

Case 13

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Signalment and History

- 6yo male neutered, DSH cat
- Persistent hypokalemia and hypertension

Physical Exam Findings

- BCS: 6/9
- Weight: 6.2kg
- T: 101.6
- P: 180bpm
- R: 40
- Hypertension (162 mmHg)
- Hypokalemia (2.4 mmol/L)
- High serum aldosterone (> 4574 pmol/L)
- Grade III/VI right parasternal murmur
- Mass was palpated cranial to the kidney

Abdominal radiographs are available

- 1) Describe your radiological findings
- 2) List your diagnosis/differential diagnosis





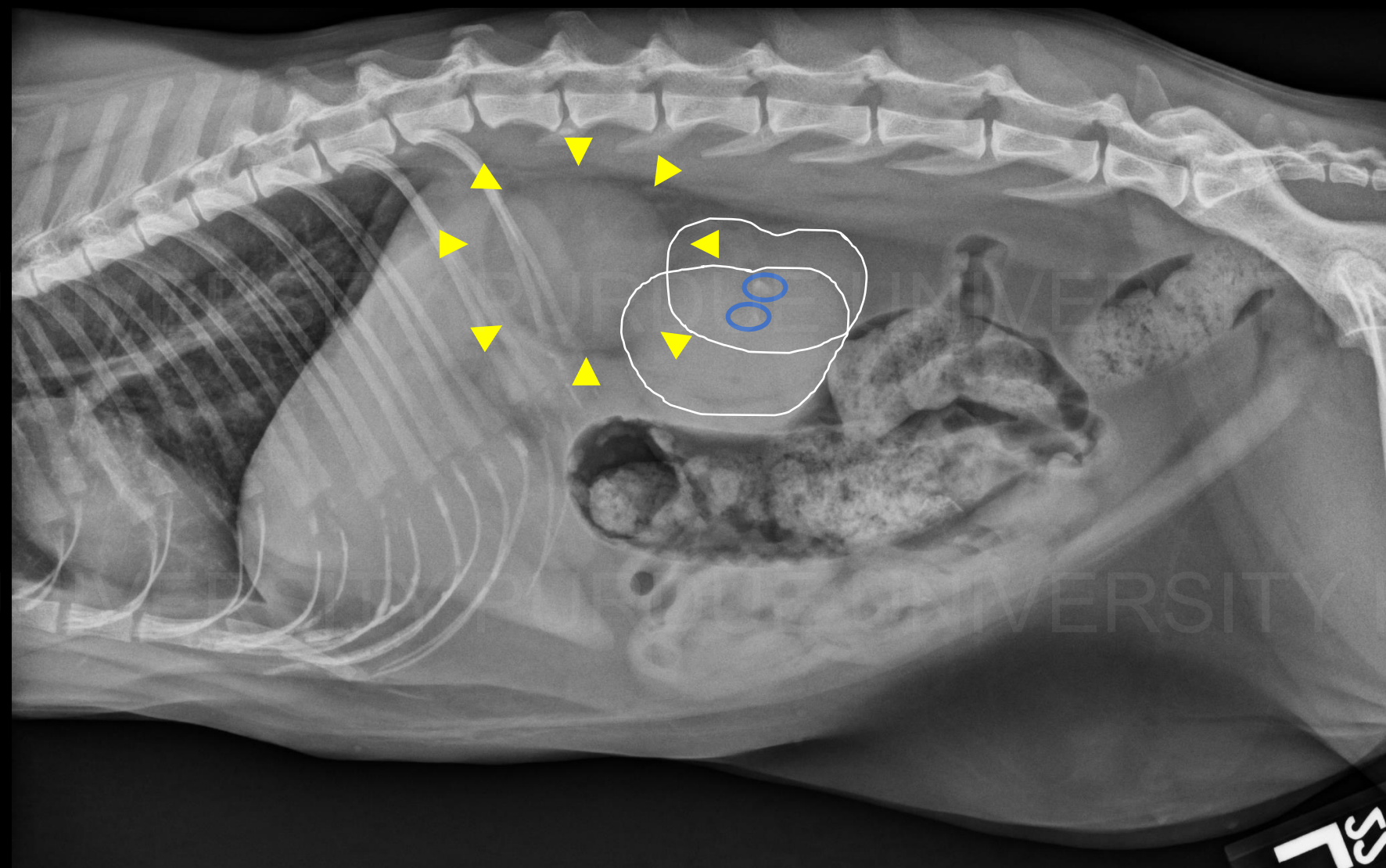


Radiological Findings

A large and well-margined rounded soft tissue mass (43mm in diameter) in the retroperitoneum and cranial to the right kidney

