

# STUDENT STUDY PROJECT

ON

## POULTRY DISEASES AND DISEASE PROCEDURES AT JADCHERLA MANDAL

Department of zoology

Dr.BRR Government College, Jadcherla.

Mahabubnagar – 509001

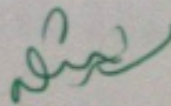


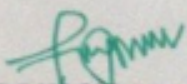
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# **POULTRY DISEASES AND DISEASE PROCEDURES AT JADCHERLA MANDAL**

**(Causing agents of poultry diseases)**

**Procedures**

Final semester project submission to zoology department in **DR.BRR GOVT  
DEGREE COLLEGE, JADCHERLA** for accomplishing bachelors in science.

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**INDIA.**

**APRIL 2022**



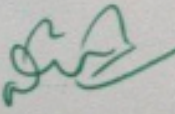


## DECLARATION

We hereby declare that the project work entitled with "POULTRY DISEASES AND DISEASE PROCEDURES AT JADCHERLA MANDAL " Jadcherla, Mahabubnagar District, and Telangana." Is a genuine work done by us under the supervision of K. Subhashini Asst. Professor Department of Zoology, Dr. BRR Government College, and it has not been under the submission to any other Institute/University either in part or in full, for the award of any degree.

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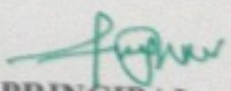
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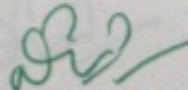
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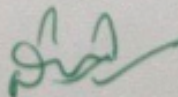
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In the accomplishment of this project work successfully, many people have best owned upon us their blessing and the heart pledged support, this time we are utilizing to thank all the people who helped us to complete this project,

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## ABSTRACT

The production of poultry meat and eggs is presented for the top 40 countries producing these products seventy percent of poultry meat and eggs are produced by 10 countries production per capita is between five and six time lower in developing than in developed countries.

Poultry meat and eggs forms great a proportion of the animal protein diet of members of developing as of developed countries, the nutritional efficiency of both poultry meat and egg production with respect to energy is similar to the production of milk and only second to pig meat; in respect of protein production both poultry meat and eggs are only second to meat it is concluded that the developments that have occurred in the husbandry and management of poultry in the developed countries are likely to occur in developing countries.

Data for the incidents of disease in developing and developed countries is presented and discussed. Although the relative importance of diseases may differ between countries and geographical areas there are few important diseases which are unique to particular parts of the body. Figures for the U.S.A. indicate that total economic loss from disease is about 20% of the value of poultry production and is about three times the loss from mortality.

The principal methods of disease control are discussed and include: preventive treatment, vaccination, eradication and breeding resistance. It is considered that infectious disease will continue to be the major cause of economic loss from diseases. It is suggested that future developments in disease control will use the techniques of genetic engineering from the production of vaccines and developing stocks resistant to disease.



**HYPOTHESIS:**

Poultry farm maintenance has been very low level due to low level maintenance  
poultry diseases has been increased

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## **ABSTRACT**

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## **Introduction**

Poultry plays a key role in the livelihood of millions of poor rural households associated with poultry industry in many developing countries. But as the global population is increasing day by day this will be required 70-100% increase in food production by 2050. Food and agriculture organization (FAO) has estimated that this increased urbanization may demand an increase in consumption of chicken meat, eggs and meat within a short period of time.

Poultry eggs are ranked second after cow milk in terms of nutritive value. Nutritionists and agriculturists have decided that by developing the poultry industry we can fulfill the world population requirement in the coming days, on the other side, poultry birds are susceptible to several types of infectious and/or non-infectious diseases. These diseases affect the fast-growing broiler birds and laying chickens performances via decreasing feed intake, growth rate, weight gain, survival rate, egg production, higher mortality due to respiratory infection, enteritis, bloody diarrhea, paralysis and prostration of the head and the neck and suppression of immune responses.

The above mentioned clinical signs cause huge production losses and enhance the production cost. Therefore, there exists a need to provide a pictorial guidebook on poultry diseases; Diagnostic techniques and their effective treatment to avoid the production losses facing the global poultry industry. Therefore, this manual provides the helpful information of the diseases at their initial phase and improve immune status of birds by using disease specific vaccination.

## METHODS

### SURVEY METHOD

We moved to gather the information of our project by proceeding from poultry farm near to jadcherla under the rural surveillance area of Badepally. Which is capable of growing 6500 boiler chickens consists of area length 260sq yards, breadth 30 sqyards time taking period between chicks to mature boilers it is about 40-45 days. Owner Vasanth suggested /intimated that this growing period includes certain vaccination steps.

### VACCINES

Gambaro vaccine

Lasota vaccine

Velogenic veseserotropic

Neutrophic velogenic



FIG: POULTRY FARM IN BADEPALLY



# VIRAL DISEASES

## RANIKHET DISEASE (Newcastle Disease)

Ranikhet disease (RD) is the most common, the most widely prevalent, and economically the most important viral disease of poultry in our country. It is a very severe, sudden, and rapidly spreading R disease; and may be seen from 6th to 7th day onward up to 72 weeks. It occurs throughout the year, but is most common in the summer.

### Cause:

A virus called paramyxovirus. These viruses are of different types. Some are highly powerful and cause most severe form of the disease, others are moderate, while a certain group is only mildly harmful. In addition, there are some viruses that cause infection without showing any symptoms.

### Spread:

1. Virus spreads through the air.
2. Infection occurs mainly through inhalation or ingestion.
3. Contaminated feed and water spread infection.
4. Movements of people and equipment also spread infection.
5. Away from the bird, that is, in the shed, virus survives for days to weeks. However, in the dead bird or faeces, virus survives for several months.

