

Concurrent outbreaks of visceral gout and lymphoid leucosis in domestic fowls in Nigeria

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MATERIALS AND METHODS

Apparition simultanée de goutte viscérale et de leucose lymphoïde chez des volailles au Nigéria – Deux cas simultanés de goutte viscérale et de leucose lymphoïde ont été mis en évidence chez des poulettes âgées de 17 semaines et des poules pondeuses adultes, appartenant à deux exploitations avicoles différentes. Les oiseaux morts de la goutte viscérale étaient particulièrement décharnés. Après coloration au nitrate d'argent, les dépôts cristallins blancs, remarqués sur les organes internes, se sont avérés être de l'urate. Des coupes histopathologiques de rein, de poumon, de foie et de rate ont montré des foyers de nécrose caséuse entourés de cellules géantes. Les oiseaux morts de leucose lymphoïde étaient également très décharnés ; leurs organes internes étaient atteints de renflements nodulaires et diffus. Les coupes histopathologiques des organes ont montré des surcharges multifocales de lymphoblastes pyroninophiles. Dans chaque bande, les animaux atteints de goutte viscérale étaient indemnes de leucose lymphoïde et vice versa. Cette observation tend à prouver qu'il serait possible de stopper le développement d'une des deux maladies par le biais de l'autre.
Mots clés : Volaille – Goutte viscérale – Leucose lymphoïde – Nigeria.

INTRODUCTION

Gout is a pathological condition in which urates are deposited in the internal organs (visceral) and joints (articular) leading to mortality. The disease has been associated with varied predisposing factors such as heredity, high protein diet, sodium bicarbonate intoxication, vitamins A and D deficiencies and oosporein toxicosis (1, 3, 4). Visceral gout has been observed to induce the hypoplasia of the bursa of Fabricius (2) but it has not been found to prevent the development of bursa-dependent diseases of poultry. In this paper concurrent outbreaks of gout and avian leucosis are described in 2 different farms. In each case birds that had lesions of gout were free from those of leucosis and vice versa.

The birds involved in the first combined outbreaks which occurred in November, 1985, were layers that were severely emaciated. They had a history of long-standing undiagnosed disease, medication without improvement and continuous mortality. Out of 10 birds necropsied, 6 showed massive fleshy nodular and diffuse enlargement of most of the internal organs. But in 4 other birds the ureters were greatly enlarged with molded hard whitish deposits. Kidneys contained nodules of whitish crystalline deposits and were enlarged. Tiny crystalline deposits were found in the liver, spleen, lungs and serous membranes.

The second outbreaks were observed 2 months later and involved 17-week-old pullets which were also severely emaciated and had a history similar to that of the layers affected by the first outbreaks. Out of 8 birds necropsied 5 had massive fleshy nodular and diffuse enlargement of the visceral organ while 3 showed whitish crystalline deposits in the internal organs. Ureters were distended with hard lumps of whitish material.

Organs showing lesions of fleshy enlargement or crystalline deposits were fixed in 10 p.100 formal saline, processed and stained with haematoxylin and eosin (H & E). Another set of those showing fleshy enlargements were fixed in neutral formalin, processed and stained with methyl-green pyronin. A second set of organs showing crystalline deposits were fixed in absolute alcohol, processed and stained with silver nitrate solution.

RESULTS

In both outbreaks birds that had fleshy enlarged organs showed multi-focal areas of massive infiltration

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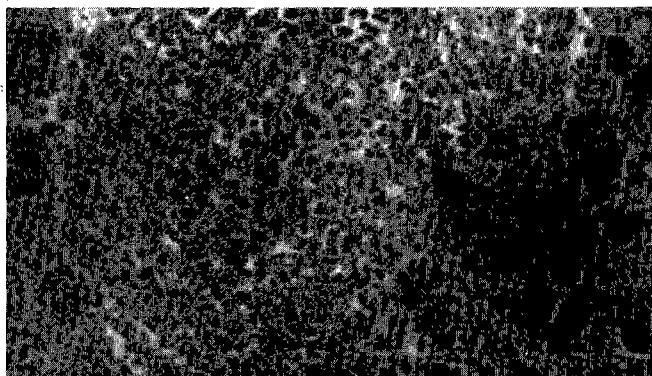


