

Small Animal Veterinary Ultrasound

Case No. 2 November 2022

Clinical details:

4yr female Havanese dog

Presented with polyuria & polydipsia (PUPD) and strangury, not eating and drinking, only when offered. Weak and lethargic. Abnormal renal blood tests.

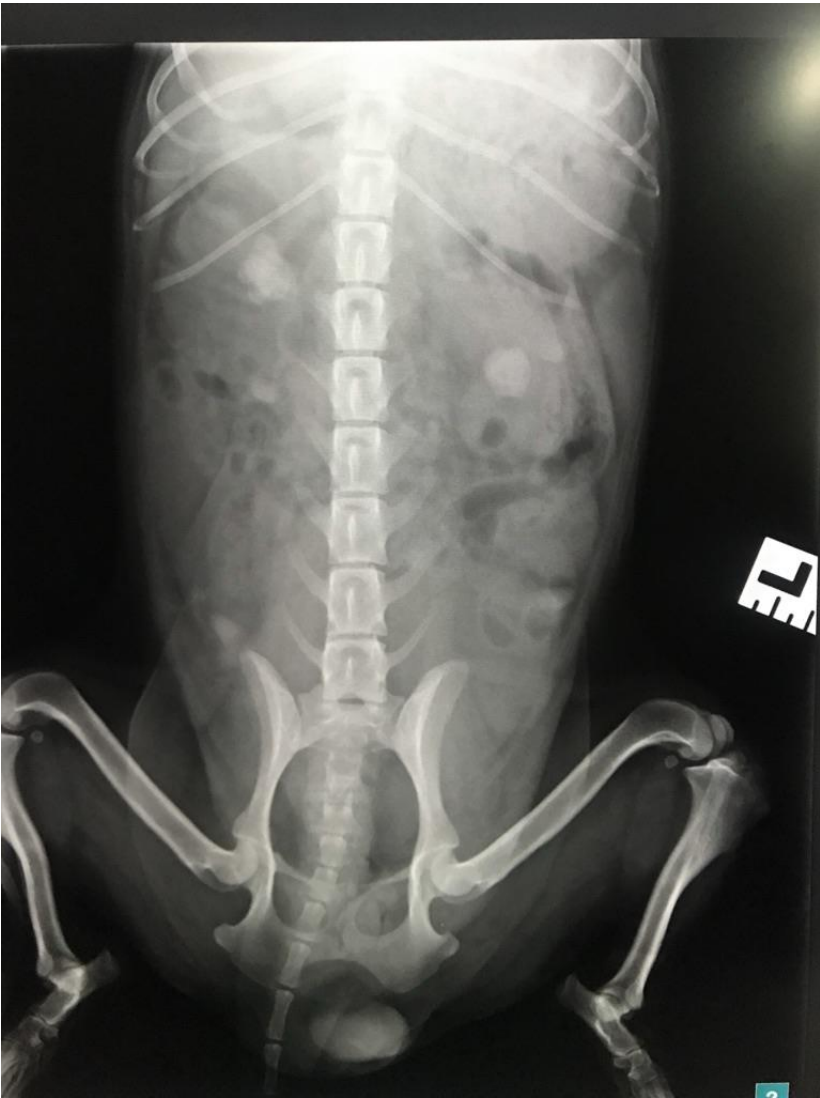
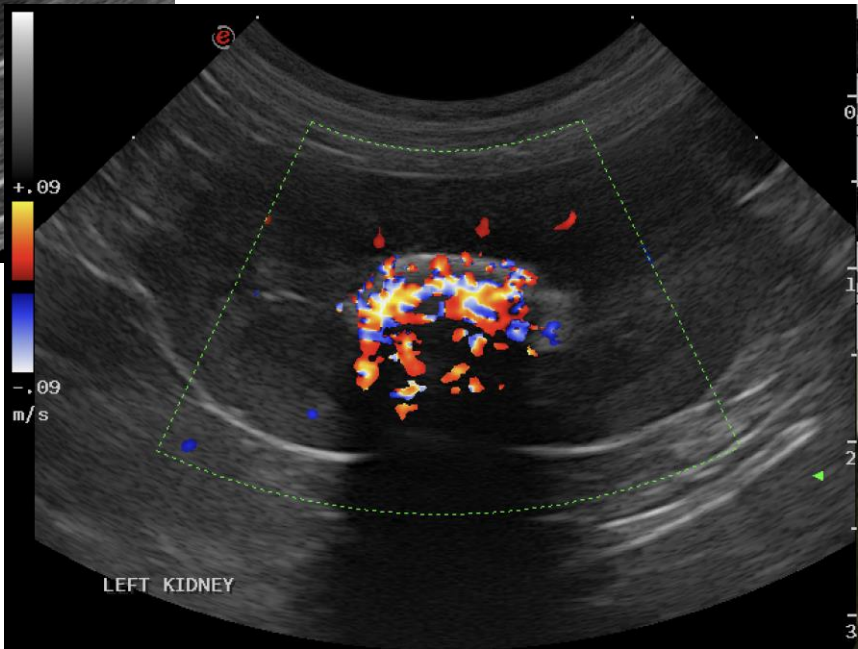
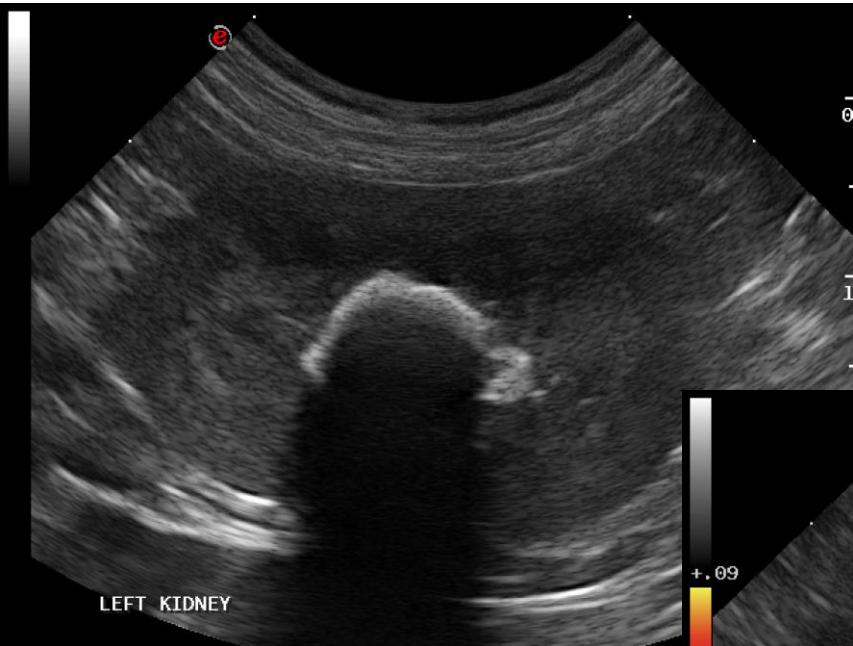
Whelped 5 live pups 8 days ago. Placenta for last pup not seen by owner. Patient eaten it or retained placenta?