### Symptoms:

Depending on the disease-producing power of the virus, symptoms vary.

1. With very harmful viruses, first indication is sudden death. Then, symptoms such as depression, weakness, lying down, green diarrhea, swelling of the face, and nervous signs may appear, ending in exhaustion and death (Fig. 1). Other signs include twisting of the neck, paralysis of legs and arched position of the body. Mortality may occur up to 100% in chicks. In layers, early symptom is shell-less or soft-shelled eggs, followed by complete stoppage of laying.
2. Moderately harmful viruses usually cause severe respiratory disease and respiratory symptoms. In adult birds there is marked drop in egg production for several months. Mortality is low.
3. Mildly harmful viruses may cause no disease, or only a mild respiratory distress.

### Post-mortem Findings:

1. Pinpoint haemorrhages on the tips of glands in the proventriculus
2. Enlarged and haemorrhagic caecal tonsils.
3. Haemorrhagic lesions in the intestinal wall (in the lymphoid aggregates) (fig. 1,2)
4. Spleen shows necrosis (white spots of dead tissue) on its outer surface, and also on the cut surface.
5. Marked congestion of trachea, often with haemorrhages. The airsacs may be inflamed (airsacculitis) and appear cloudy and congested. Airsacs may even contain cheesy (caseous) material.

### Diagnosis

1. From the characteristic post-mortem findings.

2. Confirmation depends on various laboratory tests, such as HI and ELISA, and also on isolation of the virus and its characterization.

### Treatment

There is no treatment.

### Control

1. Timely vaccination with live and/or inactivated (killed) vaccine is the only reliable control method

2. However, under field conditions vaccination alone is not sufficient to control RD. It must therefore be accompanied by good hygiene, good management, and good biosecurity practices



Fig-1

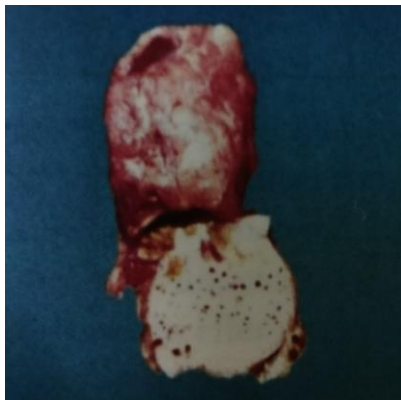


Fig-2

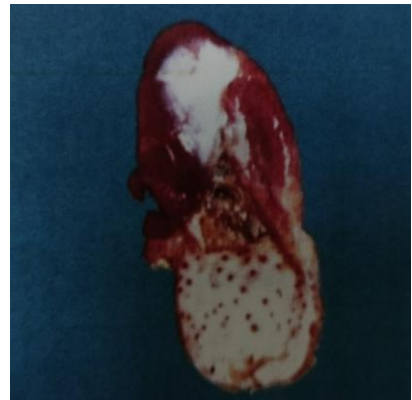


Fig-3



Fig-4

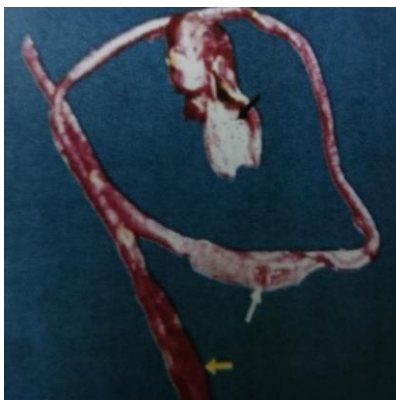


Fig-5

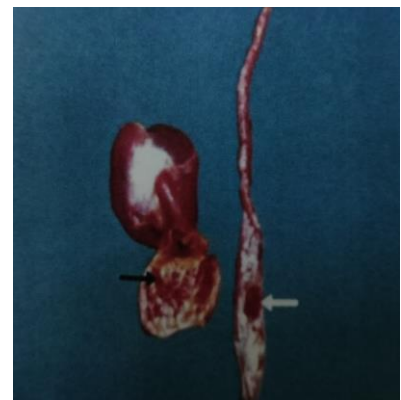


Fig-6



## INFECTIOUS BRONCHITIS

Infectious bronchitis is a sudden, rapid, highly contagious disease of chickens characterized by abnormal respiratory sounds, coughing, and sneezing. It is an important disease of young chicks, causing high mortality. The virus may also affect kidneys. In laying birds, the disease causes great economic loss through reduced egg production and poor eggshell quality. Both in broilers and layers, infection causes poor weight gain and feed efficiency. Birds of all ages are susceptible but the disease is most common in young chicks, causing some mortality.

### **Cause:**

A virus-called coronavirus. The virus survives outside the bird under farm conditions for weeks to months. However, it is rapidly killed by common disinfectants.

### **Spread:**

1. By the air. As the virus is easily spread by air, inhaling infected air is the most important means of spread. However, spread through infected faeces may also be important.
2. Spread by people and virus-contaminated materials can occur.
3. Carriers (birds which carry infection without showing symptoms) also spread the disease. Birds may shed the virus for up to 4 weeks after recovery.

