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Study on the Gross Pathology in Broilers Affected with Marek's Disease in Commercial Broiler Poultry Farms of Hyderabad and adjoining areas, Sindh, Pakistan.

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Abstract: Investigation was carried out to study the gross pathological changes produced by Marek's disease in different visceral organs of the broiler birds during the study period 2009-2011 in commercial broiler farms of Hyderabad and adjoining areas, i.e Hyderabad, Hala, Tando Muhammad Khan, Tando Allahyar and Matyari, five forms were selected from each area. Clinical signs observed in infected birds during postmortem examination were included nervous derangement associated with paralysis of wings and legs, gasping, diarrhea and loss weight in most of the birds. Lymphogenous growth varied in different visceral organs, which included in liver, spleen, kidneys, in heart, in proventiculus and others organs.

Keywords: Broilers, Poultry farms and Marek's diseases.

1. INTRODUCTION

The poultry industry of Pakistan is making tremendous in bridging the protein gap between the supply and demand with the continuous depletion of supply of red meat. Until 1964; poultry production was a cottage industry in Pakistan. The Govt: laid special emphasis on the development of poultry industry in the country during 1965-1975. A good poultry scientist should have the knowledge of every aspect of poultry, farmer to be well informed about vaccination, managemental programmers and bio-security measures, some poultry diseases are more effectively or economically controlled by vaccination. Marek's disease is found through out poultry producing areas of the world. It occurs in birds of 6 week of age but the older birds can also be infected. Marek's disease was first described by Jozef Marek in 1907 as fowl paralysis caused by mononuclear infiltration in to the sciatic nerve plexi, (Marek, 1907). This disease is highly contagious and readily transmitted among chickens and Kamaldeep *et al.,* 2007 reported that Marek's diseases is also diagnosed in vaccinated poultry. Marek's disease causes economic losses in the flocks, which may vary, from 10-25 % but some times mortality is exceeding up to 34% (Powell, 1986). The first evidence for naturally occurring malignant tumors to have been controlled by an anti viral vaccine (Epstein, 2001). Ayden *et al.,* 1995 observed clinical features characterized by paralysis of wings, legs and neck with lameness, depression and death occurred in 45 days old chickens. In case of wing and leg unable to stand and lie with one leg stretched forward and other held back ward as lesion progress. Diffuse or nodular lymphoid tumors may be seen in various organs, particularly the liver, spleen, heart, lungs, kidneys, muscles and proventiculus. Usually diagnosis is based on enlarged nerves and lymphoid tumors in various viscera's (Wakawa *et al.,* 2012). The study has never been carried out under climatic conditions of Hyderabad district. It is therefore planned to investigate the natural incidence of Marek's disease and gross pathological lesions affected by Marek's disease.

In this study investigation was carried out to study the gross pathological changes produced by Marek's disease in different visceral organs of the broiler birds during the study period 2009-2011 in commercial broiler farms of Hyderabad and adjoining areas, i.e Hyderabad, Hala, Tando Muhammad Khan, Tando Allahyar and Matyari, five forms were selected from each area.

2. MATERIAL AND METHOD

Survey of Commercial Farms:

During the study period a survey was conducted and commercial broiler farms were visited to determine the incidence of Marek's disease . For ensuring the prevalence of disease, the affected flocks were visited regularly every after 15 days. The following information were collected from the suspected farms for study of pathological lesions birds affected by Marek's disease

- Number of Affected birds At the farms
- Number of birds died due to Marek's disease
- Gross pathology of different internal organs.

3. RESULT AND DISCUSSION

A survey was conducted to determine the incidence of Marek's disease of the Hyderabad and

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ad joining areas, Sindh, Pakistan. Marek'ˢ disease is the important disease of broilers in Pakistan causing high mortality in 6-12 weeks of age .This disease is caused by a virus belonging to the herpes virus group. Marek's caused significant problems with poultry health and welfare and a heavy financial burden on the poultry industry (Okwor and Eze, 2011). It causes economic losses in the flocks. The disease was diagnosed on the basis of flock history (Kamaldeep *et al.,* 2007), clinical signs and pathological lesions observed in affected birds collected at randomly during study period. **9653** number of birds were affected due to Marek's. Gross lesions observed from affected or dead birds as kidneys 435 (4.51% **Table-1),** livers 426 (4.41% **Table-1**), proventriculs 390 (4.04% Table-1), Sciatic nerves 354 (3.66% Table-1), spleen 344 (2.53% Table-1) and heart 322 (3.34% Table-1) with discolorations, enlargement, necrotic foci, and hemorrhages during the study period.

