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Fowl Cholera and Taeniasis Infection in Backyard Poultry – A Case Report

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ABSTRACT

A two-year-old Aseel cock from a backyard flock was presented for post-mortem examination at the Department of Veterinary Pathology, Madras Veterinary College, Chennai. Gross lesions were enlarged and congested liver with multiple multifocal variable-sized necrotic foci in the liver, congestion of the spleen, and pinpoint haemorrhages in the proventriculus. The intestine had mucus mixed contents with tapeworms identified as *Raillietina echinobothrida*. The samples collected were subjected to cytological, bacteriological and histopathological examination, and these findings were suggestive of pasteurellosis was further confirmed by cultural characterisation and PCR assay.

Keywords: Backyard poultry, Fowl Cholera, PCR

INTRODUCTION

Fowl cholera is a contagious disease affecting domesticated and wild birds caused by *Pasteurella multocida* (Glisson *et al*., 2003; Kwon and Kang, 2003). It is said to be one of the oldest poultry diseases and is commonly found in mature chickens over 16 weeks of age, but rarely occurs in young chickens of less than 8 weeks of age (Glisson *et al*., 2003). The disease is seen more frequently in layers than in broilers because of age factors. In acute disease cases, most post-mortem lesions are connected to vascular disturbances. Subepicardial and subserosal haemorrhages are common, similar to those haemorrhages in the lung, abdominal fat and intestinal mucosa. Liver of affected birds may be swollen and usually contains multiple small focal areas of coagulative necrosis with heterophilic infiltration (Rimler *et al*., 1998).

MATERIALS AND METHODS

Gross examination revealed hepatomegaly, congestion with multifocal, variable-sized necrotic foci in the liver (Fig. 1a). These findings are in accordance with the findings of Rimler *et al*. (1998). Spleen and lungs were congested, the upper part of the duodenal mucosa revealed severe diffuse haemorrhages, subepicardial haemorrhages in the heart (Fig. 1b), and pinpoint haemorrhages in the proventriculus were observed. These indicated septicemia caused by *P. multocida,* which is in agreement with previous findings (Botzler, 1991; Thangapandian *et al*., 2013) and is suggestive of fowl cholera infection.

RESULTS AND DISCUSSION

The intestine had mucus mixed contents with tapeworms identified as *Raillietina echinobothrida by* microscopic examination (Fig. 1c). Cytological examination of impression smears from liver, trachea and heart revealed the presence of numerous bipolar organisms by Leishman–Giemsa staining, which are typical of *P. multocida* organisms (Fig. 2a). Microscopic examination of liver revealed hepatic capsular thickening, diffuse sinusoidal congestion and multifocal hepatocellular necrosis with bacterial colonies and dense heterophilic infiltration suggestive of fowl cholera infection (Fig. 2b and 2c). The spleen showed lymphoid cell depletion and multifocal necrosis.

Bacteriological examination of liver, spleen and long bones was done. Isolates of *P. multocida* obtained showed typical morphological and

cultural properties. The isolates showed typical dew drop, mucoid, non-hemolytic colonies in the blood agar. No growth was noticed in MacConkey agar. These results are in accordance with OIE manual (2004) and Thangapandian *et al*. (2013) (Fig. 3a). The colonies were biochemically characterized and were positive for the oxidase and catalase tests.

Polymerase Chain Reaction (PCR) assay was performed using KMT primer, which showed positive amplification at the level of 460bp size (Fig. 3b). The isolates were subjected to *P. multocida*-specific PCR along with the standard reference strain (P52), and were confirmed as *P. multocida*. The molecular weight of the PCR products of the isolates was found to be 460 bp, specific for *P. multocida* in correlation with the findings of Townsend *et al*. (1998) and Thangapandian *et al*. (2013).

Thus, fowl cholera infection was identified by gross, histopathological, cytological examination, cultural characterisation, and further confirmed by PCR assay. To conclude, pasteurellosis, along with taeniasis, was confirmed in the Aseel bird. These results highlight the need for vigilant monitoring and prompt intervention to prevent and control infectious diseases in poultry, as mixed infections can complicate disease management. Early and accurate diagnosis is crucial for effective treatment and prevention strategies in poultry health.

