

Questions and Answers on Ranikhet Disease

BY

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1. What is Ranikhet disease?

It is an infectious and highly contagious disease of poultry.

2. What is it called in other countries?

It is known as pseudo-fowl pest in Java, Doyle's disease or New Castle disease in England, Avian Pest in the Philippines, and Avian Pneumoencephalitis in U. S. A.

3. What is its history?

The disease was first discovered by Doyle in 1926 at Newcastle in England, and described by him as New Castle Disease (N. D.) In 1928, it was encountered by Edwards in Ranikhet, a hill station in United Provinces of India, and described as Ranikhet disease (R. D.). Since then it has been described from various parts of the world, Java (Pseudo-fowl), Philippines (avian pest). In 1940 a new disease was discovered in California and was called avian pneumoencephalitis but later it was found to be identical with R. D.

4. What is its distribution?

England, India, U. S. A., Java, Japan, Philippines, in fact world wide.

5. When did it first attract attention in Ceylon?

In 1928.

6. Why is it important to disseminate information about this disease?

Because at present it is the most prevalent and fatal disease of fowls in this country and is therefore Poultry Enemy No. 1.

7. What is the mortality?

In a flock attacked for the first time the mortality is from 90 per cent. to 100 per cent. specially if the flock is of the foreign breed. In flocks where the disease appears for the second or third time, the mortality is from 90 per cent. to 100 per cent.

8. What is the cause?

The cause is a very minute ultra-visible and filtrable virus. The virus is so small in size that it cannot be seen with the aid of the most powerful microscope, hence it is called ultra-visible. It is called ultra-filtrable because it can pass through filters (sieves) which hold back ordinary bacteria.

9. Where is the virus found?

The virus is found in all the tissues and fluids of sick birds and is contained in large quantities in discharges from the mouth, nostrils, and eyes, as well as in faeces of sick birds.

10. What birds are susceptible to this disease?

It attacks fowls of all ages, although it also affects turkeys, ducks and geese, Guinea fowls, pigeons, parrots, sparrows, and other birds like crows.

11. What are the methods of infection?

The natural methods of infection are—

(a) By contact of healthy with sick birds.

(b) By ingestion of food and water, and by using poultry appliances like feeding and drinking troughs, brooders, crates, &c., which have been contaminated with secretions and excretions of sick birds. Healthy fowls may also get the disease by picking up the offal of sick birds, feet feather, and other discarded parts of the diseased carcasses as well as by drinking the water used in washing the carcasses of sick birds. Artificially, it can be transmitted by injections of emulsions of liver and spleen and mouth discharges. It cannot be transmitted by injecting blood.

12. How does the disease spread?

The most common method is by introducing into the home flock without previous quarantine, a fowl bought from the open market or from unknown sources. People coming from an infected yard may also carry the infectious matter on their feet or foot-wear and scatter it in the yard of a clean flock. Scavenger animals like stray dogs and hogs, wild birds, crows, rats, &c., may carry pieces of infectious materials to a yard where they may be picked up by the susceptible fowls which thus get infected. Infected sparrows and other birds may also spread the infection.

13. Does the disease spread very quickly?

Yes, the disease spreads very quickly within a flock and from flock to flock.

14. What is the period of Incubation?

This is variable. The average is three (3) days. It may be as short as two (2) days or as long as fourteen (14) days.

15. What are the symptoms of the disease?

In most cases the disease runs an acute course. The first symptoms are ruffling of feathers, loss of appetite, slowness or disinclination to move and droopiness or sleepiness and increased thirst. The bird may be noticed to exhibit frequent or occasional swallowing movements due to increased secretions of saliva. Diarrhoea then sets in and soils the puff of feathers just below the vent. There is profuse dribbling of offensive ropy discharge from the beak and nose. There is difficulty of breathing, manifested by the characteristic gasping for air through the half-opened beak, the bird extending its head and neck and sometimes uttering a shrieking sound in an effort to clear its throat and respiratory passages. The temperature begins to fall from the beginning and becomes markedly sub-normal before death. In laying flock there is almost total loss of egg production for 4 to 6 months. The shell structure is usually poor both when the birds go out of production and when they start laying after recuperation. The crop becomes distended with foul, sour-smelling gases or dirty liquid mixed with undigested feed. There may be swelling of head, eyelids, neck and throat. As the disease progresses the greenish white diarrhoea becomes more profuse and the bird becomes weak, sits down on its legs and may become paralysed. The respiration becomes more and more laboured, the comb and wattles turn bluish or purplish, and the bird finally dies, usually in from 2 to 5 days after the onset of the symptoms.

