

LOWER URINARY TRACT UROLITHIASIS IN CATS: PREVALENCE, CLINICAL AND PARACLINICAL DIAGNOSTIC FEATURES

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• Introduction

Lower urinary tract urolithiasis is one of the most important urinary disorders in cats, due to its relatively high frequency, recurrent nature, and potential to induce inflammatory, irritative, and obstructive lesions of the urinary tract.

• Material and method

Lithiasic cystitis was diagnosed in 104 feline cases. Unneutered males predominated (76.9%; n=80), followed by females (13.5%; n=14) and neutered males (9.6%; n=10). The most affected age group was 6–10 years (51.0%; n=53). Urolithiasis was identified in 46 feline cases. Maine Coon cats were most frequently affected (21.7%), and unneutered males predominated (71.7%). The most represented age group was 1–5 years (39.1%).

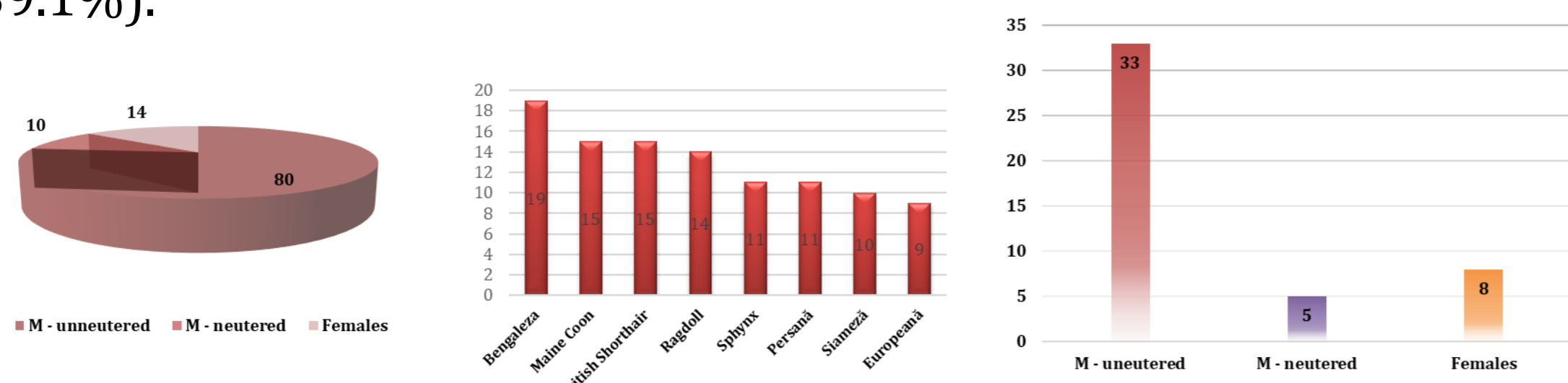


Fig.1. Graphical representation of the reproductive status and breed distribution of cats with lithiasic cystitis and urolithiasis

• Results and discussions

In lithiasic cystitis clinically, hematuria (42.3%), dysuria (45.2%), and pollakiuria (45.2%) were the most common findings. Urinalysis showed frequent leukocyturia, hematuria, proteinuria, concentrated urine, and slightly acidic to neutral pH. Mixed crystals predominated (56.7%; n=59), followed by struvite crystals (42.3%; n=44). Ultrasonography revealed variable bladder wall reaction, intravesical calculi in 43 cases (41.3%), and suspended echogenic particles with cellularity in 61 cases (58.7%). These findings support the diagnostic value of urinalysis and ultrasonography in feline lithiasic cystitis. In urolithiasis, pollakiuria (63.0%), periuria (47.8%), dysuria (41.3%), and hematuria (28.3%) were the most common findings. Microscopic urinalysis showed a marked predominance of calcium oxalate crystals (95.7%). Proteinuria was most frequently 100 mg/dL (32.6%), urinary pH ranged from 5.5 to 6.9, indicating a predominantly acidic urinary environment, and urine specific gravity varied between 1.030 and 1.049, suggesting concentrated urine. Increased CREA and especially SDMA values supported renal involvement in a substantial proportion of cases.

