UNIVERSITI PUTRA MALAYSIA

PATTERN OF CLINICOPATHOLOGICAL PARAMETERS OF CATS WITH LOWER URINARY TRACT DISEASES PRESENTED TO UNIVERSITY VETERINARY HOSPITAL, UPM

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A project paper submitted to the Faculty of Veterinary Medicine, Universiti Putra Malaysia

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DEGREE OF DOCTOR OF VETERINARY MEDICINE

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It is hereby certified that I have read this project paper entitled "Pattern of Clinicopathological Parameters of Cats with Lower Urinary Tract Diseases Presented to University Veterinary Hospital, UPM", by Siti Aisyah Jeinie @ Jamal and in my opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfilment of the requirement for the course VPD 4999 – Final Year Project.

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My beloved,

Mdm. Fadzilah bt Ab. Halim

&

Mr. Jeinie @ Jamal b Alias

...for without them I won't be here.

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Alhamdulillah, all praise to the Almighty One, for only with HIS blessing and permission am I able to accomplish everything in this borrowed life.

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ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada keperluan kursus VPD 4999 – Projek Ilmiah Tahun Akhir

POLA PARAMETER KLINIKOPATOLOGI BAGI KUCING YANG MENGHIDAPI PENYAKIT SALURAN KENCING BAWAH YANG DIBAWA KE HOSPITAL VETERINAR UNIVERSITI, UPM

oleh

Siti Aisyah Jeinie @ Jamal

2017

Penyelia: Prof. Madya Hazilawati Hj. Hamzah

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Penyakit saluran kencing bawah kucing (FLUTD) merupakan antara penyakit yang kerap dihidapi oleh kucing di serata dunia. Sebuah kajian kohort retrospektif telah dijalankan berdasarkan sejumlah 173 kes yang telah direkodkan pada 2016 di Makmal Klinikal Patologi, Fakulti Perubatan Veterinar, UPM yang seterusnya diikuti dengan pemeriksaan profil kes di Hospital Veterinar Universiti, UPM. Data yang telah dikumpul termasuk signalmen pesakit, serta keputusan hematologi, biokemia serum dan analisa urin. Parameter khusus adalah umur,

baka, jantina, cara hidup, diet, petanda klinikal, leukogram (kiraan sel darah putih), biokimia serum (aras globulin, urea dan kreatinin) dan analisa urin (pH, hematuria, proteinuria, piuria, dan bakteriuria) yang akan dianalisa menggunakan perisian SPSS 22.0. Keputusan menunjukkan bahawa kucing bulu pendek domestik jantan, seberat 3.00-3.99 kg dengan purata skor kondisi badan 3, tinggal di dalam rumah bersama kucing lain, memakan diet bukan preskripsi kering merupakan atribut ketara bagi profil paling umum FLUTD. Petanda klinikal umum adalah, '*stanguria'* (42.2%), hematuria (38.7%), pundi kencing segah (37%), pundi kencing mampat (28.9%) dan muntah (28.3%). Daripada 173 kes, hanya 124 kes telah memesan analisa hematologi, 32.4% mempunyai leukogram normal, dengan 15% kes hiperglobulinemia. Analisa urin menunjukkan hematuria teruk, dengan piuria surih hingga ringan, proteiuria sederhana, dan bakteriuria surih. Diagnosis paling umum ialah sistitis bakteria. Dalam pengendalian FLUTD, faktor risiko penting pada taraf kebimbangan lebih tinggi adalah kucing jantan yang tinggal di dalam rumah bersama kucing lain yang diberi makanan kering bukan preskripsi.

Kata kunci: penyakit saluran kencing bawah kucing, parameter klinikopatologi, '*stranguria'*, hematuria, and sistitis bakteria.

ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfilment of the course VPD 4999 – Final Year Project.

