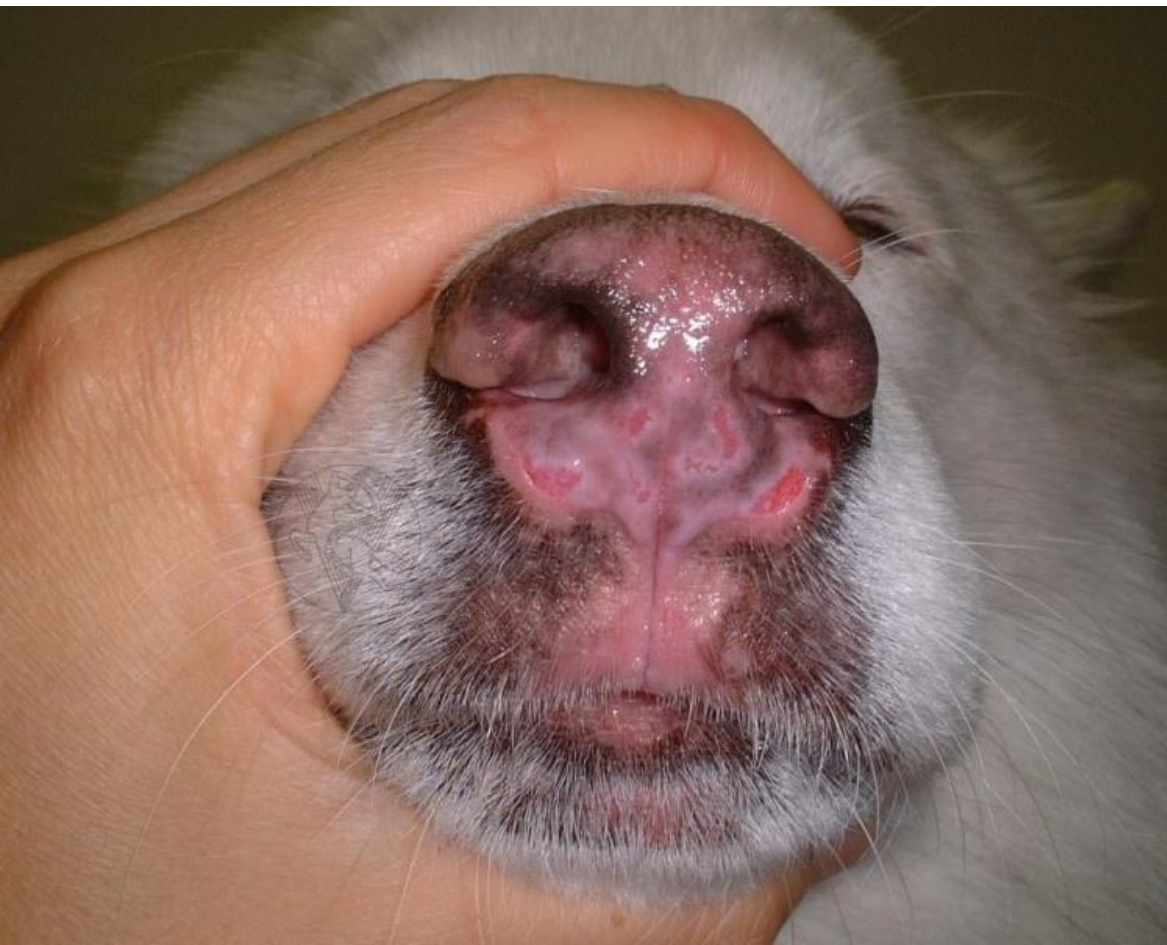




What is the most likely cause of this lesion?

- a. *Chlamydia trachomatis*
- b. ***Chlamydia pecorum***
- c. *Chlamydia abortus*
- d. *Chlamydia psittaci*

Borel et al. A review on chlamydial diseases in animals.  
VP 2018, 1-7.



Which of the following is true about this condition this condition?

- a. The disease is considered to be the result of MHC II antigen diversity.
- b. Skin lesions generally precede ocular lesions.
- c. Vacuolar change of the basal layer with apoptosis is commonly seen.
- d. **Leukotrichia is a common finding in areas of leukoderma.**

jKP Vol 1, p 557



Name another lesion that might be found in this individual?

Avian Disease Manual, pp 42-43

- a. Corneal opacities
- b. **Hemorrhage in intestinal lymphoid tissue**
- c. Ganglioneuritis of the intestinal plexi
- d. Fibrinous epicarditis



Tissue from horse. Most likely diagnosis?

- a. Pancreatic carcinoma
- b. Mammary carcinoma
- c. **Gastric squamous cell carcinoma**
- d. Melanoma

VP, vol 2, 106-107



Tissue from an ox. What is the most likely cause of this lesion?

VP, Vol 1, pp 625-627.

