Colorado State University

Veterinary Teaching Hospital
Fort Collins, CO 80523
Phone: (970) 221-4535

Case: 210991

Owner:	ERIN KINNEY		
Animal:	JASMINE		
Species:	CAN	Breed:	MIX
Birthdate:	08/15/93	Color:	BLACK/WH
Gender:	Female	Status:	Spayed
Admit:	06/10/06	Checkout:	06/12/06

Invoice: 979714

August 1, 2006

DR. TROY THOMPSON
TRI-STATE VETERINARY CLINIC
1607 LOGAN AVE
CHEYENNE, WY 82001

Dr. Thompson,

Although I have finished my residency, I wanted to give you the final necropsy report for Jasmine Kinney (maxillary OSA, pulmonary/cutaneous metastasis). This report has also been provided for the owner.

Please contact one of the oncology clinicians if you have any questions.

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Colorado Veterinary Diagnostic Laboratory
College of Veterinary Medicine and Biomedical Sciences
Colorado State University, Fort Collins, CO 80523
Phone: 970-297-1281 Fax: 970-297-0320

HOSPITAL NECROPSY

VTH#: 210991
DL#: 056-78385
Date: 6-12-06

Vet/Clinic: Petty/VTH
Owner: Erin & Scott Kinney
Animal ID: Jasmine Date Specimen Taken: 6-10-06
Species: Canine Breed: Mix Age: 13 Sex: F/S
Euthanized: 6-10-06

History: Osteosarcoma of the maxilla with pulmonary metastasis with cutaneous OSA metastasis.

LESION DIAGNOSIS: 1/Masses, haired skin, lungs, myocardium (left and right atria and ventricles), kidneys (bilateral), ribs and vascular and lymphatic spaces = Multicentric (metastatic) osteosarcoma with intravascular and intralymphatic invasion.

2/Adrenal gland = Metastatic sarcoma.

3/Mass, right lateral liver lobe = Hepatic nodular hyperplasia with mild, hydropic degeneration.

4/Masses, subcutis, left lateral thorax and abdomen = Lipomas.

5/Adrenal gland = Nodular cortical hyperplasia.

ETIOLOGY/DISEASE DIAGNOSIS: Neoplasia.

REMARKS: The multicentric nature of the osteosarcoma, in concert with the clinical history, strongly suggests that these lesions are metastatic in nature (rather than representing separate, distinct, foci of de novo transformation). There are some Cytologic features of the sarcoma within the adrenal gland which differ slightly from the other, overtly osteogenic, lesions. This adrenal lesion likely represents another foci of metastatic osteosarcoma but without definitive osteoid production, a definitive diagnosis cannot be made. If desired, additional sections through the block (to search for osteoid) can be made. Please contact if desired.

GROSS NECROPSY: An adult (13 years old), female spayed, mixed breed canine in good (BCS=5/9) body condition with minimal, uniform

autolytic change and adequate subcutaneous and visceral adipose tissue stores is examined.

Integument/subcutis - Identified on the left ventrolateral and lateral abdomen and thorax, there are four, discrete, raised, variably-sized (up to 2cm in diameter), pale tan and firm to hard, epidermal masses. On the cut surface, these masses merge indistinctly with the surrounding haired skin, and are homogeneous, pale tan with pinpoint, pale white foci. Identified along the left ventrolateral thorax, there are two, soft and fluctuant, discrete, subcutaneous masses, the largest of which measures approximately 6cm in diameter and, on the cut surface, grossly resemble the surrounding adipose tissue.

Cardiovascular - Bulging from the epicardial surface of the left and right atria and ventricles, there are multiple (5 to 10), variably-sized (up to 3cm in diameter), irregularly-shaped, discrete, pale white to tan, and firm to hard masses. On the cut surface, these masses extend into, and appear to efface, the underlying myocardium and, are often gritty upon sectioning.

Respiratory - Disseminated throughout all lobes of the left and right lung fields, there are multiple (greater than 100), variably-sized

(4mm to 4cm in diameter), discrete, white to pale tan, firm to hard masses. These masses are irregularly-shaped, often lobulated, and in total, affect approximately 30% of the pulmonary parenchyma. On the cut surface, these masses extend into, and appear to efface, the underlying pulmonary parenchyma and, are often gritty.

Urogenital - Identified within both the left and right kidneys, affecting approximately 1 to 2% of the total examined renal parenchyma, there are multiple (5 to 10), variably-sized (up to 2cm in diameter), round to oval, discrete, pale white to tan masses, which often bulge slightly along the capsular surface. On the cut surface, these masses appear to invade the underlying renal parenchyma and, are homogeneous, pale white to tan.