### **Symptoms:**

1. The respiratory form is the most common in birds of all ages. The symptoms include abnormal respiratory sounds, severe respiratory distress gasping and sneezing, watery nasal discharge, and sometimes eye discharge and facial swelling.
2. In the reproductive form, there is reduced egg production. Drop in production may sometimes be more than 50%. Egg production may become normal after 3-4 weeks, but there is a fall in egg quality. Eggs may be smaller, deformed shell-less, or have calcium containing deposits on the surface. Inside, the albumen loses its viscosity. That is, the albumen is thin and watery, without clear-cut demarcation between the thick and thin albumen of the normal fresh egg.
3. In the kidney form, there is marked depression usually with respiratory symptoms and mortality as high as 30% in the severe form.

### **Post-mortem Findings:**

In the mild respiratory form, there is excess mucus in the respiratory tract. In the more severe form, a caseous plug may be found in the lower trachea or bronchi of chicks that die. In the kidney form, the kidneys are swollen and pale. The ureters are distended with urates. In some birds there is visceral gout, in which case white granular material (urates) may coat the internal organs (see 'visceral Gour').

### **Diagnosis:**

1. Symptoms and postmortem findings may be suggestive, but are not diagnostic.
2. Infectious bronchitis must be differentiated from Ranikhet disease and infectious coryza. Ranikhet disease is more severe, and in layer flocks drop in egg production is more than with infectious bronchitis. Infectious coryza can be differentiated on the basis of facial swelling which occurs only rarely in infectious bronchitis.

## Treatment

There is no specific treatment for infectious bronchitis. In mixed infections, use antibiotics against *E. coli* and *mycoplasma*. In the kidney form of disease, administer electrolytes in the drinking water.

## control

1. Management can be helpful if proper attention is given to maintaining proper ventilation of chicks
2. As treatment is of no value and because this virus is so commonly present everywhere and spreads rapidly, control depends on increasing resistance of flocks by vaccination. Both live and killed vaccines are available and both have been shown to be of value.



Fig-7



Fig-8



Fig-9



## **BACTERIAL DISEASES**

### **NECROTIC ENTERITIS**

Necrotic enteritis is a bacterial disease of the intestinal tract of the chicken. It is an important disease, and is usually seen in birds of 4 weeks of age or older. It is quite a common disease. There are sudden deaths that are caused by severe necrosis (death) of the inner intestinal lining. Mortality in untreated flocks can reach 10% or more, and is most common in broilers. The disease is often established after an outbreak of coccidiosis. The author has come across severe necrotic enteritis in the caeca of young broiler chicks in cases of caecal coccidiosis, caused by *E.imeria ten ella* (see 'caecal coccidiosis').

#### **Cause**

Necrotic enteritis is caused by the growth of a bacterium called *Clostridium perfringens* (type A and C) in the caeca and large intestine. Afterwards, this organism migrates to the small intestine where it produces toxins. These toxins cause death of cells lining the intestine and are responsible for the characteristic changes of necrotic enteritis. Contaminated feed and litter act as sources of infection.

#### **Predisposing Factors**

These are those factors which make the bird easily prone to infection. Necrotic enteritis is produced when there is damage to the inner intestinal lining. This allows the bacteria to grow and produce toxins which damage the intestine and cause death.

The predisposing factors of necrotic enteritis include:

1. Outbreaks of coccidiosis, especially mild and subclinical.
2. Partial impaction of the lower intestine due to litter and/or grain ingested without the provision of insoluble grit.
3. Rapid changes in feed components.
4. Removal of the antibiotic growth promoters from the feed results in a significant increase in the incidence of necrotic enteritis. This is because of their direct effect on control of the causative organism *Clostridium Perfringens*.

However, the most important predisposing cause of necrotic enteritis, both in broilers and layers, appears to be coccidiosis. Therefore, every outbreak of necrotic enteritis must be examined for coccidiosis, and if present, must be treated. Likewise, in every outbreak of coccidiosis, necrotic enteritis must be ruled out, and if present, must be treated

#### **Symptoms**

1. There may be no symptoms. Clinical disease is very short, and often, birds are just found Dead
2. The birds may show depression loss of appetite, unwillingness to move, diarrhea, ruffled feathers, and increasing mortality

#### **Post-mortem Findings**

I. Post-mortem findings are usually confined to the middle part of the small intestine. The intestine is distended and filled with a foul-smelling brown fluid. The inner intestinal lining is covered by a brownish membrane.

2. Similar changes in the caeca may also occur.

3. The small intestine is greatly thickened due to extensive velvet-like (looking like silk) necrosis (death) of the intestinal lining (mucosal lining).

### Diagnosis

Diagnosis can be made from the characteristic post-mortem findings.

### Treatment

A number of antibiotics (amoxycillin, ampicillin, chloramphenicol, ciprofloxacin, doxycycline, neomycin, erythromycin, furazolidone) given in drinking water may be helpful treating the condition. Others (lincomycin, tylosin, bacitracin, and furazolidone) in feed reduce the number of organisms shed in the faeces.

### Control

1. Identify the predisposing factor and make sure that it is controlled. Give particular attention to coccidiosis and Gumboro disease.
2. Drugs which have an effect on the causative organism such as lincomycin, ampicillin, penicillin, virginiamycin, bacitracin, furazolidone and others may be included in the feed.
3. Probiotics reduce the severity of necrotic enteritis.
4. Anticoccidial drugs, e.g., the ionophores, in the feed are also helpful.
5. Good management and sanitation practices should be followed.

