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A CASE OF EMBRYONAL NEPHROMA IN DOVE

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Summary

A case of embryonal nephroma in a two-year-old female dove was reported. The tumor originated on the left kidney, measured 2 x 1 x 0.5 cm. and weighed 0.70 gm. Tubular-like and glomerular-like structures, tubular cysts and mucin were noted on histological sections.

Introduction

Embryonal nephroma has many names because of its morphological variations and the different concepts of its histogenesis. It has been called renal adenosarcoma, renal cystadenoma, hypernephroma, nephroblastoma and Wilms' tumor. It is generally agreed that this tumor arises from primitive nephrogenic tissue of the kidney. It may arise anteriorly or posteriorly, and can separate and remove from the nephric tissue (Feldman, 1930). The tumor occurs more commonly in chickens than in mammals, except man. Goss (1940) reported that among a total of 113 chicken tumors examined, exclusive of those designated "leukotic tumors", 4 were considered embryonal nephromas. In Jackson's (1936) series of avian neoplasms, the embryonal nephromas accounted for 3.5 per cent of the total. Campbell and Appleby (1966) found 54 embryonal nephromas among 351 tumors in broiler chickens.

History

During one week, seven spotted-necked doves (*Streptopelia chinensis*) from the Animal Center, Khon Kaen University, were found dead in the cage without any clinical signs. A postmortem examination was carried out. An embryonal nephroma was found in a two-year-old female dove.

Necropsy Findings

A large lobulated mass of yellowish color was found embedded in the substance of the left kidney. It measured 2x1x0.5 cm. (Length x Width x Thickness), and weighed 0.70 gm. The tumor was moderately firm and possessed a rough surface (Fig. 1).

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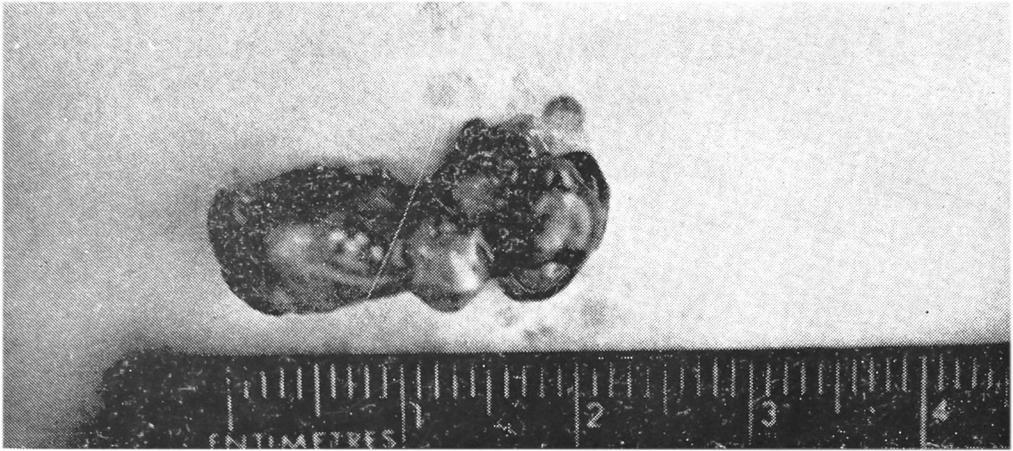


Figure 1. Lobulated mass of embryonal nephroma of the left kidney.

Histopathology

The tumor mass was mostly composed of acinar or tubular-like structures (Fig. 2). These acinar or tubular-like spaces were lined by single or several layers of hyperchromic cuboidal cells. A large number of variable sized cysts were formed and some cysts contained rough pinkish material or mucin substance (Fig. 3). Necrosis and some glomerular-like structures were present in some areas (Figs. 4 and 5). No metastasis was found in other organs.

