UNIVERSITI PUTRA MALAYSIA

ANALYSIS OF 10 YEARS (2007 – 2016) OF EPIDEMIOLOGICAL DATA OF URINARY STONES IN DOGS AND CATS FROM A REFERRAL CENTRE IN MALAYSIA

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A project paper submitted to the

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CERTIFICATION

It is hereby certified that we have read this project paper entitled, Analysis of 10 years (2007 – 2016) of epidemiological data of urinary stones in dogs and cats from a referral centre in Malaysia, by Hameedunisha Tajudeen and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999 – Project.

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DEDICATIONS

In the name of Allah, The Most Benevolent, The Most Merciful

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Dr. Sivagurunathan

Dr. Amilan Sivagurunathan

Mr. Shree Sivagurunathan

Mr. Abdul Rahman

Mrs. Yasmin Tajudeen

And to all my teachers who have committed themselves towards the noble cause of education.

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ABSTRAK

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

ANALISA 10 TAHUN (2007 – 2016) DATA EPIDEMIOLOGI PENYAKIT BATU KARANG DALAM ANJING DAN KUCING DARIPADA PUSAT RUJUKAN DI MALAYSIA

Oleh:

Hameedunisha Tajudeen

2017

Penyelia: Dr. Lim Sue Yee

Penyelia Bersama: Assoc. Prof. Dr. Gurmeet Kaur Dhaliwal

Batu karang adalah penyakit biasa dalam anjing dan kucing. Kajian ini bertujuan untuk menganalisa data epidemiologi batu karang yang diperolehi daripada pusat rujukan di Malaysia sepanjang 10 tahun (2007 - 2016). Rekod analisa batu karang telah dianalisa dan dibandingkan dengan baka, umur, jantina, status pemandulan, skor berat badan, pH kencing dan lokasi anatomi.

Driapada 1086 penyakit batu karang yang dianalisa, 90.4% merangkumi anjing manakala 9.6% merangkumi kucing. Kebanyakan kes batu karang pada anjing (89.8%) dan kucing (92.2%) melibatkan saluran kencing bawah. Batu karang struvite (61.1%) banyak ditemui pada anjing manakala calcium oxalate (CaOx) (51.9%) banyak ditemui

pada kucing. Purata umur anjing adalah 5.8 tahun manakala umur kucing adalah 7.6 tahun. Anjing didapati 2.7 kali lebih berisiko mendapat struvite manakala kucing adalah 2.4 kali lebih berisiko mendapat CaOx. Selain itu, kucing jantan lebih berisiko mendapat CaOx berbanding kucing betina. Baka anjing dan kucing yang sering terlibat adalah baka anjing Shih Tzu, Miniature Schnauzer, kucing tempatan berbulu pendek, kucing Parsi, dan anjing serta kucing kacukan. Ini merupakan kajian epidemiologi pertama mengenai batu karang di Malaysia, dan terdapat perbezaan ketara antara kes anjing dan kucing. Data dalam kajian ini boleh digunakan untuk kajian lanjutan berkaitan pengurusan kes batu karang mengikut spesis haiwan.

Kata kunci: *Penyakit Batu karang, Struvite, Calcium oxalate, baka haiwan*

ABSTRACT

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

ANALYSIS OF 10 YEARS (2007 – 2016) OF EPIDEMIOLOGICAL DATA OF URINARY STONES IN DOGS AND CATS FROM A REFERRAL CENTRE IN MALAYSIA

By

Hameedunisha Tajudeen

2017

Supervisor: Dr. Lim Sue Yee

Co-Supervisor: Assoc. Prof. Dr. Gurmeet Kaur Dhaliwal

Urolithiasis a common urinary problem in dogs and cats. The objective of this study was to evaluate epidemiological data derived from a referral center in Malaysia over 10 years (2007 – 2016). Urolith analysis results of dogs and catspertaining to their respective urolith type and composition, were evaluated and compared with breed, age, sex, neuter status, body condition score, urine pH and anatomical location.

Out of 1086 uroliths analyzed, 90.4% were from dogs and 9.6% from cats. Majority of uroliths from dogs and cats (89.8% and 92.2%, respectively) were from the lower urinary tract. Struvite (61.1%) was most commonly found in dogs and calcium

oxalate (CaOx) (51.9%) in cats. The average age of dogs and cats were 5.8 years for struvite and 7.6 years for CaOx. Dogs were 2.7x more likely to develop struvite than cats and cats were 2.4x more likely to develop CaOx than dogs. Bitches were 11.9x more likely to develop struvite than males. Meanwhile, toms were 1.5x more likely to develop CaOx than queens.Most common dog and cat breeds associated with struvite and CaOx were Shih Tzu, mixed-breed dogs, Miniature Schnauzers, Domestic Shorthair, Persians and mixed-breed cats. This is the first epidemiological study of uroliths in Malaysia, with significant differences in urolith occurrence between dogs and cats. This baseline data can be useful for further investigative studies towards species specific management of urolithiasis.

Keywords: *Urolithiasis, Urolith, Struvite, Calcium oxalate, Breed*

1.0. INTRODUCTION

Urolithiasis can be defined as a general term that refers to the causes and effects of uroliths anywhere within the urinary tract (Osborne et al., 2008). Urolithiasis is a common urological problem found in dogs and cats that were presented to small animal practices all over the world (Tion et al., 2015). This has urged countries to conduct frequent quantitative analysis of uroliths and evaluate occurrences of various uroliths in relation to species, breed, age, sex, neuter status, anatomical location, body condition score (BCS) and urine pH. There were also observations of trends of uroliths by countries in order to ultimately determine successful treatment and prevention plans (Bartges & Callens, 2015). The intention is to conduct a similar study in Malaysia, because there have been no published studies on the uroliths of dogs and cats in Malaysia. Conducting a study such as this would provide a baseline towards investigative studies in the future. The objective of this study was to determine if there is a significant difference between the occurrence of uroliths in dogs and cats over a 10 year period. Furthermore,the objective of this study was to also evaluate the potential risk factors associated with uroliths such as age, breed, sex, neuter status, BCS, anatomical location and urine pH. The hypothesis of this study was that there is a significant difference between the occurrence of uroliths in dogs and cats. There are also significant associations between uroliths and descriptive data of dogs and cats.

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