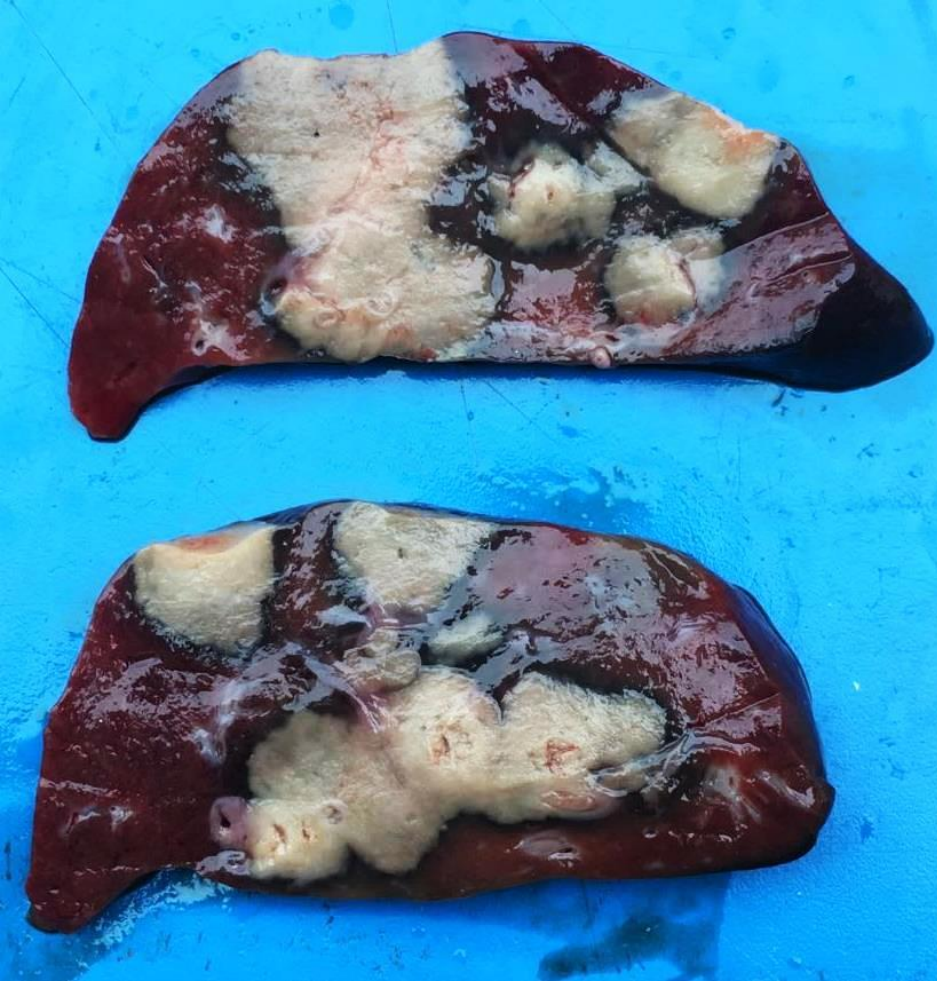
- a. **Bovine herpesvirus-1**
- b. Bovine herpesvirus-2
- c. Bovine herpesvirus-4
- d. Bovine herpesvirus-5



What of the following is true.?

- a. This virus infects squamous, but not mucosal epithelium.
- b. Non-ruminants may be infected.
- c. **Vegetative endothelial growth factor is an important virulence factor of this virus.**
- d. Mortality may exceed 25% in infected herds.

JKP, vol 1, pp 617-618.



Tissue from an ox. What is the most likely cause of this lesion?

JKP, vol 2, p. 316

- a. ***Fusobacterium necrophorum***
- b. *Aspergillus fumigatus*
- c. *Listeria monocytogenes*
- d. *Salmonella typhimurium*



Tissue from a dog. What is the most likely diagnosis?

- a. *Mycobacterium avium* infection
- b. **Lymphangiectasia**
- c. Boxer colitis
- d. *Lawsonia intracellulare* infection

JKP vol 2, pp. 90-91.





Tissue from a horse. Which of the following has been associated with this parasite?

- a. Perforation and peritonitis
- b **Cecocecal intussusception (cecal inversion)**
- c. Intestinal adenocarcinoma
- d. Nothing, it has no associated pathology.

VP, vol 2, p.222-223.



Tissue from a mouse. What is the diagnosis?

- a. **Epicardial mineralization**
- b. Polyarteritis nodosa
- c. Lymphoma
- d. Atherosclerosis

