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STUDIES ON THE INCIDENCE AND PATHOLOGY OF DIFFERENT DISORDERS OF OVARY IN DESI LAYING HENS IN AND AROUND LAHORE

(With One Table)

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SUMMARY

Out of 300 Desi laying hens examined, ovaries of only 12 (4%) birds showed two pathological conditions i.e. oophoritis (2.6%) and degenerative ovarian follicles (1.3%). In oophoritis, the ovaries were haemorrhagic and congested. The infilteration of heterophils was noted in the follicular wall. In the other condition, degenerative ovarian follicles, caseous mass was found in flaccid follicle. The sloughed granulose cells were found to be accumulated in some of ovaries causing obliteration of follicular lumen. The biometrical studies of ovaries were also carried out. In oophoritis, five cases were found positive for *Salmonella* (S) *pullorum* and *S. gallinarum*, two cases for *Mycoplasma (M) gallisepticum*, while only one sample was found positive for Egg Drop Syndrome (EDS) 76 infection. In degenerative ovarian follicles infection, out of 4 cases, two were positive for salmonella and only one for mycoplasma infection.

Key words: *Pathology, disorders, ovary, laying hens.*

INTRODUCTION

In Pakistan, the rural poultry plays an important role in supplying eggs and meat to human. About 45% of total eggs and poultry meat are contributed by rural poultry industry (Bhatti, 1991). Qureshi (1985) reported that 70% of families in villages keep on an average 12 adult indigenous (Desi) birds, hatched under broody hens.

The Desi poultry breeds, being scavenger can easily be infected by several bacterial, viral, fungal and parasitic pathogens causing substantial economic losses to this enterprise. Among various diseases, reproductive disorder also carry importance. The most common maladies encountered in ovarian infection are oophoritis, egg peritonitis, degenerative ovarian follicle, internal cystic ovary and neoplasms of ovary (Batra and Singh, 1978 and Goswam *et al.,* 1988). These conditions cause drop in egg production, progressive emaciation and discoloration of skin resulting in condemnation of carcass.

Very little work has been undertaken on the incidence and pathology of ovary in Desi birds. Attempts were also carried out to establish relationship between salmonellosis, mycoplasmosis and egg drop syndrome (EDS) and different other diverse type of ovarian abnormalities.

MATERIALS and METHODS

A total of 300 (indigenous) laying hens were randomly selected from various poultry sale centers of Lahore on the basis as described by North (1984). These birds were eviscerated to collect the ovary for pathological and serological studies. The ovaries showing gross pathological lesions were further processed for histopathological examination (Drury and Wallington, 1980). The blood was also drawn from each bird. Serum was separated from the blood and was used to examine the serum antibodies against EDS-76 virus by haemagglutination inhibition (HI) test (Buxton and Fraser, 1977), *Salmonella gallinarum* infection by rapid agglutination test (Runnels *et al.,* 1927) and *Mycoplasma gallisepticum* infection by rapid slide agglutination test (Adler, 1954).

RESULTS and DISCUSSION

Out of 300 indigenous Desi laying hens examined, ovaries of only 12 (4%) birds showed pathological lesions. Only two pathological conditions were noted during this study i.e. 8 (2.6%) birds showed oophoritis, while degenerated ovarian follicles was recorded in the remaining 4 birds (1.3%). The indigenous (Desi) hens are mainly kept in an uncontrolled environment. The enlargement of vent necessary for oviposition can also increase the chances of ascending infection into reproductive tract causing significant drop in egg production. Besides

the infections, changes in hormonal level especially of estrogen, also plays a significant role in the development of reproductive disorders (Anjum, 1989).

Different workers observed varying rates of incidence of oophoritis in laying hens e.g. Nath and Singh (1971), Sharma et al. (1980), Keymer (1980) and Muhammad *et al.* (1993) who recorded this condition in 2.65%, 445.33%, 16.8% and 27.82% cases, respectively. This variation might be due to different epidemiological factors like un-equal sample size, different systems of management, especially light period, diversity in feeding habits, variable stress factors and also genetic make-up. The values of biometrical parameters of ovaries in these conditions are presented in Table (1).

In oophoritis, the ovaries and follicular wall were found haemorrhagic and congested. The stigma was not prominent in the case of bilateral, but prominent in unilateral. In some cases, clotted blood was found on ovary. Microscopically, the infiltration of heterophils was noted in the follicular wall. In some cases, necrotic inflammatory cells were present in the yolk of follicles. These observations were also noted by Biswal and Morill (1953), Nath and Singh (1971), Sharma and Joshi (1985) and Muhammad *et al.* (1993).

Table 1: Values of Biometrical parameters of ovary in desi laying hens.

Conditions	Mature Follicles				No. of follicles (Mean)		
	Total No.	Length (cm)	Width (cm)	Height	Post ovulatory	Atretic	Growing
Oophoritis	4 (2-6)	2.3 (1-3.9)	2.05 (09-3.2)	2.15 (1.0-3.3)	2 (1-3)	1 (0-2)	14 (11-17)
Degenerative Ovarian follicles	3 (2-4)	3.1 (2.6-3.6)	2.05 (1.9-2.5)	2.05 (1.7-2.4)	2 (1-3)	1 (0.2)	14 (10-18)

The other pathological conditions degenerative ovarian follicles, was characterized by flaccid follicles without blood supply and contained caseous mass or sometimes watery yolk. The histopathological study revealed degeneration, necrosis and sloughing of epithelium. In some ovaries, there was accumulation of sloughed granulose cells in an obliterated follicular lumen. These findings are in line with the findings of Gupta *et al.* (1988).

SEROLOGICAL STUDY

Out of 300 serum samples studied, 113 (37.66%) was positive for *S. pullorum* and *S. gallinarum* infections, 209 (69.66%) were positive for *M. gallisepticum* infection while only 41 (13.66%) samples were found positive for EDS-76 infection. In oophoritis, 5 were positive for *S. pullorum* and *S. gallinarum* and 2 were for *M. gallisepticum* infection. Only one sample was detected as positive for EDS-76 infection.

In the other condition, the serological results showed that out of 4 cases, 2 were positive for *S. pullorum* and *S. gallinarum*, one was for *M. gallisepticum.* Sharma *et al.* (1980) studied the bacteriology of reproductive disorder of poultry and isolated Salmonella species in 24 cases out of 69.

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