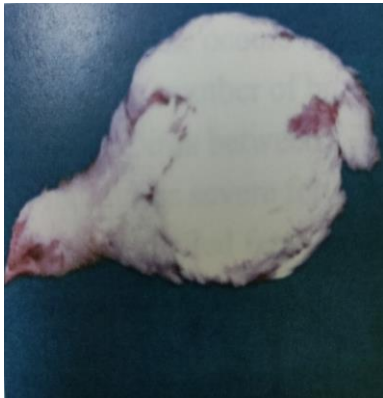


Fig-10



Fig-11



Fig-12



Fig-13



Fig-14



Fig-15



## FOWL CHOLERA

Fowl cholera is a septicaemic disease (blood infection) of chickens. In its severest form, fowl cholera is one of the most harmful and highly contagious diseases, inflicting heavy mortality, but less severe (chronic) and harmless conditions also occur. Losses from fowl cholera usually occur in laying flocks. Chickens less than 16 weeks of age are usually quite resistant. Mortality ranges from 0 to 2%, but greater losses have been reported. Reduced egg production and persistent localized infection usually occur.

### Cause

A bacterium called *Pasteurella multocida*. Strains of *P. multocida* vary in their disease-producing power (virulence). Some are most harmful, others moderately so, and a certain number harmless.

### Spread

1. Spread of *P. multocida* within a flock is mainly by excretions from mouth, nose, and conjunctiva of diseased birds. These excretions contaminate their environment, particularly feed and water. Thus, spread is through contaminated feed and water. Birds are infected through mouth, nose and eye, and through wounds.
2. Spread can be also by people, clothing, or their footwear.

### Symptoms

1. The disease occurs in several forms. In the severest form, there are no preceding symptoms and a large number of birds in a flock are found dead, in good bodily condition. 50% or more may die. Birds between 12 and 18 weeks of age are most susceptible.
2. In the less severe form, marked depression, loss of appetite, mucus discharges from the openings, ruffled feathers, bluish discoloration of comb and wattles, and foul-smelling greenish coloured diarrhoea may be seen.
3. The chronic form is seen in birds which survive the severe disease. Symptoms are usually due to localized infection. Symptoms include depression, difficult breathing, and later lameness, twisting of the neck to one side, and swelling of the wattles. One or both the wattles may be swollen containing cheesy, hard deposit. Chronically infected birds may die,

### Post-mortem Findings

- remain infected for long periods, or recover. 1. Post-mortem findings in the severe form include marked congestion of the carcass, pinpoint haemorrhages throughout the internal organs, and multiple necrotic areas (areas of dead tissue) in the liver. The liver may be enlarged and also show very small haemorrhages on the surface.
2. In the laying hen's free yolk may be present in the abdominal cavity.
  3. In the less severe disease, oedema of the lungs (i.e., accumulation of fluid) and pneumonia (inflammation of lungs) are seen.
  4. In chronic cases, changes include arthritis (inflammation) of the hock and foot joints, and swelling of one or both wattles.
- Diagnosis The history of the disease, symptoms and post mortem findings are helpful, but all forms of the disease can be confused with other infections. Demonstration of *P. multocida* confirms the diagnosis.

## Diagnosis

The history of the disease, symptoms and post-mortem findings are helpful, but all Avms of the disease can be confused with other infections. Demonstration of *P. multocida* confirms the diagnosis.

## Treatment

1. The severest form of fowl cholera is so rapid that treatment is rarely of value.
2. In the less severe form, a number of drugs have proved effective. They include sulphonamides and antibiotics. In antibiotics, penicillin, streptomycin, ox tetracycline, chlortetracycline, and erythromycin have been used successfully.

## Control

1. Dispose of all birds and clean and disinfect the buildings thoroughly. Good management practices with emphasis on sanitation are the best means of preventing fowl cholera.
2. The main source of infection is the sick bird, or those that have recovered but still carry the organism. Only young birds should be introduced as new stock. They should be raised in a clean environment completely isolated from other birds.
3. Vaccination should be considered in areas where fowl cholera is prevalent, but it should not be substituted for good sanitary practice.



Fig-16



Fig-17



# MYCOPLASMAL DISEASES

## MYCOPLASMOSIS

### **Mycoplasma gallisepticum Infection**

Gallisepticum causes a respiratory disease, affecting the entire respiratory tract, particularly the airsacs, where it localizes. All the airsacs may be involved, become cloudy in appearance, and filled with mucus. In the later stages, mucus develops a yellow colour and cheesy consistency.

Commonly known as 'chronic respiratory disease' or 'CRD', M. gallisepticum infection is extremely important both in broilers and layers. While not a great killer, the disease is of great economic importance. Affected laying flocks have been shown to produce as many as 20 fewer eggs per year than normal flocks. Also, it is an important egg transmitted disease. M. gallisepticum infection is a serious problem in our country.

The disease is characterized by abnormal respiratory sounds, coughing, and nasal discharge. Symptoms are usually slow to develop and the disease has a long course. Complicated CRD (CCRD)" also known as 'airsac disease' is a severe airsacculitis (inflammation of airsac), which occurs when M. gallisepticum infection gets complicated by E. coli and some respiratory virus infections.

### **Spread**

1. Infection is usually transmitted through the hatching egg. This is the major means of spread.
2. Carrier birds (i.e., birds which carry the infection without showing symptoms) are responsible for transmitting the disease. Direct contact of susceptible birds with the infected carrier chickens causes outbreaks of the disease.
3. Spread may also occur by contaminated dust, droplets, or feathers carried through the air.
4. People are important carriers.

### **Symptoms**

1. In adult flocks symptoms include abnormal respiratory sounds, nasal discharge, sneezing, coughing, and breathing through the open beak. Feed consumption is reduced and birds lose weight.
2. In laying flocks, egg production decreases, and the disease is usually more severe during winter.
3. In young chicks there is rattling, sneezing, and sniffing, all indicative of a respiratory difficulty.
4. In broilers, most outbreaks occur between 4 and 8 weeks of age. 5. However, the appearance of disease depends, as already mentioned, on the presence at the same time of other disease-producing organisms, or stress factors. Uncomplicated infections usually cause no symptoms, or cause mortality only in the very young.

