VISCERAL GOUT IN POULTRY-A REPORT

Deepa Chirayath[1] and Rejitha, T.S.[2]
[1] Assistant Professor, Department of Clinical Veterinary Medicine,
College of Veterinary and Animal Sciences, Mannuthy
[2]Technical Assistant, District Animal Husbandry Office, Thrissur.

Received: 30-03-14 Accepted 03-01-2015

ABSTRACT

Visceral gout is characterized by precipitation of urates in the kidneys and on the serous surfaces of the heart, liver, mesenteries, air sacs or peritoneum. Visceral urate deposition is generally due to a failure of urinary excretion which may be due to obstruction of ureters, renal damage or dehydration. Dehydration due to water deprivation is a common cause of visceral gout in domestic poultry. A case of visceral gout in 12 week old pullet during the month of March was reported and histopathological lesions were described.

Keywords: Visceral gout, Poultry

INTRODUCTION

Visceral gout, which has also been called visceral urate deposition is characterized by precipitation of urates in the kidneys and on the serous surfaces of the heart, liver, mesenteries, air sacs or peritoneum. The deposits on serosal surfaces appear grossly as a white chalky coating, and those within viscerae may be recognized only microscopically. Visceral urate deposition is generally due to a failure of urinary excretion which may be due to obstruction of ureters, renal damage or dehydration. Dehydration due to water deprivation is a common cause of visceral gout in domestic poultry. Outbreak of visceral gout in poultry have also been attributed to vitamin A deficiency, secondary to urolithiasis, treatment with sodium bicarbonate, mycotoxins such as oosporin, renal cryptosporidiosis and treatment with sodium bicarbonate (Crespo and Shivaprasad, 2003, Sodhi, *et al*. 2008 and Eldaghayes *et al*. 2010). Dehydration due to water restriction leading to visceral gout cause increased mortality in poultry flocks (Takahashi *et al.* 2009).

CASE HISTORY AND OBSERVATION

A batch of pullets of 12 weeks old were presented in the middle of March 2011 to the College Veterinary Hospital with a complaint of anorexia and droopiness for the past 3 days. Faecal sample was positive for *Ascaridia galli* ova. One bird died on examination table and was sent for post mortem examination.

Gross pathology

At necropsy the bird appeared in good nutritional condition. There was white chalky material extensively distributed over the peritoneum and pericardium. Other findings were pale swollen kidneys and swollen spleen. No abnormalities were detected in other tissues including leg and foot articulations.

Histopathology

Section of kidney showed glomeruli of varying sizes, many of them showing oedema and necrosis of the glomerular tufts. Some of the glomeruli were hypocellular. The lining cells

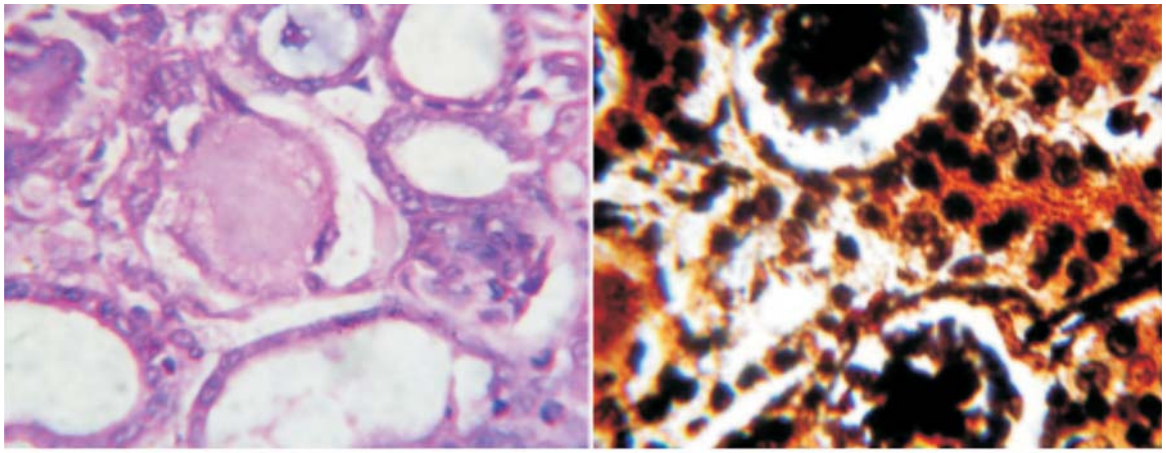

Fig.1. Section of kidney showing A) bluish purple stained needle like urate deposits in a renal tubule, H&E,X1000
B) Showing black coloured urate deposits in renal tubules, De-Galanthas staining X1000

of renal tubules appeared oedematous in some places. Interstitial tissue showed hemorrhage and congestion. Many of the tubules contained urate deposits which appear bluish purple needle like mass (Fig. 1A). On De Galanthas staining (Luna, 19 68) urate deposits inside the renal tubules appeared black in colour (Fig.1B).

RESULTS AND DISCUSSION

In the present case dehydration must have led to the kidney damage, as heat stroke is common in animals in Kerala during summer months. Sufficient drinking water supply should be ensured to birds during summer to prevent visceral gout.

ACKNOWLEDGM ENT

The authors are thankful to the Dean, College of Veterinary and Animal Sciences, Mannuthy, Kerala for providing necessary facilities. Also thankful to Dr. N. Divakaran Nair, Professor, Centre of Excellence in Pathology, College of Veterinary and Animal Sciences, Mannuthy for reading the histopathological slides.

REFERENCES

Crepso, R.and Shivaprasad, H.L.2003. Developmental, metabolic and other non infectious disorders. *In Diseases of Poultry*. Iowa State Press, Iowa, USA, **11th** edition, Saif, Y.M. 253-269.

Eldaghayes, I.M., Hamid, M.A., El-Attar,S.R. and Kammon, A.M. 2010. Pathology of gout in growing layers atributed to high calcium and protein diet. *E- International Scientific Research Journal*. **2:** 297-302

Luna, L.G. 1968. *Manual of histologicstaining methods of the AFIP*, **3rd** edition. McGraw-Hil.New York. 187

Speckmann, G. and Luther, J.W.1974. Visceral gout and amyloidosis in a mute swan (Cygnus olor). *Can.Vet. Jour.* **15:** 51-53.

Sodhi, S., Brar, R.S.,Banga. H.S. and Nagra, S.S. 2008. Patho-biochemical studies on experimentally induced gout by administration of sodium bicarbonate in broilers. *Toxicology International* **15**: 117-120

Takahashi, M., Seimiya, Y.; Sato, C.; Sasaki, I.; Kumagai, Y.; Ido, N.; Koneguchi, T.

2009.

Visceral gout in broiler chickens associated with water restrictions. J*ournal of the Japan Veterinary Medical Association*. **62:** 941-945