Dr. Drury R. Reavill
Dr. Robert E. Schmidt
**Zoo/Exotic Pathology Service**
2825 KOVR Drive
West Sacramento, CA 95605

| | | | |
|---|---|---|---|
| **Doctor:** | Koeppl | **Date:** | November 24, 2008 |
| **Clinic:** | Bat World Milwaukee<br>1935 East Morgan Avenue<br>Milwaukee WI | **Access:**<br>**Species:**<br>**Breed:**<br>**Sex:**<br>**Name:** | V087728-9<br>Eptesicus fuscus<br>Bat<br>Female<br>Puff |
| **Client:** | Lisa Schlenker, 27-07 | **Age:**<br>**Type:** | 2 Years |

## ***CLINICAL INFORMATION***

Profuse bloody urination and straining to urinate. The animal had chewing behavior and was licking its lips with signs of nausea.

## ***GROSS EXAMINATION***

The bladder was reddened and thickened.

## ***MICROSCOPIC***

Submitted are multiple sections of tissue.

Urinary bladder: There are was moderate autolysis; however, there was also an antemortem lesion comprised of diffuse mucosal necrosis with an infiltrate of neutrophils. Numerous bacteria were seen.

Ovary: No lesion recognized.

Uterus: No lesion recognized.

Small intestine: No lesion recognized.

Pancreas: No lesion recognized.

Heart: No lesion recognized.

Liver: No lesion recognized.

Lung: There is diffuse variable basement membrane mineralization. The lung is congested. Some alveolar walls are ruptured with formation of emphysematous bullae.

Trachea: No lesion recognized.

Esophagus: No lesion recognized.

Kidney: Multifocal to confluent basement membrane mineralization is noted, particularly within the renal papilla.

CONTINUED

Adrenal gland: No lesion recognized.

Tongue: No lesion recognized.

Large intestine.

Brain: No lesion recognized.

Small intestine: No lesion recognized.

Lymph nodes: No lesion recognized.

***DIAGNOSIS***

**1) DIFFUSE SEVERE CYSTITIS – URINARY BLADDER**
**2) DIFFUSE MODERATE TO SEVERE MINERALIZATION – LUNG**
**3) DIFFUSE MILD TO MODERATE CONGESTION – LUNG**
**4) MULTIFOCAL MINIMAL TO MILD EMPHYSEMA – LUNG**
**5) MULTIFOCAL TO CONFLUENT MODERATE MINERALIZATION - KIDNEY**

***COMMENT***

The soft tissue mineralization noted could be secondary to a generalized problem associated with what appears to be a bacterial cystitis; however, the mineralization could also be primary, leading to a debilitated animal and the cystitis noted. Soft tissue mineralization in mammals can be due to a severe calcium/phosphorus imbalance. This could be dietary related, and evaluation of the diet for relative amounts of calcium and phosphorus certainly would be recommended. Excessive phosphorus is a common cause of the problem. Excessive amounts of vitamin $D_3$ in the diet could also lead to the mineralization noted. In addition, the possibility of a vitamin D analog rodenticide toxicity would have to be considered. If the animal has any direct access to rodenticide or to anything that might have come in contact with a rodenticide, it can lead to soft tissue mineralization. The exact type of bacteria causing the cystitis is not determined morphologically.

ROBERT E. SCHMIDT, DVM, PhD
Diplomate, American College
of Veterinary Pathologists

RES:br* Q KW