

## Interpretive Summary

### *Corynebacterium urealyticum* urinary tract infection in a mixed breed dog

**Case Description:** A two year old female spayed mixed breed dog presented for hematuria. Urinalysis revealed pyuria, bacteruria, and hematuria consistent with a urinary tract infection. Abdominal radiographs demonstrated numerous uroliths within the urinary bladder. Laboratory profile and CBC were within normal limits. Routine cystotomy was performed and the uroliths submitted for analysis, confirming the stones as 100% magnesium ammonium phosphate (struvite). Amoxicillin/clavulanic acid and butorphanol were administered postoperatively. No bacteria were grown on initial urinary culture and sensitivity testing despite the presence of pyuria. Three weeks post-operatively the pet presented for passing wine-colored urine, frequent straining, lethargy, and some degree of urinary incontinence. CBC, urine myoglobin, CPK, and reticulocyte counts were all normal. Exploratory cystotomy revealed a normally healed bladder incision. The bladder wall was extremely thickened and quite firm to fibrotic. No additional uroliths were discovered in the urethra, but the mucosa of the vaginal vault, urethra, and entire bladder lining were coated with plaques of necrotic debris and crusts. The mucosa was also ulcerated. Bladder wall culture and histopathology yielded diphtheroid organisms determined to be *Corynebacterium urealyticum*.

**Outcome:** The owner elected treatment of the pet despite the risk of creating a superbacteria (potential human health risk) with therapy. Treatment consisted of weekly cystoscopy scraping clean the mucosa and infusing the bladder with tricide and gentocin, and also administration of oral chloramphenicol. Bone marrow suppression developed and the oral medication was changed to tetracycline based on MIC data. The bladder remained small and fibrotic, but the infection cleared on culture. The pet wore diapers to deal with the incontinence. Urine was cultured monthly to monitor for UTI recurrence. Six months later the pet is doing well, with near normal bladder function.

**Implication/Applications:** A routine cystotomy turned into a rare, life-threatening infection and permanent urinary incontinence with a fibrotic bladder. It is suspected that the *Corynebacterium urealyticum* contaminated the bladder during catheterization at the time of the initial cystotomy procedure. In retrospect, cystoscopy would have been a less traumatic alternative to the second (exploratory) cystotomy procedure.

#### References:

Bailiff, N.L., Westropp, J., Jang, S.S., Ling, G.V.: *Corynebacterium urealyticum* urinary tract infection in dogs and cats: 7 cases (1996-2003). *Journal of the American Veterinary Medical Association (JAVMA)*. Volume 226, No. 10 (May 15, 2005). pp. 1676-1680.