

ACVP Annual Meeting 2026

Integrated Clinical Pathology and Anatomic Pathology Challenges Session: Case Histories

Case #	Presenter	Species	Cytology/Histology specimens
Case 1	Sheriff Idris, Jess Wakeman, Erica Behling-Kelly, and Elizabeth Rose	Canine	FNA Mass caudal to right kidney (Cytology); Mass near right ovarian pedicle (Histopathology)
Case 2	Graciela Orantes	Canine	Left hindlimb dermal mass
Case 3	Danielle Ahmed	Equine	Peripheral blood smear, bone marrow aspirate (Cytology); Bone marrow, lymph node, eyelid (Histopathology)
Case 4	Adri Aparicio-Chagolla, BVMS, Nicole Clemen, DVM	Feline	Tarsal mass
Case 5	Kenzi Dubois, DVM	Canine	Thoracic mass
Case 6	Megan Kinnear, DVM and Emma Rovani-Rhoades, DVM	Canine	Left hind limb tarsal mass
Case 7	Hannah R. Reichert	Feline	Prescapular lymph node aspirate (Cytology); subcutis and nasal cavity (Histopathology)
Case 8	Laura V. Q. Contreras	Canine	Right caudal mammary gland mass
Case 9	Chi-Hsuan Sung	Porcine	Peripheral blood film and bone marrow
Case 10	Joseph Fragale, DVM	Reptile	Peripheral blood buffy coat smear (Cytology); Liver (Histopathology)
Case 11	Tracy Stokol, Kelly Fish, Cheryl Balkman, Céline Garandeau, Mitzi Clark, Jeanine Peters-Kennedy, Christopher Champion	Canine	Skin mass on trunk
Case 12	Matt Vardas	Canine	Cranial mediastinal mass
Case 13	Alison Vancouver	Canine	Peripheral blood and bone marrow aspirate (Cytology); bone marrow core biopsy and multiple necropsy tissues (Histopathology)
Case 14	Victoria Shuster; Lina Crespo Bilhalva	Canine	Right mandibular ramus/coronoid process mass
Case 15	Kyle Hager	Elasmobranch	Coelomic fluid (Cytology); Testicular tissue (Histopathology)
Bonus 1	Maedeh Rafiee	Feline	Tongue mass, right mandibular lymph node
Bonus 2	K. Paige Carmichael and Samantha Schlemmer	Canine	Cranial mediastinal mass

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Case 1

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CONTRIBUTORS	
COMPANY OR UNIVERSITY	North Carolina State University

Specimen: FNA Mass caudal to right kidney (Cytology); Mass near right ovarian pedicle (Histopathology)

Signalment: 12-year-old spayed female Labrador retriever

Clinical History: FNA from a 1.6 x 1.7 cm mass located caudal to the right kidney submitted by a rDVM. Following provision of the cytology report, a laparotomy was performed and a 3.5 x 2.3 x 1.7 cm mass was identified near the right ovarian pedicle, caudal to the right kidney was excised.

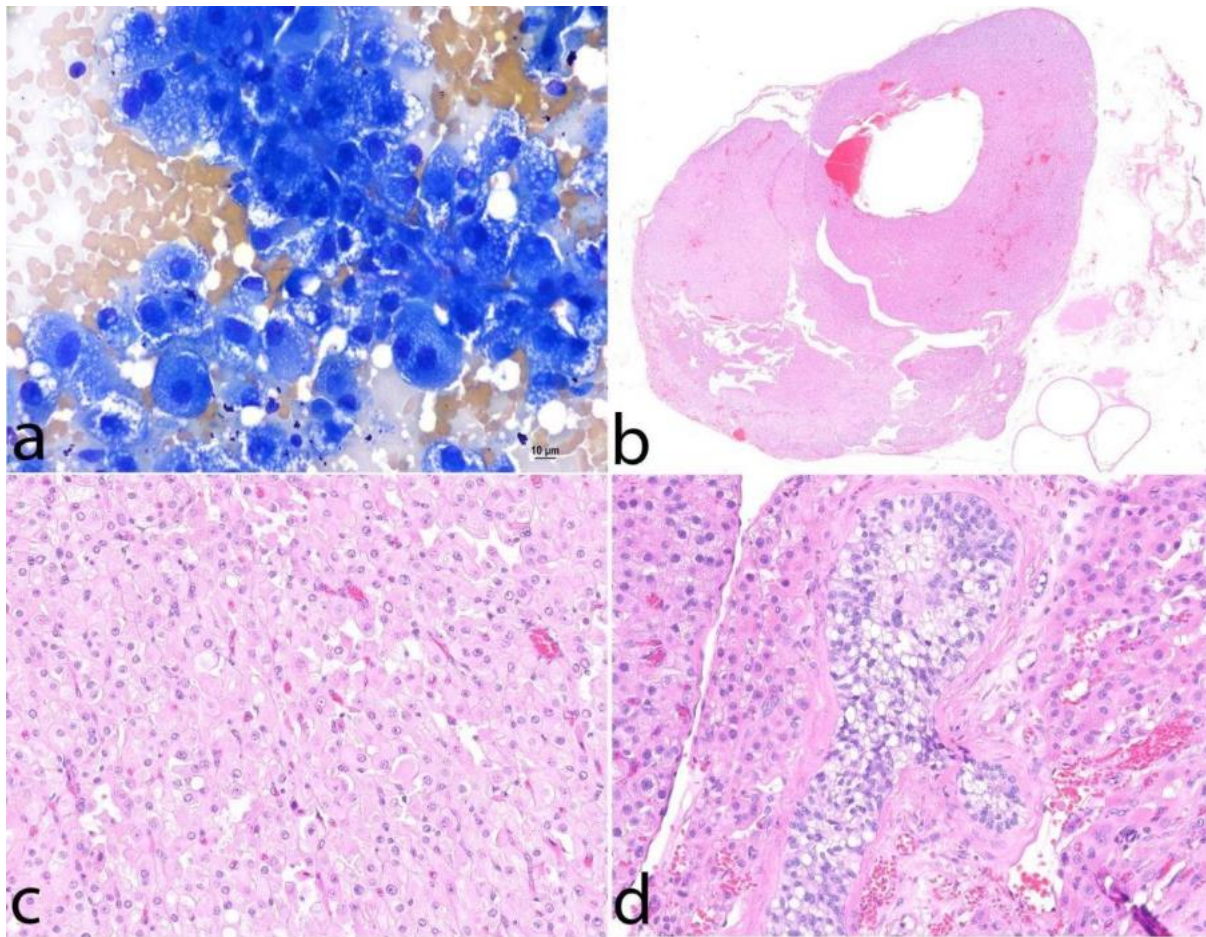


Figure 1. Mass caudal to right kidney (a) Modified Romanowsky stain, 50X. (b) HE, 0.4X. (c, d) HE, 20X.

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Case 2

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COMPANY OR UNIVERSITY	Joint Pathology Center, Silver Spring, Maryland

Specimen: Left hindlimb dermal mass (Cytology, immunocytochemistry, and histopathology)

Case history: A 3-year-old, female spayed, standard poodle was presented for a 1 cm alopecic, non-pigmented, firm dermal mass on the medial left hindlimb noticed 1-2 weeks prior to presentation. A fine needle aspirate of the mass was obtained with an excisional biopsy performed 26 days later.

Representative images

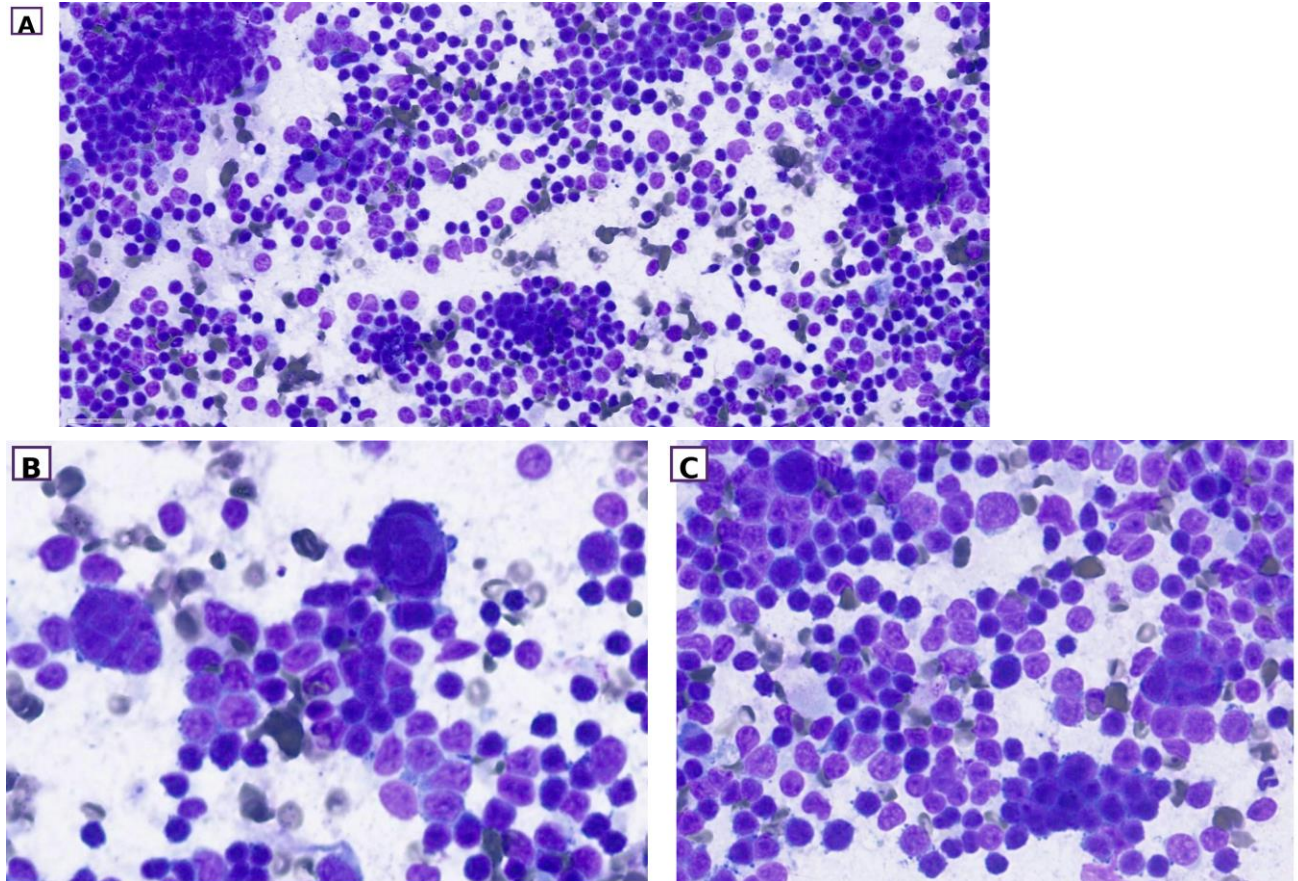


Figure 1. Representative cytologic images of the dermal mass.

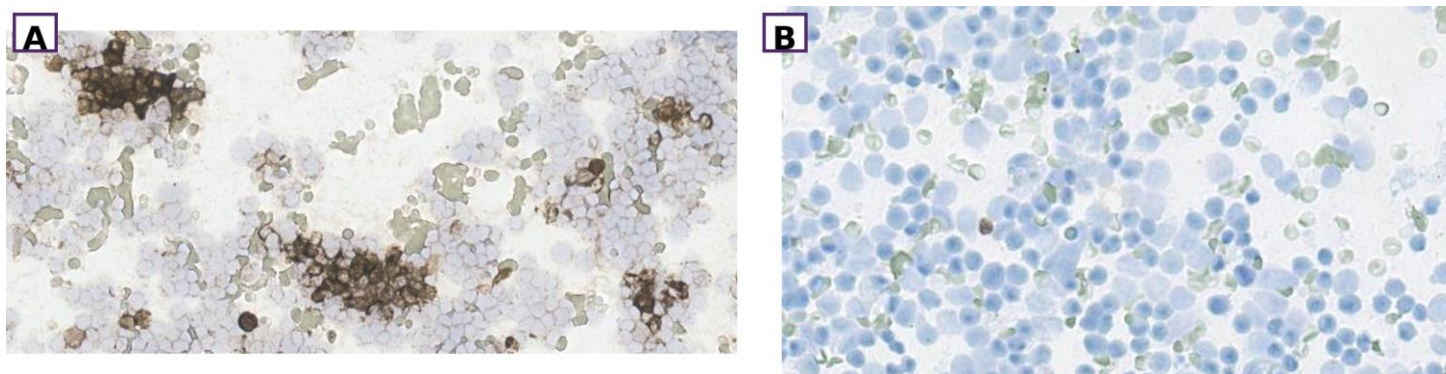


Figure 2. Immunocytochemistry. (A) AE1/AE3 pancytokeratin; (B) CD3 (arrow: lymphocyte).

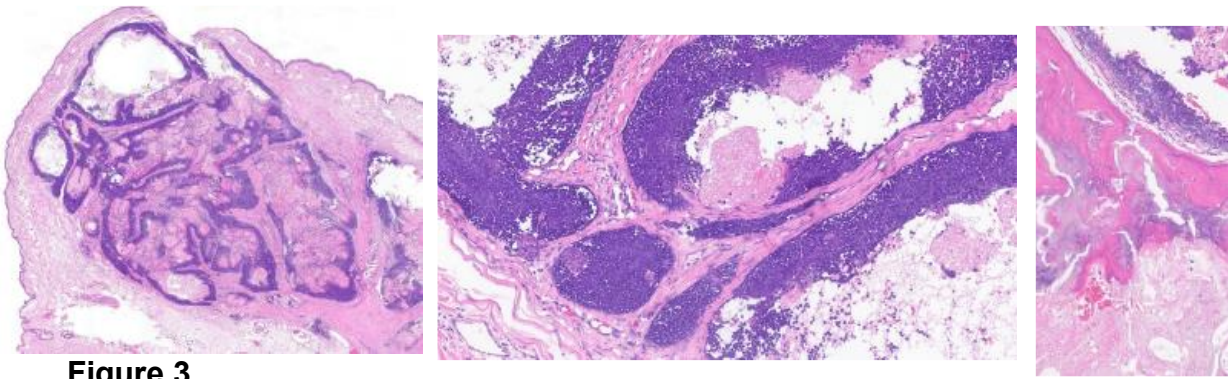


Figure 3.
Representative histologic images of the dermal mass

Disclaimer: The views expressed in this abstract are those of the authors and do not necessarily reflect the official policy of the Department of Defense or the U.S.