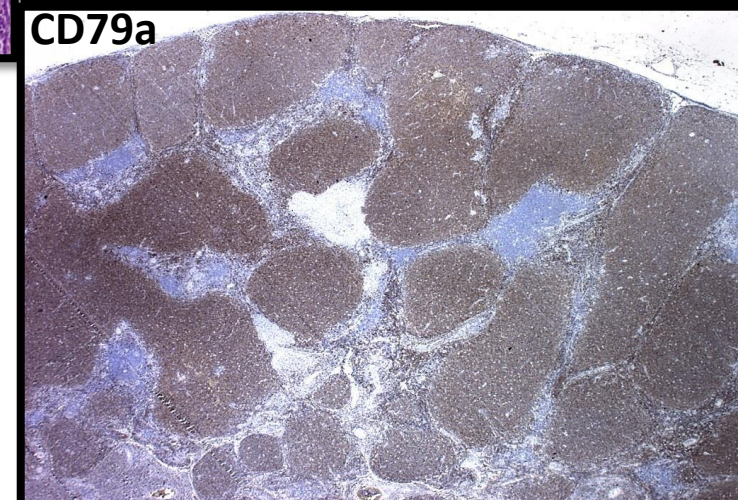
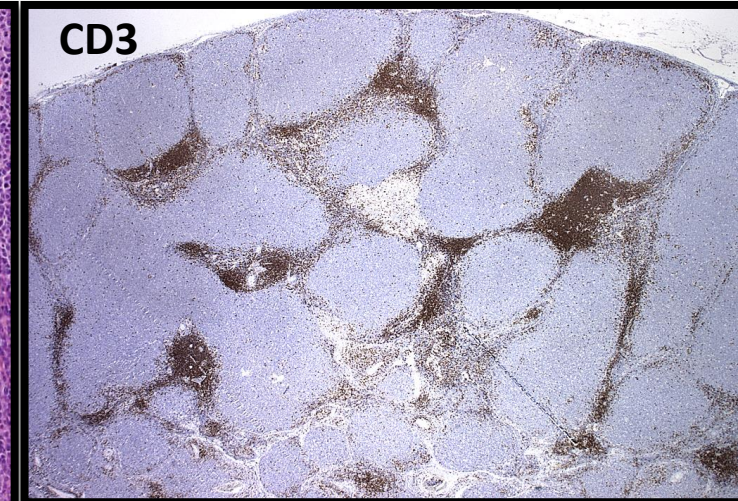
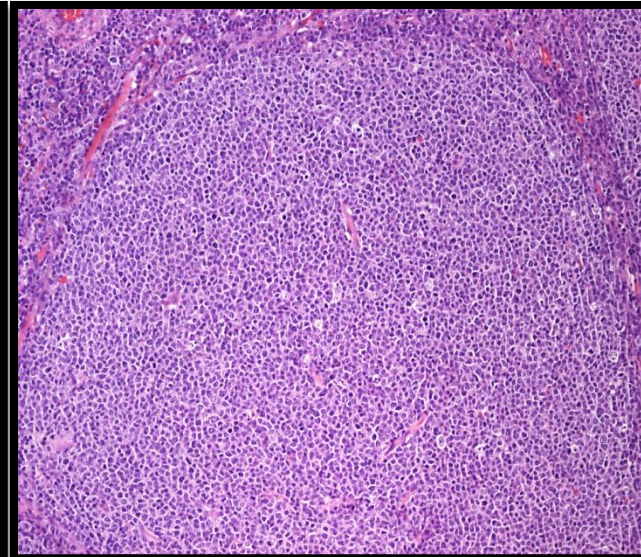
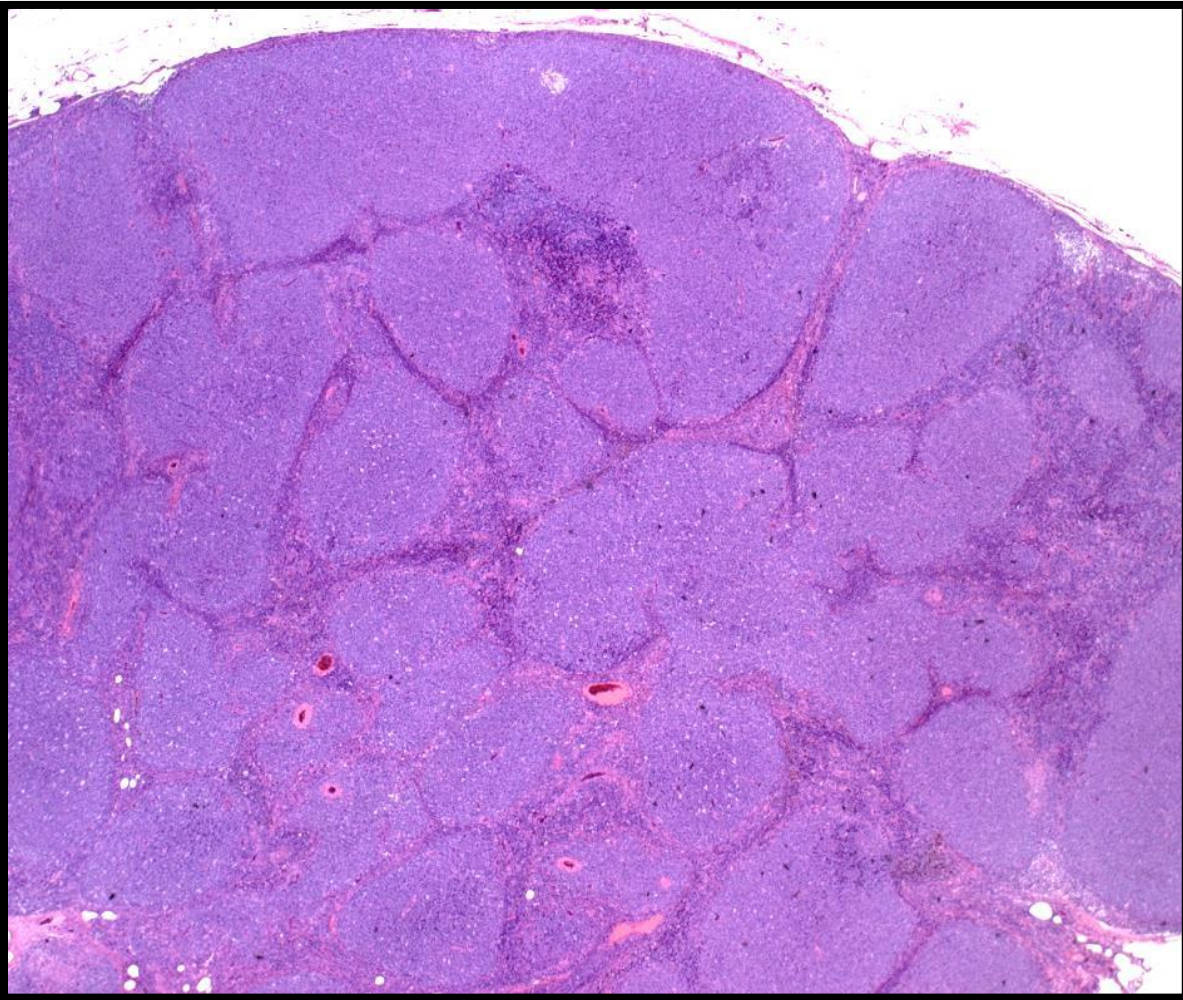
Percy and Barthold, p. 93



Tissue from a trout. Name the agent?

