

Occurrence of Visceral Gout in a Peafowl (*Pavo cristatus*) – A Case Report

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ABSTRACT

An adult peafowl was bought for post-mortem examination to the Department of Veterinary Pathology, Madras Veterinary College, Chennai. Postmortem examination revealed white chalk material on the surface of the liver, pericardium and epicardium with thickened pericardium. Kidneys were enlarged, grey in colour and slightly congested. Microscopic examination of the heart revealed multifocal tophi formation in the pericardium, surrounded by inflammatory cells and pericardial haemorrhages and congestion. Kidneys revealed tubular epithelial cell degeneration, necrosis and dilatation of tubules. Tophi formation was noticed in proximal convoluted and distal convoluted tubules, and mineralization was noticed in the tubules. Liver had multifocal micro to macro-vesicular fatty degeneration and tophi formation in the hepatic capsule. The lungs revealed congestion and tophi formation. Based on the gross and histopathological examination, the condition was diagnosed as visceral gout.

Keywords: Peafowl, Visceral gout, Tophi

INTRODUCTION

In domestic birds, gout is a frequent metabolic disease that causes an abnormal accumulation of urates. The causes for this condition are both infectious and non-infectious. Factors that lead to gout are increased calcium and vitamin D3 levels with decreased phosphorus levels in the diet, vitamin A deficiency, water deprivation, excess of sodium bicarbonate, antibiotics and mycotoxins (Panigrahi *et al.*,

2021). Gout usually occurs in two forms in poultry: articular gout and visceral gout. The visceral gout is the more common and invariably acute form of gout as compared to the articular gout. Occurrence of gout has been reported in poultry (Amaravathi *et al.*, 2015; Al Mamun *et al.*, 2019); however, this study reports a case of visceral gout in an Indian Peafowl. The present study confirms the occurrence of Visceral gout in an Indian Peafowl by gross and histopathological examinations, followed by special staining for urate crystals.

CASE HISTORY AND OBSERVATION

An adult peafowl was bought for post-mortem examination to the Department of Veterinary Pathology, Madras Veterinary College, Chennai. The peafowl had ruffled feathers, which indicated dehydration. Kidneys were enlarged, slightly congested, greyish-white in colour and multifocal chalky white deposits on the parietal and visceral surface (Fig. 1A), and lungs were congested upon postmortem examination. Multifocal chalky white deposits on the parietal and visceral surface of the liver were observed (Fig. 1B). Pericardium was thickened, and white chalk-like material was noticed on the pericardium and epicardium (Fig. 1C).

RESULTS AND DISCUSSION

The tissues were collected and fixed in 10% neutral buffered formalin. The histopathological examination of the kidneys revealed moderate to marked multifocal tubular epithelial cell degeneration and tophi formation under H&E staining (Fig. 2A and 2B).

Liver showed multifocal marked micro to macro vesicular fatty degeneration and tophus formation (Fig. 2C). Lungs had pulmonary congestion and multifocal tophi formation in the alveolar region (Fig. 3A). Furthermore, myocardium revealed mild to moderate multifocal myocardial degeneration and tophus formation and urate crystal deposition in the pericardium (Fig. 3B and C). The gross pathology observed in this study was consistent with earlier reports (Amaravathi *et al.*, 2015; Mudasir *et al.*, 2017) and histopathological findings are in accordance with Panigrahi *et al.* (2021). To confirm these crystals as urate, the special

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staining technique de Galantha was performed, which specifically stains urate crystals black in colour. Upon the de Galantha staining, these crystals appeared black in colour, which confirmed the case as gout.

CONCLUSION

This study reports a case of visceral gout in an Indian Peafowl and confirmed it by histopathological examination and special staining for urate crystals. This incidence of visceral gout in Indian Peafowl had occurred, along with the deposition of urate crystals in the lungs, which is a rare finding.

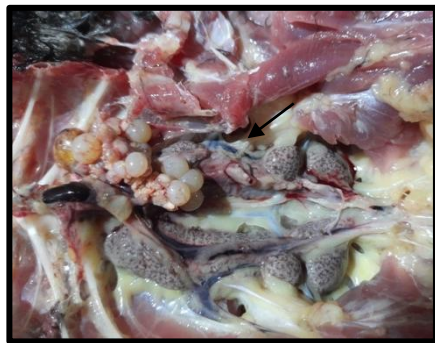


Fig. 1A: Kidneys enlarged and grey white in colour



Fig. 1B: Liver - Multifocal chalky white deposits on the parietal and visceral surface

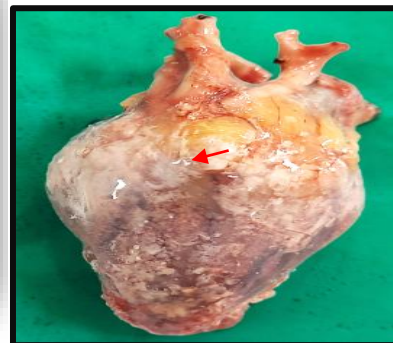


Fig. 1C: Pericardium - Chalky white deposits on the surface

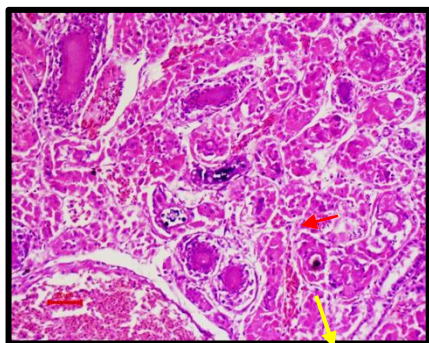


Fig. 2A: Kidneys - Moderate multifocal tubular epithelial cell degeneration and tophi formation under H&E staining