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Case 3

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COMPANY OR UNIVERSITY	The Ohio State University Department of Veterinary Biomedical Sciences

Specimen: Peripheral blood smear, bone marrow aspirate (Cytology); Bone marrow, lymph node, eyelid (Histopathology)

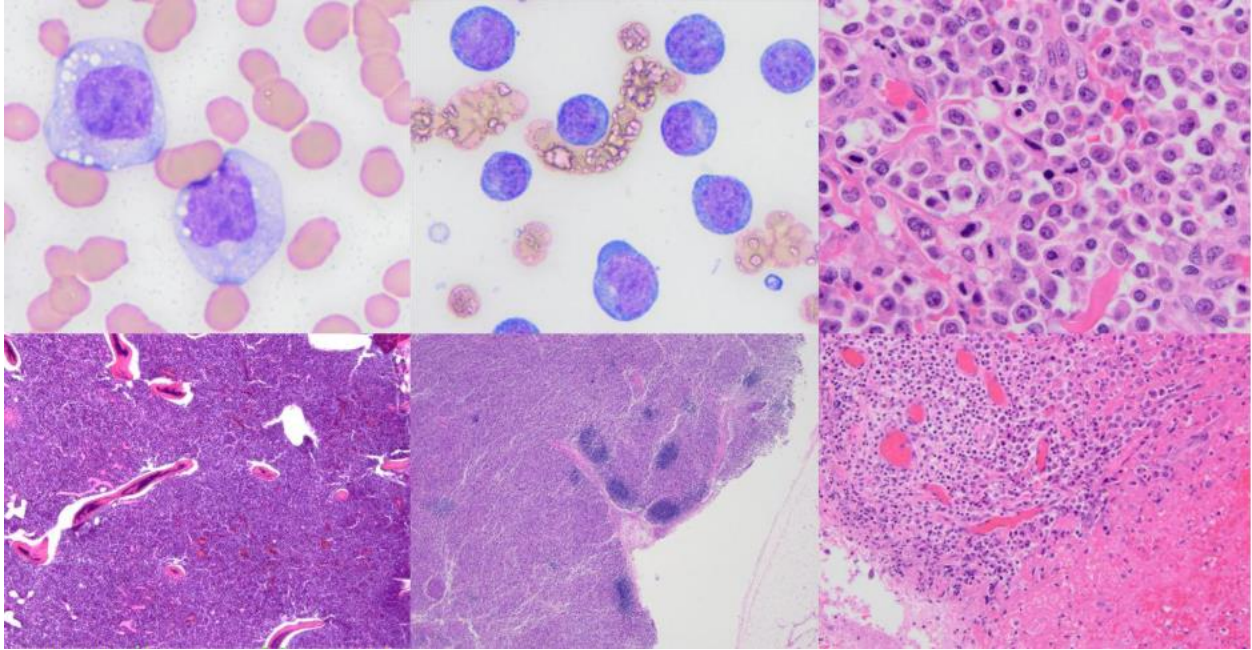
Case history: An eight-year-old Warmblood mare presented to the Ohio State University's Ophthalmology service for severe blepharadema, blepharitis, and suspected corneal ulceration bilaterally. Initial cytology of the cornea and eyelid performed by the rDVM revealed numerous degenerate neutrophils. The horse had a high fever, peripheral lymphadenopathy, peripheral limb edema, and pancytopenia. Serologic testing for *Streptococcus equi equi* (strangles), Equine Infectious Anemia, and Rickettsial diseases was negative.

Clinicopathologic findings:

A CBC performed at the Ohio State University Veterinary Medical Center revealed a marked, macrocytic, hypochromic anemia, marked thrombocytopenia, and marked neutropenia. 70% of nucleated cells were large (2 to 5 times the diameter of an erythrocyte), round cells containing abundant blue cytoplasm with few, variably sized vacuoles. Nuclei were round to reniform with coarsely stippled chromatin and multiple, prominent nucleoli. Due to the pancytopenia and atypical cells, a bone marrow aspiration was performed.

Gross findings:

Euthanasia and postmortem examination were elected due to poor prognosis. Multiple lymph nodes were markedly enlarged (measuring up to 9 cm x 19 cm x 5 cm), multilobulated, and easily palpable. On cut section, lymph nodes were variably pale tan to mottled pink-red, bulged, and lacked corticomedullary distinction. The spleen was diffusely, markedly enlarged and bloody. The right upper eyelid was markedly, diffusely swollen and on cut surface the underlying subcutis was mottled pink to red. Both eyes had blue to white-yellow corneal opacities.



Figures 1-6. Photomicrographs of 1) Peripheral blood and 2) bone marrow at 100x. Histopathology of similar cells within 3) right eyelid, 4) bone marrow, and 5) lymph node. Figure 6 shows concurrent fibrinosuppurative blepharitis adjacent to the cells of interest within the right eyelid.

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Case 4

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Specimen: Tarsal mass (Cytology), Skin, left hind limb (Histopathology)

Case history: Elio is a three-year-old, MN, Domestic Shorthair cat who presented to the UIUC oncology service for further work up of a small mass on the medial tarsus of his left hindlimb. The mass previously had a fine needle aspirate obtained in addition to a punch biopsy with both samples submitted to the UIUC VDL prior to his appointment. The cytology specimen contained relatively low intact cellularity and was interpreted as an epithelial and mesenchymal proliferation. The biopsy report was pending due to pending immunohistochemical stains. On presentation to the oncology service, he was reported to be eating well and acting normally; however, he was sensitive to palpation of the mass. The mass measured approximately 3x3 cm and was fixed, firm, and warm to the touch. The remainder of his physical exam was relatively unremarkable outside of historical hypotrichosis on all limbs and ventrum from overgrooming, and mild dental disease. A fine needle aspirate of the tarsal mass was repeated by the oncology service.

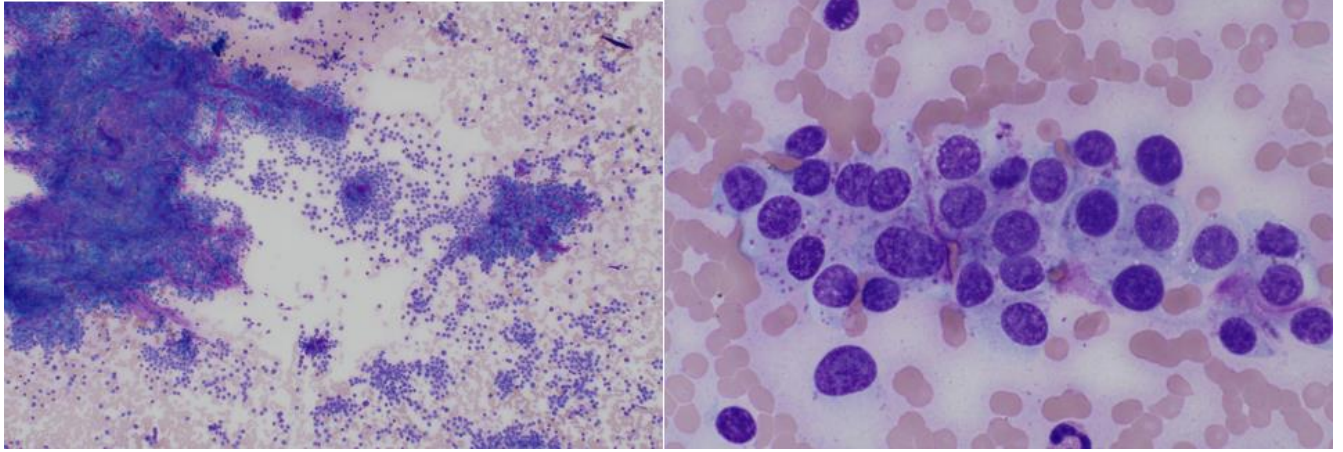


Figure 1. Images from the fine needle aspirate of the medial tarsal mass on the left hind limb of a 3-year-old, MN Domestic Shorthair cat. Image at 100x on left (Wright-Giemsa) and 1000x image on right (Dif-Quik).

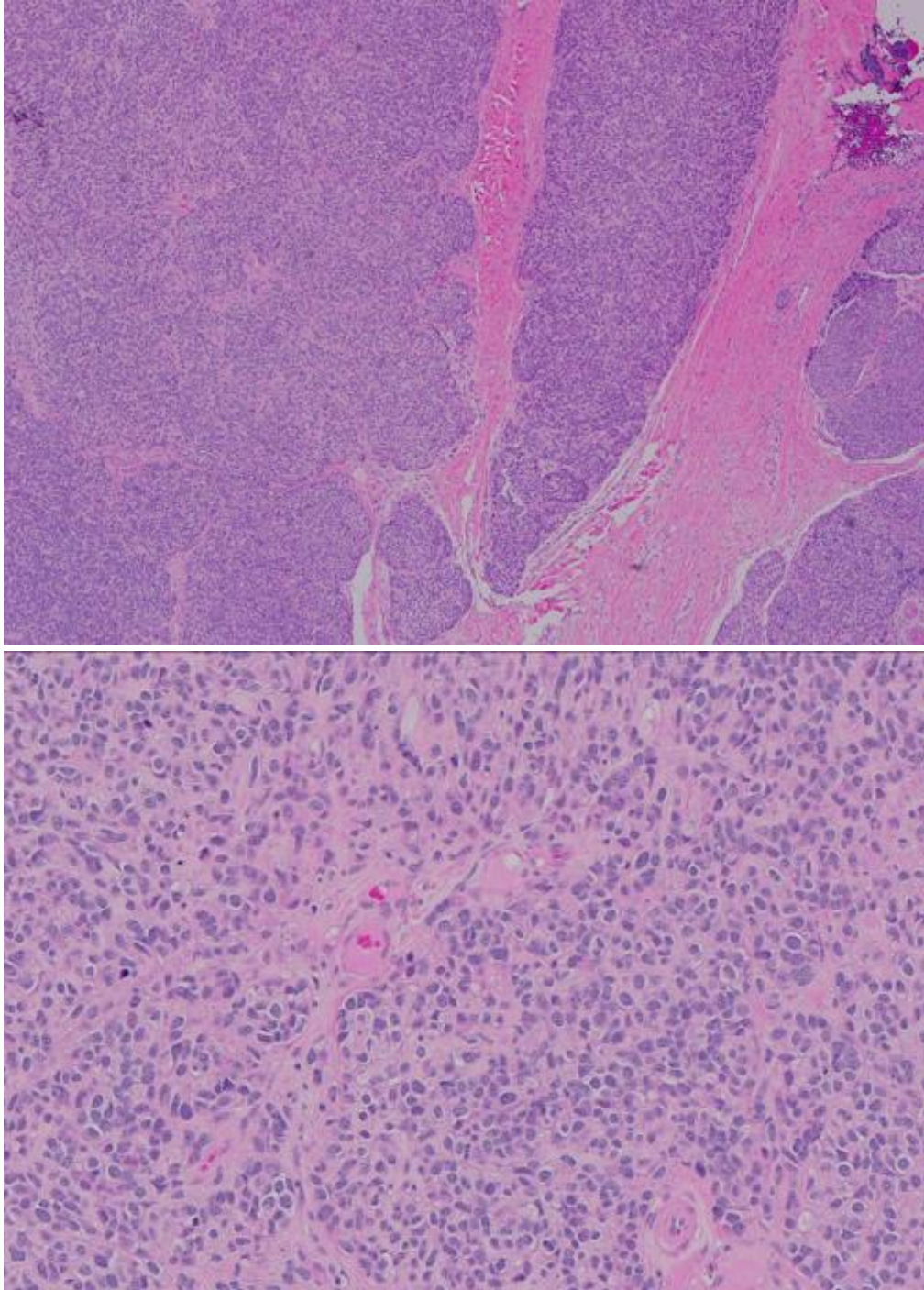


Figure 2. Histopathology images from the biopsy of the medial tarsal mass on the left hind limb of a 3-year-old, MN Domestic Shorthair cat at 40x (left) and 400x (right) (H&E).

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Case 5

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Specimen: Thoracic mass (Cytology, histopathology)

Case history:

Signalment: 9-year-old male neutered, Labrador Retriever

The dog initially presented to UGA Emergency for evaluation of labored breathing. Over the preceding weeks, the owner reported progressive respiratory effort at rest, intermittent coughing, and episodic neck extension with discomfort following exercise, a chronic but increasingly frequent clinical sign. Approximately two weeks prior to presentation, the dog experienced an episode of vomiting following exercise. Thoracic and abdominal radiographs performed by the referring veterinarian seven days prior to presentation identified a mass-like structure within the thorax with associated cardiac displacement and pleural effusion. The dog was otherwise previously healthy and was receiving Dasuquin and routine heartworm, flea, and tick preventatives.

Clinical findings: A complete blood count (CBC) and serum biochemistry were unremarkable. Computed tomography (CT) identified a large right ventral thoracic mass with multifocal thoracic nodules, suspected mediastinal origin, and sternal and possible cranial mediastinal lymphadenopathy.

Gross Findings: Five multinodular, firm, tan to brown tissues, 5 x 2.6 x 1.4 cm to 11.5 x 8.7 x 5.3 cm, with several additional fragmented nodules from mediastinal mass obtained during surgery. The largest nodule (6.4 x 5.2 x 4.7 cm) was in the largest tissue.

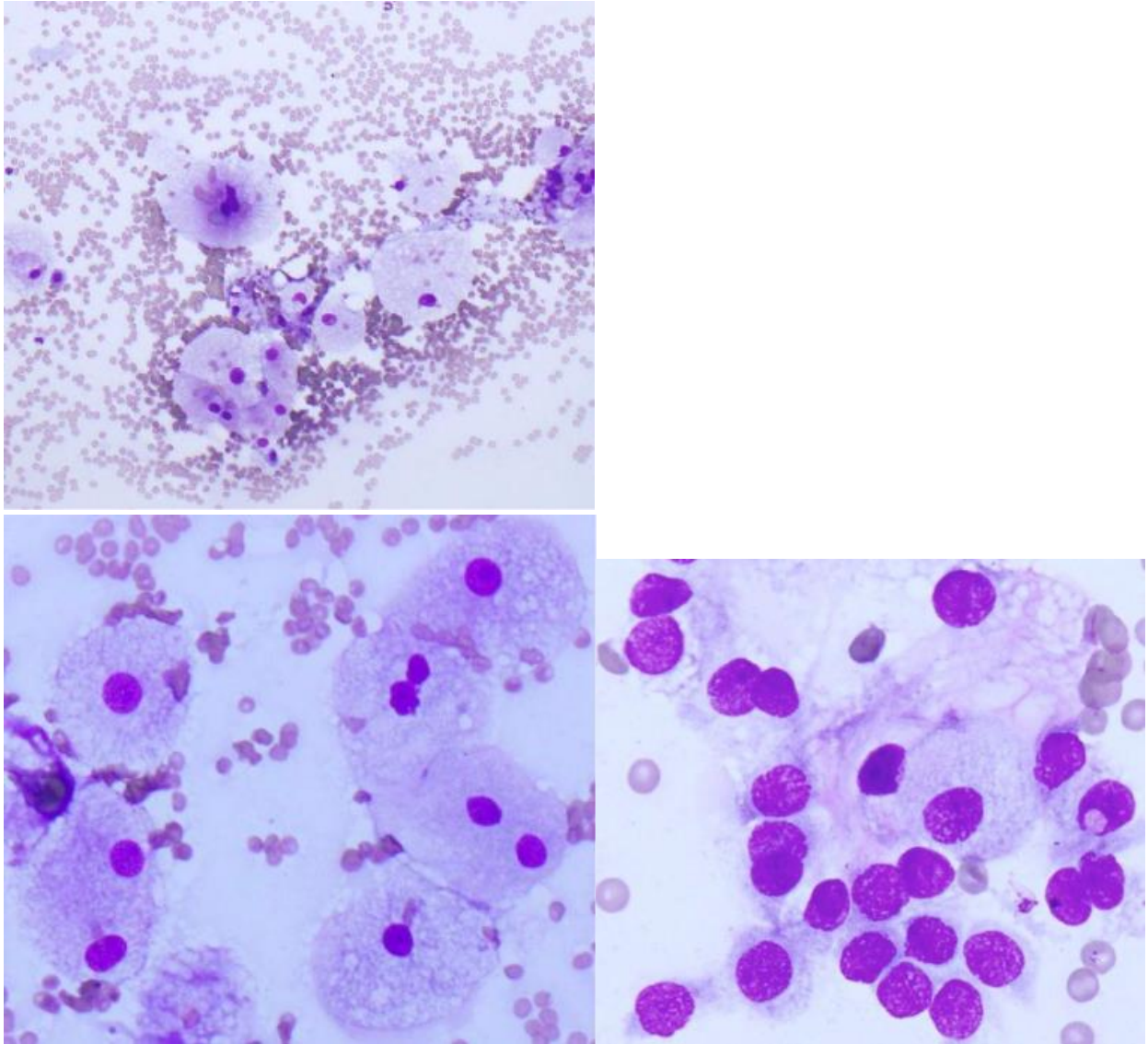


Figure 1. Representative cytologic images of the thoracic mass.

