



## Diseases of birds and their responses to treatment in different regions of Bangladesh

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### ABSTRACT

A clinical and pathological investigation on the occurrence of diseases in birds was conducted in Kushtia, Faridpur, Magura, Rajbari and Dhaka Districts in Bangladesh during the period from March 2013 to November 2013. A total of 1000 sample (Sonali-120, Broiler-520, Layer-180, Duck-30, Pigeon-50, Quail-20, Goose-20, Pet Birds and Wild Birds-60) of either dead or sick birds were examined for clinical diagnosis of diseases. Diagnosis of different diseases was made on the basis of the clinical history, age of birds, clinical signs, gross pathological lesions and post mortem lesions. The birds were found with infectious bursal disease (IBD) (16.9%), Newcastle disease (ND) (14.1%), pox (1.4%), avian influenza (AI) (0.3%), duck plague (2.7%), duck viral hepatitis (1.2%), colibacillosis (14.1%), salmonellosis (14.6%), necrotic enteritis (1.5%), CRD/mycoplasmosis (7.6%), trichomoniasis (1.8%), psittacosis (1.3%), coccidiosis (9.9%), (IBD+coccidia) (3.6%), (IBD+ND+coccidia) (0.6%), (IBD+ND) (1.5%), internal parasitism (0.3%), nutritional deficiency disorders (3.8%) and miscellaneous (2.8%) cases. The treatment option and their response against the diseases were found to be successful in many cases. However, further studies are need to diagnose the subclinical and unidentified disease of birds for better understanding the prevalence of diseases of bird and their control strategies.

**Key words:** Diseases of bird, therapeutic response, Bangladesh

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### INTRODUCTION

Bangladesh is one of the developing countries facing acute shortage of animal protein. Meat and eggs are two major sources of animal protein. In this country the average per capita availability of meat and egg are 12.51g/day and 0.485/week, respectively, against the requirement 120g/day and 2.0/week (BBS, 1995). Poultry meat and eggs contribute approximately 37% of total animal protein supplied in the country (Ahmed and Islam, 1990) for the improvement of nation health status

and socio-economic condition of the people of this country. Poultry not only plays an important role in narrowing the gap between the demand and supply of protein of animal origin but also provides an efficient mean of income generation. More than 89% of rural smallholders rear chickens (6.8 chickens per household) (Islam and Nisibori, 2009). However, poultry industries play an important role in poverty alleviation and economic development of Bangladesh. Government of the People's Republic of Bangladesh has recently given priority on this potential poultry sector.

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Poultry diseases, increasing feed price, unstable price are the major constraints for developing the poultry industry. Poultry farmers in Bangladesh are confronted with a wide range of poultry diseases. These poultry diseases may occur singly or in combinations, which lessen the optimal production of flocks. During the last few years a good number of poultry diseases and variant of existing infections have been observed in Bangladesh. Assessment of poultry health problems should include evaluation of the clinical signs and gross pathology in affected individuals as well as the birds in the flock or poultry house as a whole. In Bangladesh generally before establishing poultry farms entrepreneurs even do not take into consideration for investment in conceptual and structural bio-security. If entrepreneurs give responsible consideration on it, definitely they will get a good return in the event of exposure to disease. However, to establish commercial poultry farm, the incidence of poultry diseases of the area should be considered for prevention and control of the diseases. If only control measure is adopted right in time then the disease can be reduced. For viral disease, no effective treatment is available. But if the disease is diagnosed early within a short time by postmortem and serological test, then prophylactic treatment can be applied as a control measure. Moreover, early diagnosis is necessary to reduce the rapid spreading of the disease. Considering the above mentioned facts, the present study was carried out in different areas of Bangladesh in order to identify the common diseases of different birds and their response to treatment in place.

