
Clinical approach, diagnosis and therapeutic management in cystitis in dogs and cats

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Abstract

Cystitis as a primary suffering is found in an overwhelming percentage among females, as a consequence of favorable factors such as bladder topography and bladder size. This condition has a high degree of variability in terms of prognosis and therapeutic success. The purpose of this paper is to present the etiological and evolutionary features of cystitis and also the response to treatment at patients in different stages of cystitis. The studied cases were investigated in two private clinics in Bucharest according to the following protocol: anamnesis, clinical examination, urine examination (cytological, uroculture, summary and urinary sediment) and ultrasonographic examination. The paraclinical examinations included the biochemical analysis of the blood, the hemoleucogram (CBC) and the urine examinations in order to assess the specific parameters of the urinary tract disorders. Ultrasound was used, as a fast, non-invasive method by which it can be identified changes in bladder topography, bladder integrity, inflammation, accumulation of uroliths at different stages, as well as possible neoplastic formations. The established treatments aimed at calming the symptoms in order to prevent an irreversible decompensation of the general status of the patient, as well as healing and preventing any recurrences. In both species, there was a predominance of the prevalence of cystitis secondary to the processes of urinary lithiasis among males, as well as an increased predisposition of bacterial complications in the bladder among females. Among the methods used for examination, ultrasound proved to be indispensable for a correct diagnosis. In both species, it was observed that there is a direct correlation between the sex of the patient and the type of cystitis installed. There was no direct correlation between the patient's hormonal status and the risk coefficient for the development of urinary calculi and the appearance of cystitis. Therapeutic management of cystitis comprises a wide range of drugs that address both the etiology and symptomatology of cystitis, which is why treatments have most often led to the healing of patients even if sometimes there were relapses.

Keywords: cystitis, dog, cat, diagnosis, treatment

Introduction

Cystitis, defined as inflammation of the bladder, is a condition common to all mammal species. Invariably, cystitis as a primary disease represents a condition present in an overwhelming percentage among females, as a consequence of favorable factors such as the topography of the bladder and the dimensions of the urethra [3].

Due to the increased incidence of this disease among patients, the evolution, often insidious, which allows the inflammatory process to be chronicled thus prolonging the treatment period and also of the relapsing character, we aimed to emphasize the special importance of rapid detection and also the correct therapeutic management in relation to maintaining a satisfactory standard of quality of life among patients [1].

Within this paper will be presented the etiological, evolutionary features and also the response to treatment of patients in different stages of cystitis, acute or chronic, primary or secondary as a consequence of another pathological process.

Materials and methods

The cases studied were investigated in two private clinics in Bucharest according to the following protocol: anamnesis, clinical examination, biochemical examination, urine examination (cytological, uroculture, summary and urinary sediment) and ultrasonographic examination[2].

Anamnesis is the key to therapeutic success because extremely valuable information can be collected from the patient. In this respect, data should be obtained as objectively as possible related to the time of the appearance of the clinical signs, their intensity and frequency, possible causal or favorable factors, nutrition and other treatments in progress [4].

The complete blood count and the urine examinations are performed in order to assess the specific parameters of the urinary tract disorders. Further, any rigorous examination is always supplemented by various methods of imaging investigation and in the case of bladder pathologies, by far the easiest and most correct method is ultrasound. With this fast, non-invasive method, it can be appreciated in real time changes in the topography, the integrity of the bladder, inflammation, accumulation of uroliths at different stages, as well as the possible neoplastic formations [7].

The drugs used in cystitis therapy targeted curative treatment, symptomatic treatment to prevent irreversible decompensation of the patient's general status and also a prophylactic treatment to prevent any recurrence. Also, any therapeutic management of cystitis also includes the diet specific to each type of cystitis [5,6].

Results and discussions

The population studied was divided into two age categories, between 1-6 years, respectively 7-14 years. It was observed that in both cats and dogs, the prevalence was higher in the category 1-6 years: 4 of 7 cats and 3 of 4 dogs, as can be seen in figure 1.