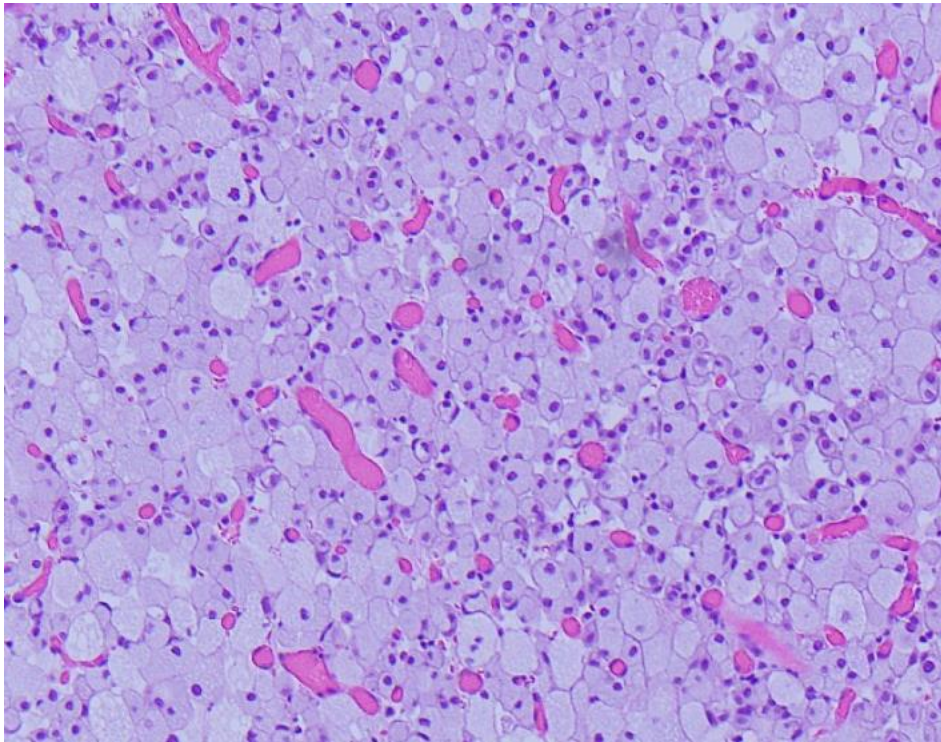
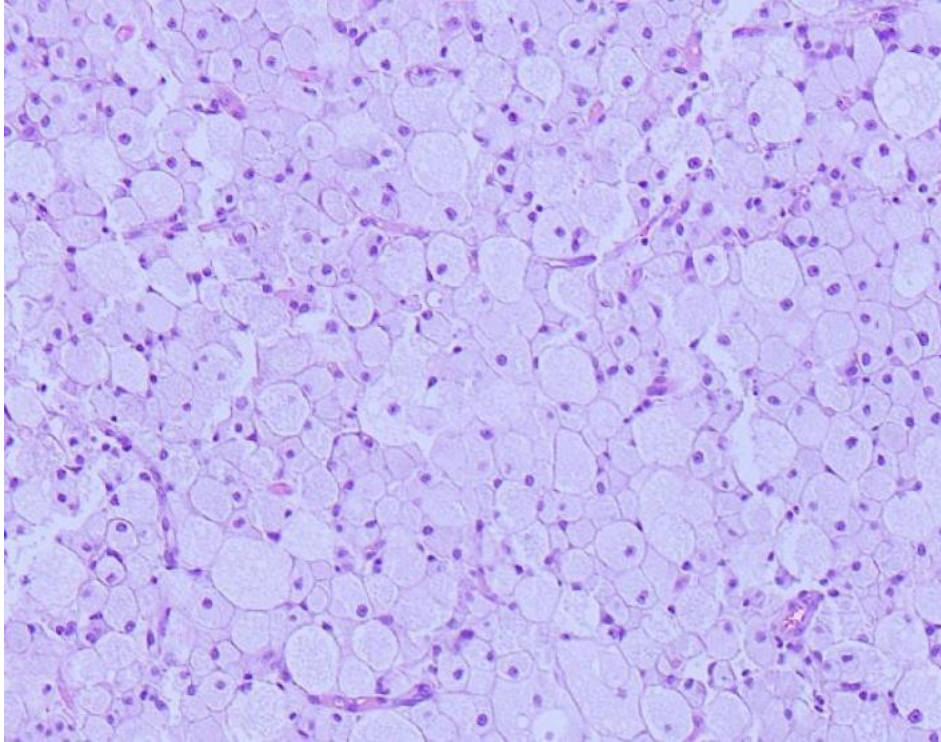


Figure 2. Representative histologic images of the thoracic mass.

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Case 6

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COMPANY OR UNIVERSITY	Washington State University College of Veterinary Medicine

Specimen: Subcutaneous mass caudal and distal to left tarsus (Cytology) Left hind limb tarsal mass (Histopathology)

Case history:

Signalment: 13-year-old, female, spayed Golden Retriever

Clinical history: The patient presented to the WSU-VTH Oncology Service for a one-month history of a rapidly progressive, soft tissue mass of the distal left hind limb (caudal metatarsal region) associated with persistent lameness and pain. Initial physical exam performed by her referring DVM revealed a soft tissue swelling caudal to the left tarsus with mild left stifle laxity. Radiographs performed of the left hind limb at that time showed soft tissue swelling of the distal hock/metatarsal region and a periosteal reaction involving the proximal metatarsal bones. The patient was treated with carprofen and gabapentin, however her lameness continued without improvement. Repeated hind limb radiographs showed a progressive soft tissue swelling and periosteal response of the medial, plantar metatarsus in the left hind limb. There was no evidence of traumatic bone injury nor cortical destruction to suggest primary bone neoplasia. Incidental findings of bilateral tarsometatarsal osteoarthritis and mild left stifle synovitis/effusion suggestive of possible ligament or meniscal injury were also noted.

Diagnostic tests/ancillary studies:

- CBC, serum chemistry and urinalysis abnormalities:
- Mild lymphopenia- 855/ μ L (ref 900-4,000/ μ L)
- Elevated ALT- 153 U/L (ref 8-77 U/L)
- U/A (free catch)- 2+ protein, 3+ blood

Thoracic radiographs- multiple pulmonary nodules identified; largest nodule measured approximately 2 cm diameter in the right middle lung lobe. Additional nodules noted in other lung fields, with imaging findings considered most consistent with pulmonary metastatic neoplasia.

Abdominal ultrasound- Findings included a splenic nodule measuring 1.6 x 1.2 cm, a left renal nodule measuring 1.2 x 1.4 cm, a small suspected mesenteric lipoma (likely incidental) and a diffusely hyperechoic, mildly heterogenous liver without discrete masses.

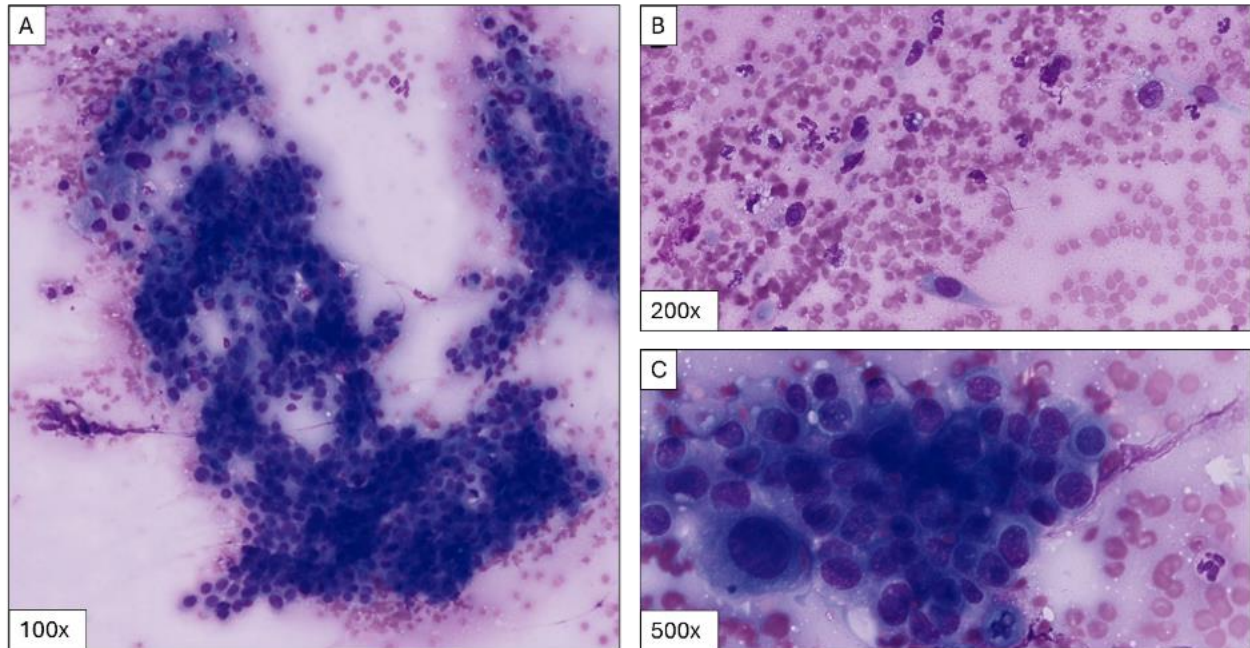


Figure 1. Wright- Giemsa stain. Fine needle aspirate cytology preparation of a subcutaneous mass caudal and distal to the left tarsus from a 13-year-old, female, spayed Golden Retriever. A) 100x. B) 200x C) 500x.

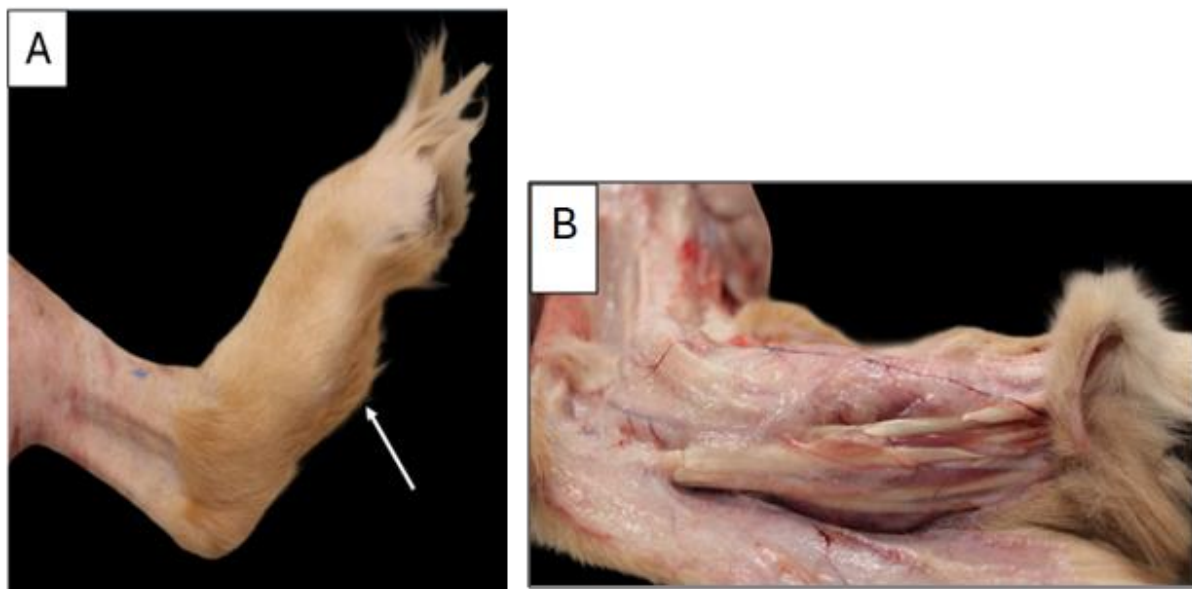


Figure 2. A and B: An amputated distal left hind limb from a 13- year-old, female, spayed Golden Retriever.

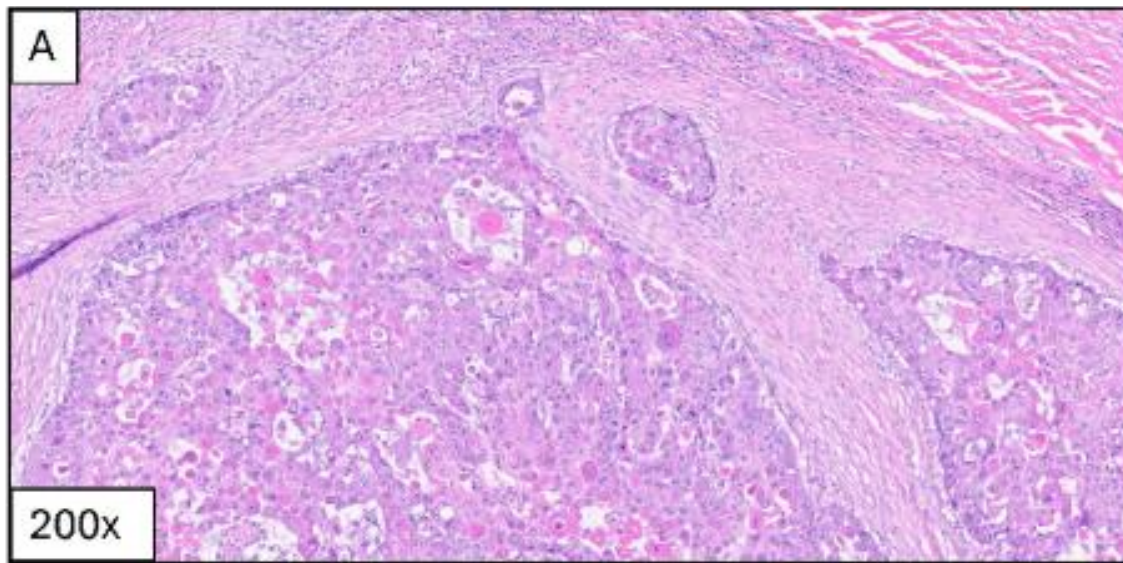


Figure 3. Histopathologic image of a left hind limb tarsal mass from a 13-year-old, female, spayed Golden Retriever. A) Hematoxylin and eosin stain. 200x.