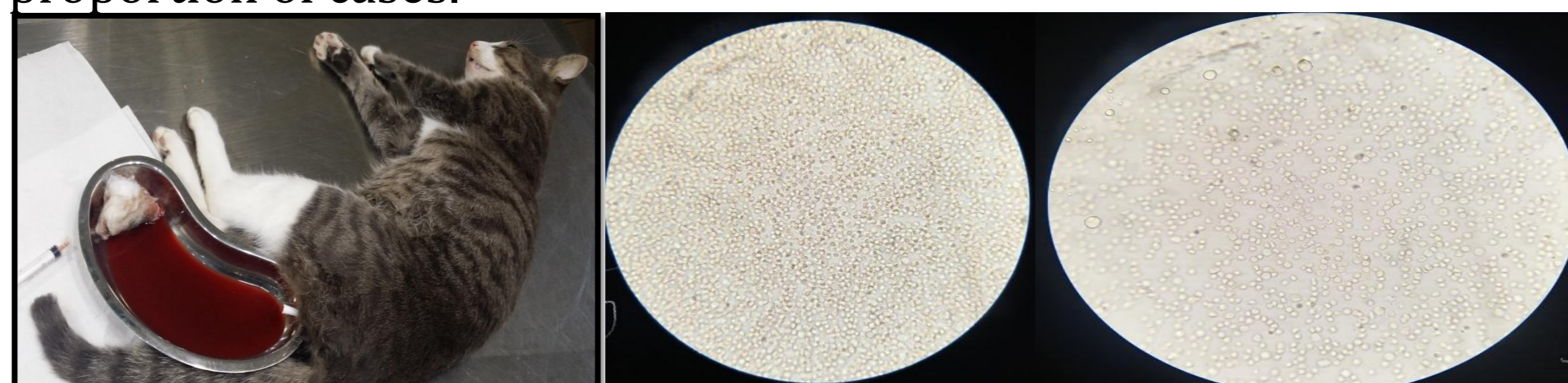


Fig.2. Lithiasic cystitis with gross hematuria and microscopic hematuria

Table 1
Presentation of symptoms in patients with lithiasic cystitis

Clinical manifestation	Number of cases (n)	Percentage (%)
Hematuria	44	42.3
Dysuria	47	45.2
Pollakiuria	47	45.2
Stranguria	30	28.8
Vocalization during urination	30	28.8
Periuria	30	28.8