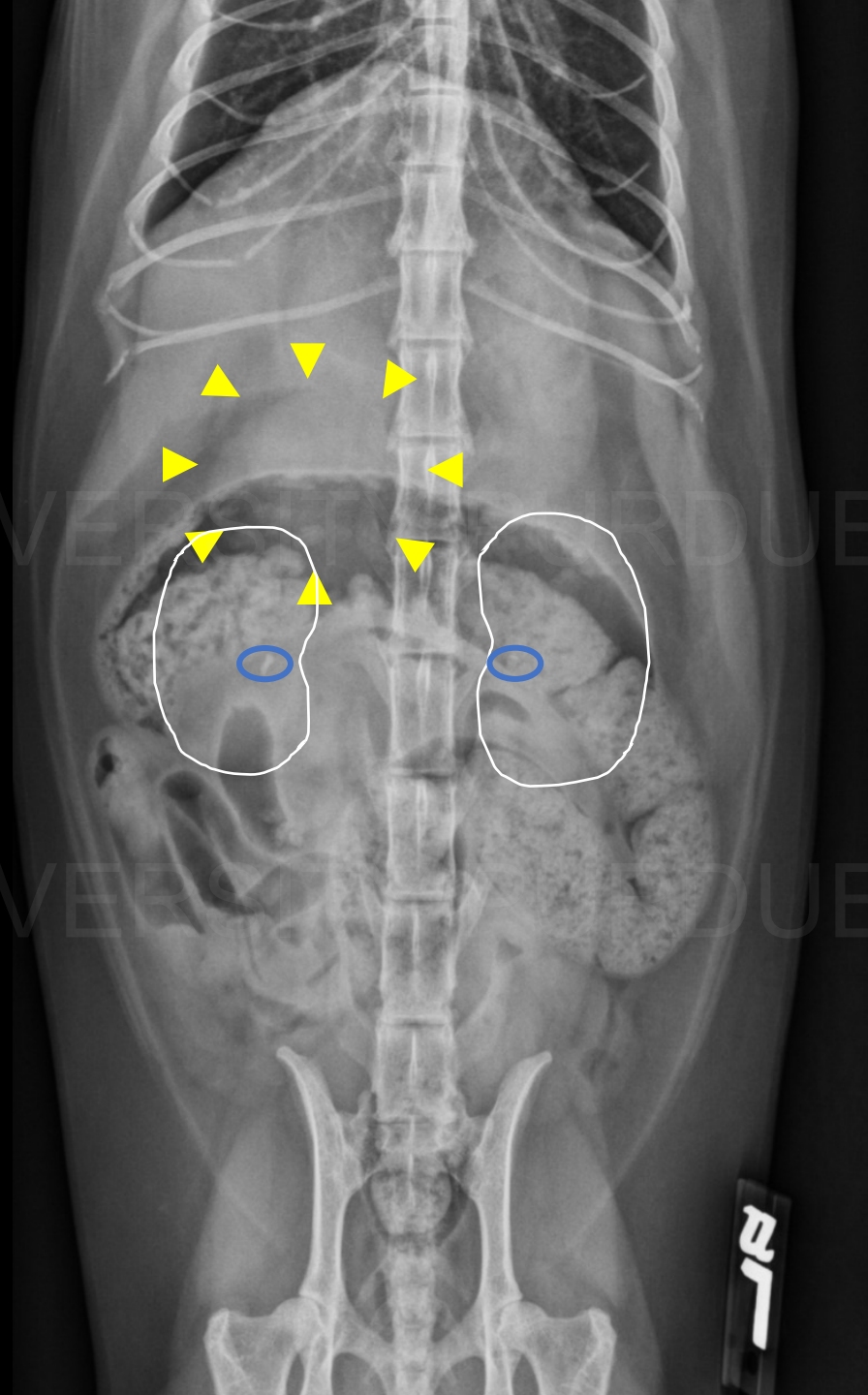
Small mineral foci within both renal pelves

Both kidneys are normal in size (1.9-2.6 x L2)



