CLINICAL, RADIOGRAPHIC AND PATHOLOGICAL FEATURES OF URINARY TRACT CONDITIONS IN DOGS IN NAIROBI COUNTY

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ANATOMY AND PHYSIOLOGY

- The urinary system comprises the paired kidneys, the paired ureti, a urinary bladder and urethra

- The functions of the urinary system is widely known

ETIOLOGY

- Congenital or acquired
- Immune-mediated conditions
- Neoplastic
- Degenerative
- Infectious
- Traumatic

Clinical Signs Urinary Tract Conditions

- Divided into two
- Upper Urinary Tract Disorders
  - Kidneys and Ureters
- Lower Urinary tract Disorders
  - Diseases affecting the bladder, urethra, prostrate gland in males and external genitalia in males and females

- Clinical signs may include,
  - Hematuria,
  - Pollakiuria,
  - Stranguria,
  - urinary incontinence

- Hematuria: blood/RBCs in urine
  - Distinguish from hemoglobinuria and other pigment disorders
  - Due to renal or abnormalities of Lower Urinary Tract/ genitalia
- Pollakiuria: inflammation of LUT leading to increased frequency of voiding
- Dysuria: painful urination
- Stranguria: straining during urination

- Proteinuria may be due to renal disease/nonrenal disease; viral, neoplasia, hematological or immune-mediated anaemia)

- Renal proteinuria is due to
  - glomerular disease or
  - defective absorption by renal tubules as a result of acute or
  - chronic inflammation of renal parenchyma (pyelophritis)

- Nonrenal/postrenal proteinuria is related to LUTD;

  - Cystitis, ureter and bladder stones, trauma, acute or reccurent infection, prostatitis or vaginitis

- Urinary incontinence:
  - involuntary passage/leakage of urine
  - Distressing problem to both the pet and the owner
  - Affects females more that males
  - Due to anatomical or neurological disorders; congenital or acquired

- Juveniles:
  - Anatomical disorders (ureteral ectopia, intersexuality, pervious urachus)
  - Neurological dysfunctions (congenital sphincter muscle incompetence
  - Secondary due to neoplasia, prostatic disease, iatrogenic (uretero vaginal fistula), infection/inflammation
  - Neurological disease (trauma/spinal lesions), multifactorial (urethral spincter muscle incompetence

RESEARCH PROBLEM

- Despite global advances in nephrology and urology, there is inadequate empirical data on the accurate description of the etiology, clinical and radiographic features and pathophysiological features of urinary conditions in dogs

- A pilot retrospective study (2004-2005) at VTHRH UoN revealed 50 cases with diverse diagnosis, some with unclear/inexhaustive description

A study designed to address the information and skill gaps was undertaken through Masters Thesis (Tsigadi, 2012)

The findings envisaged to improve the diagnostic, therapeutic (surgical, medical and management) and prognostication knowledge, skills and practice

GOAL OF THE PRESENTATION

- Based on the findings of the S.A. Masters Thesis deposited in the e-repository of University of Nairobi
- Formed baseline data for future studies
- Effort to include updated references and current research trends at the global and national level
- To identify challenges to the study and propose future research areas

OBJECTIVES OF THE STUDY

1. To determine type and frequency of conditions affecting urinary system in dogs in Nairobi County (1980-2005)

2. To evaluate the clinical, hematological and biochemical features of conditions of the urinary system in dogs

3. To evaluate the radiographic and pathological features of conditions of the urinary system in dogs

MATERIALS AND METHODS

- Retrospective and Prospective Study designs

- Retrospective Study
- Data retrieved from 1638 medical records on dogs presented at the Faculty of Veterinary Medicine, University of Nairobi, Kenya (1980-2005)