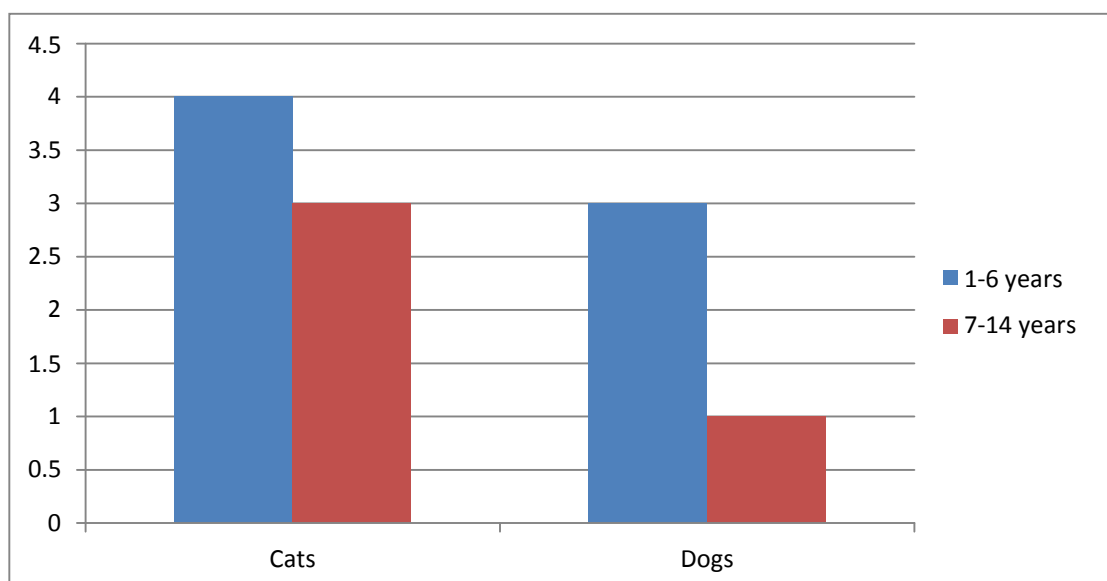


Fig. 1 Prevalence of cases according to age in dogs and cats

In both species, there is a dominance in the prevalence of cystitis cases, secondary to the processes of urinary lithiasis among males, as well as an increased predisposition of bacterial complications in the bladder among females.

Table 1 Cystitis cases investigated between June 2018 – May 2019

	Name	Species	Race	Sex	Age	Hormonal status	Diagnosis	Treatment	Results
1	Tasha	Cat	Burmese	Female	12 years	Sterilized	Acute cystitis	- anti-hemorrhagic; - antispastic	Cured after 7 days
2	Mimi	Cat	Maine Coon	Female	6 years	Sterilized	Chronic cystitis	- anti-hemorrhagic; - antispastic; - anti-inflammatory; - antiseptics	Favorable evolution after 2 days, cured after 5 days
3	Calypso	Cat	European race	Female	1 year	Unsterilized	Chronic cystitis	- antispastic; - protector of the bladder mucosa	Complete remission after 14 days
4	Felix	Cat	British Shorthair	Male	7 years	Sterilized	Urolithiasis Cystitis	- diet to dissolve the struvite; - urinary acidifier	Improvement over 2 weeks. After 30 days, struvite in small quantities.
5	Foiță	Cat	European race	Male	2 years	Sterilized	Urolithiasis Urethral blockage Cystitis	- applying a urethral catheter; - antibiotics - anti-inflammatory	Favorable evolution from the first day. Monitoring for calcium oxalates.
6	Kasi	Cat	Persian	Female	9 years	Sterilized	Bacterial cystitis	- antibiotics - protector of the bladder mucosa – - antipyretics - rehydration	Favorable evolution over 14 days
7	Ahile	Cat	British Shorthair	Male	4 years	Sterilized	Urolithiasis Urethral blockage Cystitis	- applying a urethral catheter; - antibiotics; - anti-inflammatory; - urinary acidifier; - antiemetics	Favorable evolution over 14 days
8	Smochină	Dog	Labrador Retriever	Male	2 years	Unsterilized	Urolithiasis Cystitis	- anti-hemorrhagic; - urinary acidifier	Favorable evolution after 3 days. Cured after 30 days.
9	Maya	Dog	Half breed	Female	6 years	Sterilized	Post-OHT urinary incontinence	- therapeutic diagnosis with Propalin	Favorable evolution from the first day
10	Rita	Dog	Half breed	Female	7 years	Sterilized	Bacterial cystitis	- anti-hemorrhagic; - antispastic; - antipyretics; - rehydration; - antibiotics	Favorable evolution, improvement after 14 days
11	Zen	Dog	Bull terrier	Male	2 years	Unsterilized	Urolithiasis Cystitis	- urinary acidifier; - protector of the bladder mucosa	Favorable evolution over 30 days