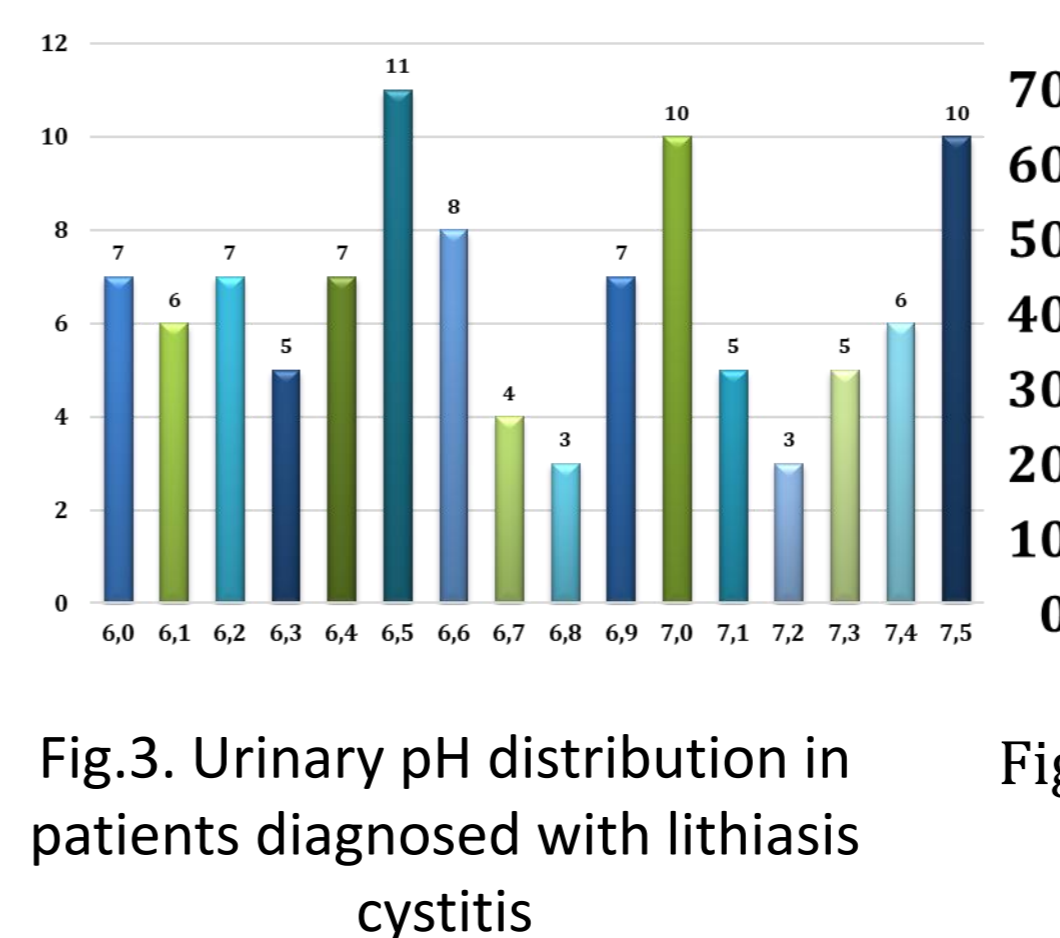


Fig.3. Urinary pH distribution in patients diagnosed with lithiasic cystitis

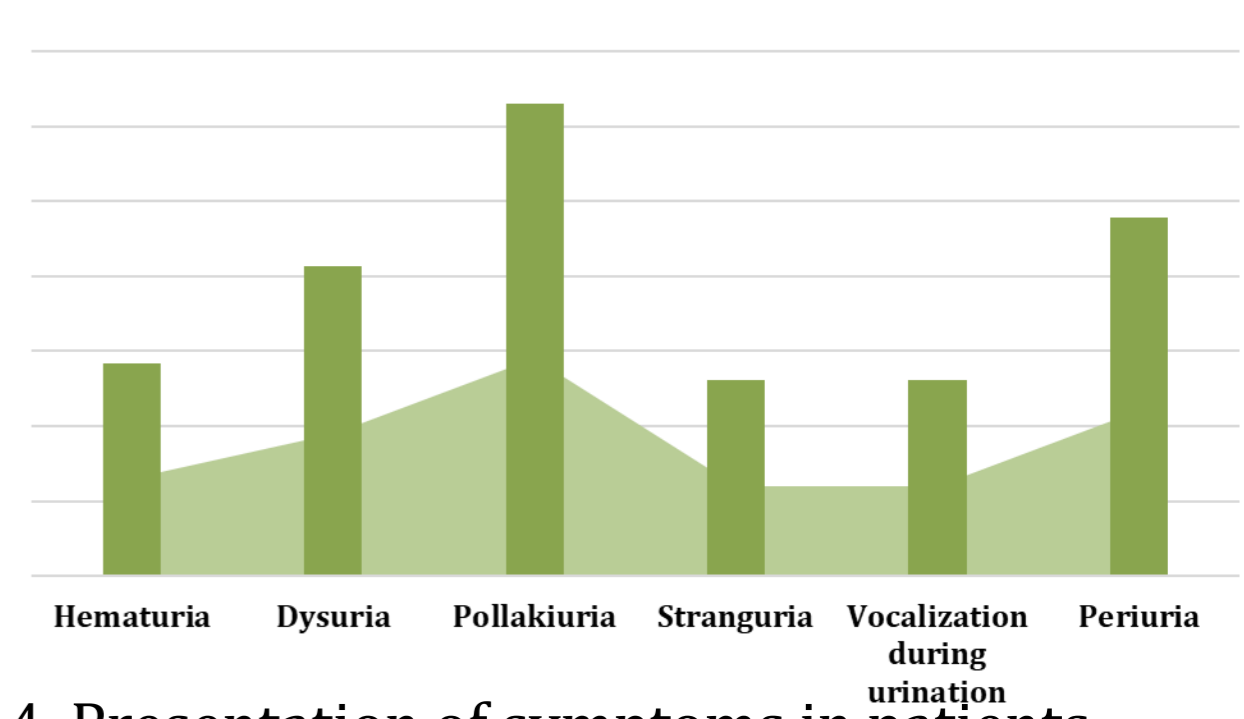


Fig.4. Presentation of symptoms in patients with urolithiasis

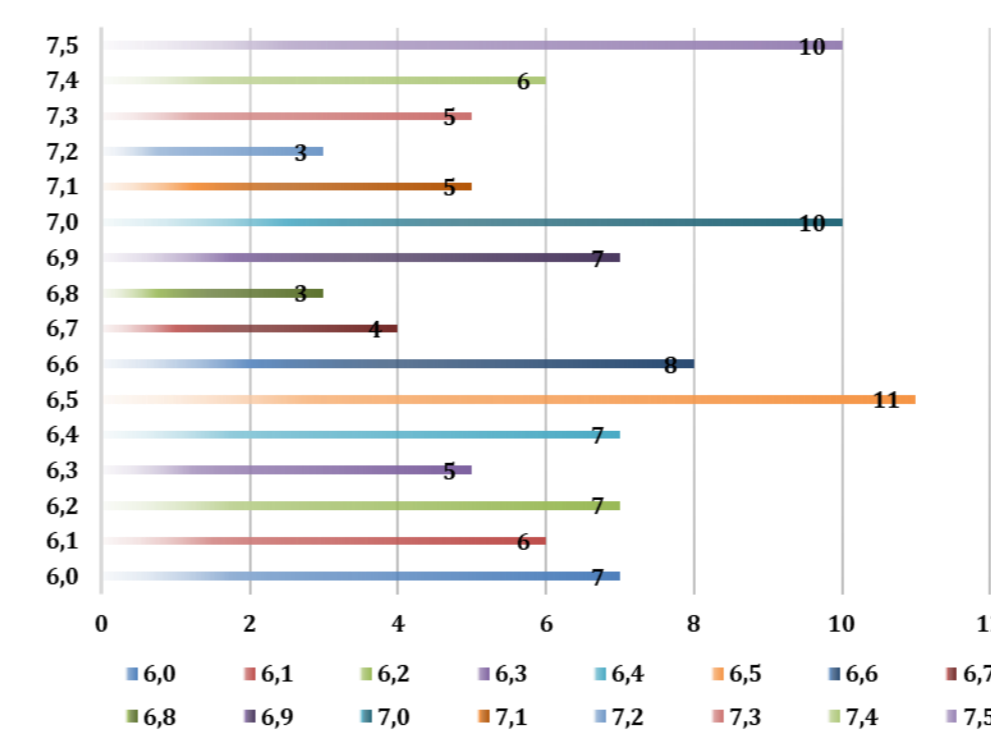


Fig.5. Urinary pH distribution in patients diagnosed with urolithiasis

Table 2
