



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.03

TPI 2018; 7(6): 316-317

© 2018 TPI

www.thepharmajournal.com

Received: 18-04-2018

Accepted: 19-05-2018

Guguloth Ramesh

Department of Veterinary Pathology, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

B Srinivas

PG Scholar, Department of Veterinary Biochemistry, S.V.V.U, Tirupati, Andhra Pradesh, India

Bhandurge Mahesh

PG Scholar, Department of Veterinary Pathology, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

BV Balaeswara Raju

PG Scholar, Department of Veterinary Microbiology, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

Sawale GK

PG Scholar, Department of Veterinary Pathology, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

D Rambabu

Scientist, Poultry Research Station, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

M Lakshman

Professor & HOD, Department of Veterinary Pathology, P.V.N.R.T.V.U, Hyderabad, Telangana, India

Correspondence

Guguloth Ramesh

Department of Veterinary Pathology, C. V. Sc, P.V.N.R.T.V.U, Hyderabad, Telangana, India

Occurrence of Hjarre's disease (Coligranuloma) in adult layer chicken

Guguloth Ramesh, B Srinivas, Bhandurge Mahesh, BV Balaeswara Raju, Sawale GK, D Rambabu and M Lakshman

Abstract

Coligranuloma (Hjarre's disease) was diagnosed in 6 adult layer birds of Rajasree breed chicken during routine necropsy conducted over a period of one year. Grossly, nodular granulomatous nodules were observed on mesentery and intestine which were hard, yellow and particularly concentrated at caecum. The histopathological sections (H&E) of nodular lesions revealed typical granulomas with center comprised of pink stained necrotic debris surrounded by a zone of mixed macrophages, heterophils, lymphocytic population and fibrous tissue proliferation. Bacterial isolation from liver showed colonies of *E. coli* on Mac Conkey's. The pure colonies *E. coli* were streaked on of Eosin Methylene Blue (EMB) agar showed metallic green sheen which is characteristic feature of *E. coli*.

Keywords: Hjarre's Disease, *E. Coli*, histopathology, heterophil, granulomatous nodules

Introduction

Hjarre's Disease (Coligranuloma) is a disease of adult chicken and turkey, characterized by nodular granulomas in liver, mesentery and walls of intestine. It is caused by *Escherichia Coli*, a gram negative, non-acid fast non-spore forming bacillus. Besides coligranuloma, *E-coli* has more often been incriminated in number of other clinical conditions which include coli bacillosis, coli septicemia, egg peritonitis, arthritis and air sacculitis, etc (Barnes *et al.*, 2008) [1]. causing decrease in production high mortality rate and condemnation of carcass at slaughter, thereby resulting in major economic losses to the poultry Industry. Coli granuloma is relatively uncommon coliform disease and may cause mortality as high as 75% in an individual flock (Calnek *et al.*, 1997) [2].

Materials and Method

Coligranuloma was investigated in total of 1000 adult layer birds from poultry farm presented for routine necropsy examination. Out of 1000 birds 6 layer adult birds were diagnosed with coligranuloma based on gross lesions, histopathology and microbiological isolation. Tissues like intestine, mesentery, liver were collected for histopathological examination in 10% formalin. The impression smears of granulomatous nodules were stained with gram staining. The swabs from liver were streaked on Mac Conkey's agar and one pure pink colony was sub cultured on EMB agar for confirmation. One set of samples were stained with acid fast stain.

Result and Discussion

Coligranuloma was diagnosed in 6 adult layer chicken out of 1000 birds presented for routine necropsy in a period of one year. Grossly, typically, small, circular, focal but multiple grayish white granulomatous nodules were found on serosal surface of intestine, mesentery, oviduct, uterus, particularly on caecum (Fig 1 and 2). Occasionally nodules were also found on liver. On cut section, nodules were grayish white and hard to cut. These gross lesions were in agreement with reports of various authors (Islam *et al.*, 2007; Barnes *et al.*, 2008; Rahimi and Siavash Haghghi, 2014) [3, 1, 4]. The tissues were collected in 10% formalin fixed, processed, sectioned and stained with routine (H&E) stain. Histopathological sections of nodule attached to serosa of intestine and other organ showed granulomatous inflammation (Fig 3). Mucosa of intestine showed fusion of villi with chronic inflammatory cell infiltration especially lymphocytes (Fig 4). The microscopic lesions described in the present investigation are akin to those reported previously (Islam *et al.*, 2007 and Barnes *et al.*, 2008; Sawale *et al.*, 2017) [3, 1, 5].