Resistant birds may get over the acute attack and recover completely and thus acquire life-long immunity or be left with nervous complications manifested by slight unsteadiness of the head or occasional twisting of the neck which may be so marked as to cause the bird to tumble whenever it attempts to take the feed. Birds developing these paralytic symptoms also die after sometime due to their inability to get proper nutrition.

Cloudiness of the cornea may occur as a primary lesion of the disease or as sequelae or complication in protracted or recovered cases.

16. What is the duration of illness?

This is usually short and varies from 2 to 5 days.

17. What are the changes seen at post-mortem examination?

If the carcass is opened there will be found haemorrhagic spots in the proventriculus (the lowest part of the oesophagus joining the gizzard), and in the cloaca.

18. How can the disease be diagnosed?

It is difficult to give definite diagnosis of Ranikhet disease without laboratory facilities. If an outbreak showing respiratory symptoms followed by nervous and paralytic symptoms occurs in young chicks, they should be suspected of R. D. and sent to the Veterinary Laboratory for diagnosis. Laying flock in which there are bronchitis like symptoms of gasping, wheezing and rattling together with an abrupt stoppage of egg production, should be suspected of R. D. and the affected birds sent to the Laboratory.

19. Is there any treatment for the disease?

So far no curative agent has been found for this disease. Cases of relief and recovery following the administration of so-called "remedies" are merely coincidences and the birds so treated could have recovered without any treatment at all. Individual as well as mass treatment of this highly infectious disease is not only futile but quite dangerous because of the time lost before more appropriate control and preventive measures can be put into operation.

20. Is there any preventive inoculation against this disease? Yes, a vaccine is available. It is manufactured at the Veterinary Research Laboratory, Peradeniya.

21. How is the vaccine prepared?

The virus is inoculated into chick embryos and after two days the embryonic fluid is collected. This fluid is the concentrated vaccine which has to be diluted before use.

22. At what age should the vaccination be done?

Only birds over 4 weeks old should be vaccinated. It is important to get them vaccinated before they start to lay.

23. How is the vaccine despatched to the field?

In sealed glass ampoules each containing $\frac{1}{2}$ cc. of concentrated vaccine. This is to be diluted with distilled water to make 500 cc. which is enough to vaccinate 500 birds.

24. Are there any precautions for the storage of vaccine?

Yes, it has to be kept in a thermosflask containing ice and in no case should the ice be allowed to melt before the vaccine is used.

Attempts are being made to evolve a method for keeping the vaccine alive at room temperature.

25. What is the dose of vaccine?

1 cc. of the diluted vaccine.

26. How is it given?

It is inoculated subcutaneously or intramuscularly.

27. Are private owners allowed to vaccinate their own birds?

No.

28. Have I to pay for the vaccination?

No.

29. Who is to vaccinate the birds?

Trained vaccinators working under the supervision of the Range Veterinary Surgeons.

30. How can I get my birds vaccinated?

Write to the Veterinary Surgeon of your district or the Veterinary Research Laboratory, Peradeniya.

31. Is vaccination compulsory?

No. At present it is optional.

32. What precautions are to be taken after vaccination?

(a) Prevent overcrowding.

(b) Protect vaccinated birds from adverse weather conditions.

(c) For 48 hours after vaccination, keep vaccinated birds away from infected.

(d) Feed well.

(e) Report all untoward occurrences, specially death, to the Veterinary Surgeon of your range.

33. Is the vaccination curative?

No. It is only preventive.

34. How soon is the immunity conferred after vaccination?

About 48 hours after the vaccination.

35. How long does the immunity last?

For the lifetime of the bird.

36. Are there any conditions when the vaccination should not be undertaken?

(a) Vaccination should not be undertaken if the age of the bird is below 4 weeks.

(b) If diseases like Ranikhet, Coccidiosis, Fowl pox already exist in your farm.

(c) If the weather conditions are adverse, e.g., rainy or very hot.

37. Are there any untoward results from this vaccination?

(a) Drowsiness.

(b) Lameness.

(c) Paralysis.

(Birds affected with lameness or paralysis should be removed to a separate pen and if no signs of improvement are evident, without any particular attention, should be disposed of for table purposes. Ordinarily they should come to normal in 10-14 days.)

(d) Egg-laying stopped from 14 days to 3 months.

