

Management of Cystitis in two dogs

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Abstract

Two dogs were presented with complaint of haematuria, inappetance, dyspepsia and stranguria. Leukocytosis, low Hb while urinalysis revealed proteinuria with pH 9, erythrocytes, pus cells and abundant struvite crystals in female. Culture result showed *Staphylococcus* growth in female and mixed growth of *Pseudomonas*, *Proteus* and *Klebsiella* in male. Antibiotic sensitivity was present predominantly for cephalosporins. On abdominal ultrasonography examination, the bladder displayed increased wall thickness, and hyperechoic crystals which concluded the case as cystitis. Culture result showed *Staphylococcus* growth. Antibiotic sensitivity was present predominantly for cephalosporins and enrofloxacin. They were treated with cephalexin with other supplements and was advised for struvite diet. Improvement with resolution of signs and normal appetite was noticed after 15 days.

Keywords: canine cystitis, hematuria, struvite

Cystitis is inflammation of wall of urinary bladder caused by ascending migration, multiplication, and establishment of microorganisms from the lower parts of the urinary tract. It is caused by various infectious agents, remarkably by bacteria like *Streptococcus*, *Staphylococcus*, *Eschericia coli*, *Proteus*, *Klebsiella* and *Pseudomonas spp.*, and rarely by fungi and viruses (Krane and Levine, 1992 and Ettinger *et al.*, 2005). In the present study, the cystitis was diagnosed and confirmed using haematological, biochemical, microbiological, and imaging investigations, and was successfully managed.

Two dogs (2 and 11 years; one male and one female) were presented to the Telangana Veterinary Clinical Complex, CVSc Rajendranagar, Hyderabad, Telangana, India with the history and signs of reduced urine volume but increased frequency, dysuria, pigmented urine and frequent licking. Haematology revealed marked neutrophilia (97%). Ultrasound imaging displayed, increased bladder wall thickness, an irregular mucosal surface and hyperechoic sediments. Urine samples were blood tinged and the staining of the urine smear demonstrated cocci, pus cells and epithelial cells (Fig.1). Quinn *et al.* (2011) reported that *Staphylococcus* spp. form golden-yellow colonies on Mannitol Salt Agar (MSA) due to mannitol fermentation and pigment production, which was observed in the samples collected from the dogs (Fig. 2). ABST revealed

sensitive to cephalosporin and fluoroquinolones. The diagnostic tests revealed a severe bacterial infection along with crystalluria, indicative of cystitis, based on which appropriate treatment was initiated.

Clinical manifestations of cystitis typically include hematuria, stranguria, pollakiuria, dysuria, urinary incontinence, and in some cases, systemic signs such as lethargy, dehydration, and pyrexia. Early diagnosis is critical and involves a combination of hematology, biochemistry, complete urinalysis, urine sediment examination, and advanced imaging modalities such as ultrasonography to assess bladder wall architecture, intraluminal debris, and crystalluria (Stamm & Norrby, 2001; Nickel, 2005). Definitive diagnosis requires urine culture and sensitivity testing, ideally performed on samples collected via cystocentesis to avoid contamination, which enables pathogen identification and guides appropriate antimicrobial therapy (Flores-Mireles *et al.*, 2015). A comprehensive, individualized, and evidence-based diagnostic and therapeutic approach remains critical for successful management of cystitis in canines, ensuring rapid clinical improvement and minimizing further complications that might lead to nephritis. The dogs had uneventful recovery following treatment with cephalexin (@20mg /kg bid PO) for a period of 15 days.

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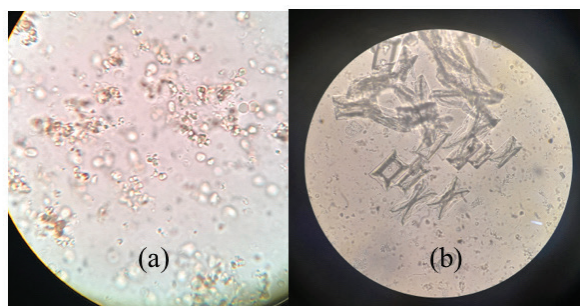


Fig. 1: Microscopic examination of urine sediment revealed RBCs, pus cells and struvite crystals

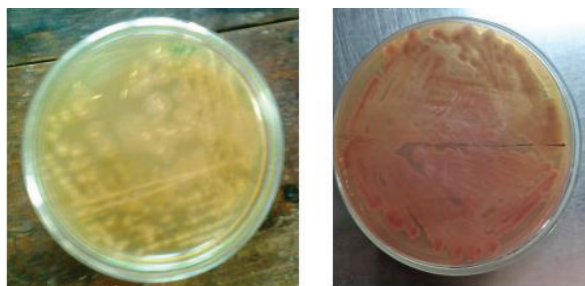


Fig. 2: Culture of urine sample of MSA agar showing golden yellow colonies of *Staphylococcus* spp.

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