

IMAGING FINDINGS IN A GUINEA PIG WITH HYDRONEPHROSIS AND BILATERAL HYDROURETERS ASSOCIATED WITH KIDNEY, URETERAL, BLADDER AND URETHRAL CALCULI

A. García-Fernández¹, E. Giraldos², A. Martínez³, N. Aguilar-Gallego¹

¹ Hospital Clínico Veterinario, Facultad de Veterinaria, Universidad CEU Cardenal Herrera, CEU Universities. C/ Santiago Ramón y Cajal, s/n, 46115 Alfara del Patriarca, Valencia. Spain.

² Clínica Veterinaria Nido. Carrer de Lorenç Palmireno, 4, 46021, Valencia, Spain.

³ Hospital Veterinario AniCura Aitana. Carrer de Xirivella, 16, 46920, Mislata, Valencia. Spain

INTRODUCTION: Urolithiasis is a common health problem in female guinea pigs but etiopathogenesis is unknown.^{1,2,3}

METHODS: 1.5 years-old, male guinea pig presented for polyuria/polydipsia and hematuria for 1 week. Abdominal radiographs (RX) and ultrasound (US) were performed. An abdominal computed tomography (CT) with intravenous contrast administration was also carried out to provide a detailed diagnosis.

RESULTS: RX revealed an ellipsoid well-defined mass in the projection of the left kidney (LK) (Fig. 1) and two tortuous tubular structures in the retroperitoneum being compatible with both ureters with several small mineral parts in its distal portions (Fig. 2).

US showed an enlarged fluid-filled LK with loss of its normal anatomy (Fig. 3). Right pelvis was slightly distended. Both ureters were severely dilated along their entire length (Fig. 4), being the distal part of the left one with hyperechoic content with acoustic shadow occluding the lumen. The right ureter showed no signs of obstruction (Fig. 4). Two small irregular structures with acoustic shadow in the bladder trigone (Fig. 5) and urethra were also observed (Fig. 6).



Fig. 1-2: Ventrodorsal and right lateral abdominal radiographs.

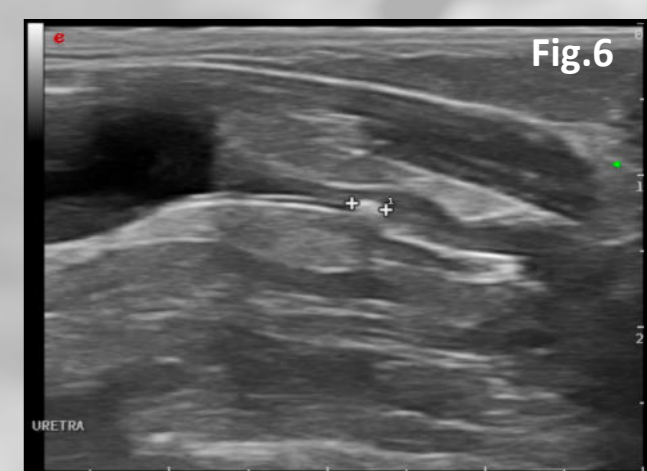
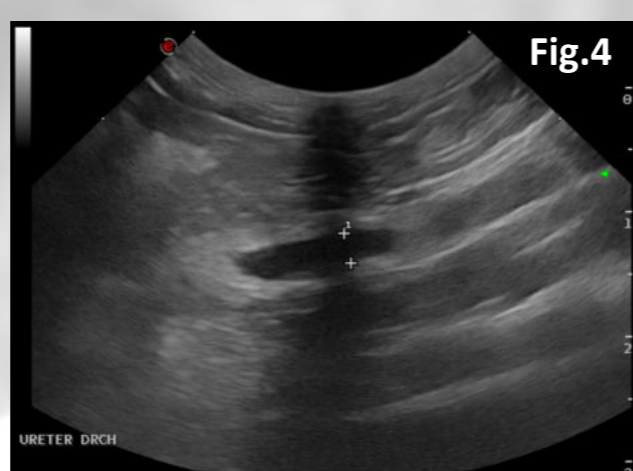
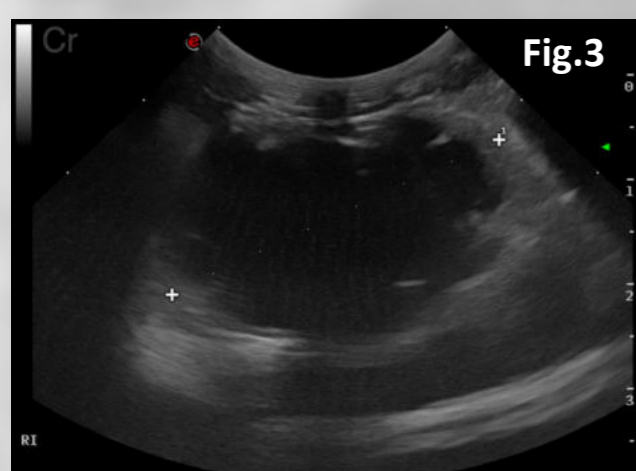