Presentation of the types of crystals identified in the cats examined

Type of crystals	Number of cases (n)	Percentage (%)
Calcium oxalate crystals	44	95.7
Mixed crystals	1	2.2
Struvite crystals	1	2.2

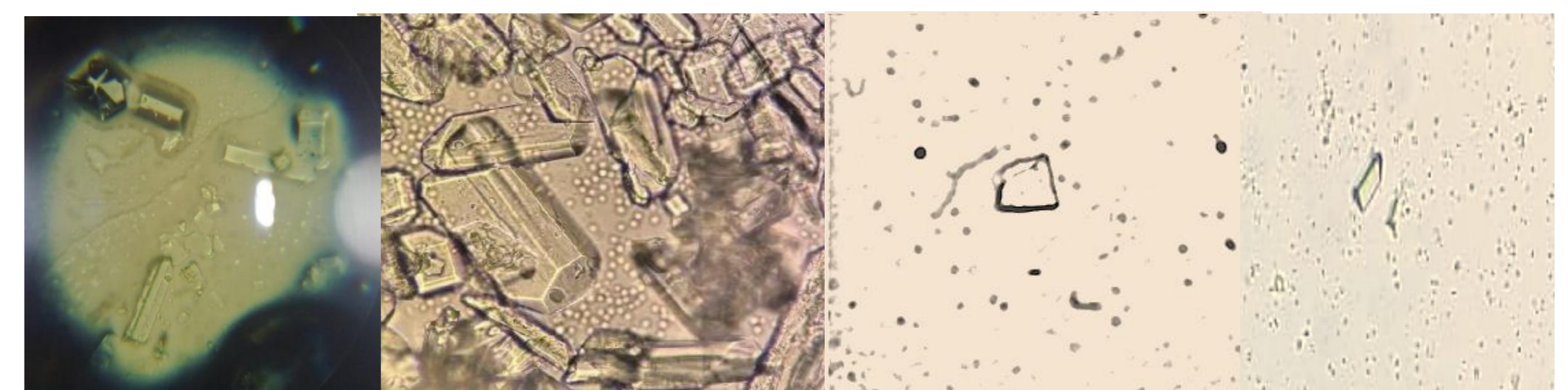


Fig.6. Microscopic examination of urinary sediment - ammonium magnesium phosphate crystals and calcium oxalate



