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An aberrant location of *Ascaridia galli*: Gizzard impaction in Rajasri chicken: A case report

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Abstract

Ascaridia galli is a major species of nemathelminthes encountered in the domestic fowl all around the world. An adult layer bird (Rajasri) of nineteen weeks age was presented for postmortem examination to the Department of Veterinary Pathology, College of Veterinary Science, Hyderabad. Clinically birds showed retarded growth, emaciation, diarrhea, unthriftiness and drooping wings. Upon necropsy examination, the carcass was emaciated and internal organs were pale. The presence of large, thick white ascarid worms were observed in gizzard, which is an aberrant location, usually these worms localize in the intestinal lumen. In the present case study the worms were located at gizzard and duodenal junction resulted in impaction. Grossly, all the visceral organs were pale, liver showed mild fatty changes with urate crystal deposits, cloudy air sacs and the entire length of intestine showed hemorrhages.

Keywords: *Ascaridia galli*, nemathelminthes, Rajasri, gizzard and duodenum

1. Introduction

Ascaridia galli is one of the most common parasitic infection encountered in the poultry industry causing major economic losses. The infection rate is more in deep litter system [1]. Infection is acquired by the ingestion of feed and water contaminated by eggs or indirectly by consumption of the transport host (earthworms). After ingestion of the infective egg, the egg hatches in the small intestine and the larva embeds in the mucosal layer of the duodenum [2]. Matured worm migrates to the intestinal lumen where it feeds on the intestinal contents and the host blood. The diagnosis of *A. galli* is based on fecal examination of parasitic eggs or direct identification of the adult worms [3]. *A. galli* also acts a potential vector for *Salmonella enterica* in poultry [4]. The nematode's direct life cycle and the environmental resistance of its eggs are responsible for the quick spread of the infection under poultry management systems [5]. Sometimes, the adult parasites may migrate *via* cloaca or by penetration of the intestine and reach the eggs [6]. However, it may not cause any hazard to public health but a potential consumer's complaint [7].

Clinical signs include anorexia, weight loss, blood tinged diarrhea, altered hormonal level and eventually death [8, 9]. In heavy infections, the worms may cause blockage leading to death of the bird [8]. Grossly, intestinal segments harboring thick white worms associated with enteritis and edema of the wall can be noticed upon necropsy [10].

The present case deals with the presence of *Ascaridia galli* in an aberrant location *i.e* gizzard and gizzard and duodenal junction caused the gizzard impaction in a nineteen week old Rajasri chicken based on history, clinical signs and gross pathological findings.

2. Materials and Methods

An adult layer bird of nineteen weeks age was presented for postmortem examination to the Department of Veterinary Pathology, College of Veterinary Science, Hyderabad.

The diagnosis was based on history, clinical signs and gross pathological findings. History revealed that the bird was suffering with anorexia leading to emaciation. Clinically the bird showed anorexia, retarded growth, emaciation, diarrhea, unthriftiness, soiled feathers, drooping wings and death. A detailed postmortem examination was conducted and the gross necropsy changes in the gizzard, small intestine, heart, liver and lungs were noted.

3. Results and Discussion

An adult layer bird of nineteen weeks age was presented for postmortem examination to the Department of Veterinary Pathology, College of Veterinary Science, Hyderabad.

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3.1 Clinical signs

Clinically the bird showed anorexia, retarded growth, emaciation, diarrhea, unthriftiness, soiled feathers, drooping wings and death. The clinical signs exhibited by the bird are a result of gizzard impaction and blockage of the intestinal lumen by the adult worms. Similar clinical signs were also reported by previous authors [8, 9, 10].

3.2 Gross pathology

Upon necropsy examination, the carcass was emaciated and pale which might be a result of excessive blood loss due to feeding of the parasites on host blood (Fig. 1). The visceral organs were pale.

Grossly, liver was pale and discolored showing rounded edges, mild fatty changes with uric acid deposits (Fig. 3). Cut sections of the liver showed variable areas of necrosis and fatty degeneration. These changes might be as a result of systemic diseases like colibacillosis or salmonellosis.