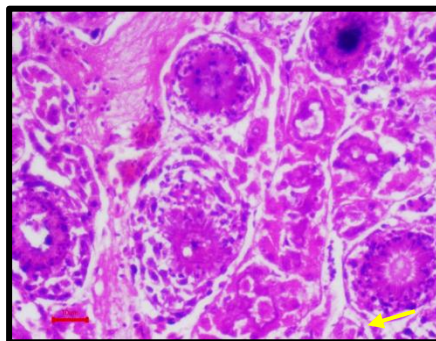


Fig. 2B: Kidneys - Marked multifocal tubular epithelial cell degeneration and tophi formation under H&E staining

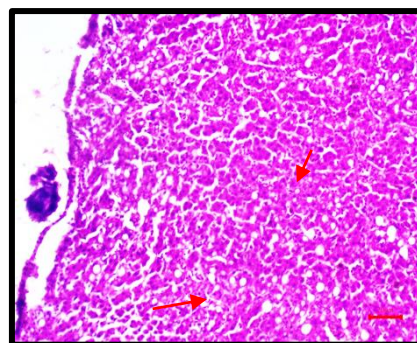
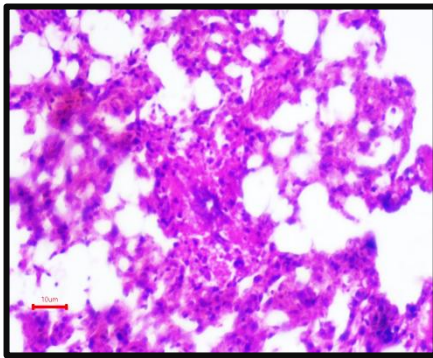
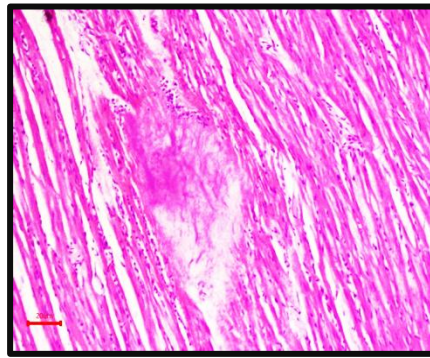


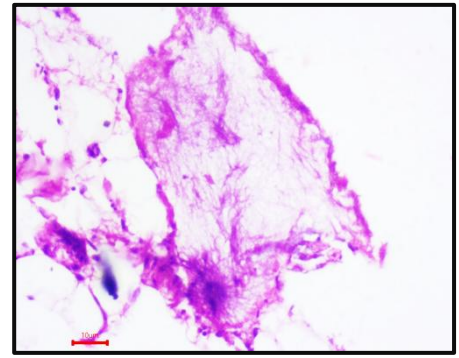
Fig. 2C: Liver - Multifocal marked micro to macro vesicular fatty degeneration and tophus formation



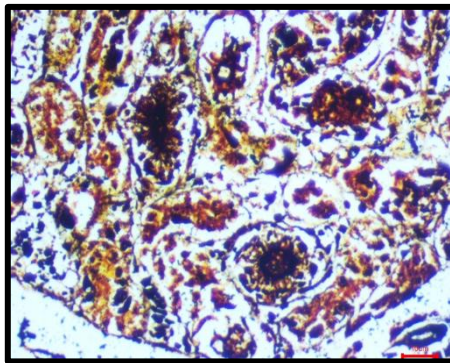
**Fig. 3A: H&E staining (40X) Lung-
Tophus formation**



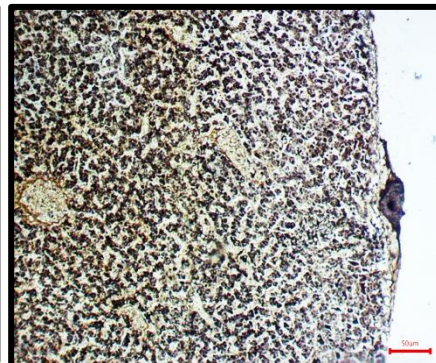
**Fig. 3B: H&E staining (40X)
Myocardium - Mild to moderate
degeneration and tophus
formation**



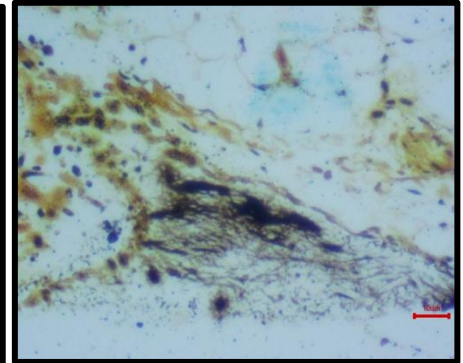
**Fig. 3C: H&E staining (40X)
Pericardium - Multifocal areas of
urate crystal deposition and
tophus formation**



**Fig. 4A: de Galantha staining (40X)
Kidney - Urate crystals black in
colour**



**Fig. 4B: de Galantha staining
(10X) Liver - Urate crystals black
in colour**



**Fig. 4C: de Galantha staining (40X)
Pericardium - Urate crystals black
in colour**

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