### **Post-mortem Findings**

1. Presence of inflammatory material (exudate) in trachea, bronchi, and airsacs. Airsacs usually contain cheese-like inflammatory material. Some degree of pneumonia (inflammation of the lungs) may be seen.

2. In severe cases of airsac disease, thin or thick white layer of fibrin covers heart, liver, and 2022 airsacs. These are cases of CCRD.

### Diagnosis

1. There are no symptoms or post-mortem findings which are characteristic of *M. gallisepticum* infection in chickens.
2. Demonstration of the organism is the most certain method of confirming the infection.

### Treatment

*M. gallisepticum* is susceptible to several antibiotics. These include streptomycin, oxytetracycline, chlortetracycline, tiamulin, neomycin, gentamicin, tylosin, erythromycin, comycin, enrofloxacin, and others.

### Control

1. Treatment is only a temporary solution and is usually quite expensive. Removal of infection is the most satisfactory means of control.
2. Since *M. gallisepticum* is transmitted through eggs, maintaining chicken flocks free of *M. gallisepticum* is only possible by obtaining replacement flocks that are known to be free of the infection, and rearing them in strict isolation to avoid introduction of the disease.



Fig-18



Fig-19



# FUNGAL DISEASES

## ASPERGILLOSIS

Also known as 'brooder pneumonia, aspergillosis is a disease of very young chicks. It is a disease of the respiratory system, and usually occurs when there are poor sanitary practices on the farm. Newly hatched chicks are highly susceptible to infection. Stress of cold, high ammonia, and dusty environments increase incidence and severity of the disease.

### Cause

The disease is caused by a fungus called *Aspergillus fumigatus*. Contaminated poultry liner is usually the source of infection. Chicks become infected during hatching or during the first day or two in the brooder house, hence the name brooder pneumonia.

### Spread

Infection occurs by inhalation of spores from contaminated feed or litter. A spore is that form of fungus which is very tough and resistant, and is therefore difficult to destroy. Fungal growth in wet litter produces large numbers of spores. These spores spread as suspended particles in air as wet litter dries.

### Symptoms

The affected chicks may stop eating and show symptoms of gasping or laboured breathing. They breathe with an open mouth due to obstruction of the airway.

### Post-mortem Findings

The lungs are the main organ affected. They show small nodules that are hard and yellow. In some cases, nodules are only a few, in others there may be hundreds. Nodules are also seen in the trachea and airsac.

### Diagnosis

Aspergillosis is usually diagnosed at post-mortem examination. Examination of the trachea or a cut lung will show nodules. This forms a basis for the diagnosis.

### Treatment

Apart from providing adequate ventilation, there is no treatment for birds that are affected

### Control

1. A thorough cleaning of the brooding premises will eliminate the source of infection for future flocks.
2. Any mouldy feed should be removed, feed containers cleaned, and old litter removed from the house and replaced with new.
3. Drinkers and feeders should be cleaned and disinfected.
4. Since *M. gallisepticum* is transmitted through eggs, maintaining chicken flocks free of *M. gallisepticum* is only possible by obtaining replacement flocks that are known to be free of the infection, and rearing them in strict isolation to avoid introduction of the disease.