- a. ***Aeromonas salmonicida***
- b. *Edwardsiella ictaluri*
- c. *Yersina ruckeri*
- d. *Edwardsiella tarda*

Noga, Fish Disease: Diagnosis and Treatment, 186-190.



JKP, vol2, pg. 224.

Tissue from a dog. What is the most likely diagnosis?

- A. Marginal zone lymphoma
- B. Follicular lymphoma**
- C. Diffuse large B cell lymphoma
- D. Follicular hyperplasia



Tissue from a chicken. In a recent review, which of the following bacilli was not considered a potential cause?

- a. *Clostridium perfringens* type A
- b. *Clostridium sordelli*
- c. ***Clostridium novyi***
- d. *Clostridium septicum*

Gornatti-Churria et al. Gangrenous dermatitis in chickens and turkeys. JVDI 2017, 30(2): 188-196.



Tissue from a rabbit. Name an associated finding?

- a. Lymphosarcoma
- b Thymoma**
- c. Meningioma
- d. Hemangiosarcoma

Percy and Barthold, p. 322.



Tissue from a cow. Name the condition?

- a. Hippomanes
- b. **Adventitial placentation**
- c. Adenomatous hyperplasia of the allantoic
- d. Amniotic plaques

JKP, vol 3, p 397.

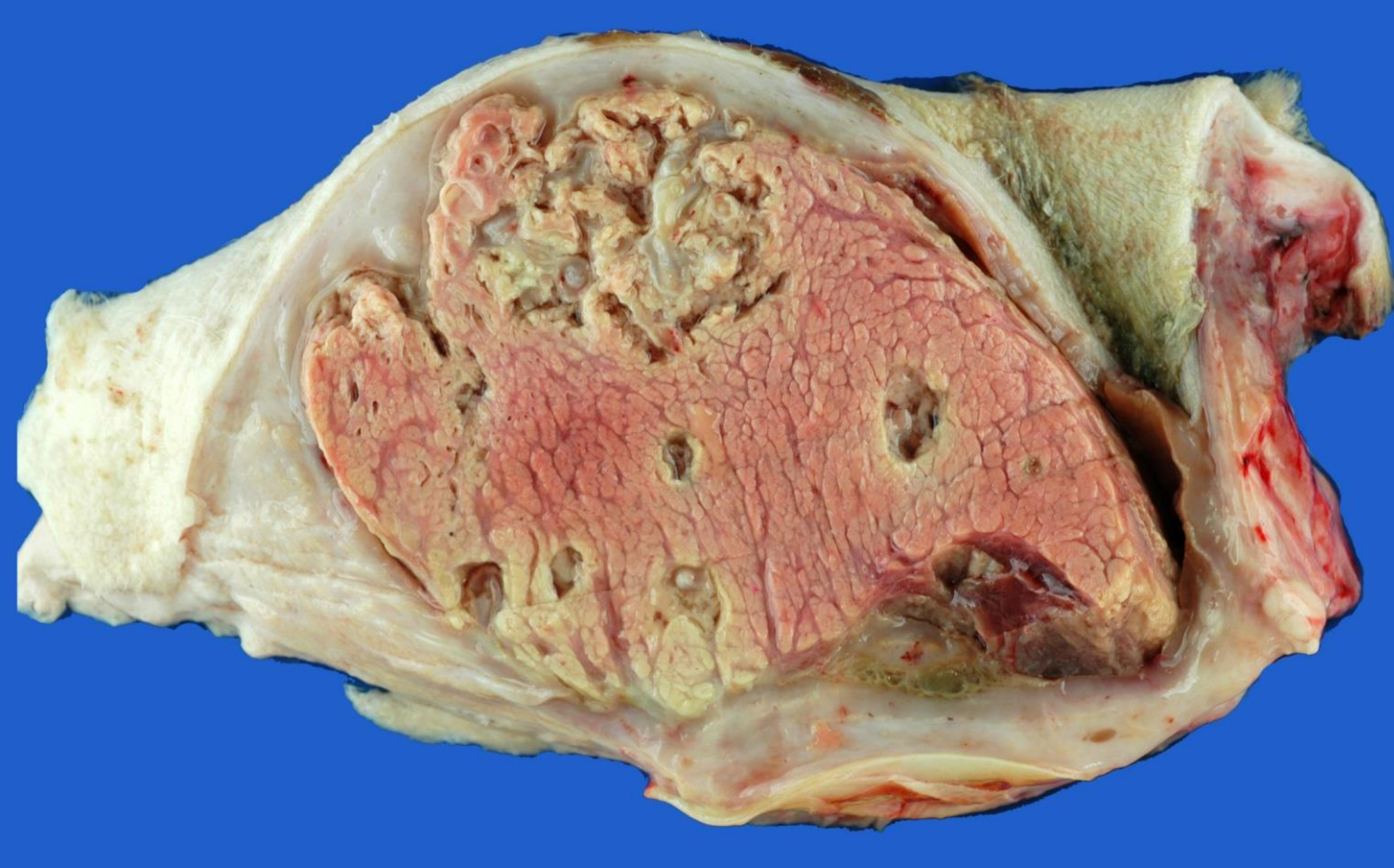


Tissue from a horse. What is the most likely cause of this lesion?