A large rounded soft tissue mass (app. 43mm) cranial to the right kidney

Small mineral foci within both renal pelves

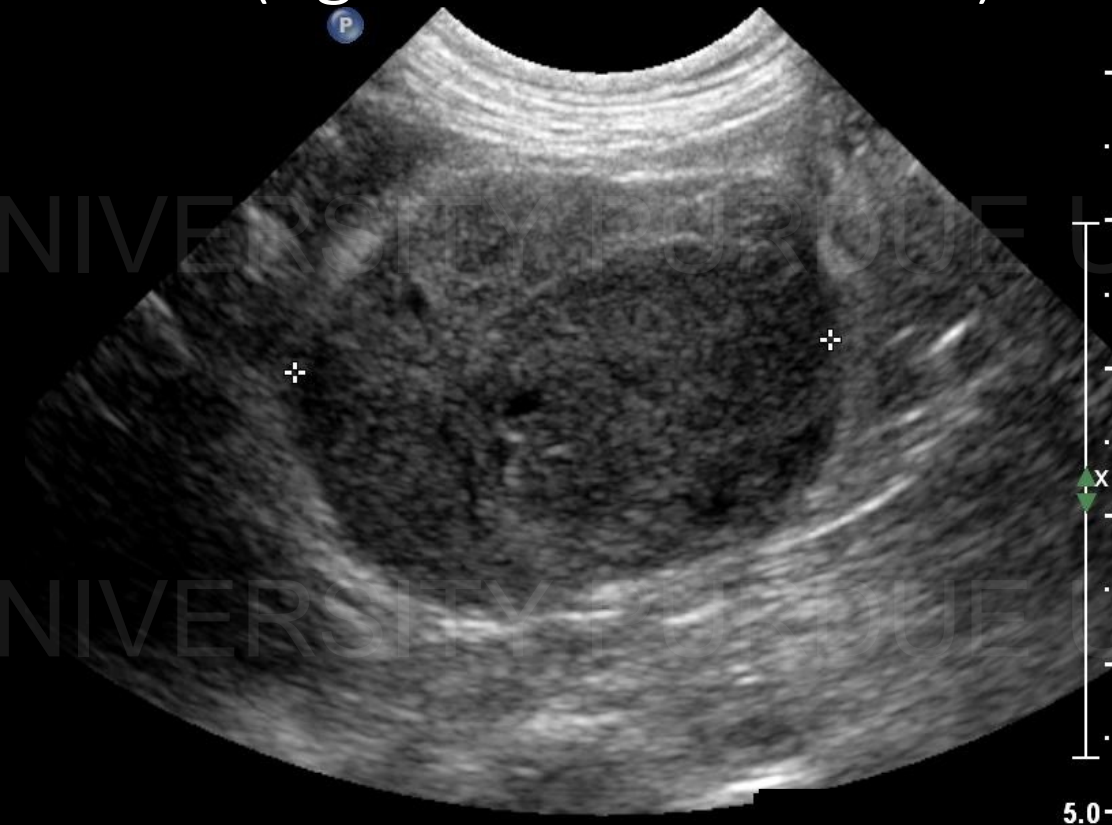


Both kidneys are normal in size (1.9-2.6 x L2)

Radiological diagnoses

- Right cranial retroperitoneal mass, most likely of right adrenal origin - most likely malignant primary adrenal neoplasia or metastatic neoplasia; benign mass such as hyperplasia, hematoma or cyst are considered less likely
- Bilateral nephroliths or dystrophic mineralization of the renal diverticula

Abdominal ultrasonography was performed for further staging, evaluation of the adrenal glands and to look for possible invasion into the adjacent vasculature (eg: caudal vena cava)



ADRENAL RT

Large hypoechoic Rt adrenal mass – 4.2cm in diameter; atrophied Le adrenal.
No evidence of vascular invasion.

Revised diagnosis after ultrasonography

- Most likely primary functional right adrenal malignant adrenocortical tumor (eg: carcinoma or pheochromocytoma) and probably causing hyperaldosteronism; metastatic neoplasia is also possible but less common. Benign adenomatous hyperplasia is considered less likely given the large size of the adrenal mass (>4 cm)

Outcome

- Right adrenalectomy
 - No invasion into caudal vena cava
 - Atrophied left adrenal gland
- Histopathology of the right adrenal gland
 - Adrenal cortical carcinoma
- Follow-up post-op
 - Resolved hypertension and hypokalemia

Remarks

- Most primary adrenal tumors in cats secrete aldosterone
 - Middle-aged and older cats
- There are few reports documenting secretion of sex hormones, cortisol and co-secretion of cortisol–progesterone, cortisol–aldosterone, aldosterone–progesterone and cortisol–progesterone or testosterone by adrenal tumors in cats
- Primary hyperaldosteronism (Conn's syndrome)
 - Aldosterone secreting adrenal tumor
 - Hypokalemia
 - Systemic hypertension

Remarks

- Aldosterone
 - Mineralocorticoid secreted by the zona glomerulosa
 - Renin-angiotensin-aldosterone system (RAAS)
 - Stimulate sodium reabsorption and potassium and hydrogen excretion
- Possible clinical findings
 - Blindness
 - Hypokalemic polymyopathy: weakness, cervical ventroflexion, ataxia, dysphagia
 - Myocardial hypertrophy
 - Renal damage

References

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