Musculoskeletal - Bulging from the middle aspect of the pleural surface of the right, 7th rib, there is a single, multilobulated, ill-defined and raised, 3cm, white and hard mass. This mass merges indistinctly with the underlying, pre-existent rib and bulges slightly into the pleural cavity. Identified along the pleural surface of the intercostal spaces between the right 9th and 10th ribs, and the left 7th and 8th ribs, there are multiple (2 to 4), discrete, slightly raised, small (approximately 1 to 2mm in diameter), hard and pale white masses.

Hepatobiliary - Bulging from the surface of the right lateral liver lobe, there is a single, 8cm diameter, discrete, soft and round mass.

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On the natural and cut surfaces, the mass is colored dark brown to red and grossly resembles the surrounding, somewhat compressed, pre-existent hepatic parenchyma.

All other body systems are examined and there are no significant gross findings.

HISTOPATHOLOGY: 1/Lung - Examined are two sections of lung, each of which are characterized by similar microscopic findings. In each, a variable percentage (25 to 30%) of the pulmonary parenchyma is effaced and replaced by multiple, variably-sized, ill-defined, moderately cellular invasive masses. Individual masses consist of loosely organized, variably-sized, nests and aggregates of disorganized and markedly atypical and pleomorphic cells, which are separated by a scant amount of loose, fibrovascular connective tissue. Individual cells are oval to angular to elliptical and are characterized by distinct cell borders and a moderate amount of pale eosinophilic cytoplasm and a round to elliptical to reniform, eccentrically-located nucleus with coarsely granular chromatin and an inapparent nucleolus. There is moderate anisocytosis and anisokaryosis, occasional binucleate forms, and 0 to 3 mitotic figures are seen per high power field. In the largest of the masses, cells are embedded within, and separated by, a small to moderate amount of homogeneous, pale eosinophilic, somewhat glassy, extracellular matrix material (osteoid). Throughout the masses, there are rare foci of necrosis, multiple areas of mineralization, and small numbers of lymphocytes.

Within the pulmonary parenchyma surrounding the masses, multiple, medium-sized vascular channels contain small aggregates of identical neoplastic cells. Additionally, approximately 50% of the surrounding alveolar spaces contain a mixture of the following - a modest amount of beaded to fibrillar, pale eosinophilic, edema fluid, modest numbers of foamy, alveolar macrophages admixed with lesser numbers of lymphocytes and plasma cells, and small numbers of erythrocytes. Diffusely, vascular channels are congested.

Haired skin - In the single examined sections of haired skin, approximately 90% of the dermis and subcutis is effaced and replaced by an ill-defined, highly cellular mass composed of neoplastic cells of identical cytomorphologic and architecture characteristics as those described in the sections of lung. Entrapped within the mass are bundles of pre-existent dermal collagen, scattered adnexal units, and infiltrating into the mass, are small numbers of mast cells and lymphocytes and plasma cells.

Kidney - In the single examined section of kidney, there is a single, approximately wedge-shaped, ill-defined mass, which infiltrates and

somewhat expands, a single, regionally extensive area of the cortex and superficial medulla. The mass is composed of a population of atypical cells of identical cytomorphologic and architectural characteristics as those seen in the examined sections of lung. Throughout the mass, there are multiple, entrapped glomeruli, scattered foci of mineralization, and rare foci of necrosis and hemorrhage.

2/Heart, left ventricular and right ventricular freewalls - Examined are two sections of myocardium and in each, a variable percentage (10 to 50%) of the myocardium is effaced and replaced by one or more, variably-sized and variably well-delineated, moderately cellular, neoplastic masses composed of an atypical and pleomorphic population of cells of identical cytomorphologic and architectural characteristics as those described in the previous sections of lung. Throughout the masses, there are multiple areas of mineralization, regionally extensive areas of fibroplasia, regionally extensive areas of hemorrhage and necrosis, and small numbers of lymphocytes.

Within the surrounding myocardium, vascular spaces (venules and lymphatics) contain moderate numbers of identical, neoplastic cells.

Liver - In the single examined section of liver, which consists of a section through the previously described hepatic mass, there is population of morphologically appropriate hepatocytes, which are arranged in architecturally appropriate hepatic cords separated by sinusoids and normal, portal and centrilobular structures. Throughout the section, there are multiple, random, regionally extensive areas in which hepatocyte cytoplasm is rarified by many, ill-defined and coalescing, intracytoplasmic vacuoles. There are regionally extensive areas of sinusoidal congestion and multiple f

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