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Case 7

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COMPANY OR UNIVERSITY	University of Pennsylvania School of Veterinary Medicine

Specimens: Prescapular lymph node aspirate (Cytology); subcutis and nasal cavity (Histopathology)

Case history: An indoor only, 5-year-old, female spayed Domestic Shorthair cat was referred to the Ryan Veterinary Hospital at the University of Pennsylvania for tricavitary effusion, anemia and thrombocytopenia. On initial presentation, the cat also had moderate to severe ventral subcutaneous edema, predominantly along the forelimbs, enlarged prescapular lymph nodes, and fever. The tricavitary effusion improved when treatment for congestive heart failure was initiated. The patient also received two transfusions of pRBC. GS-441524 was added in case the clinical signs were associated with FIP. The fever did not resolve with steroids (prednisolone) nor antibiotics (doxycycline, enrofloxacin, pradofloxacin), and the cat became more lethargic and had a poor appetite. Humane euthanasia was ultimately elected.

Diagnostic findings: Multiple complete blood counts and chemistry profiles revealed persistent hypercholesterolemia and severe anemia with varying thrombocytopenia and reticulocytosis. Initially, there was an inflammatory leukogram with occasional neutrophilia and a left shift at subsequent rechecks.

An echocardiogram noted severe tricuspid regurgitation, marked right atrial dilation, moderate right ventricular dilation, and mild left ventricular enlargement. A CT scan did not identify an underlying cause of the ventral and forelimb edema.

Cytology of the abdominal fluid was consistent with a high protein transudate (3.1 g/dL). An aspirate of the right prescapular lymph node revealed a moderate to marked histiocytic infiltrate with erythrophagia. One month later, repeat cytology of the lymph node showed a predominance of small lymphocytes with no evidence of the previously reported histiocytic infiltrate. An aspirate of the spleen demonstrated an expansion of atypical intermediate to large homogeneous lymphocytes.

Representative images

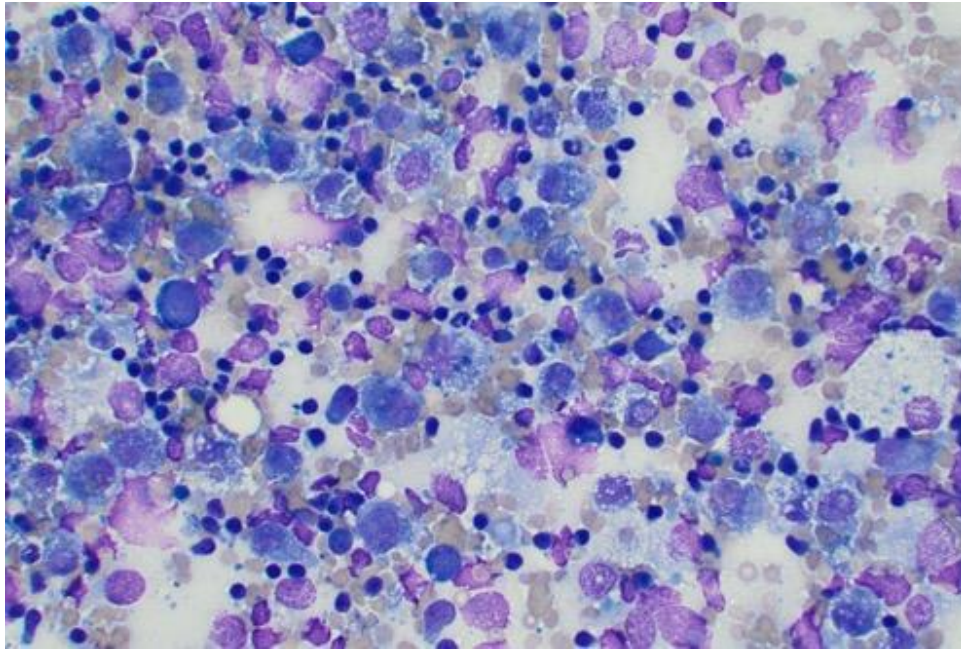


Figure 1. Fine needle aspirate of the right prescapular lymph node at 500x magnification. Wright Giemsa stain.

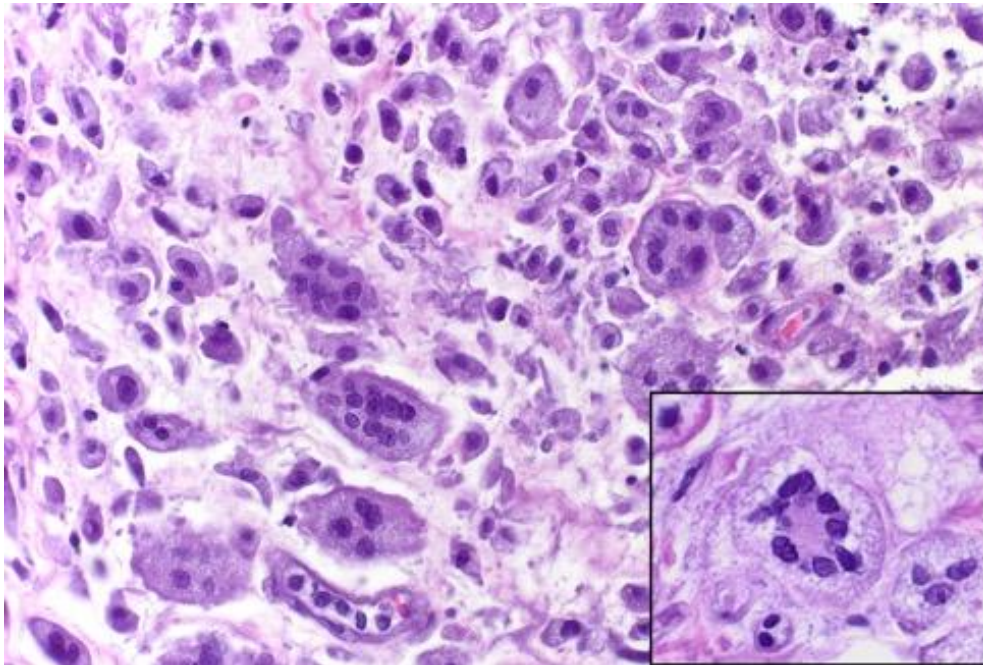


Figure 2. Sample of subcutis from the forelimb at 400x magnification. Hematoxylin and eosin stain.

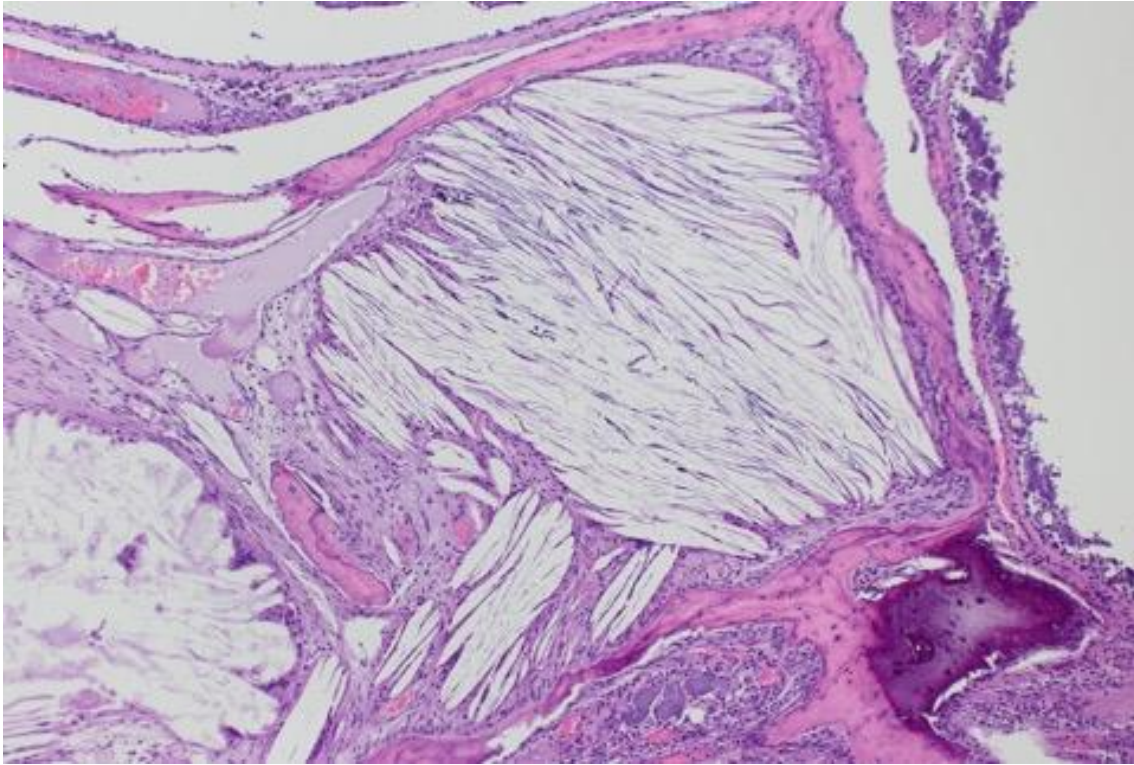


Figure 3. Sample from nasal cavity at 100x magnification. Hematoxylin and eosin stain.

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Case 8

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COMPANY OR UNIVERSITY	Cornell University College of Veterinary Medicine; Stoney Pointe Animal Health Center

Specimen: Right caudal mammary gland mass (Cytology and histopathology)

Case history: A 5-year-old female spayed Bernese Mountain dog was presented for an annual wellness examination. On clinical examination, a soft subcutaneous mass of about 2 cm in diameter was found in the right caudal region of the mammary gland. The dog had been bred before being spayed. Fine-needle aspirates were collected and submitted for cytological evaluation.

Representative images

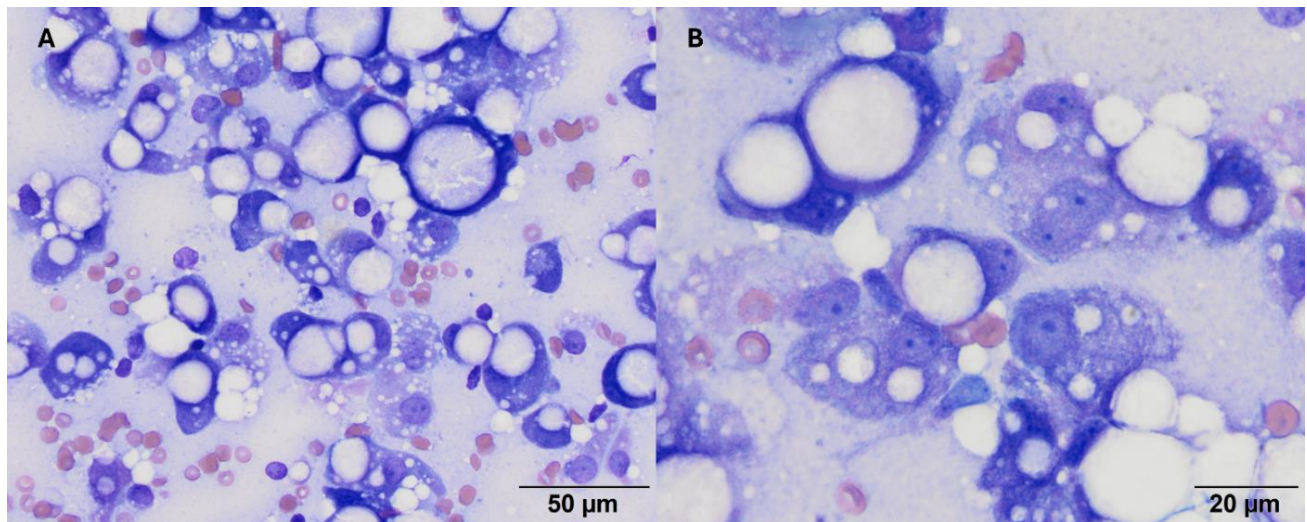


Figure 1. Representative cytologic images of the mammary mass (modified Wright stain; A, 50x objective; B, 100x objective).

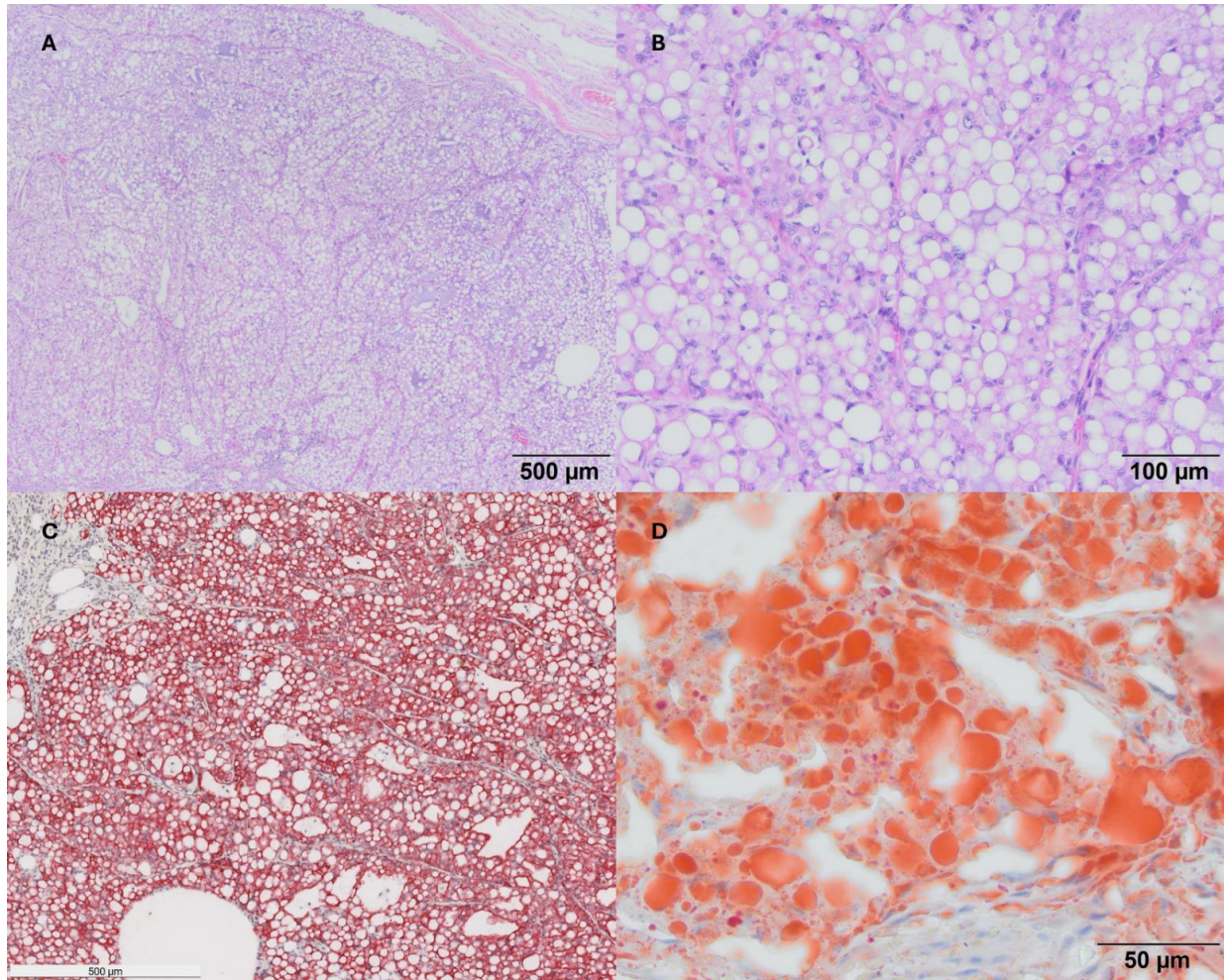


Figure 2. Representative histologic and ancillary stain images of the mammary mass (A, H&E, 4x objective; B, H&E, 20x objective; C, pancytokeratin CK AE1/AE3; D, Oil Red O, 50x objective).

