



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2018; 7(10): 519-522
© 2018 TPI
www.thepharmajournal.com
Received: 18-08-2018
Accepted: 19-09-2018

Sushma Chakravarti
Department of Veterinary
Pathology, College of Veterinary
Science and Animal Husbandry,
MHOW, Madhya Pradesh, India

Supriya Shukla
Department of Veterinary
Pathology, College of Veterinary
Science and Animal Husbandry,
MHOW, Madhya Pradesh, India

Nidhi Shrivastava
Department of Veterinary
Pathology, College of Veterinary
Science and Animal Husbandry,
MHOW, Madhya Pradesh, India

Diljeet Chhabra
Department of Veterinary
Microbiology and Animal
Husbandry, MHOW,
Madhya Pradesh, India

Laxmi Chauhan
Department of Poultry Science
and Animal Husbandry,
MHOW, Madhya Pradesh, India

Poornima Gumasta
Department of Veterinary
Pathology, College of Veterinary
Science and Animal Husbandry,
Durg, Chhattisgarh, India

Correspondence
Sushma Chakravarti
Department of Veterinary
Pathology, College of Veterinary
Science and Animal Husbandry,
MHOW, Madhya Pradesh, India

Incidence of various disease conditions in kadaknath birds and their correlation with mortality rate

Sushma Chakravarti, Supriya Shukla, Nidhi Shrivastava, Diljeet Chhabra, Laxmi Chauhan and Poornima Gumasta

Abstract

The present study was designed at the poultry farm of Veterinary College Mhow (M.P.), to know the pathomorphology and incidence of different affections in kadaknath birds. Total of 1787 birds were examined in the duration of eleven months among them 361 birds found to be positive for various type of disease conditions. Annual mortality in diseased birds occurred because of coccidiosis (38.50%), colibacillosis (15.51%), heatstroke (13.01%), enteritis (12.46) and others reasons. Highest incidence of diseased conditions with respect to age was found in adult birds as 25.26% whereas lowest was in chicks with 11.20%. Including this the highest incidence of diseases with 23.37% was recorded in rainy season and lowest observed in winter season with the incidence rate of 15.92%.

Keywords: Kadaknath, disease incidence, age, season

Introduction

Poultry industry is one of the fastest growing segments in the agricultural sector of India. In the poultry industry Kadaknath bird is a popular due to its black color meat and medicinal value. Kadaknath birds were also resistant to extreme climatic conditions like summer heat and cold winter stress and can thrive very well under adverse environments like poor housing, poor management and poor feeding etc. (Parmar, 2003) [12].

Despite birds good survivability in adverse conditions various poultry diseases are now the major constraints for developing the poultry industry. The principal causes of morbidity and mortality leads to heavy economic losses to the poultry industry by its association with various disease conditions, either as primary pathogen or as a secondary pathogen. The prevalence of diseases in a particular area depends on various factors like geo-climatic condition, management practices, immunization status, social awareness etc. that's why for the establishment of commercial poultry farm, the incidence of poultry diseases of the area should be considered for prevention and control of the diseases (Islam *et al.*, 2003; Kabir, 2010) [8, 9]. Keeping above things in mind, present study was designed to know the pathomorphology and incidence of different affections in kadaknath birds at poultry farm of College of Veterinary Science and Animal Husbandry Mhow.

Materials and Methods

In the duration of eleven months, a whole flock of birds which had total 1787 birds was examined. Among the 1787 birds, 361 birds were found positive for various type of disease conditions. Sick birds were identified by symptoms like off feed, lameness, loss of activity and ruffled feathers. All the sign, symptoms and lesions in sick birds recorded with respect to age (chicks, growers and breeders) and season. Every single bird being reared under deep litter system and fed standard poultry ration. Post-mortem was conducted of dead birds and all the pathological lesions recorded carefully. Representative tissue samples collected in buffered formalin for further processing. A group of healthy birds were used as control.