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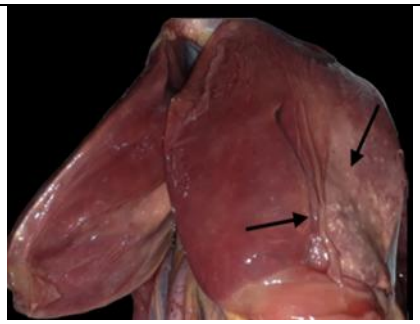

Fig. 1a: Liver - Enlarged and multiple necrotic foci

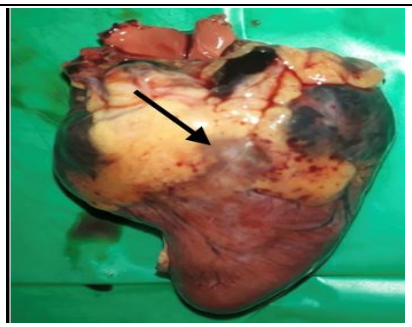

Fig. 1b: Subepicardial haemorrhages in the heart

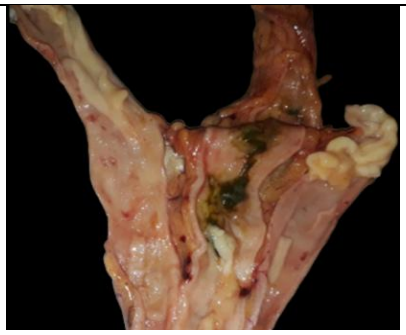

Fig. 1c: Raillietina echinobothrida worms in the intestine

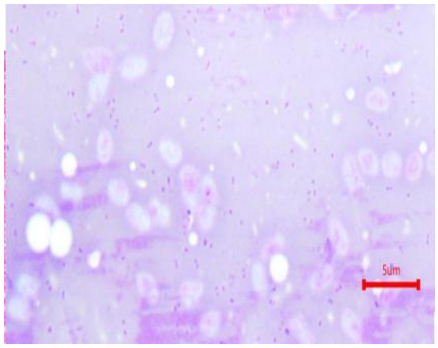

Fig. 2a: Heart blood smear stained with Leishman–Giemsa, indicating the presence of a bipolar organism

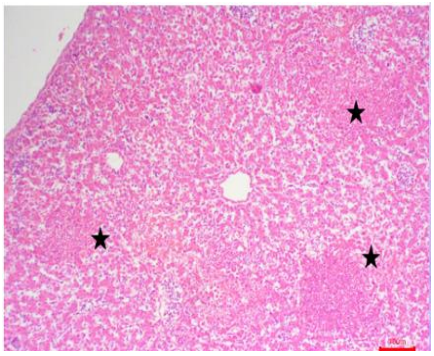

Fig. 2b: Liver - Multiple areas of coagulative necrosis (indicated by stars)

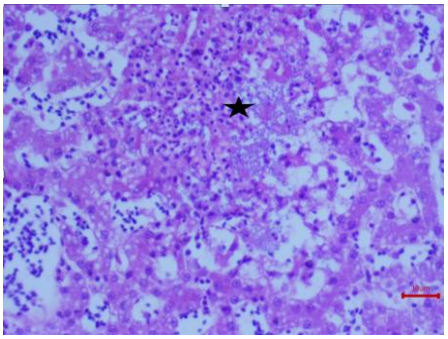

Fig 2c. Liver - Coagulative necrosis with heterophilic infiltration

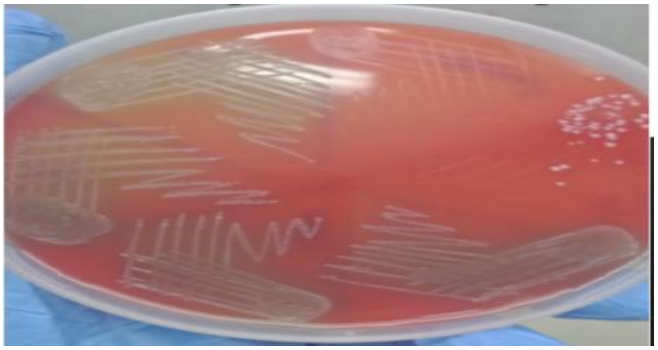

Fig. 3a: Blood Agar – Presence of typical dew drop colonies

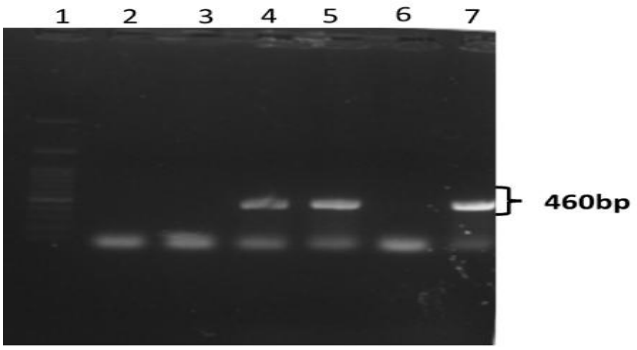

Fig. 3b: Positive amplification at the level of 460bp size for capsular antigen of *P. multocida*; Lane 1 – Ladder, Lane 4 –Positive sample (Liver), Lane 5 - Negative sample (Long Bone), Lane 7- Positive control