- a. Cleavage of the articular cartilage and pressure infusion of joint fluid into the bone
- b. Shear forces between subchondral bone and articular cartilage
- c. **Ischemia due to a failure of blood supply to the epiphyseal growth cartilage**
- d. Inappropriate differentiation of chondrocytes in the epiphyseal growth cartilage

Olstad et al. An Update on the Pathogenesis of Osteochondrosis. 2015 52(5): 785-802.

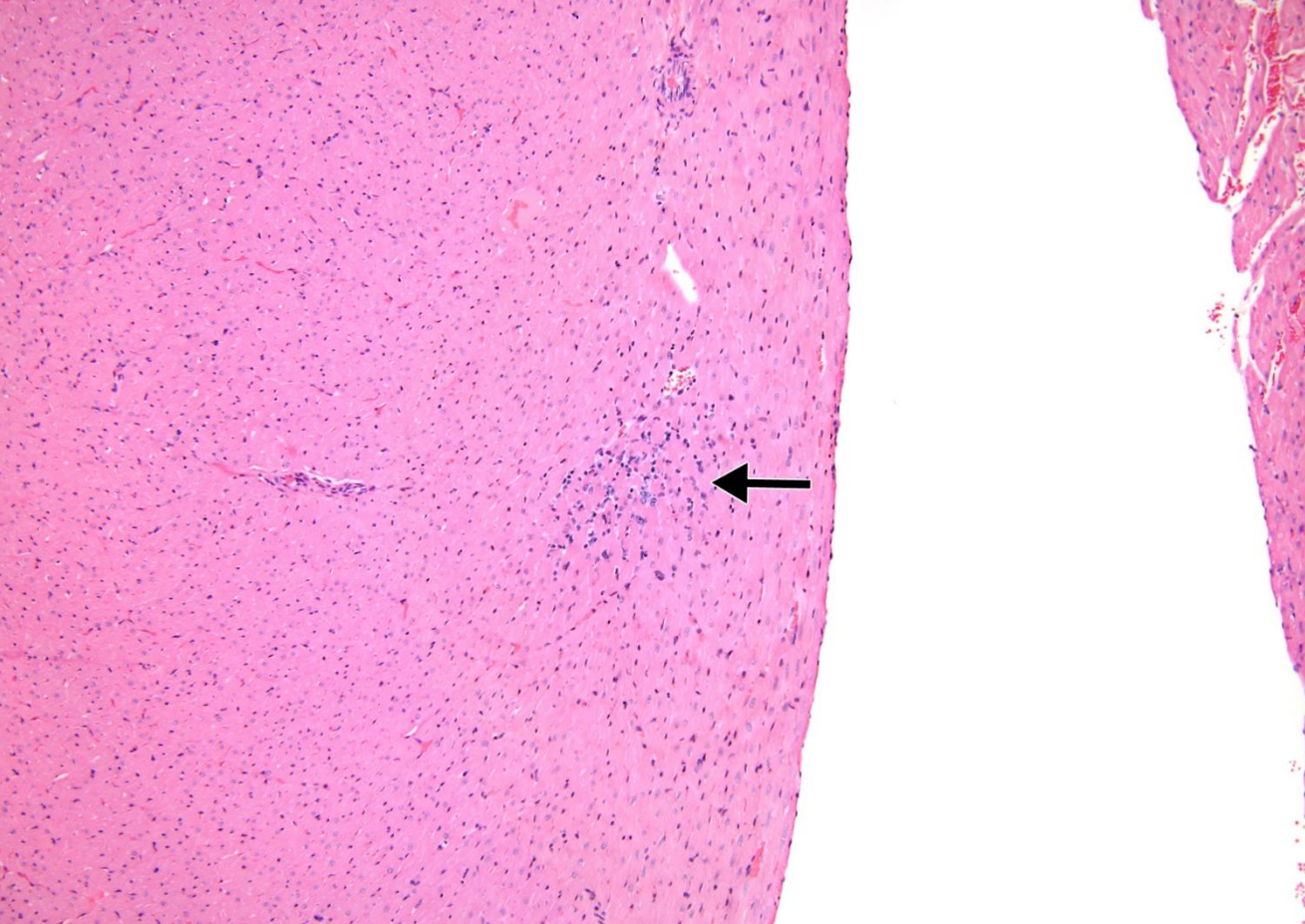




Tissue from a sheep. Name the most likely cause.

- a. Ovine lentivirus
- b. *E. coli*
- c. ***Staphylococcus aureus***
- d. *Mycoplasma agalactiae*