Results and Discussion

The diseases which has been diagnosed under this study included mainly coccidiosis, colibacillosis, heat stroke, enteritis and others as shown in Table 1

Table 1: Incidence and mortality due to different disease affections

SN	Disease wise incidence	No of infected birds	Total mortality	Over all incidence (n= 1787)
1	Coccidiosis	139	38.50%	7.79%
2	Enteritis	45	12.46%	2.52%
3	Heat stroke	47	13.01%	2.63%
4	Visceral gout	23	6.37%	1.29%
5	ALC	15	4.15%	0.84%
6	FLKS	18	4.98%	1.00%
7	Colibacillosis (YS:Yolk Sac + AS: Air sacculitis + SP: Salpingitis)	56 (37+12+7)	15.51% (1.39+3.32+10.24)	3.13%
8	Cloacal impaction	2	0.55%	0.11%
9	Ascites	2	0.55%	0.11%
10	ILT	11	3.04%	0.61%
11	Mixed (ALC+Colibacillosis)	1	0.27%	0.05%
12	Mixed (Visceral gout + Colibacillosis)	2	0.55%	0.11%
	Gross total	361		20.20%

These findings were in corroboration with Hooda *et al.* (2011) [7] who reported higher incidence of digestive system diseases in poultry. Supportive to the present study Abbas *et al.* (2015) [1] noticed the incidence level of *Escherichia coli* infection and coccidiosis as an average of 5.52% and 4.59%, respectively. Similar to this Yadav, (2011) [16] reported 31.66% mortality due to coccidiosis in kadaknath birds. In the present study, due to different disease affections total 361 birds found dead and coccidiosis came out with highest incidence rate as (38.50%) followed by colibacillosis, heat stroke, enteritis of non specific origin, visceral gout, FLKS and few incidence of other infections (Table 01). This finding was in accordance with Bhachaya *et al.* (2012) [2] who reported

that 39.93% chicken were positive for coccidial parasites. In contrast, Yadav *et al.* (2018) [15] reported highest mortality due to salmonellosis followed by *E.coli* infection in broilers.

Age wise incidence

The age wise highest incidence as 25.26% was recorded in adult kadaknath birds (20-80 weeks) and lowest incidence was observed in chicks (0-8 weeks) as 11.20% Table 2. In contrast, Islam *et al.* (2003) [8] reported that poultry diseases were highest in age group of 8-21 days (42.60%). In agewise distribution the diseases which were encountered during study are shown in Table 3.

Table 2: Agewise mortality pattern

S.N.	Age wise	Number of birds (Flock size)	No of infected birds	% of incidence
1	Chicks (0-8 weeks)	562	63	11.20
2	Growers (8-20 week)	560	130	23.21
3	Adults (20-80 week)	665	168	25.26**

Table 3: Agewise incidence of various disease conditions

SN	Diseases condition	Chicks (n=562)		Growers (n=560)		Adults (n=665)	
		Chicks	% incidence	Growers	% incidence	Adults	% Incidence
1	Coccidiosis	16	2.84%	66	11.78%*	57	8.57%*
2	Enteritis	3	0.53%	26	4.64%	16	2.40%
3	Heat stroke	6	1.06%	13	2.32%	28	4.21%
4	Visceral gout	-	0.0%	1	0.17%	22	3.30%
5	ALC	-	0.0%	2	0.35%	13	1.95%
6	FLKS	1	0.17%	6	1.71%	11	1.65%
7	Colibacillosis (YS+AS+SP)	37(37+0+0+)	6.58%*	4(0+4+0)	0.0%	15(0+0+15)	2.25%
8	Cloacal impaction	-	0.0%	-	0.0%	2	0.30%
9	Ascites	-	0.0%	-	0.0%	2	0.30%
10	ILT	-	0.0%	11	1.96%	-	0.0%
11	Mixed (ALC+ Colibacillosis)	-	0.0%	-	0.0%	1	0.15%
12	Mixed (visceral gout+ colibacillosis)	-	0.0%	1	0.17%	1	0.15%