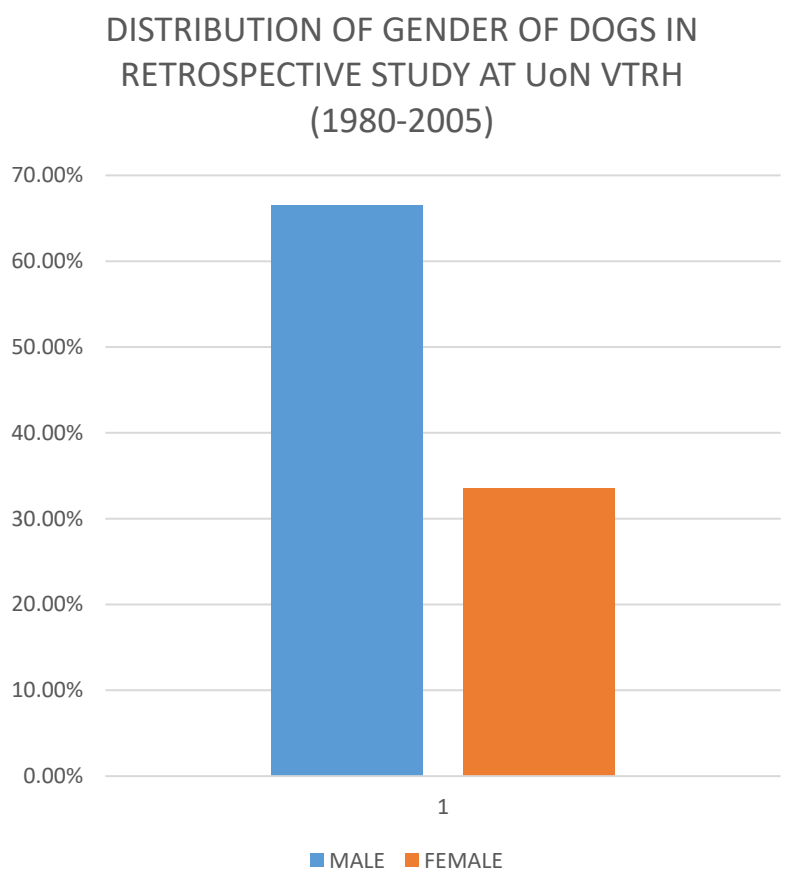
- Dog population demographics including age, breed, gender, etiology, clinical, radiographic and pathological features of urinary conditions

