

Necropsy Detail

Animal Type	GAN	Preferred ID	Taxonomy	Sex	Birth Date	Age
Individual	MIG12-28327352	M02029	Canis lupus baileyi/Mexican wolf	Male	09/May/2002	13Y 10M 12D

Submission

Death Date 21/Mar/2016 00:00
 Date Submitted 21/Mar/2016
 Date Discovered 21/Mar/2016
 Submitted By Judilee Marrow
 Manner of Death Euthanasia, medical

Carcass Weight

Measurement 38.5 kilogram
 Estimate No
 Exclude from reference intervals No

Death Location

Location Type Enclosure
 Enclosure IW

Recent History/Observations Note

History of respiratory stridor over the last few months, over the weekend clinical condition declined. Exams revealed suspected nasal tumor in the left nasal passage just distal/rostral to the left eye with OS psuedobuphthalmia. Euthanasia elected due to poor quality of life.

Due to error, carcass was frozen for shipment to NM musen prior to necropsy performance. Per consultation with Dr. Agnew, performed necropsy on frozen specimine and thawed tissues in formalin to minimize freeze artifact.

Special Request

SSP requested tissues for nasal tumor evaluation in this species. Did not recieved these requests until after animal was frozen so incomplete set of tissue was obtained for the request.

Case Info

Pathology Case Number ~
 Parties to get copy of final report ~
 Responsible Pathologist Dalen Agnew
 Responsible Resident ~

Death Numbers

Death Number	Effective Date	Entered By
~	~	~

Workflow Notes and Additional Case Comments

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Gross Necropsy

Necropsy Info

Necropsy Date 25/Mar/2016
 Carcass Condition Code ~
 My Institution HOSPITAL
 Reference Number ~
 Necropsy Prosector Judilee Marrow
 Additional Staff ~

Report

Report Written Date 04/Apr/2016

Necropsy Report/Description

Due to a misunderstanding about what was wanted from the SSP vs FWS vs Museum of NM this carcass was frozen prior to necropsy.

General:

Adequate body condition noted with ample fat stores. Area of dorsal bilaterally symmetrical alopecia consistent with chronic hypothyroidism was present over the dorsum. Area is darkly depigmented and hairs are easily epilated from this site.

System evaluation:

Head: The brain and eyes were not removed from his wolf. Oral evaluation - muliple broken and fractured teeth present. Oral mucosa apparently normal.

Thyroid glands small with multiple small cystic structures present. No lymphadenopathy noted. There is swelling with some boney remodeling at the site of the presumed nasal tumor. There is a lateral deviation of the maxilla at the level of the coection with the fronal and zygomatic bones. The left eye is also slightly proptosed associated with this boney change. On removal of the dorsal left maxilla there was a large dark red to purple mass obliterating the caudal aspect of the dorsal nasal concha and apparently obliterating most to all of the ventral nasal concha. The entire nasal passage appeared to be obstructed by the mass from the level of the lateral frontal sinus to the entrance to the maxillary recess and rostrally about 1/2 - 1/3 of the way to the nasal planum. hemorrhage was present immediately cranial to the mass and extended nearly to the nasal planum. Samples were obtained frozen and banked or placed in formalin.

Thoracic: No gross abnormalities noted. Adequate pericardial fat stores.

Abdomen: Abundant abdominal fat stores. Unable to locate adrenal glands due to fat stores. GI tract unremarkable. Ingesta present in stomach. Liver appeared to be of normal size and shape. The tail of the spleen appeared subjectively enlarged but overall no other abnormalities were noted in the organ.

Kidneys and urinary bladder were grossly within normal limits.

MS/Neuro: No direct observation was made of the joining spaces due to request for carcasses to remain intact for musen use. Palpable osteoarthritis in multiple joint spaces of the spinal column and distal limbs.

Gross / Preliminary Diagnosis**Diagnoses**

Diagnosis	Standardized Diagnosis
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Initial Necropsy Comments & Interpretation

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Samples & Tests**Samples**

Sample Type/Anatomical Source	Preservative
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Measurements**Organ Weights & Lengths**

Measurement Date/Time	Type	Measurement Item	Measurement Value	Measured By
~	~	~	~	~

Histopathology**Tissue Processing**

Tissue Trim Date	~
Trimmed By	~
Tissue Processing Submission Date	~
Tissue Processed Completion Date	~
External Laboratory	Diagnostic Center for Population and Animal Health
Reference Number	02066677

Histopathology Info

Histopathology Report Date	18/May/2016
Histopathology Report By	Dalen Agnew
Responsible Pathologist	Dalen Agnew

Histopathology Report

Examined are sections of nasal tissue and turbinates (block 1), heart, liver (2), colon, small intestine (3), liver, kidney (4), spleen, lung, testicle (5), urinary bladder, thyroid gland (6), oral cavity, skin, esophagus, trachea (7), and rib (8). Autolysis is moderate in all tissues.