Fig - 20

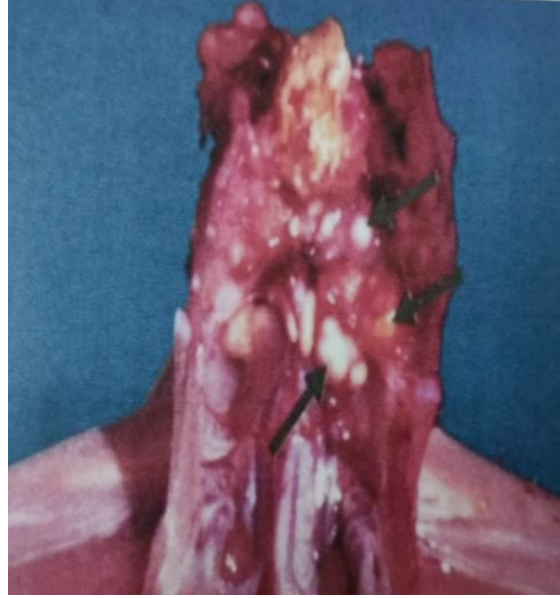


Fig - 21

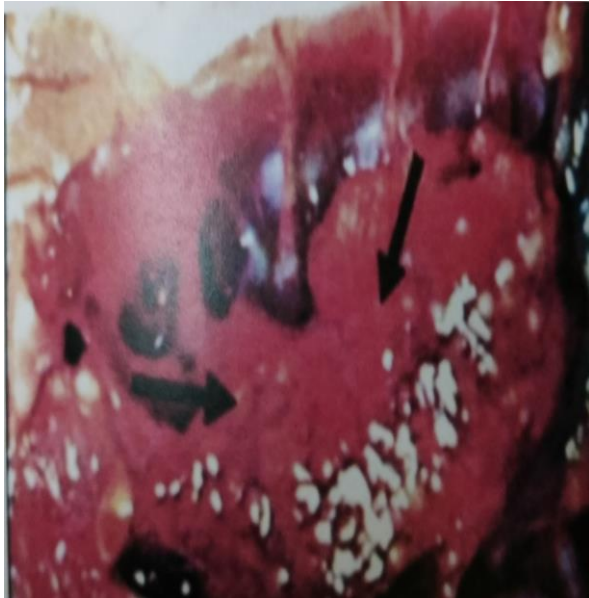


Fig- 22

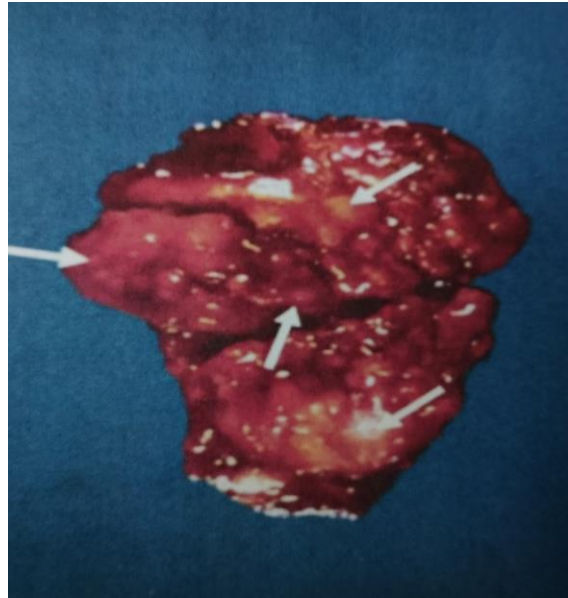


Fig- 23

## FUNGAL INFECTION (UNIDENTIFIED)

(Author's observations)

once, a few years ago, when the cost of soybean had gone exorbitantly high, certain farmers Jabalpur tried blood meal as an alternative source of cheaper protein. This happened to be the rainy season. When the blood meal was fed to layer birds, it resulted in heavy mortality week-old growers.

The symptoms included mainly diarrhoea and mortality. In less severe cases, symptoms were Those of depression, loss of appetite, and chicks lying down listlessly.

The post-mortem examination revealed massive growth of fungus in the internal organs of the abdominal cavity. The fungus, however, could not be identified. It is concluded that during storage, the blood meal may have gone mouldy, that is, covered with fungus, and when fed, this may have led to the fungal infection.



Fig-24



Fig-25



# PARASITIC DISEASES

## ROUNDWORMS

Roundworms are the most important worms of poultry. Among them, the large roundworm *Ascaridia galli* is the most common. *Ascaridia* are the largest roundworms of birds. The adults live in the lumen of the small intestine. The larval stages invade the intestine.

### Harmful Effects

1. *A. galli* infection causes poor bodily condition and weight loss. The degree of effect is related to the number of worms present.
2. In severe infections intestinal blockage can occur. This may lead to deaths, especially in younger birds. Chickens infected with a large number of worms suffer from loss of blood, retarded growth, enteritis (inflammation of the intestine), and greatly increased mortality.

### Diagnosis

The worms are easily seen on post-mortem examination in the small intestine

### Treatment

1. Piperazine compounds have been widely used for treatment against *Ascaridia* infection, since they are non-toxic. Piperazine may be given to chickens in the feed, water, or as a single treatment.
2. Piperazine in drinking water is the best practical method of giving piperazine for
3. Fenbendazole is also effective.

### Control

1. Roundworms, in large part, can be prevented by raising birds in cages.
2. Poultry should receive a diet which is adequate, especially in vitamin A and vitamin B complex compounds. Lack of these vitamins makes poultry more susceptible to worm
3. Proper management of litter. Keep the litter as dry as possible by frequent stirring. Change of litter can reduce infections. Litter may also be treated with suitable insecticides.
4. Avoid overcrowding. Overcrowding produces more favorable conditions for worm development by increasing the chances of infection. Overcrowding provides more warmth and moisture, both of which favour the development of worm eggs.
5. Extreme care should be taken to ensure that feed and water are not contaminated.

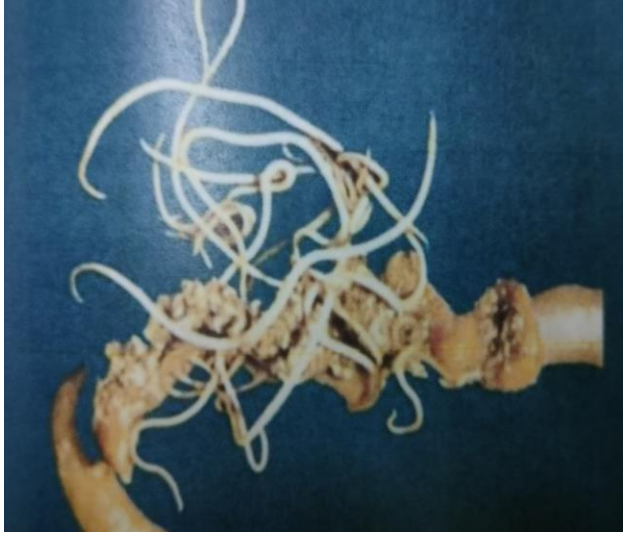


Fig-26



Fig- 27

## COCCIDIOSIS

Coccidiosis is one of the most important diseases of poultry worldwide. In our country, it is a serious problem and one of the biggest causes of economic losses. Coccidiosis mostly occurs in rainy season, and is characterized by bloody diarrhoea and high mortality. It is mostly a disease of young birds because immunity quickly develops after exposure and gives protection against later outbreaks. Coccidiosis inflicts heavy mortality in broilers and growers raised on deep litter. Outbreaks are common between 3-6 weeks of age and rare in flocks of less than three weeks. However, author has observed coccidiosis in 7-day-old broiler chicks. Coccidiosis rarely occurs in layers because of prior exposure of coccidia resulting in immunity. It mainly occurs under conditions of overcrowding.

