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## CASE REPORT

### EMBOLIC NEPHRITIS IN EMU

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#### ABSTRACT

Emu farming is a new upcoming industry taken up by farmers with progressive views and by entrepreneurs exploring new market. The contribution to the economy by this type of farming is mainly dependent on its success in our Indian Agro-Climatic condition. This necessitates the fact that a thorough study to be made about the various pathological conditions affecting these birds. It has been observed that these birds suffer from lameness and other disorders because of deficiency of calcium, phosphorus and methionine. One such condition encountered in routine post mortem examination is a case of "Embolic Nephritis" in a 5 ½ month old male emu bird. Complete post mortem examination of the carcass revealed shrunken kidneys with the presence of small, numerous abscesses with purulent discharge oozing out on the cortical surface of both the kidneys. Histological section taken from the kidney revealed multiple abscesses with centrally haemotoxylin stained material surrounded by mononuclear cell infiltration predominantly neutrophils along with cystic dilatation of tubules and areas of necrotic glomerular tufts with deposition of fibrin in the interstitial tissue spaces. Cultural examination of the swab taken from the abscess confirmed the presence of gram positive *Staphylococci* organisms which has a tendency to remain localized producing abscesses.

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#### INTRODUCTION

Emu farming is a new upcoming industry taken up by farmers with progressive views and by entrepreneurs exploring new market. The contribution to the economy by this type of farming is mainly dependent on its success in our Indian Agro-Climatic condition. This necessitates the fact that a thorough study to be made about the various pathological agents affecting these birds. Nephritis is the inflammation of the kidneys. "Embolic Nephritis" is sometimes used for the condition of multiple abscesses in the kidney (Smith and Jones, 1966). Embolic Nephritis is always secondary to suppurative processes elsewhere in the body (Gaiger and Davies, 1955). Pyogenic organisms or septic emboli, such as thrombi or vegetations from heart valves are arrested in kidney capillaries and the multiplication of organisms leads to abscess formation (Govan *et al.*, 1991). The present paper is an incidental finding of embolic nephritis in a 5 ½ month emu bird encountered in routine post mortem examination.

#### MATERIALS AND METHODS

Around 5 ½ month old male emu bird with a history of anorexia, listlessness and weakness was presented to the

Department of Pathology for post mortem examination and a detailed postmortem examination was performed. Gross changes of all the organs were observed and representative tissue samples were collected in 10% neutral buffered formalin for histological examination. The tissue was trimmed and processed by passing the sections through different grades of alcohol for dehydration followed by clearing in xylol and embedding in paraffin. Paraffin blocks were cut at 5 µ thickness and stained with routine Haematoxylin and Eosin. Sterile swabs from cut sections of abscesses were taken for cultural examination and inoculated into Brain Heart Infusion broth (BHI).

#### RESULTS AND DISCUSSION

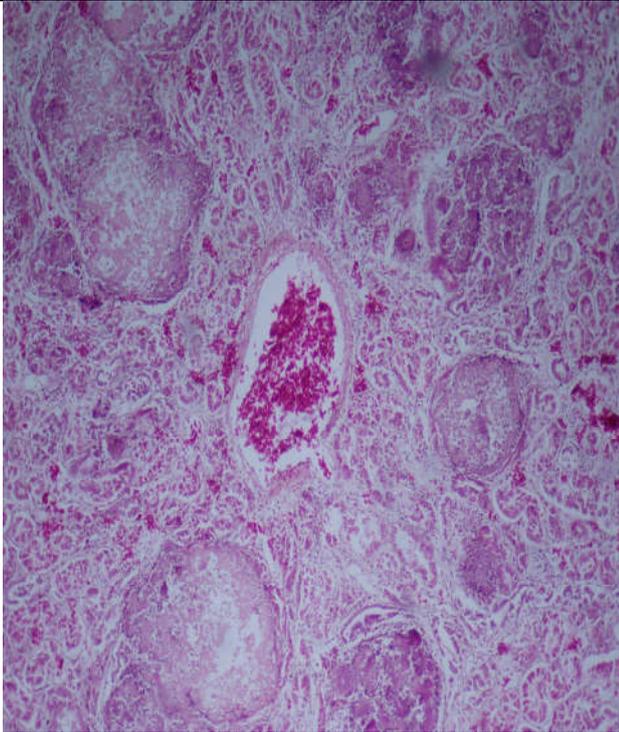
Externally the carcass was moderate in body condition and internally the visceral organs were congested. Liver was slightly enlarged and congested severely. The endocardium of the heart showed moderate congestion. The lumen of the intestine contained mucus mixed ingesta. Lungs were mildly congested and on sectioning froth oozed out. Congestion of testicular blood vessels was observed. Both the kidneys were shrunken and revealed presence of small, numerous abscesses