- Descriptive statistical analysis to determine trends

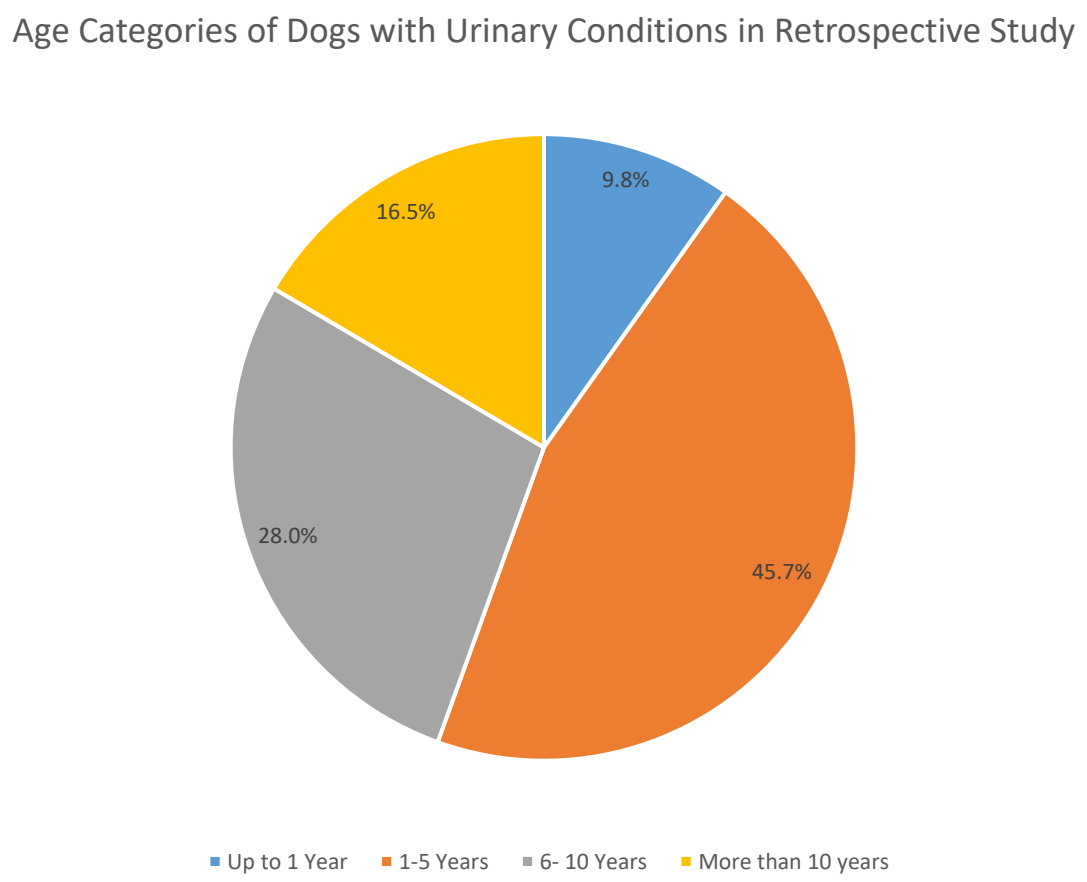
- Prospective Study used thirty (30) purposively selected dogs
- Complete physical examination
- Blood samples collected for hematology and biochemistry