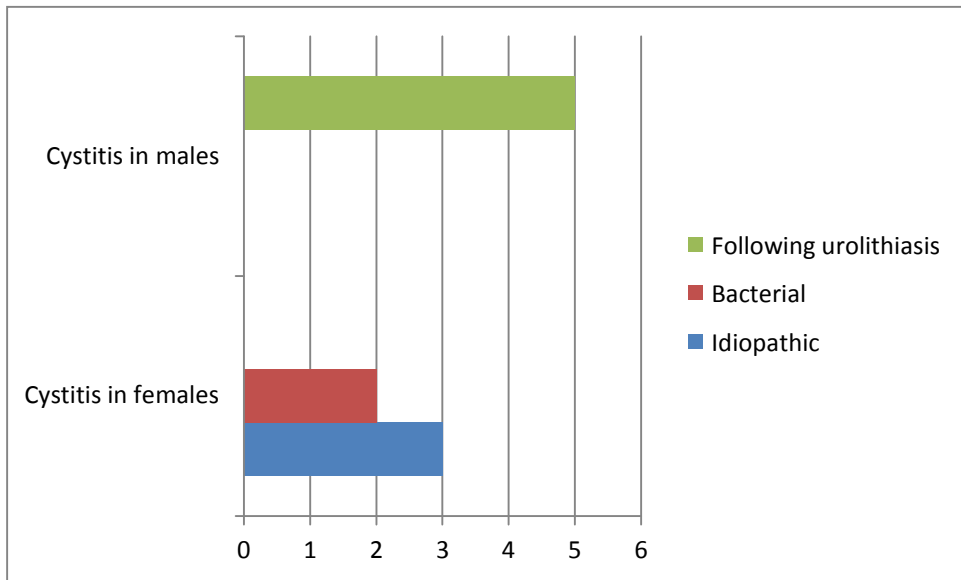


Fig. 2 Prevalence of the origin of cystitis according to sex in dogs and cats

From the point of view of the use of antimicrobial substances in the therapeutic management, in cats the results obtained are shown in figure 3.

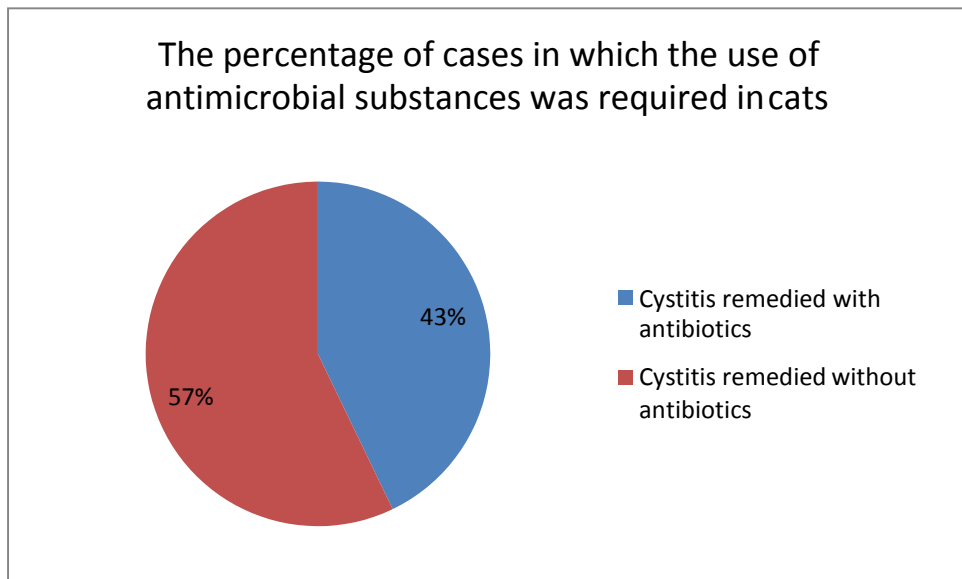


Fig. 3 The number of cases in which the use of antimicrobial substances was required in cats

In dogs, depending on the need to use antimicrobial substances, the results are shown in Figure 4.

The number of cases in which the use of antimicrobial substances was required in dogs

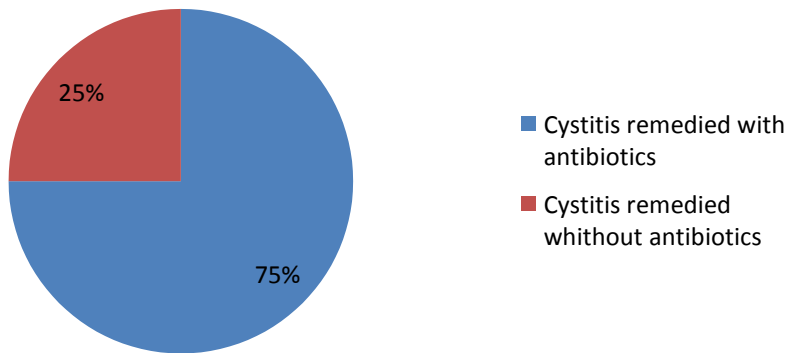


Fig. 4 The number of cases in which the use of antimicrobial substances was required in dogs

In the following images we present some of the results obtained in the imaging investigations, uroculture and serum biochemistry (Figures 5, 6, 7, 8, 9 and Table 2).