Thick, long creamy white worms (*Ascaridia galli* - confirmed by parasitological examination) were aberrantly noticed in the gizzard and also at the gizzard duodenal junction (Fig. 4) resulted in impaction of the respective organs. The mucosa of the gizzard showed hemorrhages which might be as a result of injury caused by the worms. The duodenal mucosa was thickened and edematous. The lumen was filled with large white parasites causing blockage of the lumen. Entire length of the intestine showed congestion, hemorrhages and thickened wall, this might be due to the migration of infective stages of larvae of *Ascaridia galli* which injured the intestinal mucosa for its feeding.

Peritonitis and cloudy air sacs, foamy exudates were also noticed which might be as a result of secondary bacterial infection (Fig. 2) not cultured in present clinical case. Similar gross lesions were also reported by previous authors [10, 11].

The necrosis and inflammation of the intestine may be as a result of penetration of the worms into the intestinal epithelium. Moreover, this may also be due to the fact that the embryonated eggs containing second stage larvae may be ingested and hatched in the intestinal wall and produce gross pathological lesions, including intestinal hemorrhagic enteritis, necrotic patches and reddish spots on the intestinal wall [11].

Toxins of *A. galli* adversely influence the enzyme systems in the intestinal mucosa and interfere with the normal absorption of nutrients in the intestine leading to emaciation [12].



Fig 1: Pale and emaciated carcass



Fig 2: Cloudy air sacs



Fig 3: Fatty liver with uric acid crystals



Fig 4: Ascarid worm impaction at gizzard duodenal junction

4. Conclusion

From the above findings, it can be concluded that the bird was suffering from *Ascaridia galli* infection which led to the death of the bird due to anemia, gizzard impaction and blockage of the intestinal lumen by adult worms.

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6. References

1. Hemalatha EA, Rahman SA, Jagannath MS. Helminthic infection in domestic fowls reared on deep litter and cage system. *Mysore Journal of Agricultural Science*. 1987; 21(3):338-341.
2. Herd RP, McNaught DJ. Arrested development and the histotropic phase of *Ascaridia galli* in the chicken. *International Journal for Parasitology*. 1975; 5(4):401-406.
3. Permin A. Epidemiology, diagnosis and control of poultry parasites (No. 636.08947 F32 v. 4). FAO, 160, 1998.
4. Chadfield M, Permin A, Nansen P, Bisgaard M. Investigation of the parasitic nematode *Ascaridia galli* (Shrank 1788) as a potential vector for *Salmonella enterica* dissemination in poultry. *Parasitology Research*. 2001; 87(4):317-325.
5. Permin A, Ranvig H. Genetic resistance to *Ascaridia galli* infections in chickens. *Veterinary Parasitology*. 2001; 102(1-2):101-111.
6. Akinyemi JO, Ogunji FO, Dipeolu OO. case of adult *Ascaridia galli* in hen's egg. *International Journal of Zoonoses*, 1980, 171-172.
7. Piergili Fioretti D, Veronesi F, Diaferia M, Pia Franciosini M, Casagrande Proietti P. *Ascaridia galli*: a report of erratic migration. *Italian Journal of Animal Science*. 2005; 4(3):310-312.
8. Ikeme MM. Observations on the pathogenicity and pathology of *Ascaridia galli*. *Parasitology*. 1971; 63(2):169-179.
9. Adang KL, Abdu PA, Ajanusi JO, Oniye SJ, Ezealor AU. Histopathology of *Ascaridia galli* infection on the liver, lungs, intestines, heart and kidneys of experimentally infected domestic pigeons (*C. l. domestica*) in Zaria, Nigeria. *Pacific Journal of Science and Technology*. 2010; 11:511-515.
10. Abrha B, Tesfay T, Tekle Y. Clinical, gross and histopathological study on common local chicken diseases in Enderta District, South East Tigray. *European Journal of Biological Sciences*. 2014; 6:95-103.
11. Feroza S, Arijio AG, Bilqees FM, Phulan MS. *Ascaridia galli* infection induced gross-pathological changes in broiler chicken. *Pakistan Journal of Nematology*. 2018; 36(2):211.
12. Vassilev I, Ossikovski E, Bozhkov S, Kambourov P, Bankov I, Roupova L. On the pathogenesis of ascaridiosis in fow I. *Bull Cent Helminthol Lab*. 1973; 16:43-58.