

Histopathological study in ailing pigeons of Nagpur City

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The present investigation was carried out on the domestic pigeons of the Nagpur city; on postmortem examination, grossly liver and lungs showed congestion. Histopathologically, liver showed vacuolar degenerative changes, necrosis of hepatocyte with infiltration of leucocyte. Lungs were congested with pneumonic changes and anthracosis. Kidneys showed granular degenerative changes in tubular epithelium and intestinal nephritis. Increase space of Virchow-Robbin and degenerative changes were recorded in brain.

In recent years a number of deaths of pigeons have been reported from different parts of the country. However, causes have remained unknown. The present histopathological investigation is important criterion to derive data that can be used for disease control and reduce mortality in pigeons.

Materials and Methods: The present study was undertaken during 2002 on the domestic pigeons *Columbia livia* reared in different parts of Nagpur city and data on area, number of birds infected, clinical symptoms, nature of infection, and morbidity percentage were collected.

The ailing birds were kept under observation and subjected to detailed clinical investigation. The succumbed birds were subjected to detailed necropsy examination. The gross lesions of vital organs were recorded.

Results and Discussion: A total of 1166 pigeons were studied from different parts of the city, out of which 840 were found exhibiting signs of torticollis prominently accompanied with circling movement, drooping feathers, greenish watery diarrhoea and inability to peck grains. Some pigeons were exhibiting nervous signs like head shaking, muscular tremors, disorientation, in coordination and drooping of wings. In a few pigeons sneezing, nasal discharge and dullness were also observed. The observations corroborate with Barton *et al.* (1992) and Pennycott (1994).

The morbidity and mortality rates were found to be 70.04% and 48.71%, respectively, though not statistically significant as far as total number of pigeons was concerned. These findings are supported by that of Afaleq *et al.* (1993) who reported that variation in morbidity and mortality rates might be due to variable immune response of the pigeons from different flocks.

The area wise percentage of morbidity and mortality in pigeons during this study were also found to be varying. The highest percentage of mortality (60%) was found at Somwari quarters followed by Nandanvan (58%) and Khamla (57.14%). History revealed that none of the owners had prophylactically vaccinated their flock against any disease. The highest mortality rate can be attributed to this failure. The affected pigeons were not segregated and therefore remained as a source of infection for the whole flock.

It appears from the observations that immunization, environmental and housing conditions are crucial factors for the disease free pigeon population.

The necropsied tissues of the vital organs like lung, liver, kidney

and brain were collected and subjected to histopathological investigation.

(i) Live: Vacuolar degenerative changes and necrosis were observed in liver. The hepatocytes showed infiltration of leucocytes. In some sections of the liver proliferative fibrous connective tissue indicative of the reproductive phase of the lesions was observed (Images 1^w, 2^w, 3^w).

(ii) Lungs: Lungs revealed congestion. The capillaries were filled with RBCs and some section revealed deposition of coal particles indicating anthracosis; some sections of lung showed hyperplasia of the brachial epithelium and pneumonic changes (Images 4^w, 5^w, 6^w).

(iii) Kidney: Section of kidney showed granular degenerative changes in the tubular epithelium and reduction in the tubular lumen. Interstitium of kidney showed leucocytic infiltration indicating interstitial nephritis (Image 7^w).

(IV) Brain: Brain revealed increased space of Virchow Robbin and foamy degenerative changes in parenchyma indicative of brain oedema (Image 8^w).

The histopathological findings of the present study were found to be similar with the findings of Mangat *et al.* (1988) who observed neuron degeneration, neuronophagia, hepatitis paramyxovirus encephalitis. Sanford & Hampson (1989), Barton *et al.* (1992), Johnston & Key (1992) and Christopher *et al.* (1993) also reported the same histopathological findings.

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^w See Images in the web supplement at www.zoosprint.org