Fig. 3-4-5-6: Sagittal ultrasonographic views of the RK (Fig.3), right ureter (Fig.4), bladder trigone (Fig.5) and proximal urethra (Fig.6).

Abdominal CT scan also revealed the presence of mineral structures (450 UH) in the right pelvis (Fig. 7). Late post-contrast study confirmed the complete obstruction in the left ureter (Fig. 8).

Left nephrectomy was performed, and positive urine culture was obtained for *Micrococcus luteus* sensible to Pradofloxacin. Patient recovered without complications.

DISCUSSION / CONCLUSION: Uroliths in male guinea pigs are not as common as in females.^{1,2,4} Definitive diagnosis can be achieved with RX, US, excretory intravenous pyelography and CT³. Having all this detailed information is mandatory to plan the right surgical treatment.

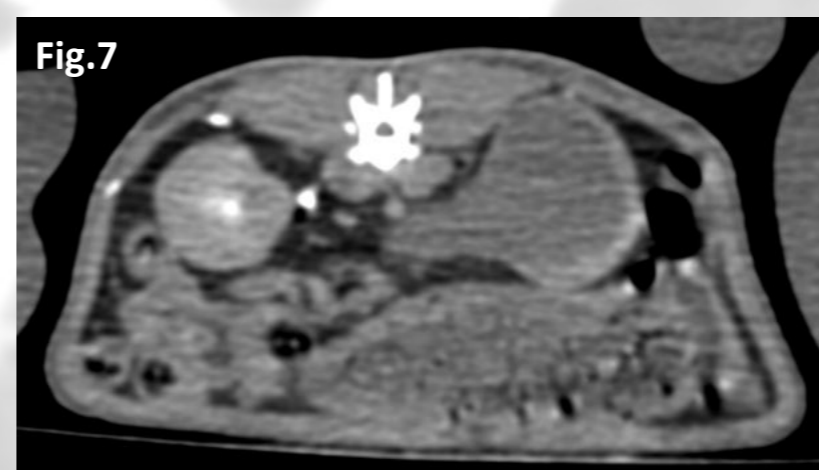


Fig. 7-8: Transverse and dorsal multiplanar reconstruction of the abdomen, show an enlarged LK with a homogeneous hypoattenuating content (18 HU), and a distended left ureter. In the right renal pelvis can be observed small mineral structures (450 UH).

REFERENCES:

- Hawkins MG., Ruby AL., Drazenovich, TL. Westropp JL. Composition and characteristics of urinary calculi from guinea pigs. *JAVMA* 2009; 234 (2): 214-220.
- Parkinson LAB., Hausmann JC., Hardie RJ., Mickelson MA., Sladky KK. Urethral diverticulum and urolithiasis in a female guinea pig. *JAVMA* 2017; 251 (11): 1313-1317.
- D´Ovidio D., Pirrone F., Donnelly TM., Greco A., Meomartino L. Ultrasound-guided percutaneous antegrade pyelography for suspected ureteral obstruction in 6 pet guinea pigs (*Cavia porcellus*). *Veterinary Quarterly* 2010; 40 (1): 198-204.
- Alves DD. Pathology in practice: Urolithiasis. *JAVMA* 2012; 241 (2): 185-187.