Fig. 1 : Liver of chicken that died of lymphoid leucosis showing a focal accumulation (A) of lymphoblasts. Line scale 25 μ m. H & E \times 400.

by lymphoblasts which were pyroninophilic in sections stained with methyl-green pyronin (Fig. 1). But in birds that had crystalline deposits in the organs, the internal organs showed no sign of lymphoblast infiltration in H & E sections. Kidney, lungs, spleen and liver had many caseous foci some of which were radiating and surrounded by giant cells (Fig. 2, 3, 4). Sections stained with silver nitrate showed black colour of urate deposits while other structures were yellow.

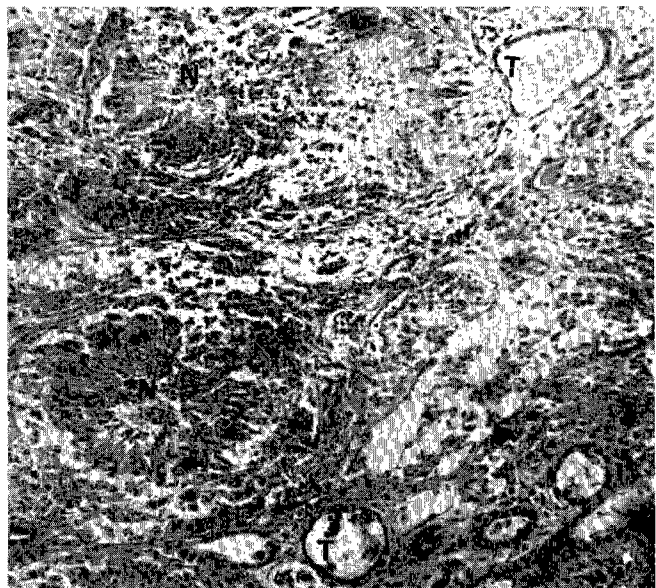


Fig. 2 : Kidney of chicken that died of visceral gout showing radiating areas of caseous necrosis (N), tubules (T) containing casts and epithelium either atrophic or completely lost. Line scale 50 μ m. H & E \times 200.

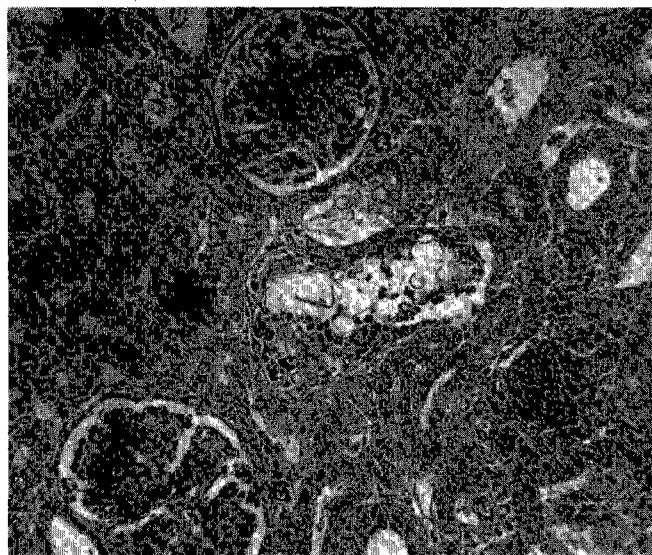


Fig. 3 : Liver of chicken that died of visceral gout showing radiating areas (L) of caseous necrosis surrounded by vacuolated hepatocytes. Line scale 25 μ m. H & E \times 400.