- Urinalysis, survey and contrast radiography
- Postmortem and histopathology

Prevalence

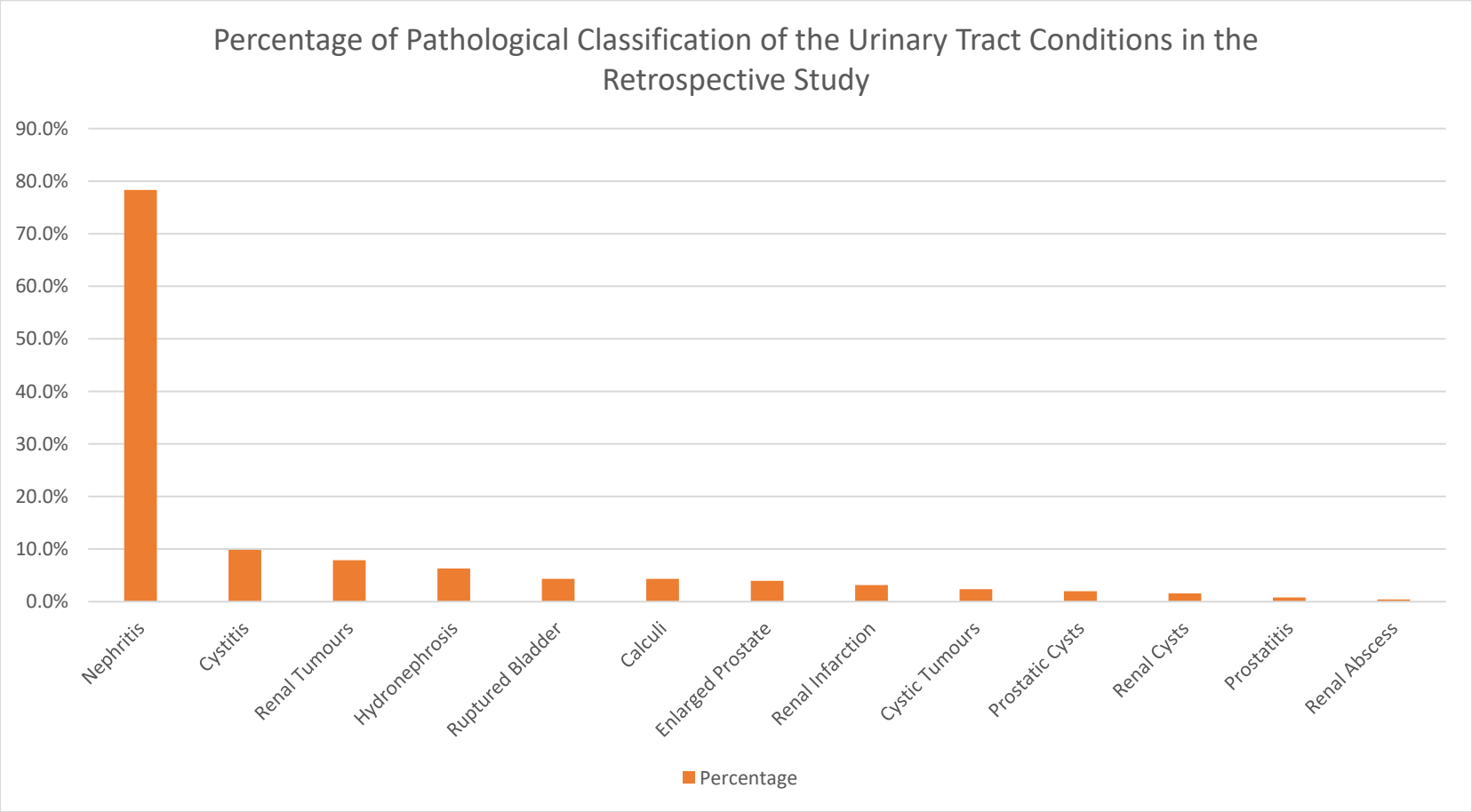
- 254 out of the 1638 medical records were diagnosed with urinary conditions depicting a prevalence of 15.5%