(e) Death rate about 5 per cent.

38. Is any compensation paid to me in cases of death after vaccination?

No.

39. How can the disease be prevented from entering my poultry farm?

- (a) Prevent your fowls coming in contact with those of your neighbours by fencing your poultry house and its yard with poultry wire, making them bird-proof. This will prevent intrusion of predatory animals also.
- (b) Divide the flock into small units so that in case of infection all the birds in it are not exposed.
- (c) Do not admit any chicken sellers or visitors either in the poultry house or its yard.
- (d) As soon as any bird is suspected to be sick, especially when it remains in the perch early in the morning, separate it from the flock and keep under observation.
- (e) Always place a tray of disinfectant outside the gate of each unit and see that every one walks through it upon entering and leaving the unit.
- (f) Clean and disinfect all poultry crates, utensils and appliances thoroughly and dry them before using them again.
- (g) Do not introduce new birds into your flock without previously quarantining them for a period of at least two weeks in a place far away from the home flock. Burn or bury discharges from such fowls. Birds returning from poultry shows should also be quarantined for 14 days.
- (h) For table purposes, get your chickens from healthy flocks. If you purchase them from the open markets, kill them immediately. If for some reason or other, you have to keep for sometime before killing, isolate them in a coop inaccessible to other fowls. Burn or bury all droppings and left over feed.
- (i) In dressing chickens, do not throw the offal (crop, intestines, trachea, lungs, kidneys, bills, claws, &c.) and other parts of the dressed carcass in the yard or any place where they may be picked up by other fowls and scavenger birds. Wrap them in old newspaper and either dump them in a garbage can filled with some disinfectants or better still burn or bury them in lime.
- (j) Vaccinate the fowls against Ranikhet Disease. Do not wait for the disease to appear before vaccination is started.

40. What steps shall I take to control the disease when it has already broken out in my flock?

- (a) Immediately remove all apparently healthy birds from the infected area to fresh, clean, non-infected quarters. Here carry out segregation of the birds, placing them in individual cages or coops which can be made out of bamboo or empty kerosene tins. Fowls may be caged in groups of two, three or four in each coop, if the number of coops is not enough. If yours is a commercial poultry farm where the birds are divided into different units, and disease has broken out in only one of these units, the drastic procedure of killing all the sick, contact and exposed birds will prove successful and effective. Carry out careful daily examination of birds and immediately destroy those that show symptoms of disease. Burn or bury deep in lime all dead birds; destroy all diseased birds and dispose of their carcasses and droppings in like manner.

- (b) Clean and thoroughly disinfect all poultry utensils and appliances including coops, nests, drinking and feeding troughs, &c., as well as the roosts, walls and other parts of the poultry house and their yards with 2-3 per cent. creolin solution or crude carbonic acid or any reliable disinfectant. Spray pump will ensure the uniform efficient application of the disinfectant. (To make a 2-3 per cent. solution of the disinfectant, stir one to one and one-half milk-canful of the disinfectant in a five-gallon canful of water.)
- (c) Or give lime wash which contains $\frac{1}{2}$ lb. of carbolic acid per gallon of wash.
- (d) Disinfect with dry heat, e.g., Brazier's lamp, those parts that can stand it.
- (e) Apply a layer of slaked lime to the runs or better still dig them up. Never use them for at least two months after the disappearance of the disease.
- (f) If you have had to destroy the entire flock, leave the buildings vacant for at least three months before re-stocking them.
- (g) Admit more sunshine especially in wet places by cutting branches of trees standing in the yard.
- (h) Do not forget to place a tray of disinfectant at the gate of each compartment for the caretaker and everyone else to pass through upon entering or leaving the place.
- (i) Ensure that healthy birds receive clean water and their drinking vessels are cleaned and boiled at least once a week. Add potassium permanganate to the drinking water in the proportion of 1 gram of the drug to every 5 litres of water. This is best placed in an enamel or earthenware vessel as it easily decomposes in an iron or galvanized iron container.
- (j) If possible provide separate attendants for the (a) contact (b) the exposed, and (c) non-exposed flock. Confine the affected in their own premises. In case this is not possible and the same person has to take care of the three groups of chickens, ask him to attend to the healthy flock first, then the exposed, and the contact last. He should change his clothing and foot-wear and disinfect his hands and feet every time he makes the shift.
- (k) Neither sell nor purchase poultry for at least three months from the date on which the deaths ceased to occur.