## MATERIALS AND METHODS

### Study area

The study was performed during 8 months period starting from March 2013 to November 2013 at Upazila veterinary hospital of Kushtia, Faridpur, Magura, Rajbari districts and central veterinary hospital (CVH), Dhaka

### Clinical diagnosis

Clinical diagnosis was made on the basis of recorded clinical history from owner, observed

clinical signs and gross pathological lesions of the dead and sick birds. A total of 1000 diseased birds of different ages were examined systematically and the observed postmortem changes were recorded during necropsy according to the procedure described by Charlton (2000).

The data were collected in terms of disease prevalence and the responses of the diseases to commonly practiced treatment in place.

## RESULTS AND DISCUSSION

The present pathological investigation detected a large number of diseases in birds in Kushtia, Faridpur, Magura, Rajbari and Dhaka districts. A total of 1000 birds were examined for diagnosis of diseases on the basis of history, clinical signs and post mortem findings. The overall prevalence of various diseases was found higher in broiler (52%) followed by layer (18%) and sonali (12%) birds. Disease prevalence is higher in layer and broiler probably due to their sensitivity to little bit fall of management. The disease prevalence is comparatively low in sonali, quail, goose, pet and wild bird, pigeon and duck probably due to their well adaptability in our local environment.

Table 1

Overall prevalence of disease in different types of birds

Birds	No. of birds (% prevalence)
Sonali	120 (12%)
Broiler	520 (52%)
Layer	180 (18%)
Duck	30 (3%)
Pigeon	50 (5%)
Quail	20 (2%)
Goose	20 (2%)
Pet and Wild Bird	60 (6%)
Total	1000 (100%)

Table 2  
Clinical diagnosis of different diseases of birds based on clinical sign and postmortem lesions

Diseases	Clinical Signs	Postmortem lesions	Therapeutic Efficacy
Gumboro (IBD)	Severe depression. Inappetance. Ruffled feathers. Vent pecking. Whitish diarrhea. Rise of body temperature.	Hemorrhages in the thigh and pectoral muscles. Bursa swollen and hemorrhagic. Hemorrhage at the junction of the proventriculus and gizzard Kidneys are enlarged and urates are in the tubules	1. Ciproflox (Ciprofloxacin) 1ml/2L distilled water. 2. Napa (Paracetamol) 1tab/3L distilled water. 3. Immunocare 1ml/2L distilled water. Result: Cured
New Castle	Sudden death. Chicken fluffs its feathers and appears to have its coat dragging on the ground. Lethargy and inappetance. Respiratory distress and gasping. Greenish diarrhea. Nervous signs of tremor, torticollis, convulsions and paralysis of wings and legs.	Pin pointed hemorrhages at the tip of proventricular glands. Hemorrhage and necrotic ulceration on the intestine and caecal tonsils. Marked congestion of trachea.	1.Ciproflox(Ciprofloxacin) 1ml/2L distilled water. 2.Rena C (Vitamin C) 1gm/1L distilled water Result: Cured
Marek's	Paralysis of legs, wings and neck. Loss of weight.	Grey-white foci of neoplastic tissue in liver, spleen, kidney, lung, gonads, heart, and skeletal muscle. Thickening of nerve trunks and loss of striation.	No treatment
Pox	Nodular lesions on comb, wattles, eyelids and other non feathered areas of skin in cutaneous form. Mild respiratory signs. Unthriftiness and reduced production	Nodular lesions on the non feathered areas. Diphtheritic yellowish lesions on mouth, esophagus and upper part of trachea in diphtheritic form (wet pox). Postmortem lesions.	1.Gmox (amoxicillin) 1gm/2L distilled water 2.Antiseptic wash(Povisep) Result: Cured
Avian Influenza	Sudden, heavy and unusual mortality reaching almost 100% without any clinical signs Edema of face, cyanosis of comb and wattles Nervous disorders like tremors, torticollis and opisthotonus	Hemorrhagic lesions (petechial to ecchymotic) on all the visceral organs, serous membranes, skin and muscles in acute cases Lungs pneumonic Enteritis, airsacculitis, splenomegaly	1.Eskamox (amoxicillin) Sig. 1gm/2L distilled water Result: Not Cured