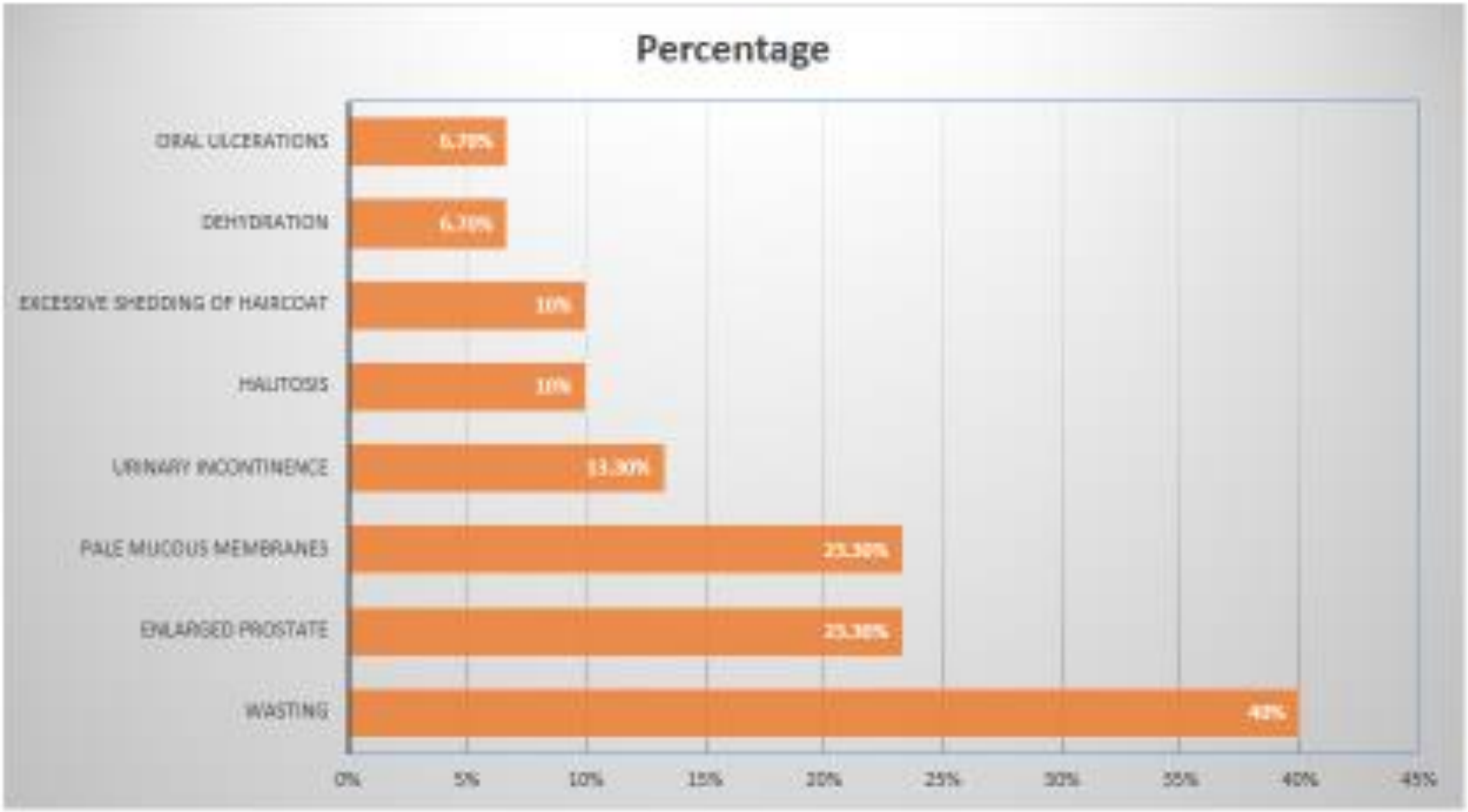


- 66.5% of the dogs were male; 33.5% female


Age Categories of Dogs with Urinary Conditions in Retrospective Study
9.8%
45.7%
28.0%
16.5%
Up to 1 Year
1-5 Years
6- 10 Years
More than 10 years

Prospective Study




Percentage
ORAL ULCERATIONS
DEHYDRATION
EXCESSIVE SHEDDING OF HAIRCOAT
HALITOSIS
URINARY INCONTINENCE
PALE MUCOUS MEMBRANES
ENLARGED PROSTATE
WASTING
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%