In the nasal cavity, there is extensive hemorrhage, necrosis, and erosion of bony trabeculae with scalloping of the remaining bone and tide marks, and replacement of bone by a neoplastic population of spindle to stellate cells which fills the cavity, impinges on the bone, and is frequently necrotic. The neoplastic population is arranged in small loose bundles and sheets of stellate to spindle cells with moderate anisocytosis and anisokaryosis, scant cytoplasm, indistinct cell borders, and large oval to spindle nuclei with stipple chromatin and 1-2 mitotic figures/hpf. The remaining epithelial surface has an increased number of mucus cells and is overlaid with a dense mat of mucus, neutrophils, fibrin, and cellular debris.

In the heart, there is a single prozoal cyst in the left ventricular myocardium, 20-30 um in diameter with many 1-2 um bradyzoites. Some adipocytes are present scattered in the myocardium of the left side. The liver is markedly congested. In the kidney, there is a mild thickening of Bowman's capsule and scant mesangial thickening in many glomeruli, as well as multifocal small elongated areas of fibrosis and scant lymphocyte and plasma cell infiltration radiating from the cortical surface into the medulla.

Alveolar spaces in the lung are largely absent, with atelectic parenchyma and some thickening of the alveolar walls, increased circulating neutrophils and mononuclear cells, and scant fibrin. Around many large airways, there are clusters of macrophages laden with abundant refractile brown to gray material (anthracosis).

In the thyroid gland, many of the follicles are reduced in size with scant colloid. Many large adipocytes infiltrate the thyroid parenchyma, replacing approximately 75% of the gland examined.

In the testicle, there is a large well-demarcated nodule within the parenchyma composed of many irregular and poorly organized tubular structures dissected by dense bands of fibrous connective tissue stroma. The cells are densely packed, largely spindle, palisading along the inside of the tubular structures. The nuclei are round to oval, large, with stippled chromatin and rare mitotic figures (<1/10 hpf). In and adjacent areas, within the more normal seminiferous tubules, several adjacent tubules are packed with neoplastic cells arranged in sheets within the tubules, with indistinct cell borders, basophilic cytoplasm, and large vesicular nuclei, with frequent mitotic figures (2-3/hpf). The remaining seminiferous tubules lacked any evidence of spermatogenesis.

In the section of haired skin, there was a moderate degree of follicular atrophy, with hairshafts within only a small number of follicles and the others much reduced in size. Apocrine glands are generally enlarged and dilated. There is a small infiltrating population of mononuclear cells in the superficial dermis.

In the trachea, there was a focal areas of stratified squamous epithelium replacing the expected ciliated columnar epithelium. There is also an area of ulceration at the margin of this stratified squamous epithelium.

In the examined rib, there was scant erythroid or myeloid cells in the bone marrow, only large numbers of adipocytes.

Histopathology Diagnosis

Diagnosis	Standardized Diagnosis
Nasal cavity: Sarcoma (likely osteosarcoma) with mucosuppurative rhinitis and bony remodeling	~
Lung: Moderate interstitial pneumonia, atelectasis, and anthracosis	~
Kidney: Mild membranous glomerulonephritis; mild multifocal chronic interstitial nephritis with fibrosis	~
Testicle: Sertoli cell tumor; Seminoma (intratubular)	~
Thyroid gland: Moderate degeneration and atrophy with fatty replacement	~
Trachea: Focal squamous metaplasia with ulceration	~
Skin: Mild follicular atrophy, apocrine gland dilation, and chronic mild dermatitis	~

Finalize

Finalization Date 19/May/2016

Relevant Death Info Chronic disease; Non-infectious Disease or Condition> Congenital malformation; Non-infectious Disease or Condition> Neoplasia

Primary Body System Affected Respiratory

Responsible Pathologist Dalen Agnew

Responsible Resident ~

Significant contributors to death

Diagnosis	Standardized Diagnosis
Lung: Moderate interstitial pneumonia, atelectasis, and anthracosis	~
Nasal cavity: Sarcoma (likely osteosarcoma) with mucosuppurative rhinitis and bony remodeling	~

Final Summary

Comment: The nasal tumor observed in this animal had a distinct sarcomatous appearance; however, the nasal tumors described previously in this population are carcinomas. It is possible that poor fixation (this tumor was frozen before being fixed) or the small size of the tumor due to the massive adjacent necrosis may account for this appearance in a carcinoma. Further staining with a cytokeratin or vimentin stain. an additional fee on tissues already in hand) would help further clarify this question.

Regardless, the neoplasm has likely led to some degree of lung compromise. The other changes are all likely age related and not likely to be clinically significant at the time of this animal's death.
Dalen Agnew, DVM, PhD, DACVP

Addendum:

Further review and consultation with Drs. Tony Ross and Rebecca Smedley confirm that this tumor is a sarcoma within the nasal cavity, likely an osteosarcoma. Small islands and trabeculae of homogenous eosinophilic material (presumptive osteoid) is intercalated between tumor cells in some better preserved regions.

Please contact us if you would like us to do any follow up immunohistochemistry; although at this time, there is no good confirmatory immunohistochemistry for osteosarcoma commercially available and working (osteocalcin, specifically). We can, however, definitively rule out carcinoma, but this is probably not necessary.
Dalen Agnew, DVM, PhD, DACVP

Necropsy Case Info for Husbandry Staff (R1 Note)

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Addendum

Date	Note	Reported By
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Audit Trail

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