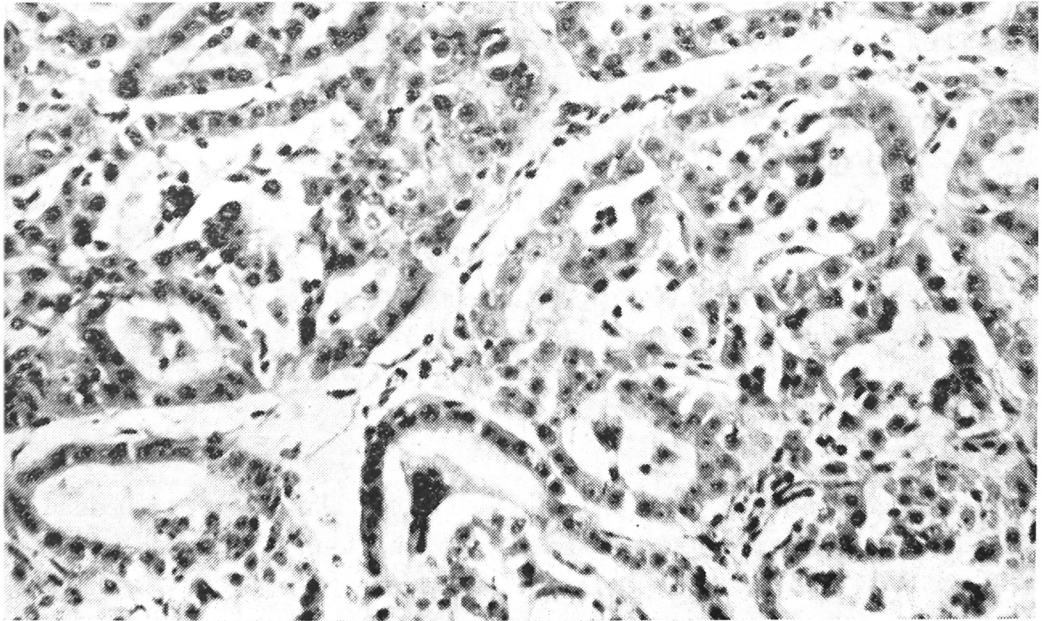


Figure 2. Hyperchromic tubular-like structures.

H & E stain. x 300.

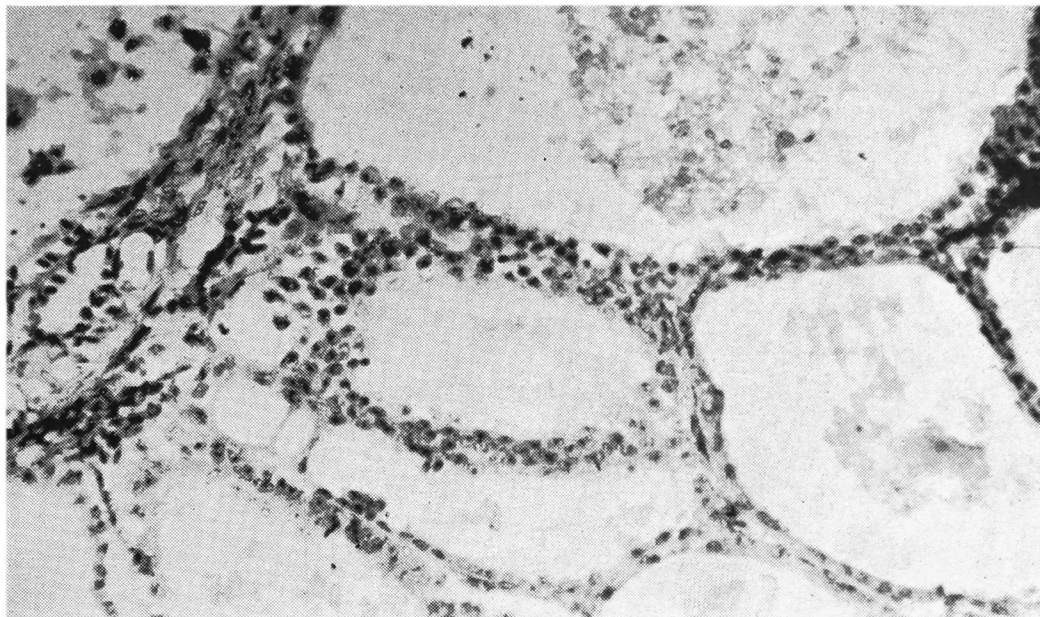


Figure 3. Dilated cystic forms containing mucin
H & E stain. x 300.