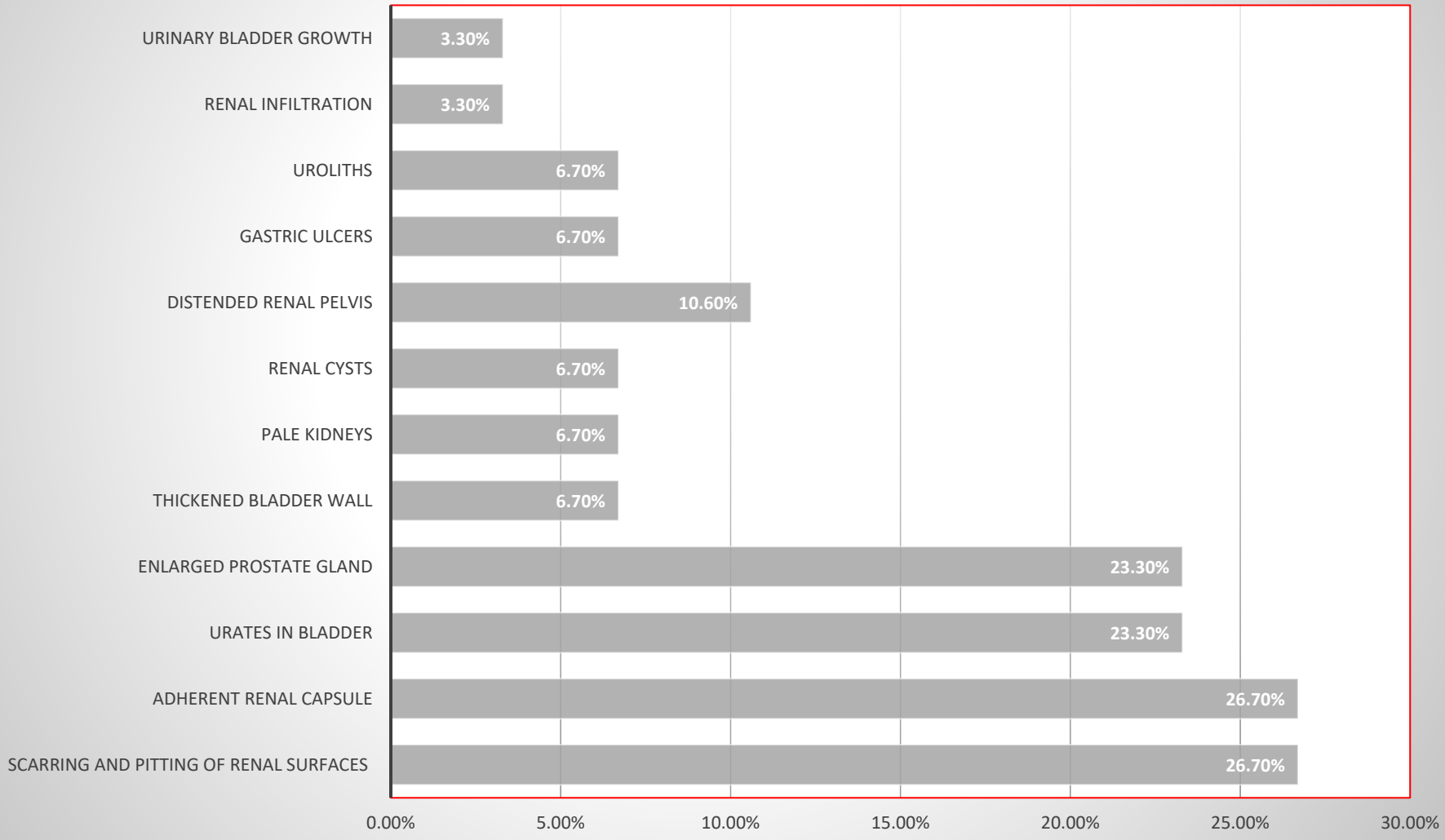
- Hyposthenuria 10%
- Isosthenuria 6.7%

- Urine sediments 23.3%
- Bilirubinuria 23.3%
- Hematuria 16.7%

Survey and contrast radiography

- Nephrogram and pyelogram were:
  - Poor in 23.3%; Fair in 33.3%; Good in 40%; Absent in 3.3%
- Dilated renal pelvis was evident in 10% of cases
- Shrunken kidneys evident in 33.3% of cases
- Enlarged kidneys evident in 20% of cases
- Thickened urinary bladder wall evident in 6.7% of cases

Pathological Changes Observed in the Prospective Study of 30 Dogs with Urinary Tract Conditions



Discussion, Conclusion and Recommendations

- Prevalence, demographics, clinical, radiographic and pathological profiles of urinary tract conditions in dogs in Nairobi County were profiled (1980-2005)
- Baseline data is limited to the past 16 years and more current data is required in the practice domain
- Nephritis reportedly the most prevalent condition affecting the urinary system in dogs
- Limitation due to lack of standardization of diagnostic, therapeutic, prognostication and medical data recording and archiving technologies and at VTRH, UoN

Continued

- Further retrospective and prospective studies recommended, using more robust study designs and including inferential statistics
- Multicenter studies (KESCAVA Affiliated Clinics) recommended to elucidate current trends
- Review the use of more current (LANCET?) laboratory and diagnostic imaging technologies (digital radiography and ultrasonography)
- Review the scope of management and nutritional support approaches modalities currently used in veterinary practices and households in Kenya

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