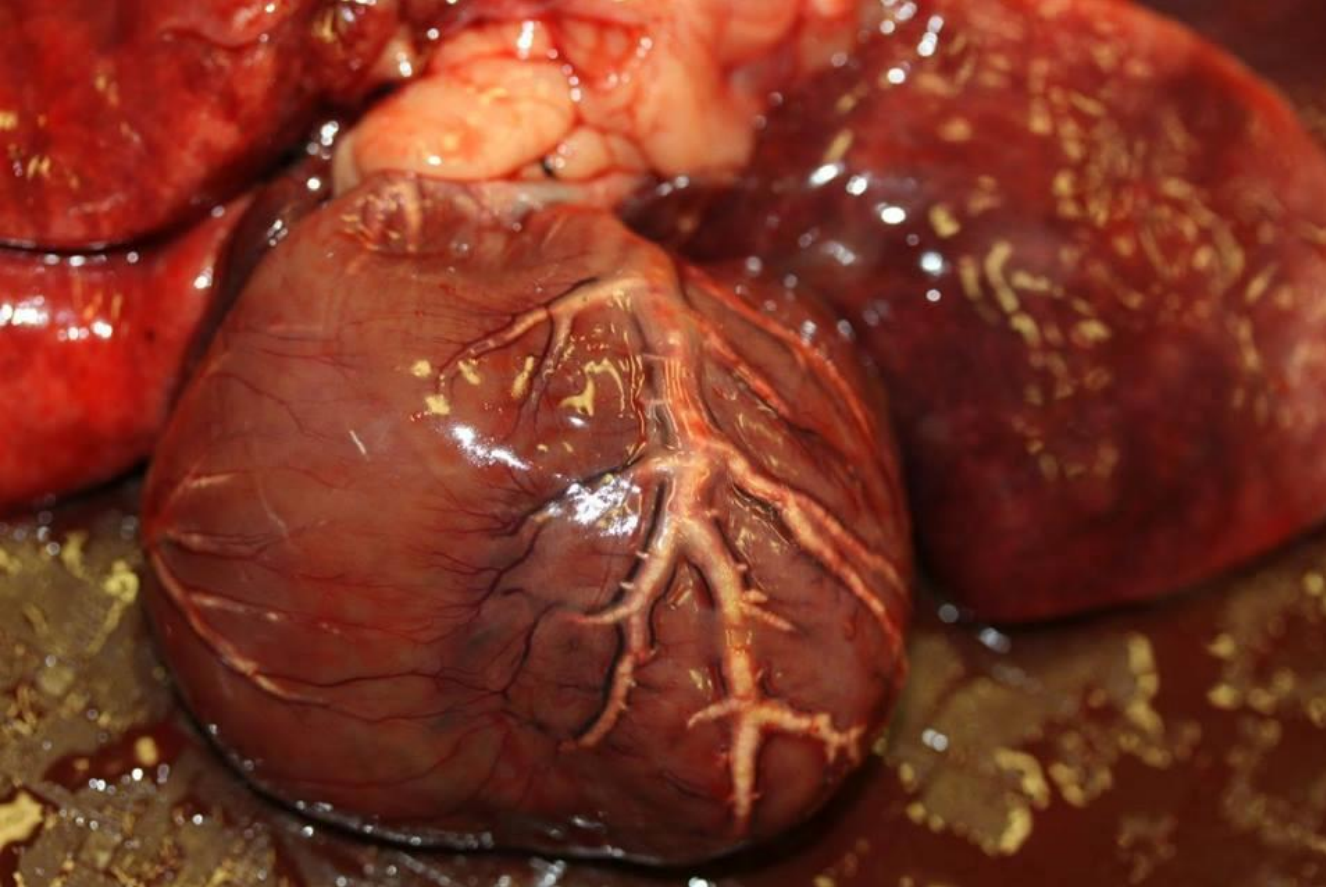
JKP, v. 3, pp 457-458.



This lesion from a female Fischer 344 rat is most consistent with which of the following

- A. Mononuclear cell leukemia
- B. **Progressive rodent cardiomyopathy**
- C. Periarteritis nodosa
- D. Coxsackie virus infection

**Hailey et al. A Diagnostic Approach for Rodent Progressive Cardiomyopathy and Like Lesions in Toxicology Studies up to 28 Days in the Sprague Dawley Rat. Tox Path 2017 45(8): 1043-1054**



Tissue from a dog. What of the following is true?

- a. Lesions are most commonly seen in large elastic arteries than small muscular arteries.
- b. Like man, lipid is primarily deposited in the tunica intima.
- c. **The lesions may be seen in hypothyroid animals.**
- d. Among domestic species, atherosclerosis is most commonly seen in the dog.

JKP Vol 3, pp. 57-59



Tissue from a horse. What of the following is associated with umbilical torsion in the equine?

- a. Compression of the urachus
- b. 3 or more twists of the umbilical cord
- c. An excessively long umbilical cord
- d. **All of the above**