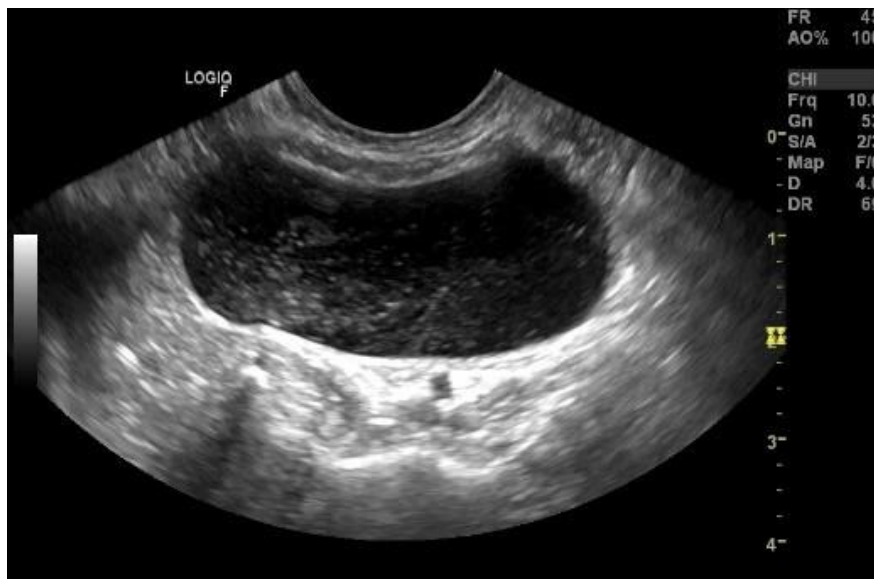


Fig. 5 Ultrasound appearance of the bladder (original)



Fig. 6 Struvite crystals (original)



Fig. 7 Collected urine (original)

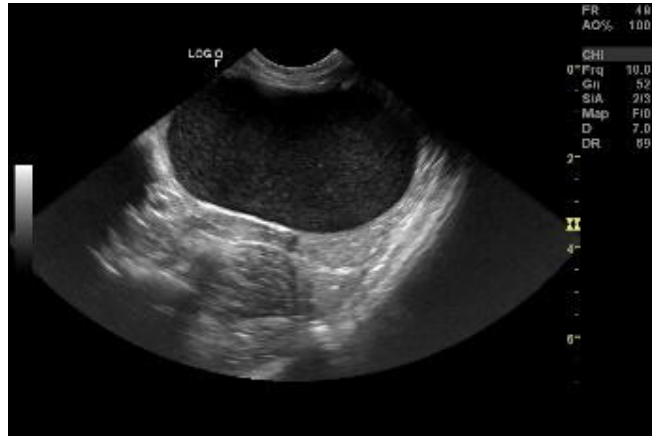


Fig. 8 Ultrasound appearance of the bladder (original)

ANALIZE	REZULTATE	INTERVAL BIOL. REFERINTA.
Urocultura	Corynebacterium spp.; Staphylococcus saprophyticus; Enterococcus spp. grup serologic D	
Antibiograma:		
Sensibil	Amoxicilina cu acid clavulanic, Ampicilina sulbactam	
Intermediar:	Levofloxacina	
Rezistent:	Ceftazidim, Cefuroxim, Ciprofloxacina, Enrofloxacina, Norfloxacina, Trimetoprim-sulfamethoxazole	

Fig. 9 The result of uroculture (original)

Table 2 Recorded values in serum biochemistry

Parameter	Value	Reference interval
GLU	191 mg/dL	71 – 159
ALKP	78 U/I	14 – 111
CRE	5.2 mg/dL	0.8 – 2.4
BUN	86 mg/dL	16 – 36
TP	8.2 g/dL	5.7 – 8.9
GPT	105 U/I	12 – 130

Conclusions

1. The anamnesis and the rigorous consultation are absolutely necessary to establish a correct diagnosis, while the ultrasound is indispensable in diagnosing the pathologies of the bladder providing valuable data on the location of the diseases and their nature.
2. It was observed that there has been a higher prevalence of developing cystitis among patients aged 1-6 years.
3. In both species, a predisposition to these conditions was observed depending on the sex of the patient, so that the males of both species presented cystitis secondary to urinary lithiasic processes, while the females had bacterial cystitis or post ovariohysterectomy.
4. Males with urinary lithiasis were both sterilized and non-sterilized, indicating that there is no direct correlation between the patient's hormonal status and the risk coefficient for developing urinary calculi.
5. The use of antimicrobial medication is not required to ensure therapeutic success, it is used with caution and only when pathogenic species have been isolated by uroculture or when a bacterial complication is imminent.

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