24-year-old bobcat with long-term history of renal compromise and arthritis. Keepers felt quality of life no longer acceptable and she would not survive the winter.

(Dr. S. Deem) This 24 yr old bobcat was in declining body condition for the past 2 years. During this period, her body weight went from 7.5 kg (February 2001) to 6.8 Kg (October 2002). She had two episodes of what were most likely seizures of unknown etiology. After each episode, in which keepers described her as "comatose", she slowly worked her way out of the episodes within hours. She received annual physical examinations in March 2001 and February 2002. Her kidney values (BUN and creatinine) were both seen to be rising during this time period. Additionally, following her anesthetic event in February 2002, she had a prolonged, difficult recovery. The veterinary staff, curators, and keepers decided at that time that her quality of life was declining and that further anesthetic procedures would not be pursued. In March 2002 she did have a bout of loose stool and partial anorexia. She was treated with antibiotics and responded well. During the weeks just prior to elective euthanasia, requested by the curatorial staff, Dr. Deem had spoken with Beaver Valley keepers about possible anti-inflammatory to provide comfort and/or a veterinary examination. The curatorial and keeper staff indicated that they felt euthanasia was the best option for this animal. The animal was humanely euthanized with initial anesthesia and then an iv injection of beuthanasia solution.

GROSS DESCRIPTION:

The body of this female adult bobcat is in good nutritional condition as evidenced by a full, shiny hair coat, and the presence of adequate amounts of subcutaneous, inguinal and abdominal fat. Overgrown claws are found on both front paws; the nails of right digits 2 and 4 and left 2 and 5 have grown into their corresponding foot pad and are abnormally wide at the distal end of the claw. There is a 10 x 5 cm shaved area on the right ventral cervical area. The jugular vein in this area is thickened and occluded by a blood clot approximately the length of the overlying shaved area. The calvaria appears thin and brittle and the ribs are pliable. All major joints examined are normal except an area (0.5 x 1.0 cm) of pitting is found on the caudolateral humeral head adjacent to an irregular area (1.5 x 1.5 cm) of increased whiteness and opacity. Clotted blood is found in the thoracic cavity adjacent to the heart and is consistent with postmortem cardiac blood collection. The cardiopulmonary structures are otherwise within normal limits. Multiple pinpoint white foci are observed diffusely throughout the splenic parenchyma. There is a granular appearance to the tan renal cortex and the medullary region is white and slightly soft. The urinary system is otherwise within

Date Printed: October 9, 2003
normal limits. The right ovary is twice the size of the left ovary and is largely composed of a 1.0 x 0.5 x 0.5 cm spherical fluid-filled structure. Three pale, circular, yellow areas are also observed on the right ovary. Associated cranially with the right thyroid is a 0.5 x 0.5 x 0.3 cm, roughly circular, amber, fluid-filled structure. The right thyroid is mostly tan but streaked with broad white areas that may correspond to the parathyroid. The left thyroid is homogenously tan and parathyroid gland is not observed grossly. Approximately 1.5 cm distal to the thryoids, there is a 2.0 x 1.5 x 1.2 cm well-encapsulated movable mass located dorsal to the esophagus. The parenchyma is lobular and white on section. The adrenal glands are enlarged bilaterally, both approximately 2.4 x 1.5 x 1.3 cm and roughly triangular. The surface of the right adrenal is more cystic appearing. Cortex and medulla are still discernable on both adrenals when cut. The gastrointestinal system and central nervous system are both grossly within normal limits. Segments of a partially digested rodent are found in the stomach, and adequate feces are observed in the colon.

SPECIAL REQUESTS:
NONE

FINAL DIAGNOSES:
1) SYNDROME, GLOMERULOSCLEROSIS
2) KIDNEY, GLOMERULOSCLEROSIS, MULTIFOCAL, MODERATE
3) KIDNEY, NEPHRITIS, LYMPHOPLASMACYTIC, MULTIFOCAL
4) KIDNEY, MINERALIZATION, MULTIFOCAL, MILD
5) TUMOR, ADRENAL, ADENOMA, CORTICAL
6) ADRENAL, HYPERPLASIA, CORTICAL
7) STOMACH, GASTRITIS, SUBACUTE, MILD
8) SYNDROME, FIBROUS OSTEODYSTROPHY, RENAL
9) BONE, RIB, OSTEODYSTROPHY, FIBROUS, MILD
10) TUMOR, THYROID, ADENOCARCINOMA, CYSTIC, PAPILlARY
11) CLAW, OVERGROWTH, MULTIPLE, MARKED
12) FOOT, PODODERMATITIS, MULTIPLE, TRAUMATIC
13) LYMPH NODE, TRACHEOBRONCHIAL, ANTHRACOSILICOSIS, MODERATE
14) JOINT, SHOULDER, OSTEOARTHRITIS, DEGENERATIVE, FOCAL, MILD
15) OVARY, DEGENERATION, LIPOID, CYSTIC, MODERATE

CAUSE OF DEATH:
EUTHANASIA, URINARY, GLOMERULOSCLEROSIS

REMARKS:
This 23.5-year-old female bobcat had an approximately five year history of renal disease documented with progressively increasing BUN and creatinine, decreasing urine specific gravity, and borderline anemia. She also had several seizure episodes of unknown origin.

Pertinent gross findings at necropsy include an animal with adequate subcutaneous and cavitary fat stores, overgrown claws of the front paws, granular appearing renal cortices, thyroid and paraesophageal tumor masses, and adrenals and an ovary that were enlarged.

There were no histological abnormalities in the brain to explain the seizure-like events in this bobcat’s clinical history. Also, there was no evidence of discospondylosis in the spinal column or degenerative osteoarthrits except to a limited degree in the right humeral head, which was considered unlikely the primary cause of the bobcat’s recent episode of lameness and reluctance to move. The lameness was attributed in part to the overgrowth of the claws with trauma-induced pododermatitis.

Date Printed: October 9, 2003
Histologically, moderate glomerulosclerosis was observed in both kidneys with features similar to glomerulosclerosis documented in captive cheetahs, including concurrent adrenal cortical hyperplasia. A cortical adenoma was also present in one adrenal of this bobcat. Glomerulosclerosis is unique and, in the cheetah, has been associated with forms of subliminal physiological stress, which may induce adrenal cortical hyperplasia and a resultant elevation in blood glucose. With time, this may have a negative effect on the kidney. (Bolton, L & Munson, L. Vet. Path 36:14-22, 1999). Chronically elevated blood glucose results in thickening of the glomerular and tubular components that interfere with normal kidney filtration.

The histologic gastritis described was likely related to uremia. In addition, fibrous osteodystrophy noted in the costochondral junction of a rib was attributed to the chronic renal disease most likely associated with secondary hyperparathyroidism. Parathyroid glands could not be identified, but this animal had abnormal calcium and phosphorus values consistent with metabolic bone disease. Although this animal's kidneys were not at end stage, it is likely that the glomerulosclerosis would have progressed with increasingly severe signs.

In addition, the cystadenocarcinoma of the thyroid proper and ectopic thyroid tissue around the esophagus may have been functional and enhanced the bobcat's weight loss. However, both tumors were of a low grade malignancy and there was no histologic evidence of metastasis. Heart blood cultures were negative for bacterial organisms and postmortem fecal exam for parasites were also negative. Cytology of thyroid mass supported the histologic findings. (CP# 2002-3732-3734)

KELLY
PROSECTOR

MONTALI
PATHOLOGIST

1/3/2003
DATE COMPLETED