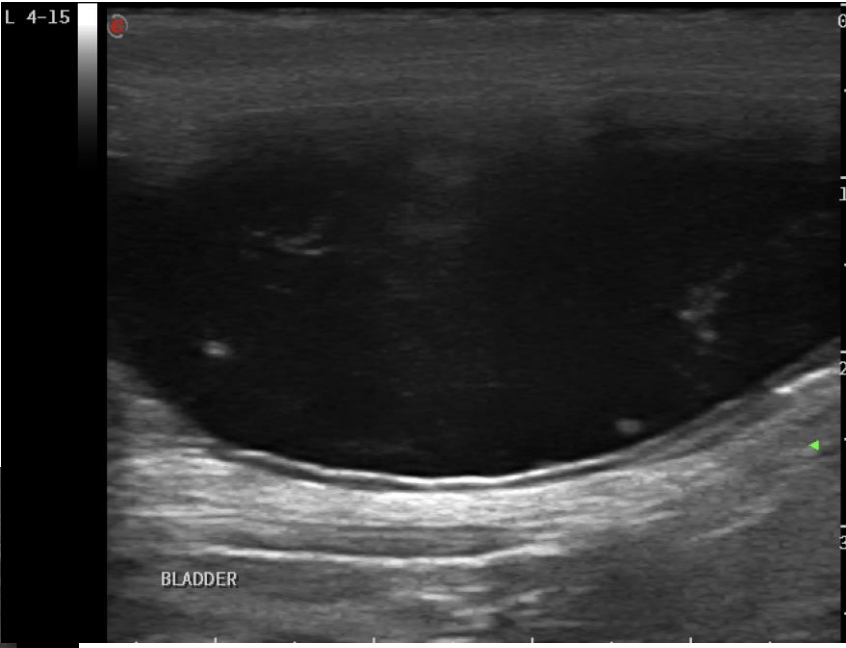
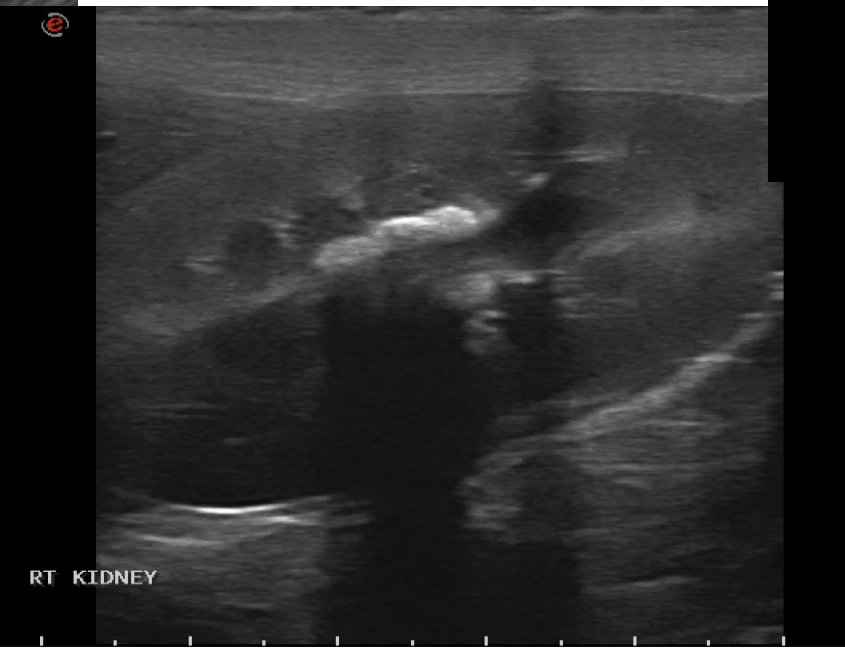
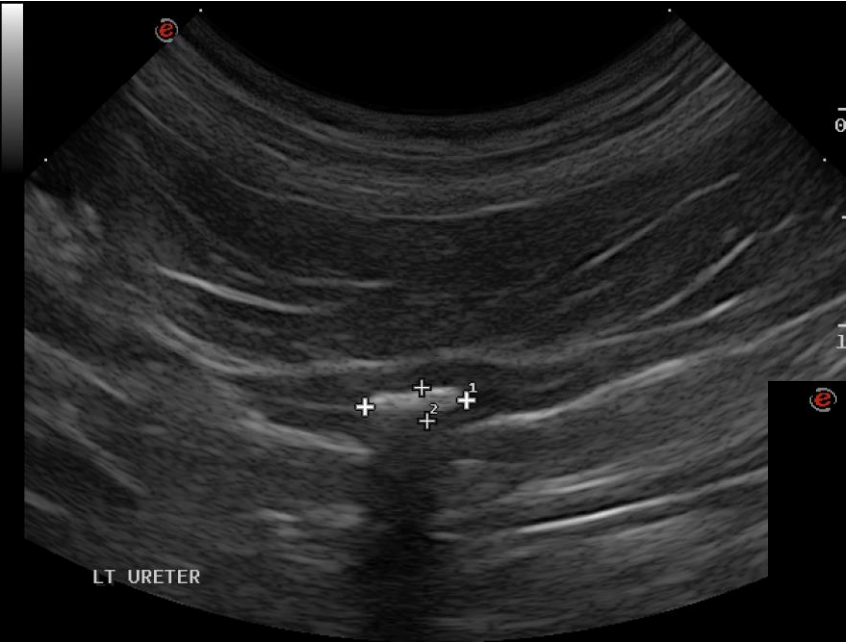
Further details:

Focal ultrasound scan of uterus showed normal contracted uterine body and no evidence of retained products of conception.

Mammary tissue not sore or swollen, feeding pups but disinterested

Referred to medics at specialist hospital for further tests and imaging





Do not progress to the next slide until you have given your differential diagnosis(es)

Ultrasound findings:

- Large hyperechoic focus with strong posterior acoustic shadowing seen in the mid-pole of both kidneys but no evidence of pelvic dilatation or obstruction
- Left mid-ureter contains small stones with localised ureteric inflammation/wall thickening
- Hyperechoic mobile debris seen suspended within the urine pool

Radiograph report:

- Bilateral nephroliths, otherwise unremarkable

Ultrasound-guided cystocentesis:

- Blood cells, struvite crystals and prolific growth of streptococcus

Differential Diagnosis(es) from ultrasound:

- Shadowing foci within both kidneys and left ureter. Differentials include mineralised nephroliths, or less likely focal/localised dystrophic mineralisation, mineralised neoplasia
- Non-shadowing hyperechoic debris suspended within urine pool. Differentials include cystitis, cellular debris or microlithiasis

Treatment:

- 6-week course of antibiotics
- Uroliths likely to comprise calcium oxalate or phosphate components. Patient requires management with specific renal diet food and increased water intake

Patient Outcome:

- Likely that renal stone formation is secondary to recurrent/chronic urinary tract infections (UTIs)
- Patient made a full recovery from the acute renal injury experienced postpartum and UTI
- No further symptoms reported – renal diet maintained

Interesting Facts:

- Repeated UTIs can lead to increased struvite crystal and stone formation
- Colour Doppler applied to a suspected urolith or echogenic object may be helpful in clarifying the presence of mineralisation by the ‘twinkle artefact’ – a rapid alternation of colour seen immediately behind the stationary object
- This artefact is more sensitive at detecting stones with an irregular or rough surface when compared to smooth ones