Salmonellosis	Chicks: weakness, poor growth, an inclination to huddle together, chalkywhite diarrhea and death. Mortality peaks during the second or third week of life. Adults: drop in egg production, feed consumption, decreased fertility and hatchability,diarrhea, depression and dehydration.	Inflamed and unabsorbed yolk sac Swollen, fragile and dark colored liver with a copper bronze colored Grayish white foci on the liver Irregular, misshapen, discolored and pedunculated ovaries	1.EskaCTC (Clortetracycline) 1gm/1.5L distilled water 2.Escolis(Colistin Sulphat) 1gm/1L distilled water 3.Kidney Care 1ml/2L distilled water Result: Cured
Colibacillosis	Respiratory signs, coughing, sneezing. Reduced appetite. Poor growth. Omphalitis.	Whitish covering on the liver and heart. Edema in body cavities with foul odor. Enlarged congested yolk sac. Postmortem lesions.	1.EskaCTC (Clortetracycline) 1gm/1.5L distilled water 2.Neoxel(Neomycine) 1gm/2L distilled water 3.Nephro Care 1gm/2L distilled water Result: Cured
Coccidiosis	Depression, loss of appetite. Emaciation, poor growth. Bloody diarrhea.	Hemorrhage in the intestine. Clotted blood found in intestine.	1.ESB3 30% (Sulphaclozine) 3 gm/1L distilled water 1.Cotravet(Clortetracyclin) 1 gm/1L distilled water 3.Hemosin(Vitamin K) 1 ml/1L distilled water Result: Cured
Mycoplasmosis	Tracheal rales, nasal discharge and coughing. Facial edema and lacrimation. Feed consumption is reduced.	Cloudy air sac. Pericarditis and perihepatitis. Marked congestion in the trachea.	1.Tylosef (Tylosin) 2gm/1L distilled water 2.EskaCTC (Clortetracycline) 1gm/1.5L distilled water 3.Respiron 1ml/1L distilled water Result: Cured
Aspergillosis	Dyspnoea, depression and emaciation.	Whitish military foci in air sacs membranes. Small pin head sized whitish nodules in the lungs.	1.Renadox(Doxycycline) 1gm/1L distilled water 2.Flugal(Fluconazole) 1gm/1L distilled water Result: Cured
Necrotic Enteritis	Depression. Ruffledfeathers. Inappetance. Immobility. Dark coloured diarrhoea.	Small intestine (usually middle to distal) thickened and distended. Intestinal mucosa with diptheritic membrane. Intestinal contents may be dark brown with necrotic material. Affected birds tend to be dehydrated and to undergo rapid putrefaction.	1.EskaCTC (Clortetracycline) 1gm/1.5L distilled water 2.Neoxel(Neomycine) 1gm/2L distilled water 3.Amodis(Metronidazole) 1ml/1L distilled water Result: Cured