*(P≤ 0.05)

The present study revealed a highest incidence of visceral gout in adult birds (3.30%) (Table 3), and different result was reported by Prathap kumar *et al.* (2008) [13]. He observed that broilers between ages 7 to 14 days were found to be highly susceptible for visceral gout. Singh *et al.* (2013) [14] recorded highest (62.34%) susceptibility for visceral gout in broilers of 2 weeks of age. In present findings, highest incidence of coccidiosis was observed in growers (11.78%). However, contrary to the present work, Muazu *et al.* (2008) [10] reported

prevalence of (36.7%) coccidiosis in adult birds. In the present research, colibacillosis was highest (6.58%) in chicks. This corroborates with the finding of Boro *et al.* (2018) [4] who reported highest prevalence of colibacillosis at the age group of 3-6 weeks.

Season wise incidence

In the present study, highest incidence as 23.37% was recorded in rainy season (July to October) and lowest

incidence was observed in winter season (November to February) as 15.92% (Table 4). Authors found that in rainy season incidence of coccidiosis were highest as 15.37% in (Table 5). In concurrence, Naphade (2013) [11] noticed that

coccidiosis was highest during rainy season and Bachaya *et al.* (2012) [2] observed highest predominance of coccidiosis during the month of September.

Table 4: Seasonwise mortality pattern

S.N.	Season	Number of birds (Flock size)	No of infected birds	% of incidence
1	July to October (Rainy)	800	187	23.37%*
2	Nov to February (winter)	515	82	15.92%
3	March to June (summer)	472	92	19.49%

*P<0.05

Table 5: Seasonwise incidence of various disease conditions

S.N.	Diseases condition	Rainy (n=800)		Winter (n=515)		Summer (n=472)	
		No. of infected birds	% incidence	No. of infected birds	% incidence	No. of infected birds	% incidence
1	Coccidiosis	123	15.37%*	12	2.33%	0	0.0%
2	Enteritis	22	2.75%	14	2.71%	10	2.11%
3	Heat stroke	-	0.0%	-	0.0%	50	10.59%*
4	Visceral gout	-	0.0%	22	4.27%*	1	0.21%
5	ALC	4	0.5%	8	1.55%	3	0.63%
6	FLKS	1	0.12%	10	1.94%	7	1.48%
7	Colibacillosis(YS+AS+SP)	36	4.5%	11	2.13%	9	1.90%
8	Cloacal impaction	-	0.0%	2	0.38%	-	0.0%
9	Ascites	-	0.0%	1	0.19%	1	0.21%
10	ILT	-	0.0%	0	0.0%	11	2.33%
11	Mixed (ALC+ Colibacillosis)	1	0.12%	0	0.0%	-	0.0%
12	Mixed (visceral gout+ colibacillosis)	-	0.0%	2	0.38%	-	0.0%

*P<0.05

Highest incidence of visceral gout was observed during winter season 4.27% (Table 5), the present findings corroborate with Singh *et al.* (2013) [14] who reported highest suspected cases of visceral gout in colder months. This finding, however is in contrast with findings of Chirayath and Rejitha (2015) who reported visceral gout during summer months. In the present case, dehydration must have led to the kidney damage, as heat stroke is common in birds in Mhow during summer months. In Mhow, winters are dry and cold which leads to low intake of water by the birds. This causes dehydration which might have led to visceral gout. Sufficient drinking water supply should be ensured to birds during winter and summer to prevent visceral gout.

Conclusion

Highest incidence of 25.26% (168/665) was recorded in adult's kadaknath birds (20-80 week) and lowest incidence was observed 11.20% (63/562) in chicks (0-8 week). The highest incidence of 23.37% (187/800) was recorded in rainy season and lowest in winter season viz. 15.92% (82/515).

