

## Post Mortem Findings in Poultry Birds of Jammu Region

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### Abstract

Necropsy was done on about 50 poultry birds including broilers and backyard poultry during January-July, 2016. The carcasses were brought to the Division of Veterinary Pathology by poultry farmers of Jammu, R.S. Pura, Miran Sahib and surrounding areas. Also visits were made to commercial broiler units and post mortems were conducted on requests there. The most commonly affected systems in the examined birds included respiratory tract and gastrointestinal tract. Besides, spleen, eyes, brain and skin were also found to be affected. In backyard poultry, post mortem examination revealed presence of gross lesions characteristic of fowl pox, gastroenteritis due to infestation with *Ascaridia galli* and *Heterakis gallinarum* and haemorrhagic tracheitis along with pneumonia. In broilers, the most common lesions included perihepatitis, pericarditis, air sacculitis, yolk sac infection, bronze discolouration of liver, haemorrhagic lesions in the proventriculus and intestines. Also, in broiler birds white to yellow caseous nodules in the lung parenchyma and haemorrhages in the thigh and breast muscles were seen.

**Key words:** Postmortem lesions, Chicken, Jammu

### Introduction

Poultry birds comprise a varied group of species of birds that are raised

mainly for meat and eggs. Sometimes they may be kept as pets or reared as backyard poultry. Infectious diseases can spread rapidly among birds housed in a confined space. They are often exposed to natural elements and are often not vaccinated, may lack proper nutrition and lax biosecurity that can lead to frequent viral, bacterial, parasitic and nutritional diseases. Backyard poultry can also be a source of diseases to the commercial poultry.

Commercial poultry production is an important agro-based enterprise of our country. In Jammu and Kashmir, which has a large meat eating population, an emerging and rapidly developing broiler industry provides an excellent means not only for supplying highly nutritious animal protein in the form of quality meat but is also fast evolving as a good source of earning to the un-employed youth (Mehta *et al.*, 2003). India has witnessed a rapid development of poultry industry and the poultry population has increased from 307.07 million (1992) to 729.2 million (2012) (19th Livestock census, 2012). The total poultry population of Jammu & Kashmir State is 8.3 million. The J & K State is in the 17th place with regard to poultry production in the country with the percentage share of 1.13.

Morbidity and mortality due to various diseases of poultry cause great economic losses to the farmers all over the world even though vaccination and other preventive measures are being practiced routinely (Persson and Jendteg, 1992). Diseases affecting the respiratory and digestive systems in poultry are some of the most common diseases seen in the farms. These two systems may account for nearly 70 % of all the cases seen in a diagnostic laboratory or in the poultry farms. GIT performs important functions of digestion, assimilation and absorption of food. Any abnormality in GIT infections have serious consequences for broiler farming (Ficken and Wages, 1997) such as decrease in growth, production loss and an increase in feed conversion ratio. Diseases of the respiratory system in general are not only one of the most complex but also one of the most economically important problems in chickens. Many important infections (bacterial, viral or parasitic) and non-infectious diseases such as mycotoxicosis cause gastrointestinal lesions of varying severity (Guy, 1998). These infections result in a broad range of outcomes like immunosuppression and secondary bacterial infections like colibacillosis. These effects are usually economically devastating to the broiler industry.

### **Materials and Methods**

Postmortem examination of poultry birds is a simple means to diagnose disease conditions in poultry. This present report is a review of pathological findings of cases of mortality on which post mortem

examination was conducted during January, 2016 to July, 2016 in Jammu. The carcasses were brought to the Division of Veterinary Pathology by poultry farmers of Jammu, RS Pura, Miran Sahib and surrounding areas. Also, visits were made to commercial broiler units and post mortems were conducted on requests there. Necropsy examination was carried out following the standard procedure (Chauhan and Chandra, 2007). Various gross lesions occurring in trachea, lungs, liver, heart, intestine, proventriculus, ventriculus, spleen, kidneys and brain were recorded. Out of the 50 birds examined, 45 were broiler chicken and rest were backyard poultry.

### **Results and Discussion**

Out of 40 broiler chicken, 30 had lesions in the gastro-intestinal tract. About 35 birds had lesions in the respiratory tract. Bursa of fabricius, spleen and brain were found to be affected in 5 birds each. As far as the backyard poultry is concerned, skin, intestinal tract and respiratory tract was found to be affected in all the 5 examined birds. Haemorrhagic lesions on muscles of breast and thighs were seen in 4 birds (8%). As far as GIT is concerned, liver was commonly found to be affected. Liver involvement was seen in 30 dead birds (60%). Hepatomegaly, fatty changes, mottling (40%), happened to be the most common changes in liver. Also, bronze discoloration of liver (8%), perihepatitis (6%), congestion and presence of necrotic foci (6%) were also seen on liver. In the rest of the intestinal tract typhlocolitis (inflammation of

caecum and colon) with necrosis and haemorrhages were seen in caecum. Additionally, congestion and hemorrhage with excess mucus in the lumen of small intestinal tract were commonly seen in about 20 livers that were examined. Additionally, haemorrhagic enteritis with blood tinged contents was seen in two cases. Hemorrhages at the junction of gizzard and proventriculus were seen in 6% of birds.

Other significant lesions that were observed in the gastrointestinal tract were hemorrhages at the proventricular (8%) and intestinal mucosa (14%), ulceration of ceecal tonsils and intestinal mucosa (8%). *Ascaridia galli* (Fig. 1) and *Heterakis gallinarum* were found to be present in all the five intestinal tracts examined of backyard poultry (10%). Their presence was associated with mucoid contents of the intestine and occasionally haemorrhages on the mucosa. Examination of faecal contents of three birds revealed presence of coccidian oocysts.