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Case 9

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Specimen: Peripheral blood film and bone marrow (Histopathology, Immunohistochemistry, and transmission electron microscopy)

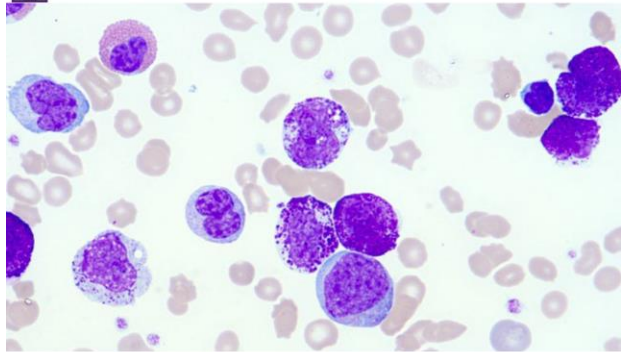
Case history: A 7-year-old female Vietnamese Potbelly pig presented with a 3-week history of intermittent vomiting, lethargy, and hyporexia.

Clinicopathologic findings: A complete blood count (CBC) revealed a macrocytic, normochromic, non-regenerative anemia (PCV 20%) and a marked leukocytosis ($79.6 \times 10^3/\mu\text{L}$) characterized by marked basophilia ($39.8 \times 10^3/\mu\text{L}$), eosinophilia ($6.4 \times 10^3/\mu\text{L}$), monocytosis ($15.1 \times 10^3/\mu\text{L}$), and lymphocytosis ($15.1 \times 10^3/\mu\text{L}$).

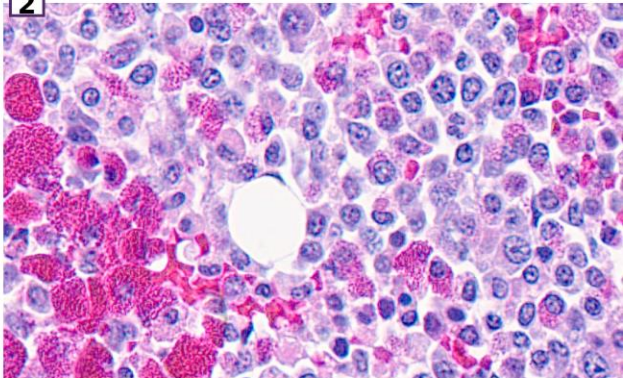
Gross findings: At necropsy, multifocal, firm, tan-to-yellow masses effaced the heart, lungs, stomach, duodenum, liver, spleen, kidneys, urinary bladder, pancreas, bone marrow, and multiple lymph nodes.

Representative images

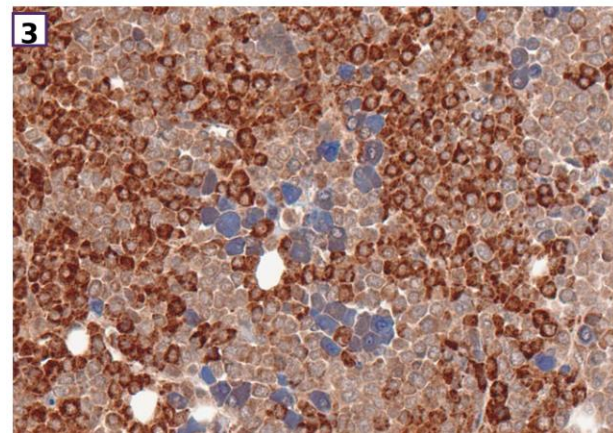
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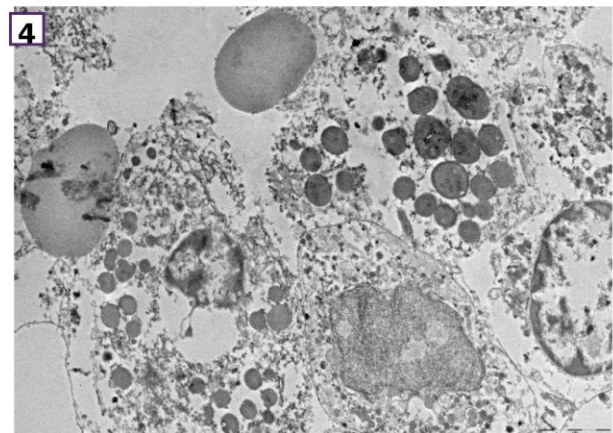


Figure 1. Blood smear, Wright-Giemsa.

Figure 2. Bone marrow, H&E.

Figure 3. Bone marrow, myeloperoxidase immunohistochemistry.

Figure 4. Bone marrow, transmission electron microscopy. The cells contain variably sized, large electron-dense granules and uniform, smaller electron-dense granules.

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Case 10

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COMPANY OR UNIVERSITY	University of Georgia College of Veterinary Medicine, 501 D.W. Brooks Dr., Athens, GA 30602

Specimen: Peripheral blood buffy coat smear (Cytology); Liver (Histopathology)

Case history: Drogon, a 4-year-old male bearded dragon (*Pogona vitticeps*), presented to the University of Georgia College of Veterinary Medicine Exotics Service for evaluation of a 1-week history of lethargy and inappetence. The owner reported that he regurgitated mealworms approximately one week before presentation and subsequently became lethargic with complete anorexia. During this time, his beard also became diffusely dark black. His diet consisted of mixed fruit and insects with daily calcium supplementation. The owner also noted that he had not shed recently.

Clinical Findings: On physical examination, he was dehydrated and dyspneic, with impacted femoral pores and abnormal posturing of the left hind limb. A point-of-care ultrasound (POCUS) identified increased coelomic fluid caudal to the liver and a mild pericardial effusion. A serum biochemistry revealed increased lactate dehydrogenase (3553 U/L, RI: 25-1906 U/L), creatinine kinase (5360 U/L, RI: 33-4042 U/L), and aspartate aminotransferase (246 U/L, RI: 2-90 U/L) activities, suggesting liver insult and skeletal muscle tissue damage.¹ A complete blood count (CBC) revealed an extreme leukocytosis (smear estimate of 460-500x10³ WBC/μL, RI: 1.45-19.0 WBC/μL) and a mild erythrocytosis (PCV of 49%, RI: 17-45)¹. Ultimately, the patient was humanely euthanized due to poor clinical prognosis. Two milliliters of blood were collected at the time of euthanasia, and a buffy coat was obtained for cell block preparation. Cloacal/choanal swabs were sent out to the University of Florida College of Veterinary Medicine, Zoological Medicine Diagnostic Laboratory, for PCR testing. The patient's remains were submitted for necropsy and histopathologic examination.

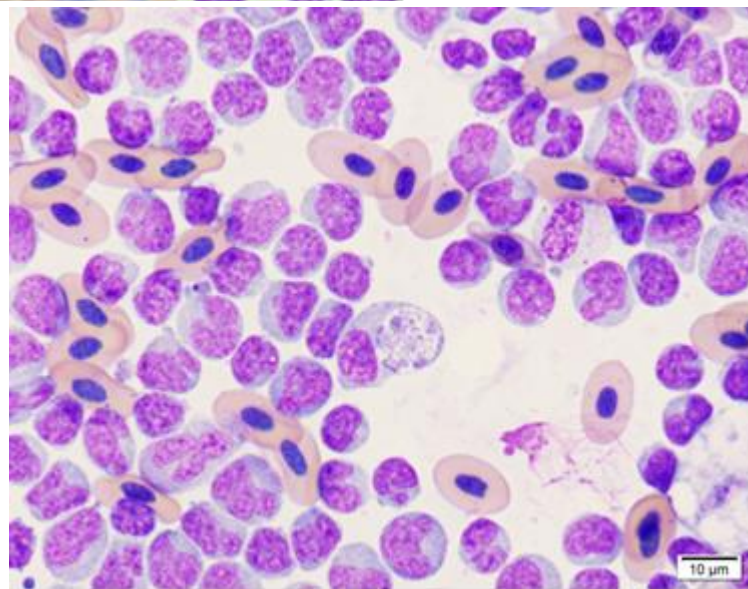
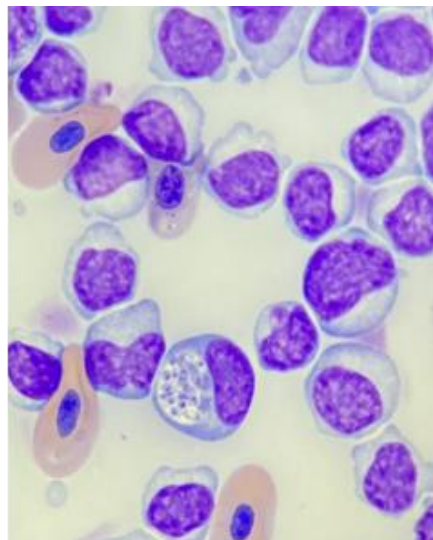
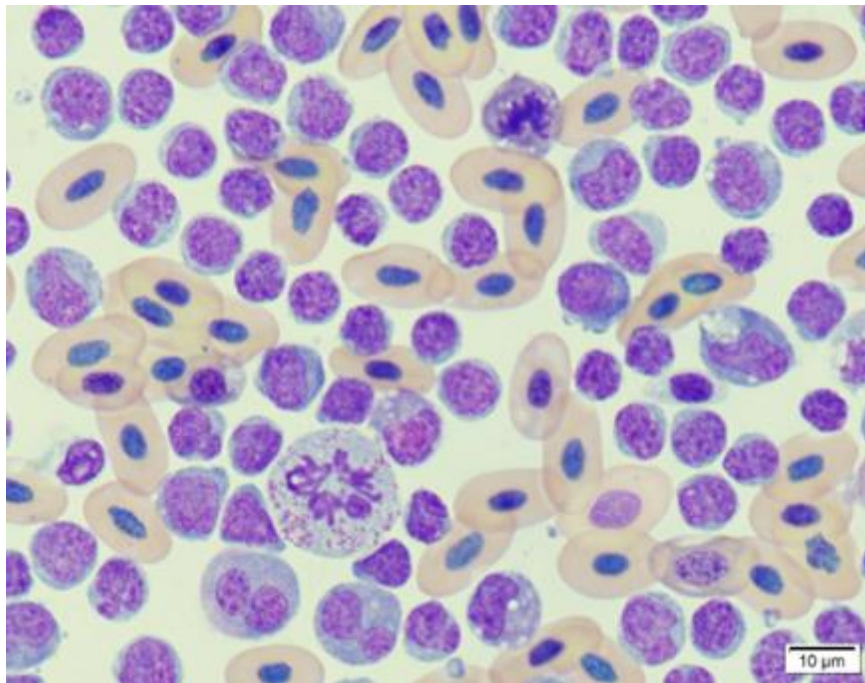


Figure 1. Representative pictures of the peripheral blood smear

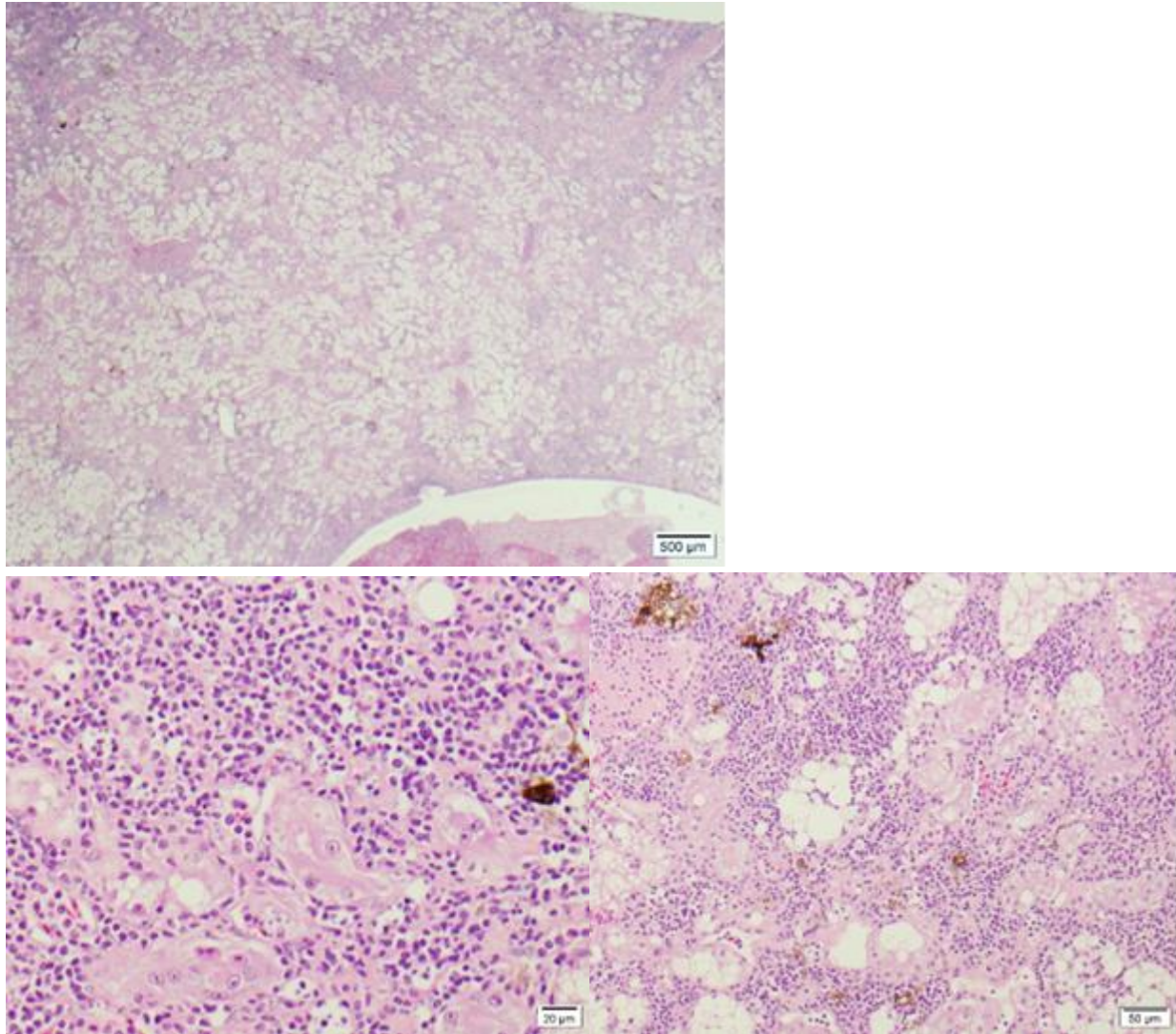


Figure 2. Representative histology images of the liver

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Case 11

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COMPANY OR UNIVERSITY	¹ Department of Population Medicine and Animal Sciences, Cornell University College of Veterinary Medicine, U.S.A. ² Department of Clinical Sciences, Cornell University College of Veterinary Medicine, U.S.A.