Table 3  
The overall prevalence of different diseases and disorder in birds

Diseases	No. of cases (percentage)								
	Sonali	Broiler	Layer	Duck	Pigeon	Quail	Goose	Pet & wild Bird	Total (%)
Infectious bursal disease	45 (37.5)	124 (23.94)	-	-	-	-	-	-	169 (16.9)
Newcastle Disease	15 (12.5)	75 (14.42)	-	-	17 (34)	4 (20)	-	30 (50)	141 (14.1)
Pox	-	-	-	-	14 (28)	-	-	-	14 (1.4)
Avian Influenza	-	-	-	-	-	-	-	3 (5)	3 (0.3)
Colibacillosis	15 (12.5)	70 (13.46)	53 (29.44)	-	-	3 (15)	-	-	141 (14.1)
Salmonellosis	12 (10)	65 (12.5)	66 (36.67)	-	-	3 (15)	-	-	146 (14.6)
Necrotic Enteritis	-	15 (2.89)	-	-	-	-	-	-	15 (1.5)
Mycoplasmosis/CRD	-	26 (5)	45(25)	-	-	5 (25)	-	-	76 (7.6)
Psittacosis	-	-	-	-	7 (14)	-	-	6 (10)	13 (1.3)
Trichomoniasis	-	-	-	-	9 (18)	-	-	9 (15)	18 (1.8)
Coccidiosis	9 (7.5)	80 (15.39)	10 (5.56)	-	-	-	-	-	99 (9.9)
IBD+Coccidia	6 (5)	30 (5.8)	-	-	-	-	-	-	36 (3.6)
IBD+ND+Coccidia	6 (5)	-	-	-	-	-	-	-	6 (0.6)
IBD+ND	3 (2.5)	12 (2.3)	-	-	-	-	-	-	15(1.5)
Duck Plague	-	-	-	15 (50)	-	-	12 (60)	-	27(2.7)
Duck viral hepatitis	-	-	-	12 (40)	-	-	-	-	12 (1.2)
Internal Parasitism	3 (2.5)	-	-	-	-	-	-	-	3 (0.3)
Nutritional Deficiency	2 (1.6)	5 (0.96)	-	3 (10)	3 (6)	5 (25)	8 (40)	12 (20)	38 (3.8)
Miscellaneous	4 (3.4)	18 (3.47)	6 (3.33)	-	-	-	-	-	28 (2.8)
Total	120	520	180	30	50	20	20	60	1000 (100)

The prevalence of IBD was highest in sonali (37.5%) followed by broiler (23.94%). ND was most prevalent in pets and wild birds (50%) followed by pigeon (34%) and quail (20%). Pox was only found in pigeon (28%) and avian influenza was found in pet and wild birds (5%). The highest prevalence of colibacillosis (29.44%) and salmonellosis (36.67%) were observed in layer followed by quail (15%). Necrotic enteritis was only found in broiler (2.89%). Mycoplasmosis was more common in layer and quail. Psittacosis and Trichomoniasis were only found in pigeon and other pets and wild birds (10-18%). Coccidiosis was found only in chicken with highest prevalence in broiler (15.39%) followed by sonali (7.5%), and layer (5.56%). Mixed infection of coccidiosis and IBD was observed in sonali and broiler. Both IBD and ND were found in sonali and broiler. The

prevalence of duck plaque and duck viral hepatitis was 50% and 40% respectively with highest prevalence of duck plaque in goose (60%). Internal parasitism was only found in sonali and nutritional deficiency was found in all birds except layers.

In this study IBD was found 16.9% in birds which is differed to the earlier reporter Ahmed et al., (2009) and Rahman and Samad (2003) who reported 11.06% IBD in broiler and 8.22% in chicken respectively. ND was found 14.1% in birds which is supported by the earlier reporter Das et al., (2005) who reported ND was 19.5% but Rahman and Samad (2003) reported 4.85% in chicken. Colibacillosis was found 13.46% in broiler which is supported by the earlier reporter Das et al., 2005 who reported 13.3% colibacillosis

in broiler. Salmonellosis was found 12.13% in Broiler which is differed to the earlier reporter Saleque et al., (2003) who reported 25.3% salmonellosis in broiler. The concurrent infection of IBD+Coccidia, IBD+ND and IBD+ND+coccidia were found in birds 3.6%, 2.7% and 0.6% respectively which are differed to the earlier reporter Rahman and Samad (2003) who reported 0.29%, 0.29% and 0.06% respectively in chicken. However the difference in prevalence rate may differ due to variation in region and climate.

The therapeutic response of different drugs used for the treatment of the reported diseases was positive in many cases (table 2) which are supported by the reports of Samad (2005).

In conclusion it was observed that among the poultry diseases, infectious bursal diseases, Newcastle disease, mycoplasmosis, coccidiosis and colibacillosis were more frequent in the study areas. These diseases are highly infectious and worldwide distributed and cause mortality in chicken. Further investigation is necessary to diagnose the subclinical and unidentified disease of birds for better understanding the diseases of bird and their control strategies.

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