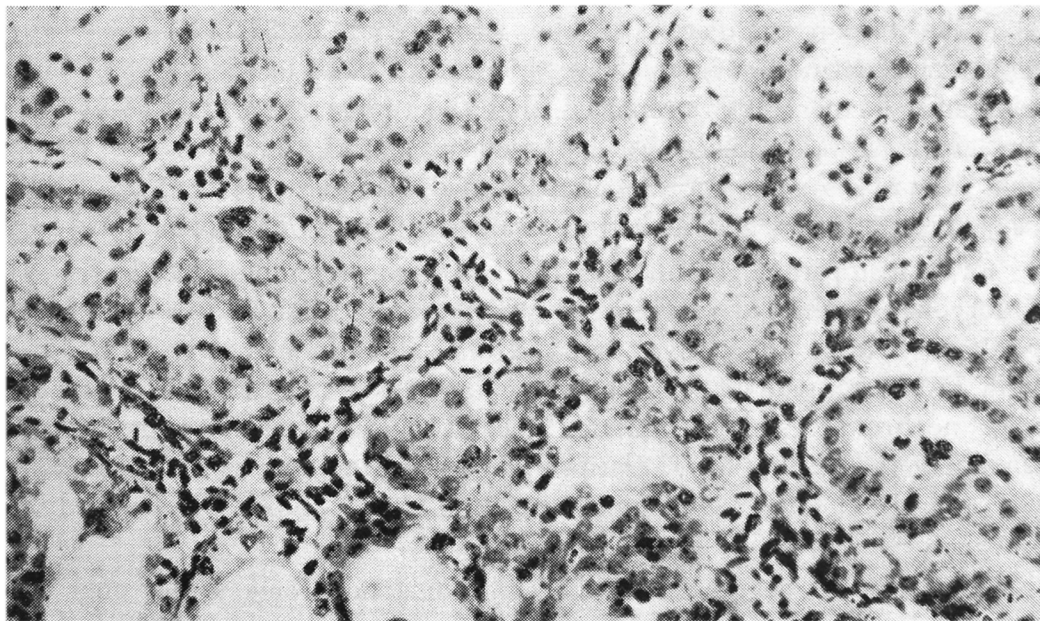


Figure 4. An area containing glomeruloid bodies
H & E stain. x 300.

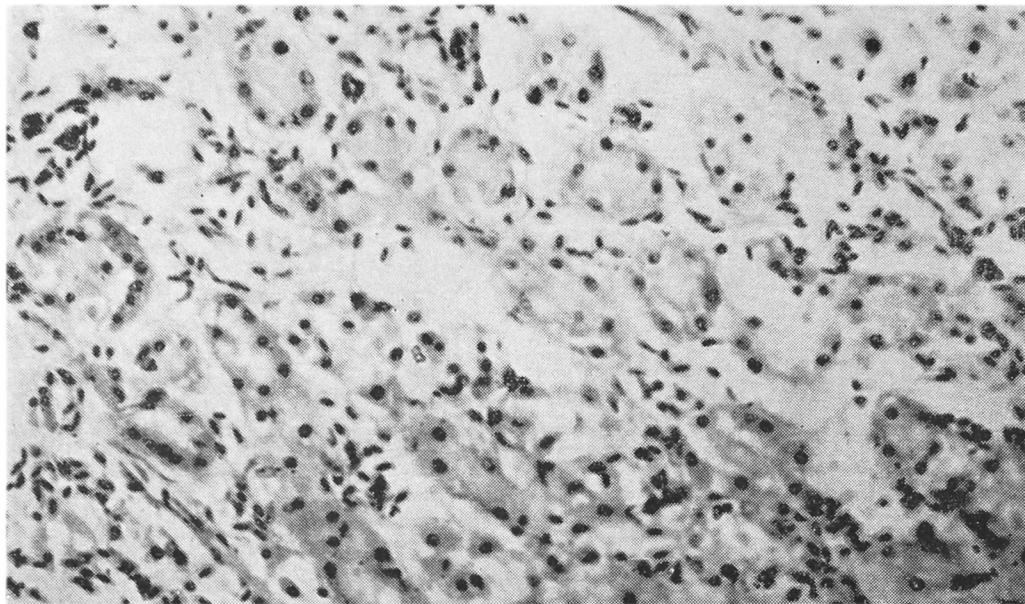


Figure 5. Showing an area of tubular necrosis,
H & E stain. x 300.

Discussion

The tumor originated on the left kidney and this agrees with the previously reported findings in chickens (Mathews, 1929; Jackson, 1936). However, Helmboldt and Jortner (1966) reported that the tumor seemed to occur on either right or left kidneys in 52 cases. No metastasis was found in the case under discussion. Metastasis was recorded in only two cases (Mathews, 1929). Although pulmonary metastasis was mentioned, no details or figures were given (Jackson, 1936).

The histopathologic findings of this tumor resembles the Type I, III and V of embryonal nephroma in chickens which were classified by Helmboldt and Jortner (1966) except connective tissue stroma, keratin bodies and cartilage were not found in the present case. The following structures have been reported in embryonal nephroma: smooth muscle, striated muscle, tubular cysts, fibromatous areas, chondral and osseous foci, keratin, squamous metaplasia, hemorrhage and mucin (Feldmen and Olson, 1933; Feldman and Olson, 1967; Jubb and Kennedy, 1963; Smith and Jones, 1968).

Our finding suggests that the embryonal nephroma is not only found in chickens but also in other birds. We only found embryonal nephroma in one of the seven doves examined. The ratification depends on further postmortem examination of other doves.

Acknowledgement

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