


Botulism


Mycoplasma

DEFECIENCY DISEASES

sno	Nutrient	Deficiencies
1	Vit-A	Nutritional roup, polyneuritis, opacity of cornea, staggering gait
2	Vit - D	Rickets (rubbery and brittle bones), soft shelled eggs, decreased egg production and hatchability, stunted growth.
3	Vit - E	Crazy chick disease (encephalomalecia), loss of fertility in males, decreased hatchability.
4	Thiamine (B1)	Paralysis of muscles and nerves (polyneuritis), retraction of head, retarded growth. Stargazing (legs and the head drawn back)
5	Riboflavin (B2)	Curled toe paralysis, decreased egg production and poor hatchability,
6	Pyridoxine (B6)	Stunted growth, convulsions
7	choline	Slipped tendon (perosis), swelling of hock joints
8	Biotin	Dermatitis lesions in foot and beak

sno	Nutrient	Deficiencies
Mineral deficiency diseases		
1	Calcium	Thin shelled or shell less eggs, decreased egg production and hatchability and retarded growth
2	Phosphorus	Soft bones and decreased egg production
3	Manganese	Perosis (enlargement of tibio metatarsal joint), slipped tendon, dwarfing of long bones, thin or shell less eggs, decreased hatchability, abnormal embryos
4	Magnesium	Loss of appetite, convulsions
5	Zinc	Enlarged hock joint, retarded growth, poor feathering, shortening and thickening of leg bones
6	Copper, iron	Retarded growth, anaemia, arota rupture, feather depigmentation.
7	seleneum	Muscular dystrophy, loosening of muscles and haemorrhages in muscles

CURLED TOE PARALYSIS

- Defeciency of Riboflavin
- Poor growth
- Weakness
- Emaciation and diarrhoea
- unable to walk as their toes are turned inwards
- Drooping of wings

TREATMENT

- Riboflavin @3.6 mg/kg of feed in chicks
- Riboflavin @ 1.8 mg/kg of feed in growers
- Riboflavin @ 2.2mg/kg of feed in layers

THANKYOU