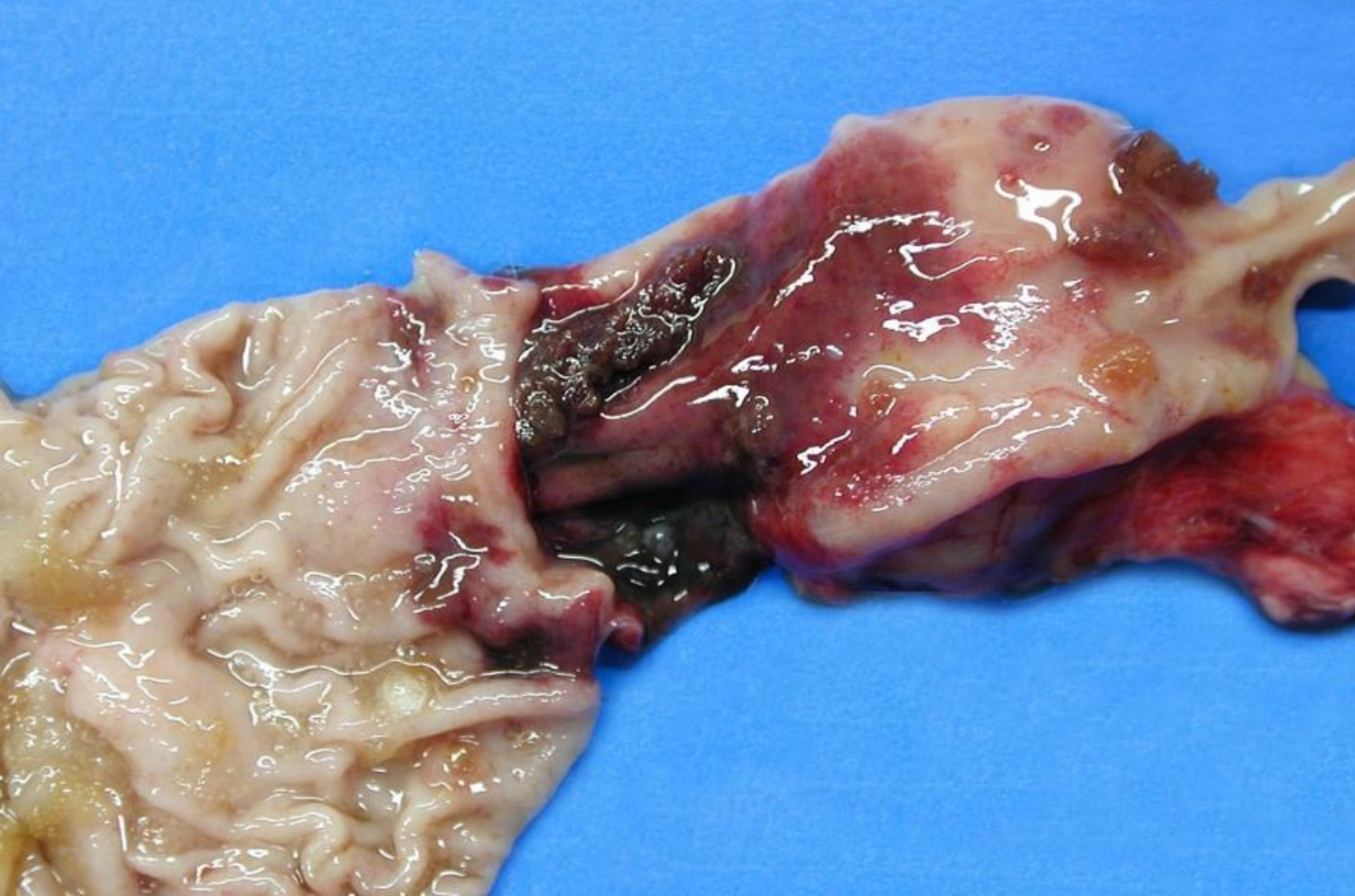
McGavin, p 1176



In neonatal piglets, this lesion results from infection by?

JKP , vol 2, p 93

- a. *Clostridium perfringens* type C
- b. Shiga toxin-producing *E. coli*
- c. Enteropathogenic *E coli*
- d. ***Clostridium difficile***



Tissue from a rhesus macaque. What of the following lesions may also be seen in this animal?

- a. Gingival ulceration
- b. Necrotizing and proliferative dermatitis on the face and hands
- c. **Lymphoid necrosis and deposition of fibrin within splenic white pulp**
- d. Abscesses throughout the body

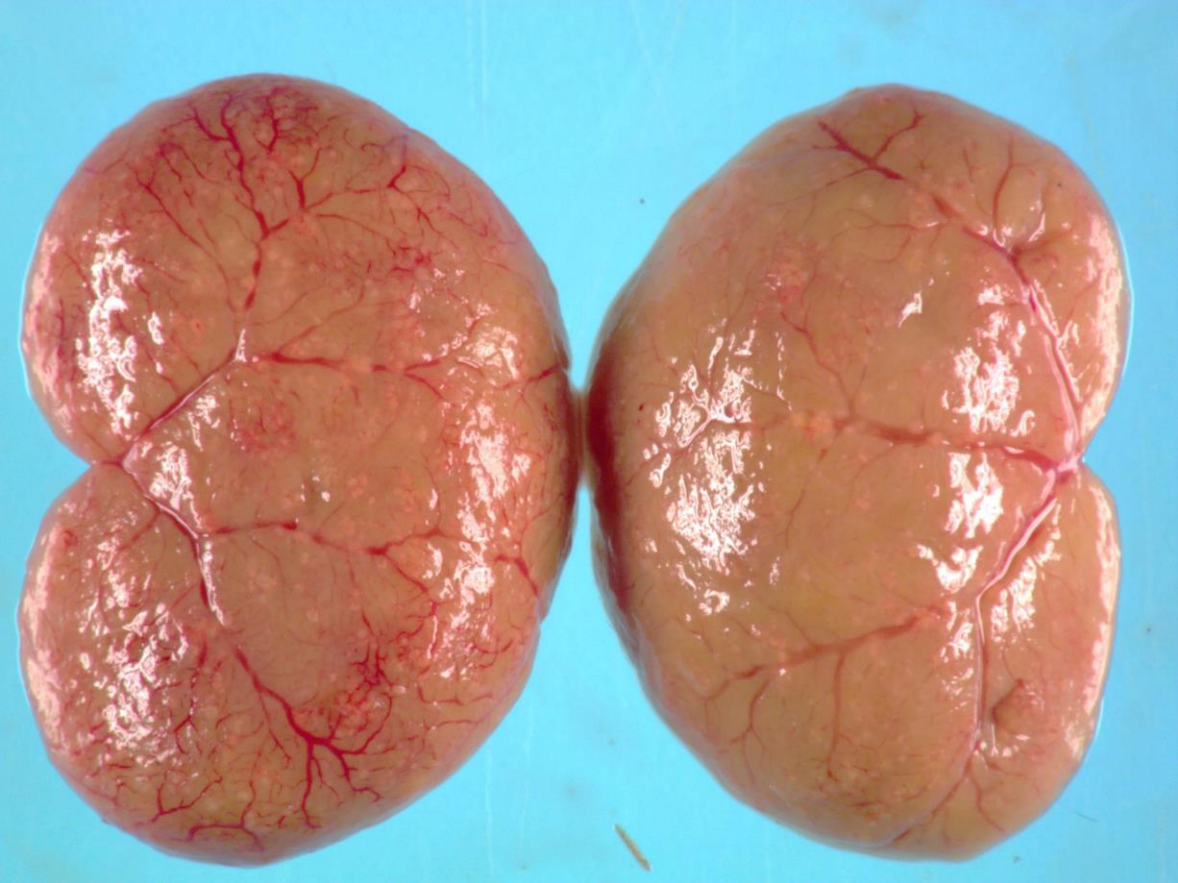
Non-human Primates in Biomedical Research, vol 2, pp 38-41, 605.



