

Ultrasonographic diagnosis of bilateral renal carcinoma in a dog

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Abstract

Ten-year-old male Labrador dog was presented with the history of anorexia, weight loss, haematuria for a period of five days. Abdominal ultrasonography revealed solitary mixed echogenicity mass at caudal pole of both kidneys. Urinalysis revealed proteinuria, and leucocytosis. It was confirmed as renal carcinoma through fine needle aspiration cytology.

Keywords: Carcinoma, renal, haematuria

Tumors in dogs can stem from various parts of the kidney, including the renal epithelium, renal mesenchyme, or from embryonal tissue with mixed origins. Primary renal tumors accounts for an estimated 0.3 to 1.5% of all neoplasm in dogs [Meuten, 2002]. Renal carcinoma stands out as the primary malignant tumor affecting the kidney in dogs often spreading to the lungs and lymph nodes, and reported metastatic rates in renal neoplasia cases was approximately 60–70% in dogs [Klein *et al.*, 1988]. Despite their significance, very limited documentation exists regarding renal carcinoma in dogs. The present article reports the diagnosis of bilateral renal carcinoma in a dog.

An ten year old male uncastrated Labrador dog weighing around 29 kg was brought to Madras Veterinary College Teaching Hospital for anorexia, weight loss, and haematuria for a period of five days. Clinical examination revealed dullness and pale mucous membranes. Rectal temperature (101.9F), heart rate (98/min) and respiratory rate (32/min) were within normal limits. Abdominal palpation revealed evidence of pain. Haematological examination revealed haemoglobin of

9.6 g/dL, packed cell volume 22.2%, total erythrocyte count $4.04 \times 10^6 / \mu\text{L}$, total leucocyte count $33.60 \times 10^3 / \mu\text{L}$, with 80% neutrophils, 15% lymphocytes, 1% eosinophils and 4% monocytes. Serum biochemistry revealed total protein of 5.70g/dL, albumin 2.1g/dL, alanine transaminase 45 IU/L, bilirubin 0.52 mg/dL, BUN 38.18mg/dL, and creatinine 4.55mg/dL. A plain lateral thoracic radiograph displayed multiple circumscribed nodules in the lungs (Fig.1). Abdominal ultrasonography revealed a solitary mass in the renal cortex of left kidney (11.7 cm in length, and 7.8cm in height), and in right kidney (measured around 9.3cm in length, 6.3 cm in height; Fig:2- 4). Urinalysis revealed red tinged urine with specific gravity of 1.020, and a pH of 8.5, with proteinuria and presence of numerous leucocytes and abnormal cells. Fine needle aspiration cytology revealed neoplastic cells arranged in clusters as well as single cell, the cells were pleomorphic cells and contained pleomorphic nuclei, predominately round to spherical shaped nuclei. Cytoplasm of the cells is granular and vacuolated. One or two area revealed tubular to acinar pattern of cells. (Fig:5,6).

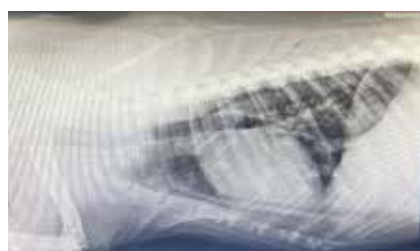


Figure 1: Multiple circumscribed nodules in the lung



Figure 2: High vascularity of the renal cortex mass



Figure 3: A solitary mass in the renal cortex of left kidney

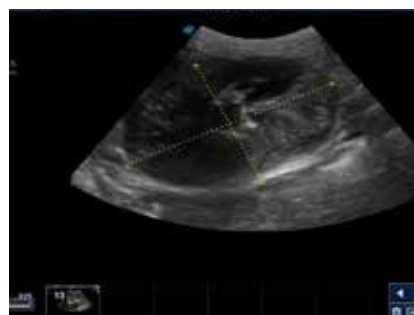


Figure 4: A solitary mass in the renal cortex of right kidney measured around 9.3cm in length, 6.3 cm in height.

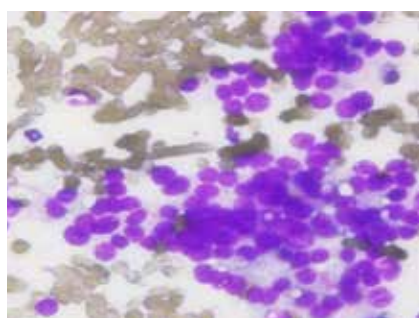


Figure 5: Neoplastic cells are arranged in clusters as well as single cell. Neoplastic cells were pleomorphic cells and contained pleomorphic nuclei, predominately round to spherical shaped nuclei.

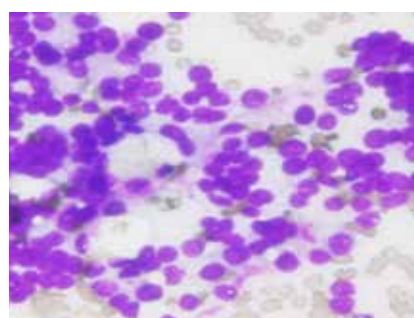


Figure 6: Cytoplasm of the cells is granular and vacuolated. One or two area revealed tubular to acinar pattern of cells.

The most prevalent primary kidney tumours in animals comprises renal tubular cell carcinoma and nephroblastoma, with non-epithelial tumors like leiomyosarcoma being exceedingly rare but documented in dogs (Sato *et al.*, 2003, and Bennet, 2004). In the present study bilateral renal carcinoma was diagnosed, with predominant presenting complaint of anorexia, weight loss and haematuria for five days, and having circumscribed nodules in the lungs, indicative of potential metastasis. While unilateral neoplasms are typical, bilateral involvement is more common in cases of renal lymphomas and renal tubular cell carcinomas (Knapp, 2001). Klein *et al.* (1988) stated that haematuria was noticed in 32% cases of renal carcinoma. Bryan *et al.* (2006) stated that renal cell carcinoma with widespread metastasis is associated with short survival times, while cases without evidence can have extended survival of up to four years following nephrectomy. As the present case confirmed as bilateral renal carcinoma, surgical excision is not possible, the condition and treatment protocol explained to owner

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