The gross pathological lesions in the dead birds were observed necropsy and pathological changes (Wakawa *et al.,* 2012). Post-mortem examination reveled in present study liver, spleen; proventiculus were affected almost in all the cases and the other visceral organs kidneys, heart, nerve plexuses, similar findings were described by Stephen *et al.,* (1980), Ficken *et al.,* (1991), Lin and Lee (1996), Hafaz *et al.,* (1997), Narring *et al.,* (2003). Vaccination is the central strategy for the prevention and control of Marek's disease (Kamaldeep *et al.,* 2007). The efficacy of vaccines can be improved, strict sanitation to reduce the losses from Marek's disease in broiler flocks. However disease may become a serious problem in individual flocks or in selected geographic areas (Witter, 1997). Experimental recombinant vaccines have been shown to be effective against challenges with virulent Marek's disease virus (Sani *et al.,* 2012 and Chantal *et al.,* 2012).

Table-1 Pathological Gross lesions observed in different organs of broiler birds affected with Mareks disease of Hyderabad and adjoining areas.

Total no: of 9653 number of birds were affected due to Marek's disease out of which 2271 number of pathological lesion were found infected with Marek's disease				
S.No	**Name of organ/ Tissues**	**Lesions observed**	**No of cases**	**% of infected birds with Mareks disease**
1	**Liver**	**Discolouration**	**141**	**1.46**
		Enlargement	**99**	**1.03**
		Necrosis	**126**	**1.31**
		Hemorrhages	**60**	**0.62**
			426	**4.41**
2	**Spleen**	**Discolouration**	**97**	**1.00**
		Enlargement	**73**	**0.76**
		Necrosis	**111**	**1.15**
		Hemorrhages	**63**	**0.65**
			344	**3.56**
3	**Kidneys**	**Discolouration**	**144**	**1.49**
		Enlargement	**97**	**1.00**
		Necrosis	**128**	**1.33**
		Hemorrhages	**66**	**0.68**
			435	**4.50**
4	**Heart**	**Discolouration**	**88**	**0.91**
		Enlargement	**61**	**0.63**
		Necrosis	**116**	**1.20**
		Hemorrhages	**57**	**0.59**
			322	**3.33**
5	**Sciatic Plexuses**	**Discolouration**	**130**	**1.35**
		Enlargement	**115**	**1.19**
		Necrosis	**109**	**1.13**
			354	**3.66**
6	**Proventriculus**	**Discolouration**	**123**	**1.27**
		Enlargement	**96**	**0.99**
		Necrosis	**95**	**0.98**
		Hemorrhages	**76**	**0.79**
			390	**4.04**



Fig-1 a Paralysis of legs in chickens with one leg stretched forward and other back ward due to Marek's disease



Fig-1 b: Paralysis of legs in chickens with one leg stretched forward and other back ward due to Marek's disease

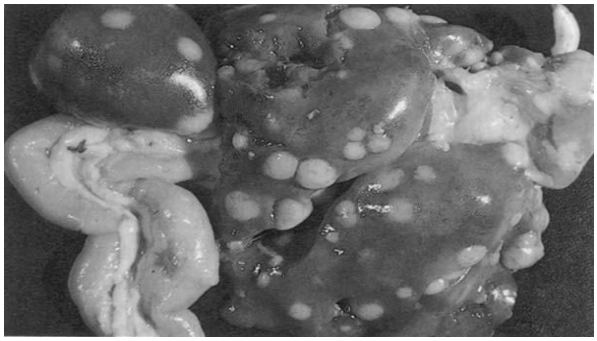


Fig.2 Gross lesions observed in different organs



Fig-3 Enlarged sciatic nerves with thickness

4. CONCLUSION

The farmers are advised that in case of outbreaks of infectious diseases, the best solution is to depopulated, clean and disinfect all the sheds and equipments for few months then replace the vaccinated chicks from reputable hatchery.

During an out break, control is made to limit transmission of the diseases in this regards all the carcasses should be collected and burned. Dead birds floating on the water or out side on the ground serve as a source of contamination.

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