Specimen: Skin mass on trunk (Cytology & Histopathology)

Case history:

Signalment and History: Six-year-old neutered male Golden Retriever. At one year of age, the dog was diagnosed with meningoencephalitis of undetermined etiology and an acquired portosystemic shunt from a presumptive endocarditis-induced portal vein thrombus. At four years of age, the dog was diagnosed with calcinosis cutis. Ongoing therapy included prednisone, cyclosporine, liver protectants, antibiotics, and antithrombotics. The dog had returned for a recheck for the chronic medical conditions and a more recent onset of hindlimb ambulatory paraparesis and ataxia and skin masses. On physical examination, dozens of well-demarcated, spherical, firm, purple, papular to nodular skin masses were noted on the trunk (Figure 1).



Figure 1

Clinical pathologic data: A hemogram revealed a mild normocytic hypochromic non-regenerative anemia, mild neutrophilia without a left shift, mild eosinopenia and a worsening 9-month historical thrombocytopenia. On a serum biochemical panel, there was persistence of historical low urea nitrogen and creatinine concentrations (shunt-associated) and mildly increased alkaline phosphatase activity. However, new changes included a severe hypoalbuminemia and marked hyperglobulinemia, hypocholesterolemia, and hypoferrremia and low total iron binding capacity. Serum protein electrophoresis revealed a monoclonal peak in the $\alpha 2$ region and hypoalbuminemia (Figure 2A). Three skin masses were aspirated and biopsied.

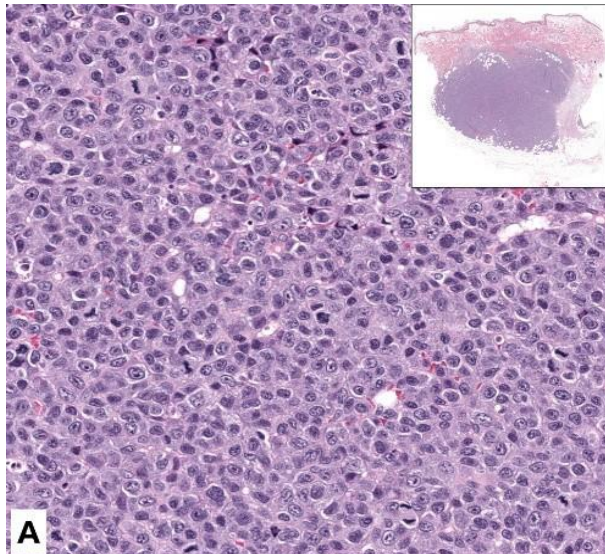
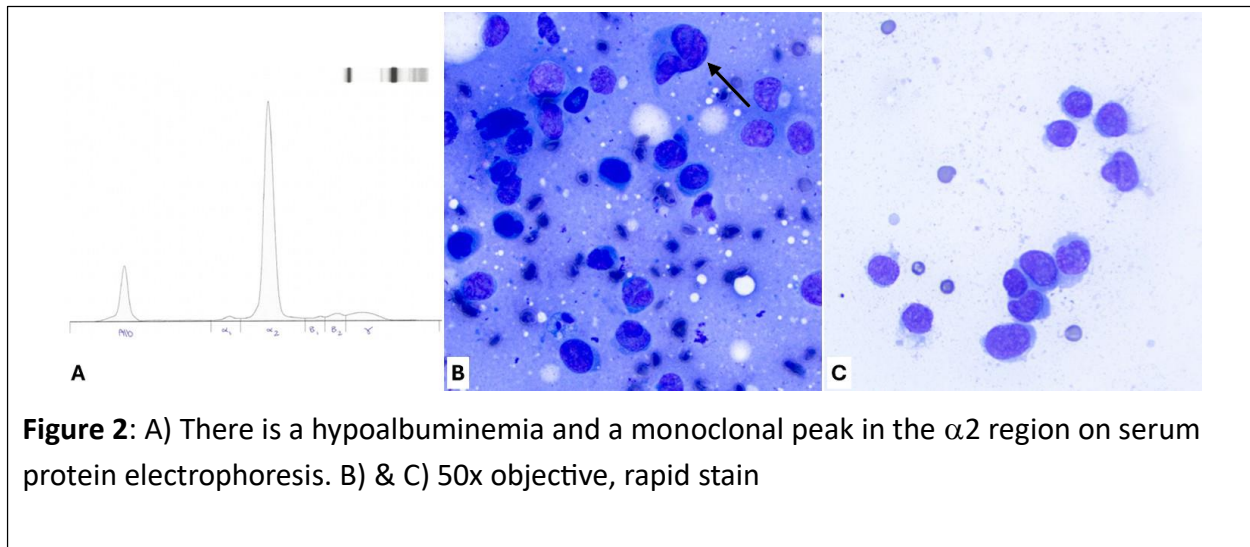


Figure 3: A) High magnification photomicrograph of neoplastic cells with low magnification (inset) photomicrograph of one skin mass (H&E).

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Case 12

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Specimen: Cranial mediastinal mass (fine needle aspirate)

Case history: Nine-month-old intact female Golden Retriever. The patient was presented for progressive lameness, decreased appetite, intermittent regurgitation, and spinal pain. Over approximately two weeks, the lameness shifted between the forelimbs and progressed to ataxia, falling while urinating, and eventual inability to stand. On neurologic examination she was non-ambulatory tetraparetic with a two-engine gait, absent pelvic-limb conscious proprioception, and decreased cervical range of motion, localizing the lesion to C6-T2. Bloodwork was largely unremarkable with a moderate elevation in creatinine kinase (435 U/L). Thoracic radiographs identified a cranial mediastinal mass and an aggressive lesion involving the right first through third ribs. Computed tomography demonstrated a large invasive, partially mineralized cranial mediastinal mass with severe vascular and spinal cord compression. A fine needle aspirate of the mass was submitted for cytologic evaluation. Because of the invasive disease, neurologic decline, and poor prognosis, humane euthanasia and necropsy were elected.

Gross necropsy findings: A 13.5 x 8 x 5.2 cm multinodular, moderately soft, red to tan mass occupied the cranial mediastinum. The mass was firmly adhered to the pleura over the right first rib, infiltrated the right hypaxial muscles ventral to T1 and T2, and infiltrated the spinal canal through the right T1-T2 intervertebral foramen. An approximately 3 x 1 x 0.7 cm extradural extension of the mass displaced and attenuated the spinal cord from the level of nerve roots C8 to T1. The cut surface of the mass contained numerous pinpoint to 2 cm diameter yellow-white, hard, gritty foci consistent with mineralization. The sternal lymph node was approximately 3.8 x 3 x 2 cm and effaced by mottled tan to red tissue.

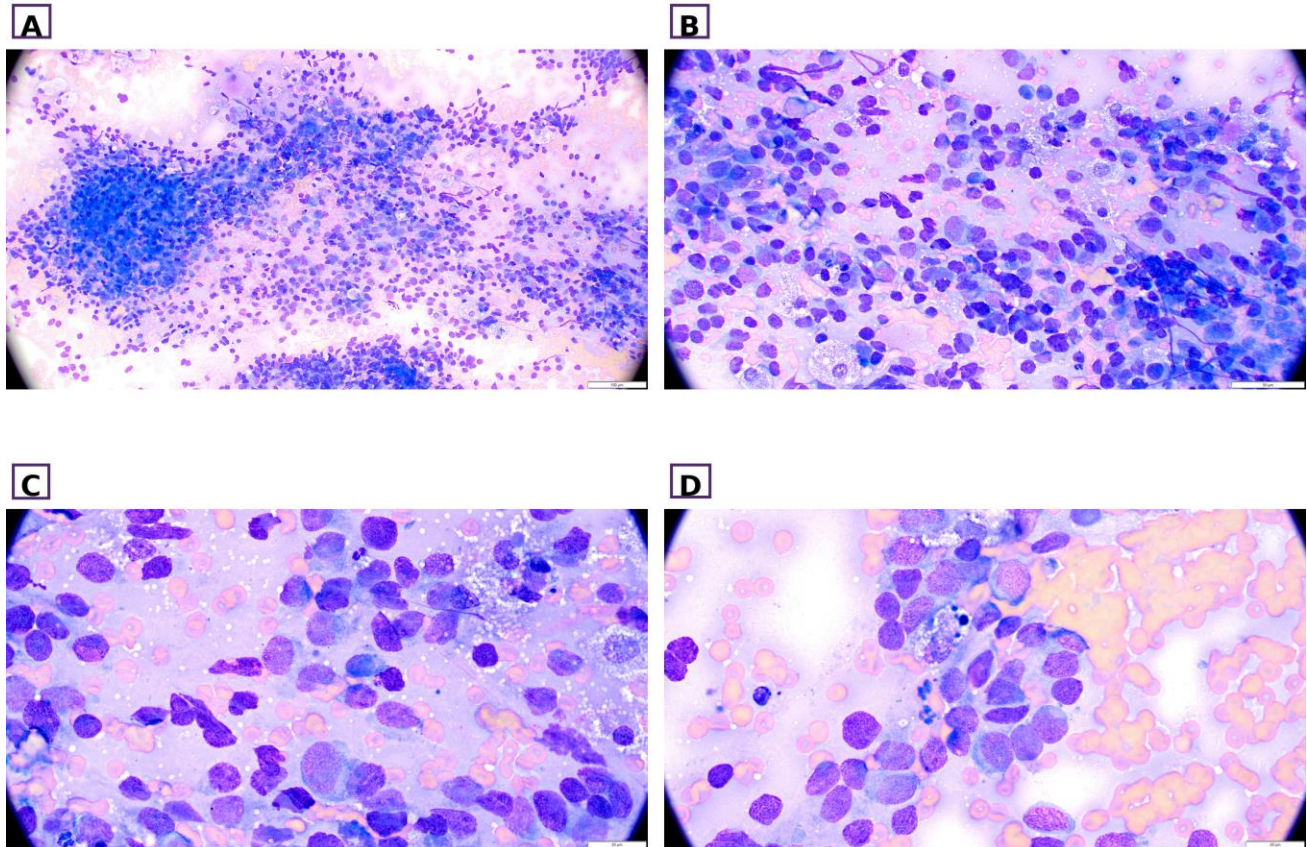


Figure 1. Cranial mediastinal mass aspirate. (A) Wright-Giemsa, 20x; (B) Wright-Giemsa, 50x; (C and D) Wright-Giemsa, 100x.

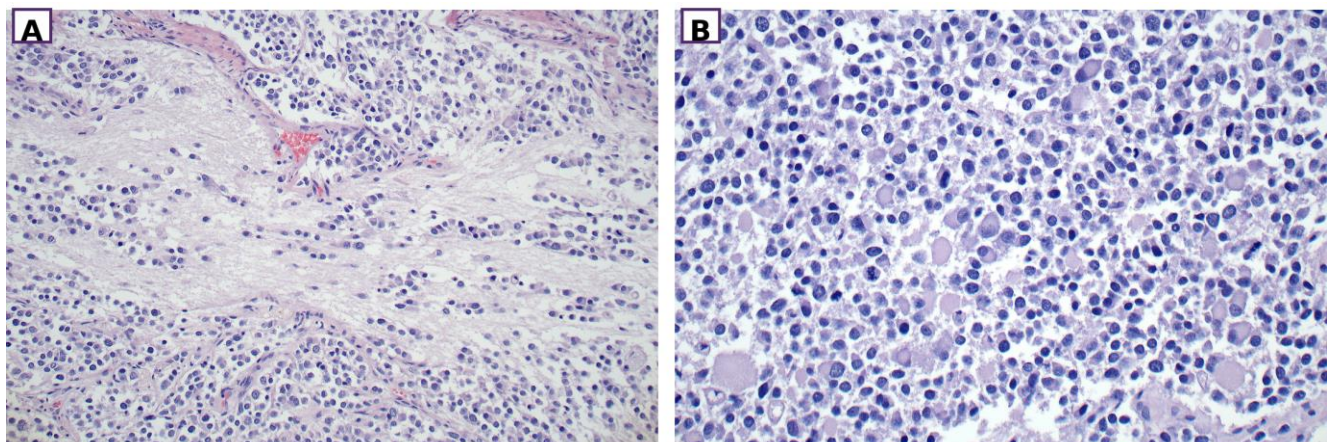


Figure 2. Cranial mediastinal mass, H&E. (A) 20x; (B) 40x.

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Case 13

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COMPANY OR UNIVERSITY	Purdue University

Specimen: Peripheral blood and bone marrow aspirate (Cytology); bone marrow core biopsy and multiple necropsy tissues (Histopathology)

Case history: An eight-year-old female spayed German Shepherd dog was presented to her primary veterinarian with a one-week history of hyporexia, lethargy, and a stiff gait. An in-house complete blood count revealed a mild regenerative anemia (HCT 33.8%; 37.3-61.7% and reticulocytes 186.4 K/uL; RI 10-110 K/uL), moderate leukocytosis (52.6 K/uL; RI 5.0-16.8 K/uL) characterized by lymphocytosis (37.7 K/uL; RI 1.0-5.1 K/uL) and monocytosis (11.6 K/uL; RI 0.2-1.1 K/uL), and mild thrombocytopenia (92 K/uL; RI 148-484 K/uL). One week later, repeat CBC demonstrated persistent lymphocytosis (11.371 K/uL; RI 1.06-4.95 K/uL) and newly developed neutropenia (1.096 K/uL; RI 2.94-12.67 K/uL), prompting pathologist review of the peripheral blood smear. An atypical intermediate- to large-sized mononuclear cell population with irregularly clumped chromatin was identified, raising concern for a circulating hematopoietic neoplasm. The dog was started on an immunosuppressive dose of prednisone (1.6 mg/kg orally, once daily) and referred to the Purdue University Veterinary Hospital (PUVH) Oncology service for further evaluation.

Diagnostic and ancillary testing: Physical exam revealed diffuse muscle wasting and intermittent left forelimb lameness. The peripheral cytopenias and lymphocytosis had resolved, and no atypical cells were identified on manual blood smear evaluation. However, given the previously documented hematologic abnormalities and atypical circulating mononuclear cell population, bone marrow aspiration and core biopsies were pursued (Figure 1).