PATTERN OF CLINICOPATHOLOGICAL PARAMETERS OF CATS WITH LOWER URINARY TRACT DISEASES PRESENTED TO UNIVERSITY VETERINARY HOSPITAL, UPM

By

Siti Aisyah Jeinie @ Jamal

2017

Supervisor: Assoc. Prof. Hazilawati Hj. Hamzah

Co-supervisor: Prof. Dr. Mohamed Ariff Omar

Feline Lower Urinary Tract Disease (FLUTD) is among the most common diseases reported in cats in various countries globally. A retrospective cohort study was conducted based on 173 FLUTD cases recorded in 2016 at the Clinical Pathology Laboratory, Faculty of Veterinary Medicine, UPM and followed by examination of the case profiles at the University Veterinary Hospital, UPM. Data collected included patient signalments, haematological, serum biochemical and urinalysis results. The specific risk parameters were age, breed, sex, lifestyle, diet,

weight, clinical signs, leukogram (white blood cells (WBC) count), serum biochemistry (globulin, urea and creatinine levels) and urinalysis (pH, haematuria, proteinuria, pyuria, and bacteriuria) which were analysed using SPSS 22.0 software program. Results showed that Domestic Short Hair (DSH) male cat, weighing 3.00-3.99 kg with average body condition score (BCS) of 3, living indoor in a multicat household and eating non-prescription dry feed made up the significant attributes of the most common profile of FLUTD cases. The common clinical signs were stranguria (42.2%), haematuria (38.7%), turgid urinary bladder (37%), non-compressible urinary bladder (28.9%) and vomiting (28.3%). From the 173 cases, 124 cases ordered haematological analysis whereby 32.4% had normal leukogram, while 15% had mild hyperglobulinaemia. Urinalysis showed severe haematuria with trace to mild pyuria, moderate proteinuria, and mild bacteriuria. The most common diagnosis was bacterial cystitis. In FLUTD management, the important risk factors of higher concerns include male cats living indoor in a multicat household fed with dry non-prescription diet.

Keywords: feline lower urinary tract disease, clinicopathological parameters, stranguria, haematuria, and bacterial cystitis.

1.0 INTRODUCTION

Feline lower urinary tract disease (FLUTD) describes a collection of many diseases and conditions that can affect the bladder and/or urethra of cats which can lead to obstructive or non-obstructive FLUTD depending on whether urine was able to be compressed from the urinary bladder which could be due to feline idiopathic cystitis (FIC), bacterial urinary tract infections, urolithiasis, and urethral plugs. This disease is among the common diseases reported in cats in various countries globally. From the study by Brodbelt *et al*. (2011), in United Kingdom the most common reasons for consultations for cats included cat bite abscesses, FLUTD, hyperthyroidism, dental disease, lameness, anorexia. However, there are limited local studies done on FLUTD cases even though the disease is among the common diseases reported in cats in various countries globally.

There are many possible causes for FLUTD, but the signs exhibited are similar and recognisable such as stranguria, haematuria, dysuria, pollakiuria, periuria and urethral obstruction whereby according to Buffington (2011) the signs can be either acute or chronic. However, duration of the problem masks the actual number of cases presented to the hospital as acute cases may be missed (Longstaff, 2016). The clinical signs are rarely indicative of a particular disease among the many diseases in FLUTD (Gunn-Moore, 2003). Thus, a thorough medical examinations and laboratory testing are usually needed to identify the specific disease so that the treatments and management can be done properly to the cats that having FLUTD.

According to Jones (2009), idiopathic FLUTD is most commonly seen in young to middle-age cats while older cats more likely to develop urolithiasis, neoplasia and bacterial urinary tract infections. According to Defauw *et al.* (2011), Gerber *et al.* (2005) and, Hostutler, Chew and DiBartola (2005), FIC is the most common diagnosis of FLUTD.

1.1 Objectives

1. To determine the common pattern of clinicopathological parameters of cats presented with FLUTD at UVH, UPM,
2. To determine the common signalments of cats with FLUTD, and
3. To determine the most common disease or condition of the lower urinary tract among the FLUTD.

1.2 Hypotheses

1. H_A: The common pattern of clinicopathological parameters of cats presented with FLUTD are azotemia and haematuria.
2. H_A: More males compared to females are diagnosed with FLUTD.

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