### Spread

1. Ingestion of the infective form of oocysts (sporulated oocysts) is the only method of spread.
2. Oocysts can be spread mechanically by animals, insects, contaminated equipment, wild birds, and dust. They are resistant to environmental extremes and to disinfection.
3. Spread from one farm to another is facilitated by movement of people and equipment between farms, which may spread the oocysts mechanically.

### Symptoms

Coccidiosis occurs in two forms: (1) caecal coccidiosis, and (2) intestinal coccidiosis. Symptoms vary accordingly.

Caecal coccidiosis is caused by *Eimeria tenella*. It is a severe disease associated with bloody droppings, high mortality, reduced weight gain, and emaciation. The losses caused make this species one of the most harmful in chickens. Most of the mortality occurs between 5th and 6th day following infection.

Intestinal coccidiosis is caused mainly by *E. necatrix*. It is associated with severe weight loss, morbidity (number of birds affected in a flock), and mortality. Intestinal coccidiosis occurs in relatively older birds. Droppings of affected birds usually contain blood. Like *E. tenella*, *E. necatrix* is also most harmful. It has caused more than 25% mortality in commercial flocks.

### Post-mortem Findings

In caecal coccidiosis, caeca may be greatly enlarged and distended with clotted blood.

In intestinal coccidiosis, the middle portion of the small intestine is usually distended to twice its normal size (ballooning) and the lumen may be filled with blood. Changes may extend throughout the small intestine in severe infections.

### Diagnosis

1. The presence of faeces with the blood, dysentery, or diarrhoea suggests coccidiosis.
2. However, post-mortem examination is necessary to confirm diagnosis. Greatly enlarged presence of faeces with blood, dysentery, or diarrhoea suggests coccidiosis. caeca distended with clotted blood confirm caecal coccidiosis, whereas small intestine distended with blood confirms intestinal coccidiosis.



## Treatment

Outbreaks of coccidiosis are usually treated with water-soluble drugs, such as sulphonamides, amprolium, diclazuril and toltrazuril. Water medication is convenient and can be rapidly given.

## Control

1. Use anticoccidial drugs for prevention. Most anticoccidials are formulated as feed additives, and broiler feed almost always contains an anticoccidial agent. The most widely used drugs are the ionophores, such as maduramicin, salinomycin, and monensin.
2. Maintain good hygiene. Good hygiene can greatly reduce the numbers of oocytes contaminating the environment. Moreover, good hygiene ensures that litter is kept dry so that it does not provide good sporulation condition.



Fig-28



Fig-29



Fig-30



Fig-31

# **NUTRITIONAL DISEASES**

## **VITAMIN A DEFICIENCY**

Vitamin A is essential in poultry diets for growth, good vision, and integrity of mucous membranes. Mucous membranes are the inner linings of the digestive, respiratory, urinary, and genital systems in which changes of vitamin A deficiency are mostly observed from a nutritional point of view, vitamin A is the most challenging, because it is most likely to be deficient in poultry.

### **Causes of Deficiency**

1. Low levels of vitamin A in the feed
2. Oxidation of vitamin A in the feed
3. Errors in mixing
4. Intercurrent disease, for example, coccidiosis, worm infestation

### **Deficiency Symptoms**

In chicks, symptoms include loss of appetite, poor growth, ruffled feathers, sleepiness, and weakness. Deficient chicks are very susceptible to infections, due to inadequate antibody production

In adult chickens, changes of vitamin A deficiency first appear in the pharynx and oesophagus. These changes block the ducts of mucous glands (present in the mucous membranes). As a result, their contents lead to the development of small white pustules (raised spots). That is, the blocked ducts of the mucous glands cause distension of the glands with secretions and dead materials. Pustules are easily seen and are the characteristic lesions of vitamin A deficiency on post-mortem examination. Egg production decreases sharply and hatchability is reduced.

### **Diagnosis**

This is based on the characteristic post-mortem findings in the oesophagus.

### **Post-mortem Findings**

1. Inner lining of the oesophagus shows tiny white raised granules. These are distended, impacted mucous glands.
2. Kidneys may present gout. Treatment of Deficiency

Administer a stabilized vitamin A preparation at a level of about 10,000 IU vitamin A per kg of feed.

### **Prevention**

1. Use stabilized vitamin A preparation in the feed.
2. Add adequate levels of antioxidants in the feed.
3. Provide adequate storage for feed and feed ingredients.



Fig-32



Fig - 33



## VITAMIN E DEFICIENCY

The most important function of vitamin E is that it acts as an antioxidant. An antioxidant is something that is added to a product to prevent or delay its deterioration by the oxygen in the air. That is, a substance that prevents oxidation. Vitamin E prevents oxidation of unsaturated lipids within cells. Vitamin E can be called a naturally occurring antioxidant. In addition, vitamin E prevents degenerative changes in muscles and liver.

### Deficiency Symptoms

Vitamin E deficiency gives rise to three disease conditions. These include: (1) encephalomalacia (crazy chick disease), (2) exudative diathesis, and (3) nutritional muscular dystrophy. Since encephalomalacia is the most important among these, it will be described briefly.

Encephalomalacia is a nervous disorder. It is often seen in birds between 2 and 3 weeks of age. Symptoms include muscular weakness, muscular in coordination with frequent falling, rapid contraction and relaxation of the legs, paralysis, and death.

### Postmortem Findings

In the brain, there are petechial (small) haemorrhages on the surface of the cerebellum (a part of the brain). Such gross changes in cerebellum in association with appropriate symptoms are almost diagnostic.