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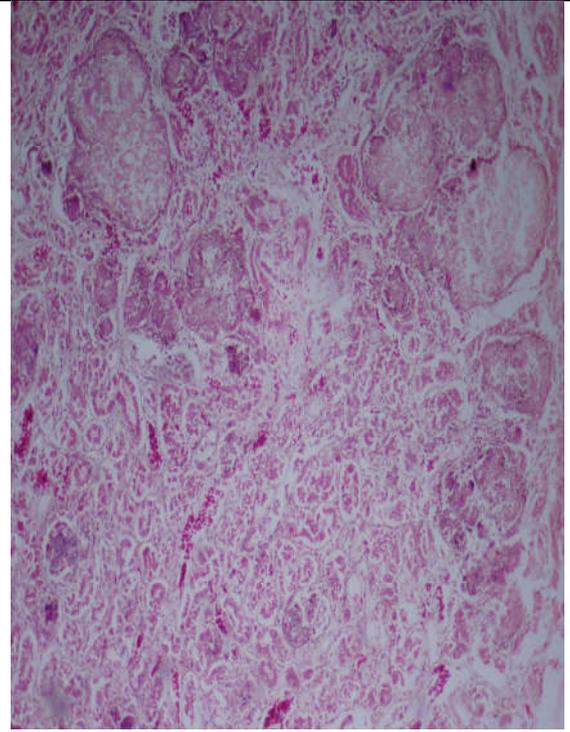
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on its cortical surface and purulent discharges were observed on sectioning.

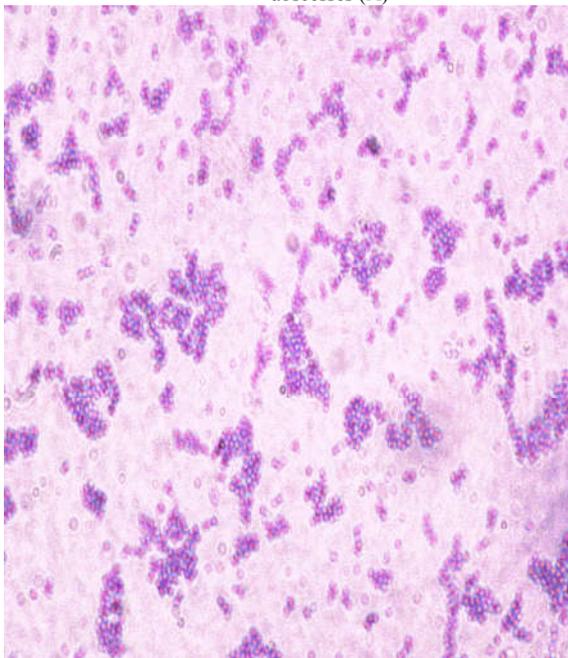
bacterial colonies and an individual colony is taken onto a slide; a smear is made and subjected to Gram staining.



**Fig.1** H & E section of kidney showing multiple abscesses (A)



**Fig.2** H & E section of kidney showing abscesses (A) and hemorrhage (H).



**Fig.3** Gram +ve *Staphylococci* organisms (in bunches) after Gram staining.



**Fig.4** Golden yellow colonies of *Staphylococcus sp* on Mannitol Salt Agar (MSA)

Histologically, the H&E section of kidney revealed severe congestion of blood vessels with diffused areas of hemorrhage. Multiple abscesses with centrally haemotoxylin stained material and surrounded by mononuclear cell infiltration predominantly neutrophils was observed (fig.1). Cystic dilatation of tubules and few glomeruli infiltrated with mononuclear cells, areas of necrotic glomerular tufts with deposition of fibrin in the interstitial tissue spaces were noticed (fig.2). The swabs on cultural examination revealed presence of

Gram positive *Staphylococci* organisms in bunches were noticed (fig.3) and the organism were grown on the selective medium (Mannitol Salt Agar) and characteristics golden yellow colored colonies (fig.4) confirmed the presence of Gram + ve *Staphylococci* organisms.

Gaiger and Davis (1995) reported, embolic nephritis is frequently associated with ulcerative endocarditis, suppurative arthritis and pyemia from other causes, and the organisms

chiefly concerned are *Streptococci* and *Staphylococci* (Sastry, 1983). *Staphylococci* exhibit a marked tendency to remain localized producing abscesses, whereas *Streptococci* are more invasive and can cause cellulitis and septicemia. In the present study, multiple abscesses with infiltration of few glomeruli with mononuclear cells were observed. The invasive organism through haematogenous route (Smith and Jones, 1966) might have entered kidney, lodged and resulted as an emboli, leading to subsequent consequences in glomerular capillaries and tufts resulting glomerular nephritis (Jubb & Kennedy, 1970). The present findings are in agreement with the studies/reports of Sastry, G.A (1983), M.D McGavin and J.F Zachary (2007) and K.V.F.Jubb and Peter C.Kennedy (1970).

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