Initial bone marrow findings

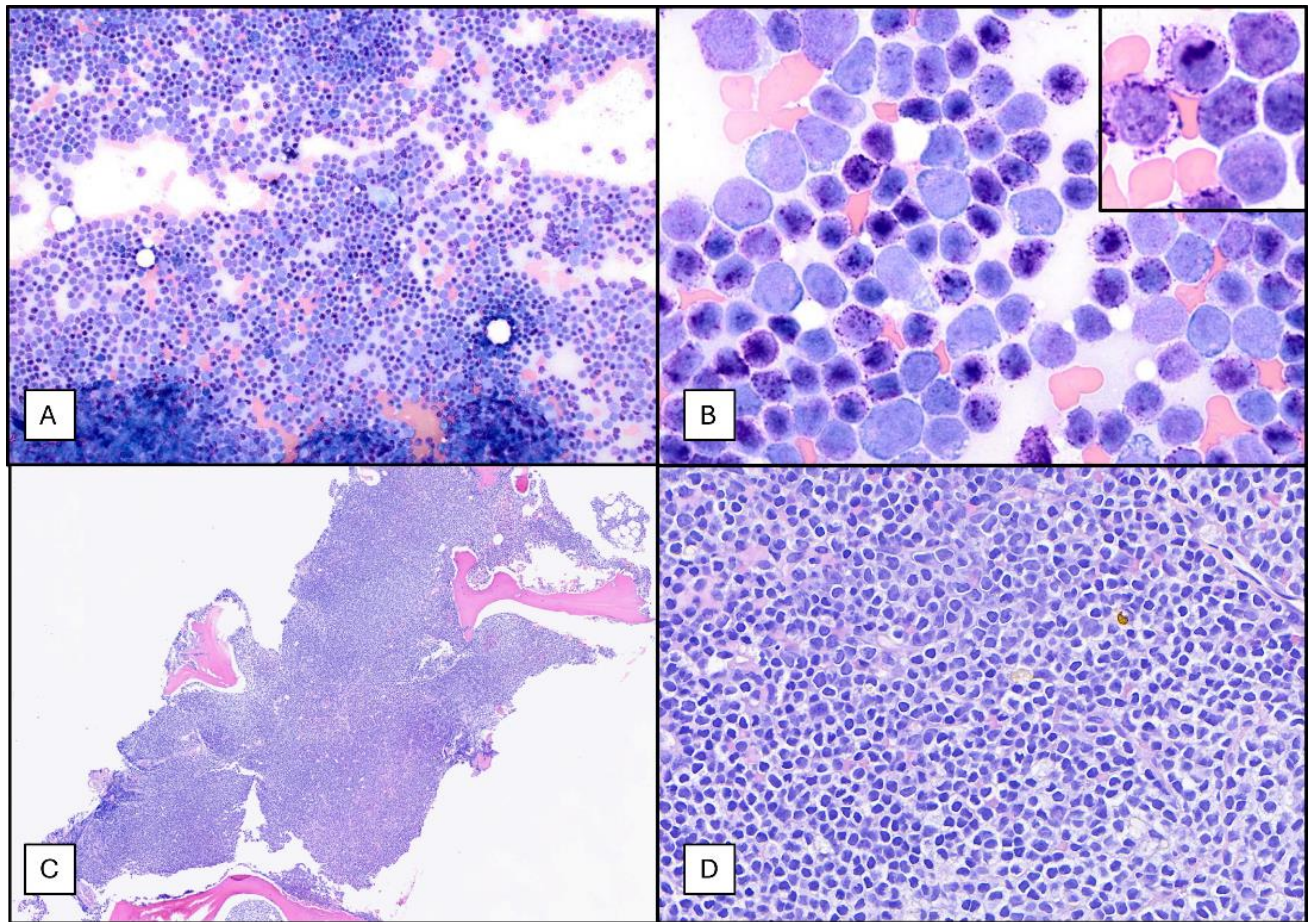


Figure 1. Initial presentation. A and B: Bone marrow aspirate smear (Modified Wright stain); total magnification 200 $\times$ (A) and 1000 $\times$ (B). Bottom: Bone marrow core biopsy (H&E): Digital whole-slide scan (20 $\times$ acquisition); displayed at low (C) and high (D) digital magnification.

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Case 14

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COMPANY OR UNIVERSITY	Department of Comparative Pathobiology, Cummings School of Veterinary Medicine, Tufts University

Specimen: Right mandibular ramus/coronoid process mass (Cytology and Histopathology)

Case history: 8.5-year-old neutered male Hound-cross dog. Ten months before presentation to the Tufts Ophthalmology Service, the owner noted excessive tearing from the right eye. At the primary care veterinarian, ophthalmic examination revealed no corneal ulcers, the ocular discharge was serous, and no additional diagnostics were pursued. Approximately 5 months later, the right eye became progressively exophthalmic. The dog received two courses of antibiotics (unknown drug and dosage) for a presumptive tooth root abscess and was subsequently scheduled for a dental procedure. At the time of the procedure, the referring veterinarian was unable to fully open the patient's jaw for intubation and oral examination; however, no oral swelling or abnormal tissue was identified. Dental radiographs revealed normal tooth roots and crowns without evidence of bone loss or tooth root abscesses. Additional skull radiographs demonstrated a radiopaque lesion medial to the right zygomatic arch. The patient was referred to the Tufts Ophthalmology Service, where physical examination revealed marked right-sided exophthalmos with limited retropulsion and excessive serous ocular discharge. Computed tomography identified a large, extensively mineralized mass arising from the right mandibular ramus/coronoid process and extending into the right retrobulbar space, resulting in marked regional mass effect and exophthalmos (Fig. 1A). Because of concern for neoplasia, an ultrasound-guided fine-needle aspiration biopsy was performed. Approximately one month later, the patient underwent surgical excision of the right mandibular vertical ramus, zygomatic arch, and globe.

Representative images

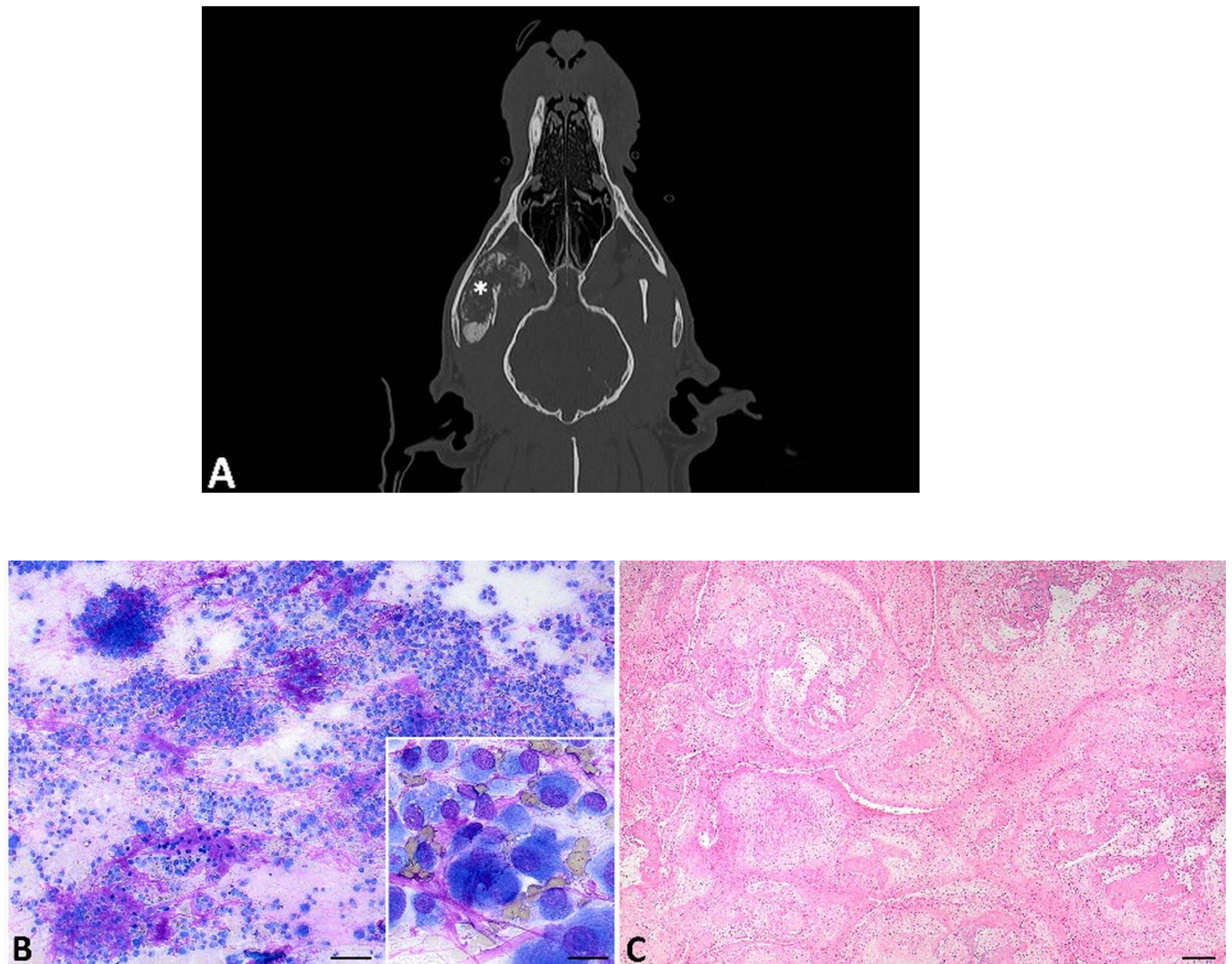


Figure 1. Representative diagnostic images of a right mandibular mass in a dog. (A) Computed tomography, bone window, dorsal plane. The mass (asterisk) is characterized by a mineral-attenuating, fine granular, popcorn-like appearance; (B) Representative cytologic images. Wright-Giemsa stain, 10 x objective, bar = 100 μm . Inset: 50 x objective, bar = 20 μm ; (C) Representative histologic image. H&E, 4 x objective, bar = 200 μm .

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Case 15

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Specimen: Coelomic fluid (Cytology); Testicular tissue (Histopathology)

Case history: A wild-caught bigeye sea skate of unknown age had a six-month history of lethargy, weight loss, and weakness in the left pectoral fin. There was a recent history of bite wounds on the right pectoral fin, head, and clasper with evidence of healing. Coelomic ultrasound showed moderate free fluid. Coelomocentesis was performed and fluid was submitted for cytologic evaluation (Figure 1). Supportive care was administered with some improvement. After 21 days the skate showed clinical decline, and humane euthanasia was elected. Necropsy was performed with additional coelomic fluid collection for cytologic interpretation and bacterial culture. Necropsy revealed gross findings of emaciation, ulcers on the ventral surface of the left pectoral fin, dark mottled kidneys, enlarged gallbladder with green fluid, bright yellow flocculent fluid in the coelom, multiple raised nodules in the gills, eroded left pectoral fin, and locally extensive pale discoloration of one testicle (Figure 2).

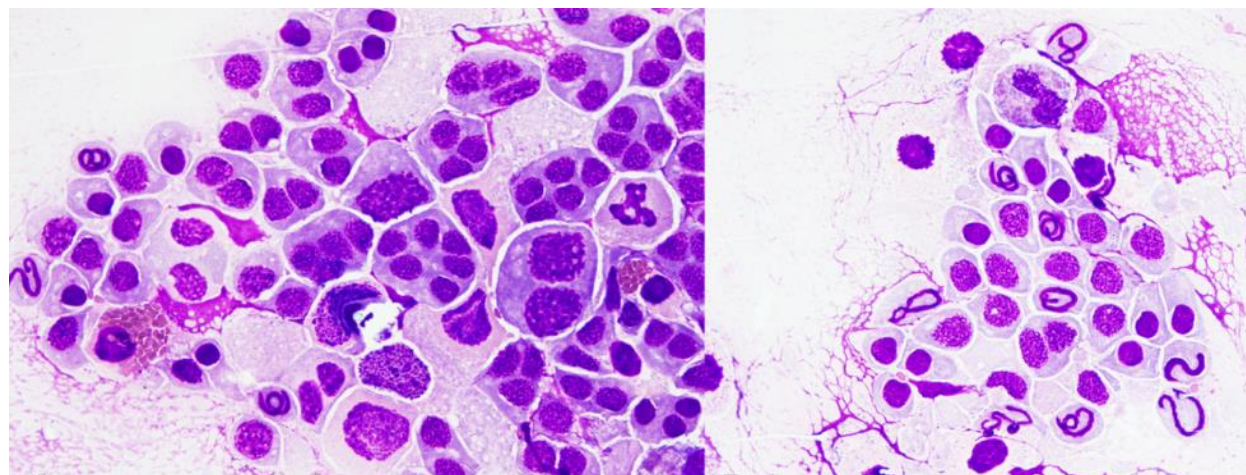


Figure 1. Photomicrographs of coelomic fluid direct smears. A) and B) Modified Wright stain, 100x.

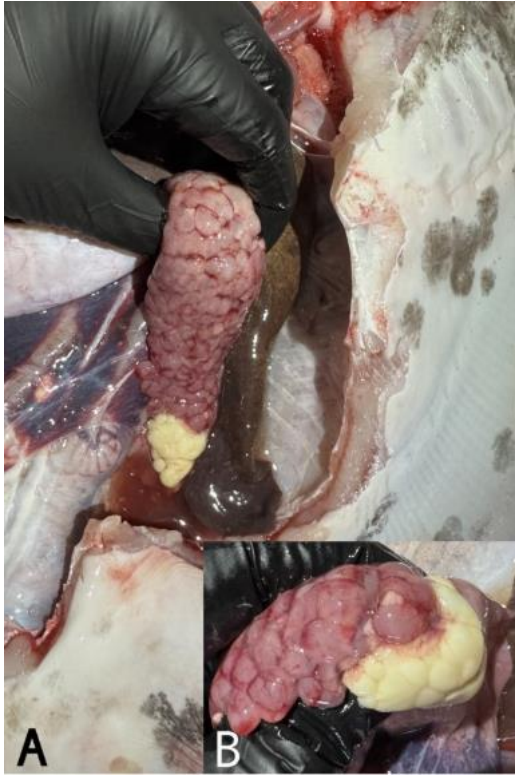


Figure 2. A) and B) Photographs of injured testicle taken at necropsy.

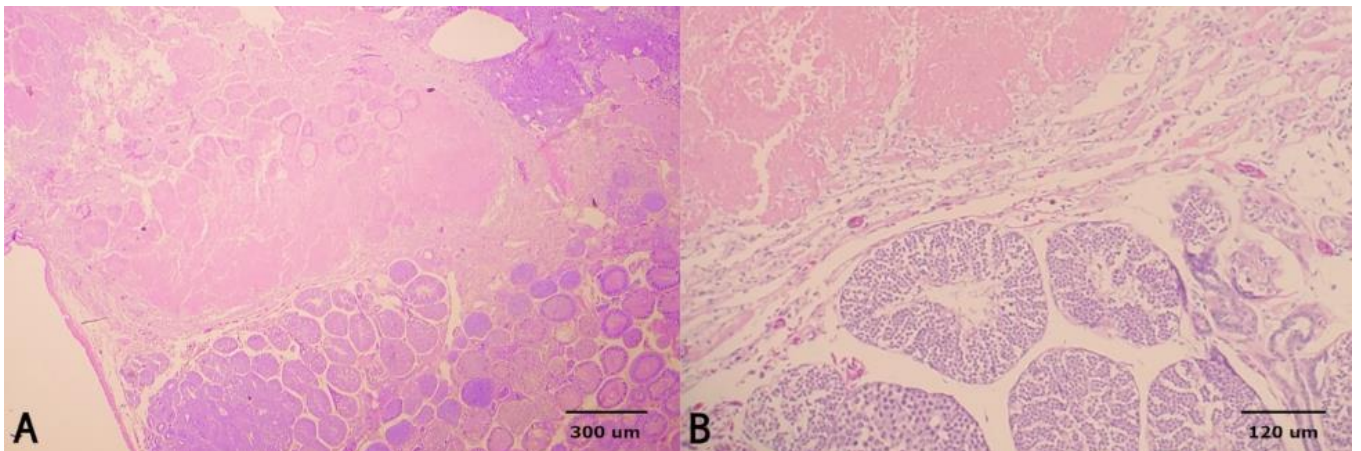


Figure 3. Photomicrographs of formalin-fixed, paraffin-embedded testicular tissue. H&E.