Fig 1: Intestine showing multiple grayish grayish white nodules on serosal surface



Fig 2: Intestine mesentery showing multiple white nodules

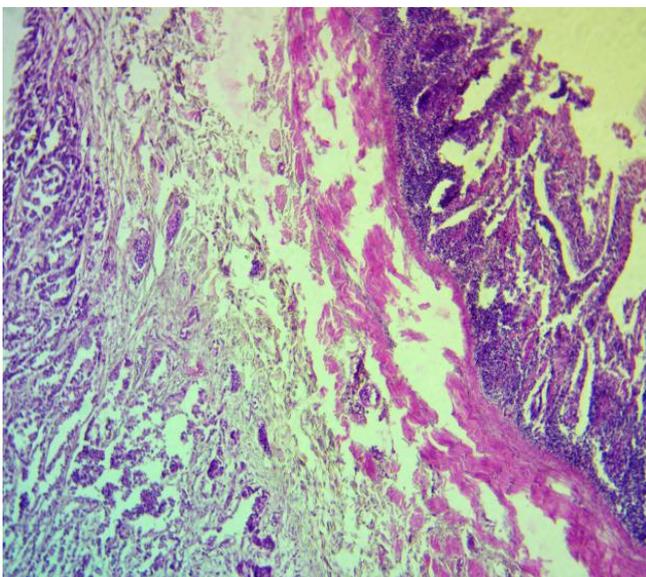


Fig 3: Section of intestine showing granulomatous nodule attached to serosal surface of the intestine (HEX600X)

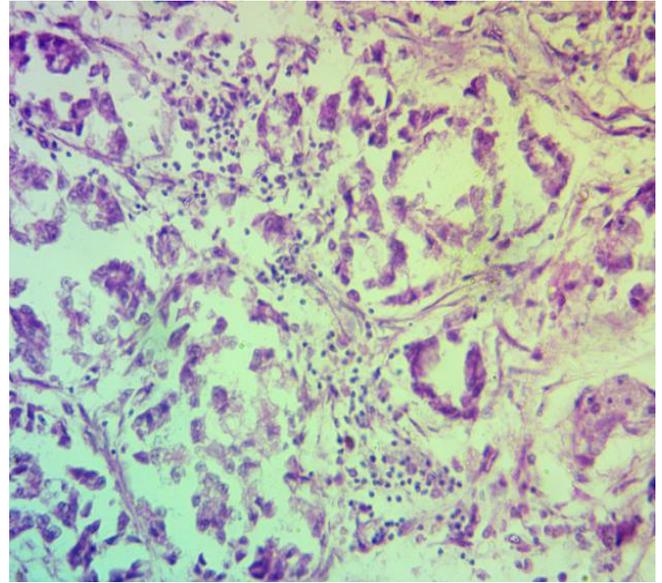


Fig 4: Section of intestine showing chronic inflammatory cells, particularly lymphocytes (HEX600X)

Microbial isolation on Mac Conkey's agar showed pink colonies. The single pink colony upon sub culturing in to EMB agar showed metallic sheen.

Coligranuloma was differentiated from tuberculosis and mycotic granuloma. Diagnosis of tuberculosis is based on the demonstration of acid fast bacilli. Fungal organisms may be demonstrated by the use of PAS stain or other special fungal stains. A diagnosis of coligranuloma was made because neither acid fast bacilli nor mycotic elements were demonstrated in lesions with special stains.

In conclusion, the present investigation describes gross and microscopic lesion and microbial isolation in coligranuloma in adult layer birds.

Acknowledgement

Authors are thankful to Associate Dean, College of Veterinary Science, Rajendra Nagar for providing necessary facility to carry out the investigation.

References

1. Barnes HJ, Nolan LK, Vaillancourt JP. Colibacillosis. In: Saif YM, Fadly AM, Glisson JR, McDougald LR, Nolan LK, Barnes HJ, Swayne DE (eds) Diseases of poultry, 12th edn. Iowa State University Press, Ames. 2008, 691-732.
2. Calnek BW, Barnes HJ, Beard CW, McDougald LR, Saif YM. Diseases of poultry. Chapter. 1997; 16:386-484.
3. Islam MN, Fatema BZ, Faruk MI. Hjarre's disease in chickens: clinical, pathological, microbiological and therapeutic findings. Bangladesh Journal of Veterinary Medicine. 2007; 5:49-53.
4. Rahimi M, Siavash Haghghi ZM. An outbreak of visceral coligranuloma in a backyard chicken flock. Comparative Clinical Pathology. 2014; 23:381.
5. Sawale G, Wadke P, Dhaygude V, Moregaonkar S. Pathomorphological Changes in Coligranuloma in Layer Birds. International Journal of Livestock Research. 2017; 7(8):281-284