INTRODUCTION

Quails belong to the order galliformes of class aves. Zoological name of Japanese quail is *Coturnix coturnix japonica*. In Hindi it is called Bater. It is mainly found in India, China, Korea and Japan. The first account of wild Japanese quails appeared in the 8th century in Japan. The domestication of quail was started in 16th century as singing bird. It was during 20th century quail was selected as poultry bird. They were first introduced in India in 1974 from California as poultry bird. There are about forty-five species of quail found all over the world. Two species of quail occur in India. These are the black breast quail and the brown colored quail Japanese quail. Black breast quail (*Coturnix coromandelica*) is the wild variety of India and is a protected bird. It is smaller than the Japanese quail. It ways about 100 gm. and lays about 100 eggs/year. Japanese quail is the largest species of quail. So it is bred for meat and egg production. Although the Japanese quail is the largest species, it is even smaller than pigeon. It weighs about 250 gm and lays about 250 eggs/year. Adult female is slightly heavier than males. The life span is 3-4 years. They attain sexual maturity at the age of 38-42 days. The egg of quail is roughly one-fifth of the size of a chicken’s egg and weigh around 16-18 gm. The egg shell is spotted with colors ranging from white to brown. Incubation period is in between 14 to 18 days. Optimum temperature for the incubation is 98.5 to 99.5 °F. Optimum humidity requirement during incubation is about 60-70%. The diet includes exclusively seed and green plant matter. Quails do not show migration.
Reason for choosing the quail for this study is that it has great economic importance. It is not only reared in Government poultry farms but also taken up by farmers on a large scale in rural areas in Durg district. Rearing of quail is becoming more and more popular because of their short generation intervals, (they attain adult hood in 4 to 6 weeks and starts laying eggs); low feed requirement, low space requirement and high rate of egg laying. Like other birds its flesh has great nutritive value due to high protein amount. Therefore it is popularly used in diet. Like other birds, quails are also attacked by various infectious agents. An exhaustive work has been done on different species of birds specially on chickens and ducks but there is a paucity of literature in quail and a very little information is available on pathological changes due to natural infections. However the results obtained in chickens may not be always extrapolated for other avian species. Therefore studies on pathology of quail may be considered worthwhile as their rearing is directly related to economy and diet of the rural people. Such pathological information will be useful in rearing quails.

Quail is also becoming an interesting experimental model for research workers for studies on histological, pathological, immunological, toxicological, medicinal, metabolic disturbance and other studies, due to its small size, little food and space requirement, short generation intervals attainment of early maturation and its ability to breed rapidly and readily in captivity.

It is said that blood is a mirror for observing changes in the body whether physiological or pathological. Analysis of normal hematological parameters in birds is very essential in diagnosing the various pathological and metabolic disorders. It can be used as diagnostic tool in order to assess the health status of an individual.
and or a flock (Islam et al. 2004). Hematological changes are routinely used to determine various status of the body and to determine stresses due to environmental, nutritional and/or pathological factors. Because of these facts, during the recent decades the avian hematology is found to be of great importance to the scientists, researchers and veterinarians as well as poultry growers.

Hematological values of quail are influenced by age, sex, breed, climate, geographical location, season, day length, time of day, nutritional status, life habit of species, present status of individual and such other physiological factors (Dukes, 1931, Olsen 1965, Kai and Prenklin 1984). For proper management, feeding, breeding, prevention and treatment of diseases, it is desirable to know the normal physiological values under local conditions. But normal hematological information of the valuable birds are hardly available in the literature as researches on these lines have rarely been carried out under local conditions. Not much information is available on hematological alteration in quail due to natural infection and environmental changes. The objective of the hematological study was to analyze certain normal hematological parameters and changes in response to the age and temperature in them.

A basic study of intestinal parasitic infection is also taken up with this work by observing the fecal matter. Though intestinal parasites are basically related to the digestive system infecting mainly intestine, still it may cause various secondary problems including anemia in quails due to hemorrhage. This may lead to different pathological conditions in heart, spleen and lungs.

The present research work also communicates the pathological changes in haemopoietic system (l lung, trachea, heart

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and spleen) due to natural infections in Japanese quails (*Coturnix coturnix japonica*).

An ample of work on pathological effect related to various toxicants is available on quail but work on organ pathology due to natural infection is scanty.

The haemopoietic system, specially, respiratory tract and lungs are comparatively more prone to developed spontaneous pathological conditions due to various infectious agents, than any other single organ of the body. Infections in lungs, trachea and heart very often, are lethal for quails. So an attempt is made to investigate the pathological conditions, gross lesions associated with different organ inflammation and macro and microscopic histopathological changes in above said organs.

So, the objective of the study was:

- To study certain hematological parameters (Hb, PCV, Total erythrocyte count and total leukocyte count) in healthy quails of different age group.
- To study hematological and pathological alterations in quails due to protozoan parasites/pathogens.
- To study spontaneous pathological changes in lung trachea heart and spleen of quail.