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Bonus Case 1

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COMPANY OR UNIVERSITY	University of Wyoming; Purdue University College of Veterinary Medicine and Animal Disease Diagnostic Laboratory

Specimen: Tongue mass (Gross examination, Cytology, Histopathology); right mandibular lymph node (Cytology)

Case history: Hudson was a 7.5-year-old castrated male Domestic Shorthair cat referred to the Purdue University Veterinary Hospital for evaluation of a mid-dorsal tongue mass. The lesion was first noticed incidentally while he was yawning several days before presentation. Hudson remained bright, alert, and clinically normal with a good appetite, normal activity, and normal grooming behavior. No dysphagia, ptyalism, weight loss, vomiting, diarrhea, coughing, or sneezing were reported. He was primarily an indoor cat with occasional supervised outdoor access. His medical history included allergic skin disease managed with intermittent corticosteroid injections.

Representative clinicopathologic, gross and cytologic findings: Physical examination revealed a raised, irregular pink mass with multifocal pale tan plaques on the mid-dorsal tongue (Figure 1), mild enlargement of the right mandibular lymph node, mild dental tartar and gingivitis, and bilateral ceruminous otitis. CBC demonstrated a mild inflammatory leukogram characterized by neutrophilia, eosinophilia, and basophilia. Serum biochemistry revealed mild hyperproteinemia and hyperglobulinemia, and platelet clumping precluded accurate platelet enumeration, although the platelet estimate was adequate. Fine-needle aspiration of the lingual lesion was performed. Representative gross, cytologic, and histologic images are provided in the figures below.



Figure 1. Gross photograph of the dorsal tongue lesion.

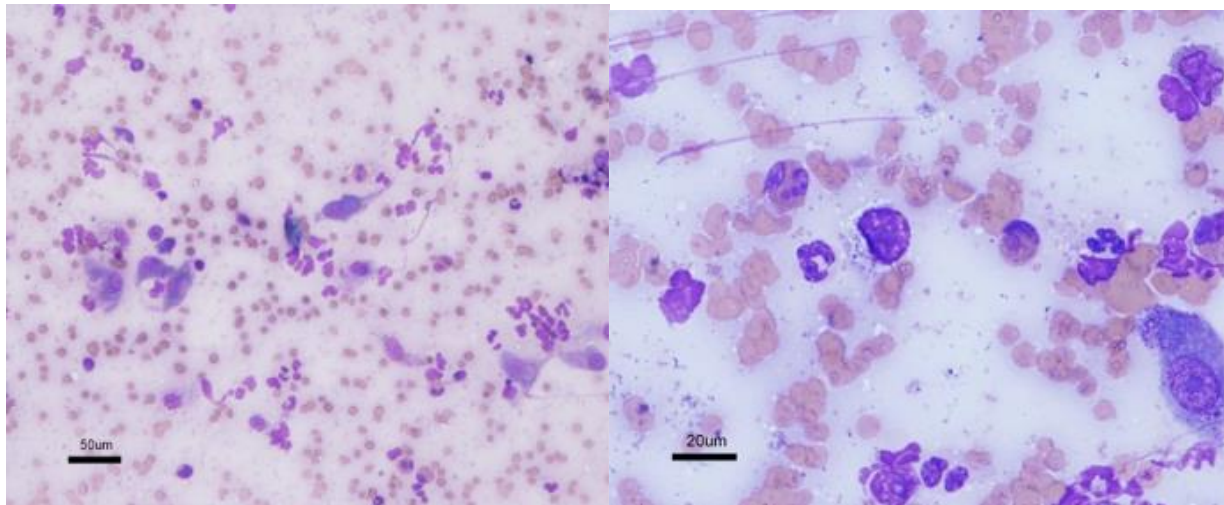


Figure 2-3. Representative cytologic photomicrograph of the lesion, Wright–Giemsa stain, 20× objective (left), 60× objective (right).

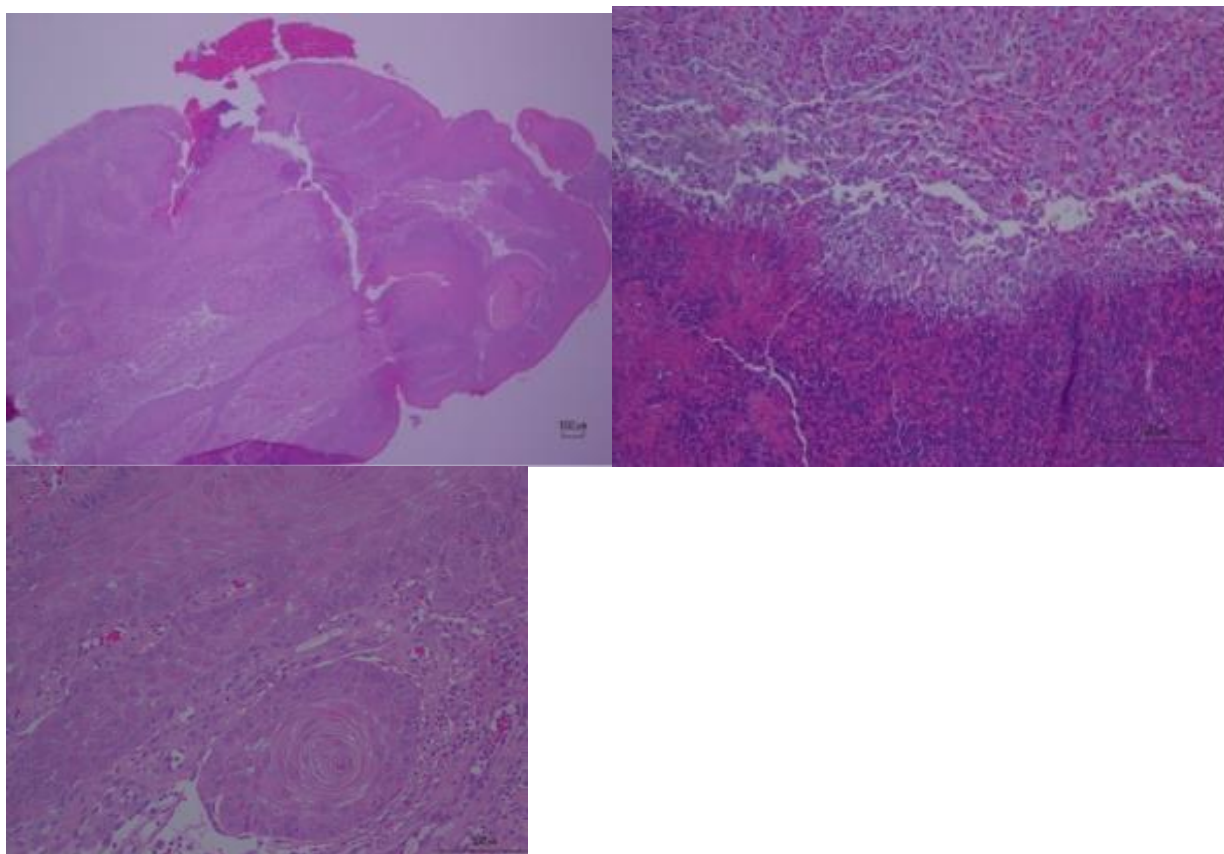


Figure 4-6. Representative histologic photomicrograph of the lesion, H&E stain, 4× objective, 10× objective, 20× objective.

Integrated Clinical Pathology and Anatomic Pathology Challenges Session

Bonus Case 2

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CONTRIBUTORS	
COMPANY OR UNIVERSITY	University of Georgia, Department of Pathology

Specimen: Cranial mediastinal mass (Cytology and Histopathology)

Case history:

Signalment: 11-year-old spayed female Labrador Retriever

History: The dog was presented for evaluation of progressive raspy, stertorous breathing, exacerbated by exercise or exertion beyond walking, and a cranial intrathoracic mass (identified on thoracic radiographs). Sedated oral examination revealed mildly decreased movement of the left side of the larynx, most suggestive of early laryngeal paresis. Multiple soft movable subcutaneous masses were noted.

Diagnostics: Thoracic computed tomography (CT) scan revealed an approximately 8.7-cm long by 5.8-cm wide by 5.7-cm deep, heterogeneous, well-defined, cavitated, cranial mediastinal mass, extending from the cranial aspect of the manubrium to the level of the cranial aspect of the fourth sternebra with minimal to mild compression of the cranial vena cava and left brachiocephalic vein. Pulmonary metastasis was not identified. Ultrasound-guided fine needle aspirate biopsy for the mass was performed for cytology and flow cytometry. The entire mass was subsequently removed via thoracoscopy and submitted for histopathologic evaluation.

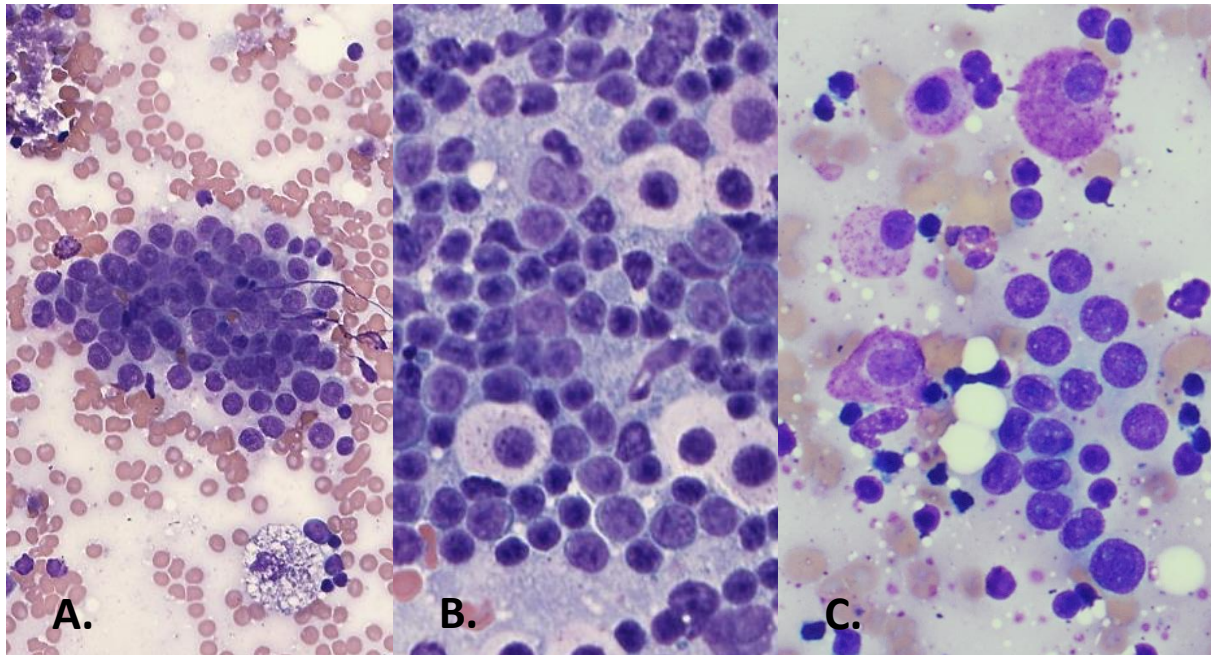


Figure 1: Cytology – representative photomicrographs; Modified Wright-Giemsa, 20x (A) & 50x (B & C).

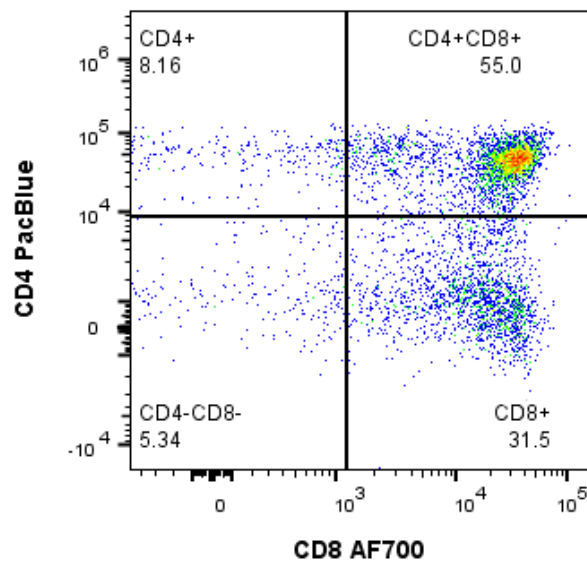


Figure 2: Flow Cytometry – select plot of CD5+ cells in the sample, comparing CD4 and CD8 expression.

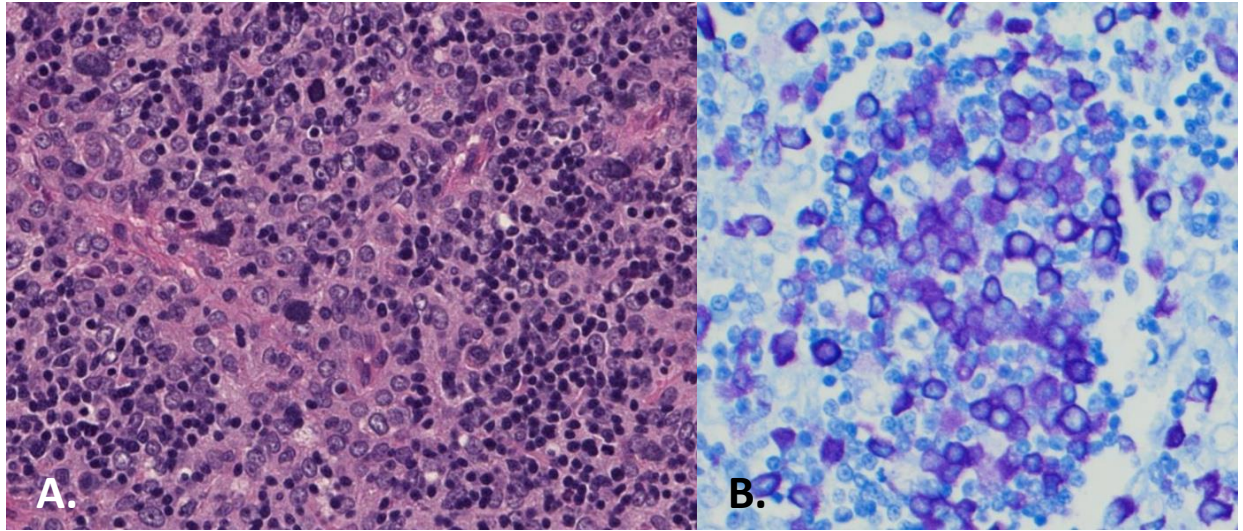


Figure 3: Histopathology – representative photomicrographs; H&E, 20x (A); Toluidine blue, 40x (B).