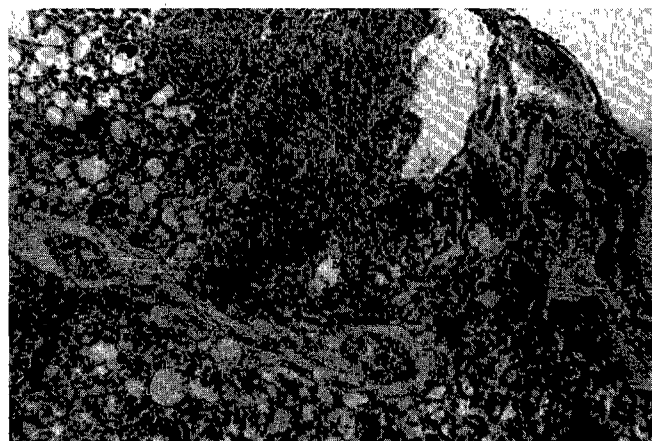


Fig. 4 : Lung of chicken that died of visceral gout showing areas of caseous necrosis (N). H & E \times 200.

DISCUSSION

It is difficult to explain why the birds that suffered lymphoid leucosis (LL) were free from visceral gout (VG) and vice versa. This could be due to the hypoplastic effect of VG on the bursa earlier reported by COTOFAN and APETREI (2). The bursa is a target organ whose presence and optimum development is required for the initiation of LL. It has been found that bursectomy at up to 5 months of age prevents LL (5). ■

OKOYE (J.O.A.). Concurrent outbreaks of visceral gout and lymphoid leucosis in domestic fowls in Nigeria. *Rev. Elev. Méd. vét. Pays trop.*, 1986, **39** (3-4) : 275-277

Two cases of concurrent visceral gout and lymphoid leucosis were diagnosed in flocks of 17-week-old pullets and adult layers in 2 different poultry farms. Birds that died of visceral gout were severely emaciated and the internal organs had white crystalline deposits which were confirmed to be urates by silver nitrate staining. Histopathological sections of the kidney, lung, liver and spleen had foci of caseous necrosis surrounded by giant cells. Birds that died of lymphoid leucosis were also severely emaciated and the internal organs had nodular and diffuse enlargements. Histopathological sections of the organs showed multifocal accumulations of pyroninophilic lymphoblasts. In each flock birds that had lesions of visceral gout were free from lesions of lymphoid leucosis and vice versa. These observations indicate that one of the diseases could be suppressing the development of the other. *Key words* : Domestic fowl – Avian gout – Lymphoid leucosis – Nigeria.

OKOYE (J.O.A.). Aparición simultánea de gota visceral y de leucosis linfoidea en aves de corral, en Nigeria. *Rev. Elev. Méd. vét. Pays trop.*, 1986, **39** (3-4) : 275-277

Se evidenciaron dos casos simultáneos de gota visceral y de leucosis linfoidea en pollitas de 17 semanas de edad y gallinas ponedoras adultas perteneciendo a dos explotaciones avícolas. Las aves muertas a causa de la gota eran particularmente enflaquecidas. Después de coloración con nitrato de plata, se identificaron los depósitos cristalinos blancos observados sobre los órganos internos como urato. Los cortes histopatológicos del riñón, del pulmón, del hígado y del bazo mostraron focos de necrosis caseosa cercados por células gigantes. Las aves muertas a causa de la leucosis linfoidea eran también muy enflaquecidas ; sus órganos internos tenían hinchazones nodulares y difusos. Cortes histopatológicos de los órganos mostraron montones multifocales de linfoblastos pironinofílicos. Las aves padecidas la gota visceral eran indemnes de leucosis linfoidea y viceversa. Según esta observación, sería posible impedir el desarrollo de una de ambas enfermedades por mediación de otra. *Palabras claves* : Aves de corral – Gota visceral – Leucosis linfoidea – Nigeria.

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