**Fig. 1: *Ascaridia galli* in the Small Intestines of Backyard Poultry**

Respiratory tract was also thoroughly examined. Nasal discharge which ranged from being catarrhal to blood tinged was seen in 20% of birds. Lesions in trachea included congestion, haemorrhages and greyish to yellowish white exudate that was seen in 24% of birds (Fig 2).



**Fig. 2: Severe Congestion of Tracheal Mucosa along with the Presence of Caseous Exudate**

Additionally, caseous plugs at the junction of trachea and bronchi were seen in 6% of birds. Lesions in the lungs included congestion and haemorrhage. In addition, yellowish white pin headed necrotic caseous nodules suggestive of brooder's pneumonia were seen in 6% of broiler chicks. Air sacculitis characterized by deposition of caseous or fibrinous whitish exudate was seen in 16% of birds. Lesions on the heart included presence of haemorrhages and deposition of fibrinous material on the surface of pericardium. Overall, heart was found to be involved in 20% of birds. Pathological changes in spleen included its enlargement, congestion and mottling. Bursa of fabricius was seen to be affected in 10% of birds where in all the cases it was found to be swollen and larger than its normal size.

Mushy chick disease was seen in about 14 % of chicks with off smelling reddish and greenish discoloured and unabsorbed yolk sac present in the abdominal cavity (Fig 3).

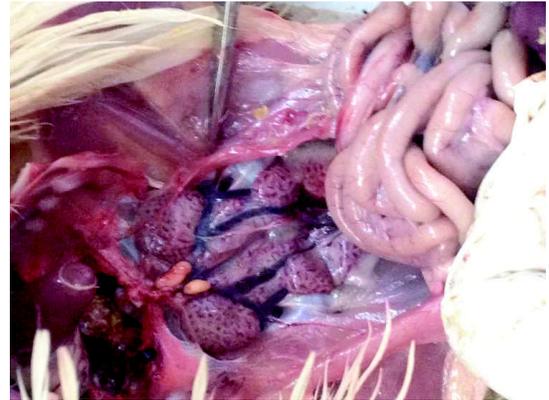


**Fig. 3: Nodular Skin Lesions on face Covering Eyes and Nostrils**

In backyard poultry nodular skin lesions were found to be present on skin of face nostrils and eyelids. These lesions were consistent with gross lesions seen in case of fowl pox (Fig 4). Brain was examined in all the birds and 5 birds had mild to severe meningeal congestion in cerebrum. Kidneys of 20 % of birds were found to be edematous and swollen. 12% of birds had urate deposition in the kidneys along with edematous lesion (Fig 5).



**Fig. 4: Unabsorbed Yolk Sac Contents in a 10 Day Old Chick**



**Fig. 5: Swollen and Edematous Kidneys with Urate Deposits**

Important infectious diseases of broilers which target gastrointestinal tract are salmonellosis, colibacillosis, coccidiosis, inclusion body hepatitis, New Castle disease, avian influenza among others (Swayne, 2013.) Important diseases targeting the respiratory tract of chickens include avian influenza, New Castle disease, infectious bronchitis, chronic respiratory disease, infectious coryza, aspergillosis (Swayne, 2013). Apart from these, other important diseases commonly affecting the health of poultry birds are infectious bursal disease which affects bursa of fabricius in poultry causing depression in humoral immune response.

The various lesions found in liver viz. perihepatitis, liver mottling, enlargement and bronze discoloration are suggestive of presence of colibacillosis, mycotoxicosis and salmonellosis respectively, in broiler flocks of Jammu. Hemorrhagic intestinal lesions are usually associated with new castle disease or avian influenza. Also coccidiosis causes hemorrhages and diahorrea in young birds (Lillehoj and Lillehoj, 2000). Respiratory tract involvement was suspected to be due to presence of

causative organisms of new castle disease and infectious bronchitis. The mesogenic or lentogenic strains of new castle disease and infectious bronchitis virus also predispose birds to other secondary bacterial infections causing chronic respiratory disease characterized by perihepatitis, airsacculitis and pericarditis. The most commonly incriminated bacterial infections in chronic respiratory disease are *E. coli* and *Mycoplasma gallisepticum*. Likewise mortality due to mushy chick in chicks suggests presence of either *E. coli* or *Salmonella pullorum* infection (Khan *et al.*, 1998; Swayne, 2013). Haemorrhages in the musculature of breast and thighs and bursal enlargement is indicative of infectious bursal disease in chickens. Infectious bursal disease destroys humoral immunity in birds predisposing them to be infected by secondary bacterial infections. Nervous system is involved in viral diseases like new castle disease and also in cases of septicaemia.

To conclude, presence of these gross pathological lesions shows that many economically important diseases are prevalent in poultry birds in Jammu and are causing great mortality and economic losses to the local farmers. There are few documented reports on prevalence of various disease such as aflatoxicosis, colibacillosis, New Castle disease and infectious bursal disease in poultry birds of Jammu region. More work needs to be done in the area of poultry disease diagnosis to document the prevalence of various infectious and non infectious diseases in poultry flocks of this region.

Proper diagnosis will help in devising strategies for prevention and control of poultry diseases in Jammu. Strain specific vaccination will help reduce the costs incurred by the poultry farmers to a significant extent.

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