Fig.7. Lithiasic cystitis - the presence of a bladder wall reaction associated with urinary stones or suspended particles

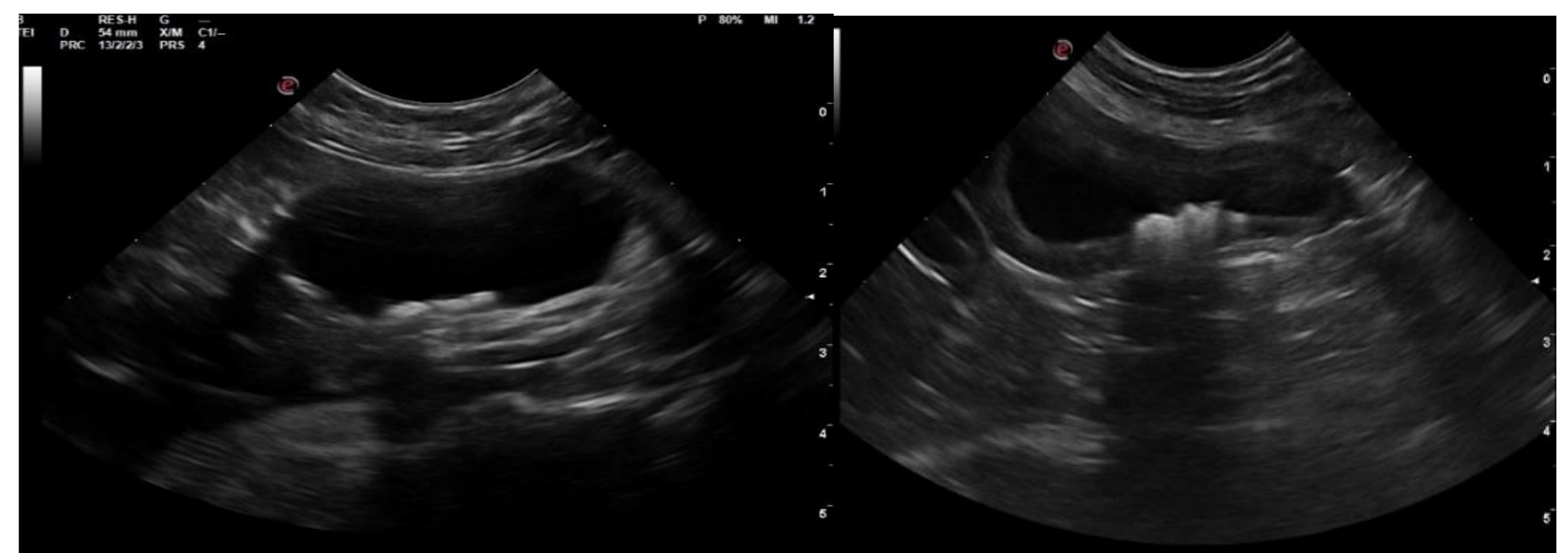


Fig.8. Urolithiasis - the presence of intravesical urinary stones

• Conclusions

The present study confirms that lower urinary tract lithiasis represents a clinically relevant condition in cats, expressed mainly as lithiasic cystitis and urolithiasis. Lithiasic cystitis was more frequent and was characterized predominantly by hematuria, dysuria, and pollakiuria, together with frequent leukocyturia, proteinuria, mixed crystals, and ultrasonographic evidence of bladder wall reaction and intravesical lithic material. Urolithiasis was associated mainly with pollakiuria, periuria, dysuria, acidic and concentrated urine, and a marked predominance of calcium oxalate crystalluria. Overall, the results highlight the diagnostic importance of combining clinical examination with urinalysis, sediment microscopy, biochemical testing, and ultrasonography in order to achieve accurate characterization of feline lower urinary tract lithiasis.