

What is Your Diagnosis?

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Signalment

A 2 year-old, castrated male, domestic short-haired cat.

History

The patient was presented to the Small Animal Teaching Hospital, Chulalongkorn University due to the clinical signs of stranguria for three weeks. After the initially diagnosis at the private veterinary clinic, cystitis with uroliths were suspected to be the primary causes.

Clinical examination

On the physical examination, 5-7% of

dehydration was detected. In addition to the mild urinary bladder distension on abdominal palpation, other clinical signs such as the color of mucus membrane, and heart and lung sounds were in normal limits. By hematologic and serum biochemistry, the cat was affected by leukocytosis with the upper limit of the neutrophil count.

Radiographic examination

To observe in intra-abdominal organ abnormalities, especially the organs in the urinary system, two orthogonal radiographs, which were right lateral and ventrodorsal views of abdomen were obtained.

What is your diagnosis?
Please turn to next page for the answer.

Radiographic findings

On the right lateral radiograph revealed the normal shape and contour of the kidney. However, the distended urinary bladder showed two radiopaque, irregular shape-cystic calculi, which the maximal diameter of urolith was 4.5 mm (Fig. 1, asterisk). In addition, at the perineum area, at least 3 small pieces of radiopaque calculi, which the maximal diameter was 2.5 mm, were linear aligned at the suspected perineal urethra (arrow). On the ventrodorsal view, the

location, shape and contour of the kidney were normal. The kidney lengths were 2.11 and 1.97 times of the second lumbar vertebral length for the right and left kidney, respectively (Fig. 2, arrow heads). On this view, the cystic and urethral calculi were hardly to be observed. Additionally, other abdominal organs such as liver, spleen and gastrointestinal tract were in normal appearances.

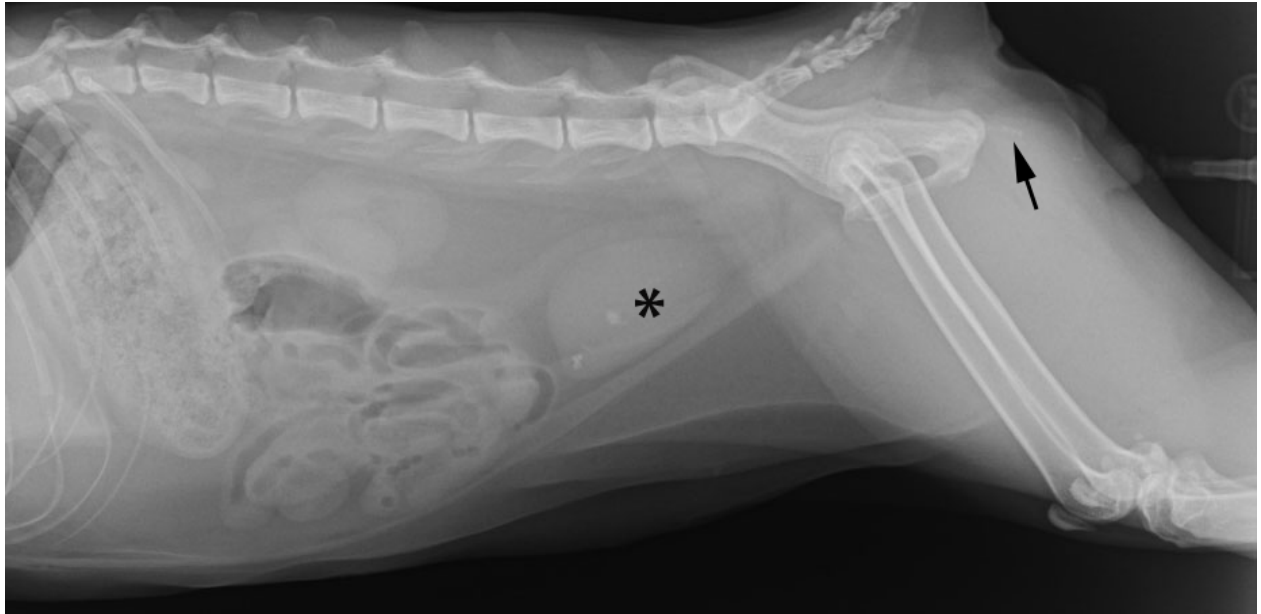


Figure 1 The right lateral abdominal radiograph revealed two, irregular shape and contour, radiopaque cystic calculi (asterisk) in the distended urinary bladder. The maximal size of the cystic calculi was 4.5 mm. Besides, at the perineal area, there was evidence of the packed radiopaque calculi, which the maximal diameter was 2.5 mm, in the suspected perineal urethra (arrow).



Figure 2 The ventrodorsal abdominal view of the abdominal radiograph showed that the kidney of the cat was normal in location, shape, contour and radiopacity. However, the renal lengths were shorter than 2.4 times of the second lumbar vertebral length (arrows). On this view, both of the cystic and urethral calculi could not be observed due to the small size of the calculi that superimposition with the adjacent soft tissue structure.

Radiographic diagnosis

Cystic calculi and packed perineal urethral calculi.

Discussion

The obstruction of the urine especially at the lower urinary tract such as the urethral obstruction is one of the life threatening conditions. The urethral obstruction was reported to increase of the risk in the male than the female due to the narrow and long anatomical structure of the urethra (Cooper, 2015). It has been suggested that obesity could be one of the risk factor in the feline patient (Laboto, 2001). The type of uroliths was reported to be difference between sexes. Most of the male cats were affected by the oxalate uroliths whereas the female cats were predisposed to the struvite type (Houston et al., 2003). In this patient that was a castrated male, the renal length was lesser than the 2.4 times of the second lumbar vertebral length. The shorter of the renal length could be effected

by the reproductive status that the castrated male usually had a slightly shorter renal length (Shiroma et al., 1999). To investigate more information of short renal status such as renal cortex and medullar parenchymas that the radiograph should not explain, ultrasonogram must be applied.

Reference

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