References

1. Abbas G, Khan SH, Hassan M, Mahmood S, Naz S, Surriya S *et al.* Incidence of poultry diseases in different seasons in Khushab district. *Pakistan Journal Advance Veterinary Animal Research.* 2015; 2(2):141-145.
2. Bachaya HA, Raza MA, Khan MN, Iqbal ZI, Abbas RZ, Murtaza S *et al* Predominance and detection of different Eimeria species causing coccidiosis in layer chicken. *The Journal of Animal & Plant Science.* 2012; 22(3):597-600.
3. Beg MAH, Islam KBM, Aftabuzzaman M, Mahbub ASM *et al.* Effects of Separate Sex Growing on Performance and Metabolic Disorders of Broilers. *International Journal of Animal Resources.* 2016; 1(1):19-26.

4. Boro SK, Pathak DC, Saikia GK, Buragohain M *et al.* Prevalence of Colibacillosis in birds in and around Guwahati city (Assam). *Journal of Entomology and Zoology Studies.* 2018; 6(1):1000-1003.
5. Chirayath D, Rejitha TS. Visceral gout in poultry-a report. *Journal of Indian veterinary association.* 2014; 12(2):53-54.
6. Das S, Palai TK, Mishra SR, Das D, Jena B *et al.* Nutrition in relation to diseases and heat stress in poultry. *Veterinary World,* 2011, Volume. 2011; 4(9):429-432.
7. Hooda A, Mishra SK, Nehra V, Lather D *et al.* Patho-Anatomical studies on poultry mortality with specil reference to gestro-intestinal tract disorders. *Haryana Veterinary,* 2011; 50:80-84.
8. Islam MR, Das BC, Hossain K, Lucky NS, Mostafa MG *et al.* A Study on the Occurrence of Poultry Diseases in Sylhet Region of Bangladesh. *International Journal of Poultry Science.* 2003; 2(5):354-356.
9. Kabir SM. Avian Colibacillosis and Salmonellosis: A Closer Look at Epidemiology, Pathogenesis, Diagnosis, Control and Public Health Concerns. *International Journal of Environment Research and Public Health* 2010; 7:89-114.
10. Muazu A, Masdooq AA, Ndbede J, Salihu AE, Haruna G, abu AKH *et al* Prevalence and identification of species of Eimeria causing coccidiosis in poultry within Vom, Platau state, Nigeria. *International Journal of poultry science* 2008; 7(9):917-918.
11. Naphade ST. Studies on the incidence of infection of the disease coccidiosis in broiler chickens from in and around aurangabad city. *Indian Journal Science Research and Technique.* 2013; 1(3):39-43.
12. Parmar SNS. Characterization of Kadaknath breed of poultry. *Jawaharlal Nehru Krishi Vishwa vidyalaya*

- Jabalpur (M.P.) Technical Bulletin. 2003; 1(2):1-21.
13. Prathap SM, Satyanarayana ML, Mallikarjuna AR, Shivakumar R *et al.* Serum biochemistry and epidemiology of gout in broiler chicks. *Indian Veterinary Journal*. 2008; 85(4):452-453.
 14. Singh N, Ghosh RC, Singh A *et al.* Prevalence and haemato-biochemical studies on naturally occurring gout in chhattisgarh. *Advances in Animal and Veterinary Sciences*. 2013; 1(3):9-11.
 15. Yadav D, Niyogi KK, Tripathi SV, Kumar M *et al.* The Incidence, Morbidity and Mortality of the Diseases of Broiler Birds in and around NDUAT, Kumarganj, Faizabad. *International Journal of Current Microbiology and Applied Sciences*. 2018; 7:5095-5105.
 16. Yadav V. Clinicopathological studies on spontaneous parasitic infections on kadaknath birds with special reference to coccidiosis. M.V. Sc. & A.H. thesis (Veterinary Pathology), Nanaji Deshmukh Veterinary Science University, Jabalpur, 2011.