### Treatment

The usual treatment is administration of vitamin E through drinking water.

### Prevention

The condition is prevented by ensuring the availability of adequate vitamin E. Selenium also has some preventive effect.



Fig-34



Fig-35

## **Purpose of the study**

The purpose of our study project is to know the causes and treatments of poultry diseases and how to control them. The poultry provides humans with companionship, food and fiber in the form of eggs, meat and feathers. Many people love to raise and show chickens and other poultry species at fairs and other poultry shows. Many of people who are maintaining the poultry farms are facing a loss due to the poultry diseases. So, me and my teammates are gone to the poultry farms to know what is the main reason behind the diseases and we concluded that there is a lack of sufficient food suppliments and vaccination. So, our project report helps them to know what is the reason behind poultry diseases.

## Result and Discussion

The present study through pathological investigation detected a large number of diseases in birds in India. the oral prevalence of different diseases in commercial broiler and layer are shown in 1 to 3 respectively with their seasonal variation regardless of chicken types, the overall prevalence is shown in table 3 seasonal variation.

NAME OF THE DISEASE	SUMMER (n=424)	RAINY (n=394)	WINTER (n=379)	TOTAL (n=1197)
ND	52(12.26%)	20(5.08%)	69(18.21%)	141(11.78%)
IB	31(7.31%)	18(4.57%)	62(16.36%)	111(09.27%)
NE	9(2.12%)	10(2.54%)	---	19(01.59%)
FOWL CHOLERA MYCOPLASMOLYSIS	53(11.25%)	21(4.07%)	67(17.20%)	140(10.77%)
ASPERGILLOSIS	1(0.24%)	11(2.90%)	---	12(01.00%)
FUNGAL INFECTION	31(7.31%)	43(10.91%)	9(2.37%)	83(06.93%)

TABLE 2 Occurrence of diseases in layer chickens with seasonal variation

NAME OF THE DISEASE	SUMMER (n=150)	RAINY (n=183)	WINTER (n=180)	TOTAL (n=153)
ND	23(15.33%)	22(12.02%)	45(25.00%)	90(17.54%)
IB	4(2.67%)	2(1.09%)	15(8.33%)	21(04.94%)
FOWL CHOLERA	12(8.00%)	11(6.01%)	4(2.22%)	27(5.26%)
NE	8(5.33%)	6(3.28%)	1(0.56%)	15(2.92%)
COCCIDIOSIS	12(8.00%)	21(11.48%)	14(7.78%)	47(9.16%)
ASPERGILLOSIS	1(0.67%)	2(1.09%)	6(3.33%)	9(1.75%)
DEFICIENCY DISEASE	2(1.33%)	4(2.19%)	3(1.67%)	9(1.75%)



Table 3 Total prevalence of diseases in commercial chickens (broiler, layer,) with seasonal variations

NAME OF THE DISEASE	SUMMER (n=663)	RAINY (n=657)	WINTER (n=661)	TOTAL (9981)
ND	92(13.88%)	51(7.76%)	141(21.33%)	284(14.34%)
IB	38(5.73%)	20(3.04%)	83(12.56%)	141(7.12%)
FOWL CHOLERA	16(2.41%)	13(1.99%)	7(1.06%)	36(1.82%)
NE	22(3.32%)	17(2.59%)	2(0.30%)	41(2.07%)
COCCIDIOSIS	58(8.75%)	74(11.26%)	27(4.08%)	159(8.03%)
ASPERGILLOSIS	4(0.60%)	2(0.30%)	21(3.18%)	27(1.36%)
DEFICIENCY DISEASE	12(1.81%)	10(1.52%)	7(1.06%)	27(1.36%)

According to the results, shown in Table 1 new castle disease (11.78%), infectious bronchitis (9.27%), coccidiosis (6.93%), necrotic enteritis (1.59%). In layer chickens (Table 2), prevalence of coccidiosis (9.16%), fowl cholera (5.26%), infectious bronchitis (4.09%). necrotic enteritis (2.92%), aspergillosis (1.75%), deficiency disease (1.75%), Table 3 shows that new castle disease (19.56%), coccidiosis (10.70%), deficiency disease (4.80%), fowl cholera (3.32%), necrotic enteritis (2.56%), aspergillosis (2.21%).

According to our study aspergillosis were prevalent in winter season. This condition mainly occurs in broiler that was (4.68%). Yutaka et al.<sup>34</sup> reported (9%) cases in late autumn and (1.3%) cases in midsummer. This might be due to fast growing meat type birds, nephrotoxicity, use of antibiotics, heavy metals, nephropathic IBV, avian nephritis virus etc.

## GALLERY FROM THE RESEARCHED POULTRY FARM



## **SUMMARY AND CONCLUSION**

In summary, it can be stated that a significant number of diseases were diagnosed where Newcastle disease (14.34%), coccidiosis (8.03%), infectious bronchitis (7.12%), were more frequent in the study area. These diseases are highly infectious and cause mortality in chickens. It has potential of hindering the economy in India. So, we have to pay much attention about this problem. To reduce the occurrence of viral diseases we should restrict the birds with the contact of other animals specially the local birds and migratory birds, selecting a good hatchery and following proper immunization process specially maintaining the cool chain in case of vaccination and testing specific antibody titer level at particular period of time interval. In case of bacterial diseases proper sanitation and hygiene should be maintained and specific treatment should provide for their control. The results of the current study also provide a scenario of diseases in commercial chickens in India. These findings may assist researchers to further research or poultry consultants to make a strategy for the control of specific diseases.



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