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Salmonellosis in Poultry: A Case Report

T. Vijaya Nirmala[1*], A. Devivaraprasad Reddy[1], E. Karuna Sree[1], K. Venkata Subbaiah[1], G. Shali Raju[1] and R.V.S.K. Reddy[2]

[1]Krishi Vigyan Kendra, Dr YSR Horticultural University, Venkataramannagudem, West Godavari district, Andhra Pradesh – 534 101, India
[2]Dr YSR Horticultural University, Venkataramannagudem, West Godavari district, Andhra Pradesh – 534 101, India

**Corresponding author*

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A B S T R A C T

Salmonellosis poses a high risk in the poultry birds and widely distributed worldwide. It results in huge economic loss and very difficult in control of disease. The clinical signs are reduced feed intake, droopiness, ruffled feathers, huddling of chicks and diarrhoea, dehydration, and mortality were reported. The morbid chicks were investigated for post mortem changes and gross lesions include livers were invariably enlarged, soft in consistency, congested and showed bronze discoloration. The birds were treated with furazolidone antibiotic and found to be effective against the *Salmonella* infection of poultry. General hygienic and biosecurity measures should be part of the overall management plan of poultry farms for effective control of bacterial infection.

Introduction

Salmonella belongs to *Enterobacteriaceae* family with more than 2300 serovars and causing *Salmonellosis. Salmonella* are gram-negative, facultative anaerobic, rod shaped, non-spore forming bacteria. They are usually motile, catalase-positive, oxidase and urease-negative. They reduce nitrates and use citrate as the sole carbon source and do not deaminate phenylalanine and ferment lactose (Jeyasekaran *et al.,* 2011). Fowl typhoid (FT) and pullorum disease (PD) are septicaemic diseases and are caused by *S. gallinarum* and *S. Pullorum* respectively which are host specific *Salmonella* in poultry birds. These stains does not possess zoonotic potential like *S.* typhimurium or *S. enteritidis,* but they cause severe mortality among poultry birds which results in massive economic loss (Shivaprasad, 2000; Rajagopal and Mini, 2013). Once this *Salmonella* infection has established in a primary breeding flock, it can infect the other units very easily through hatcheries via vertical and horizontal ways. These poultry birds act a reservoir for transmission of disease to the other non-infected birds. Hence, it is far ranging and

serious effects on the health of both poultry and humans. Therefore there is a dire need to prevent the infection from the breeding flock.

Case history and observations

A case was reported in the poultry farm located at Venkataramannagudem Village, West Godavari District during the month of August, 2017. A few morbid chicks of 8-12days of age were presented for investigation. It was reported that the day old chicks were weak and died after showing the clinical signs. Clinical signs were reported that the reduced feed intake, droopiness, ruffled feathers, huddling of chicks and diarrhoea, dehydration, mortality. At necropsy, the livers were invariably enlarged, soft in consistency, congested and showed bronze discoloration and it was found that infected with *Salmonella spp*. The gross lesions were similar to the findings of the Shivaprasad (2000).

Results and Discussion

Salmonella belong to either of the two species i.e. *S.enterica and S. bongori* and based on the host adaptation it is classified into three groups i.e. typhoid, non-typhoid and specific host interactions (Karunasagar *et al.,* 2012). *Salmonella* causing infections especially specific host such as *S. gallinarum* and *S. pullorum* in poultry birds. Since this *Salmonellosis* cause huge economic impact especially in poultry and is distributed worldwide (Rajagopal and Mini, 2013). Consumption of contaminated food and water results in the *Salmonella* infection. *Salmonella* remain as a serious economic problem to livestock in countries where measures of control are not efficient or in those where the climatic conditions favour the environmental spread of these microorganisms (Barrow *et al.,* 2011). Rajagopal and Mini (2013) found that the maximum *Salmonella* outbreak in the age group of 7-9 days and the maximum mortality was found in the age group of 1-2 weeks old.

Based on the clinical signs, the treatment has been started with furazolidone at the rate of 400 grams/1 ton of feed and found to be very effective against *Salmonellosis*. Since this furazolidone is a nitrofuran derivative with bacteriostatic and bactericidal activity against Gram positive bacteria and Gram negative bacteria. Various other antibiotics can be used for controlling and treating *Salmonellosis*, including sulphonomides, chloramphenicol, biomycin, oxytetracycline, apramycin, gentamicin, amoxycillin, potentiated sulponamide, tetracylines, fluoroquinolones and chlorotetracycline (Aziz *et al.,* 1997; McMullin 2004; Taddele *et al.,* 2012; Rajagopal and Mini, 2013). In addition, disinfection of the entire farm by formaldehyde spraying and fumigation also helped in control of the disease. Disinfection and eradication measures are extremely tedious and chances of further infections are many fold after an initial attack.

The control of *Salmonella* is difficult since it can remain in the environment and transform into biofilm. Rodents also play an important role in the persistence of *Salmonella* in poultry farms (Meerburg and Kijlstra, 2007). All manure was scraped from floors and walls and all feeding and watering equipments were disinfected. A disinfectant containing a phenolic active ingredient, with a label claiming bactericidal effects on *Salmonella spp.,* was sprayed on all surfaces of items listed above. Feeding and watering equipment were placed outdoors in the sunlight. The success of this cleanup effort was due in part to a determined owner and was aided by relatively high environmental temperatures during the cleaning and disinfection process, which reduced the probability of survival of *S. pullorum* that may have remained in the

environment after depopulation of the affected flock.

Salmonella can be controlled by strictly following biosecurity measures such as disinfection or cleaning of hatching eggs, salmonella free brood stock, good hygiene conditions in the farm will eradicate the salmonellosis. Timely treatment is required to control the bacterial infections. Prevention is better than cure.

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