Tissue from an ox. What is the most likely cause of this lesion?

- a. ***Sarcocystis* sp.**
- b. *Vicia villosa*
- c. *Cysticercus bovis*
- d. *Histophilus somni*

JKP vol 1, pp 236-237.

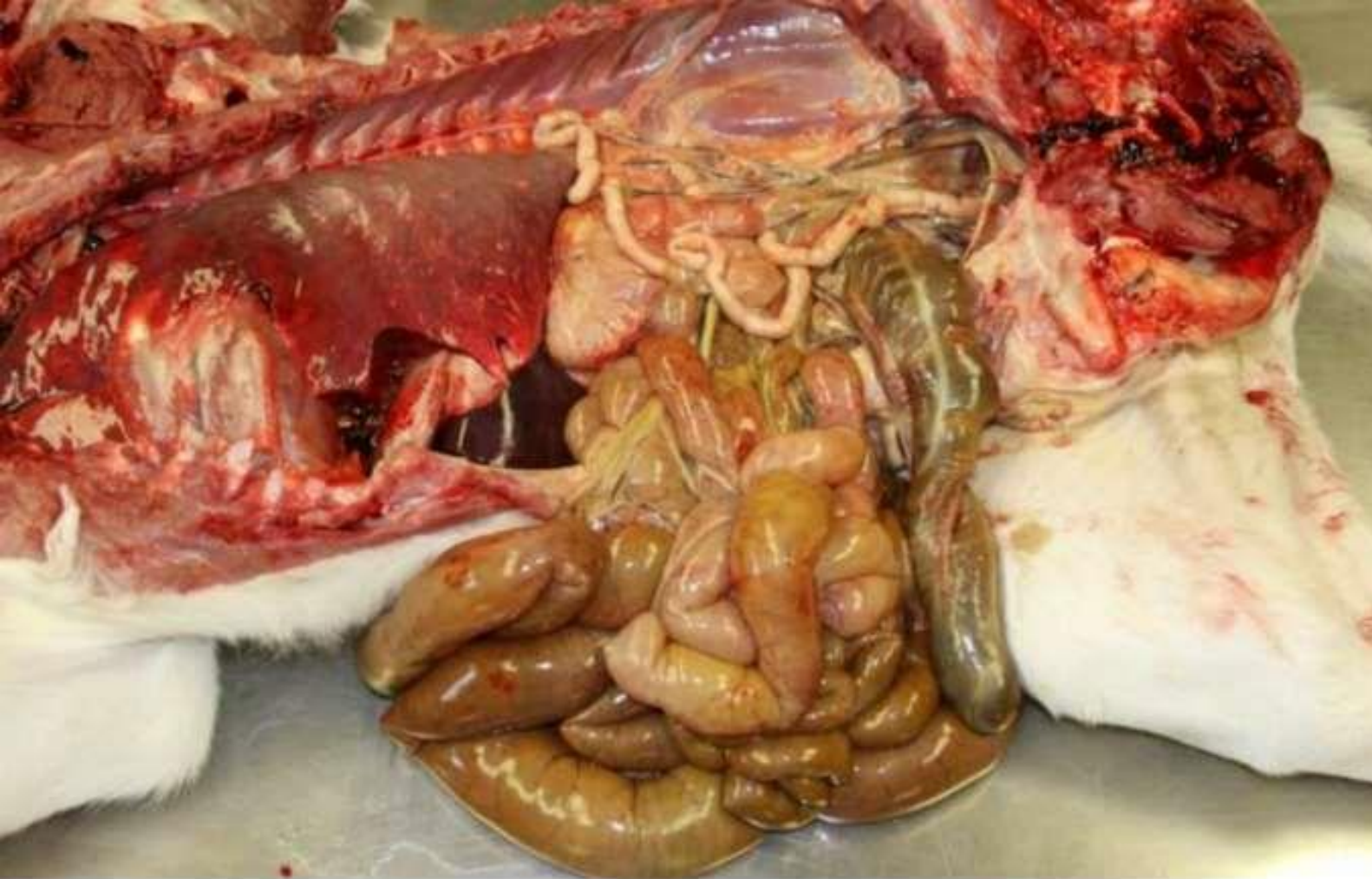


The key events in the pathogenesis of this disease are the results of activation of which of the following?

- a. **Monocytes and macrophages**
- b. T-cells
- c. B-cells
- d. NK cells

Kipar et al. Feline Infectious Peritonitis: Still an Enigma? *Vet Clin North Am* 2014, 51(2): 505-526.





Which of the following genetic defects is associated with this condition?

- a. Fibroblast growth factor-4
- b. SLC2A9
- c. ECA-10
- d. **Endothelin-3**

JKP, vol 2, pp 74.



Tissue from an ox. Which is the most likely cause?

- a. *Corynebacterium pseudotuberculosis*
- b. *Vicia villosa*
- c. ***Mycobacterium bovis***
- d. *Mycobacterium paratuberculosis*

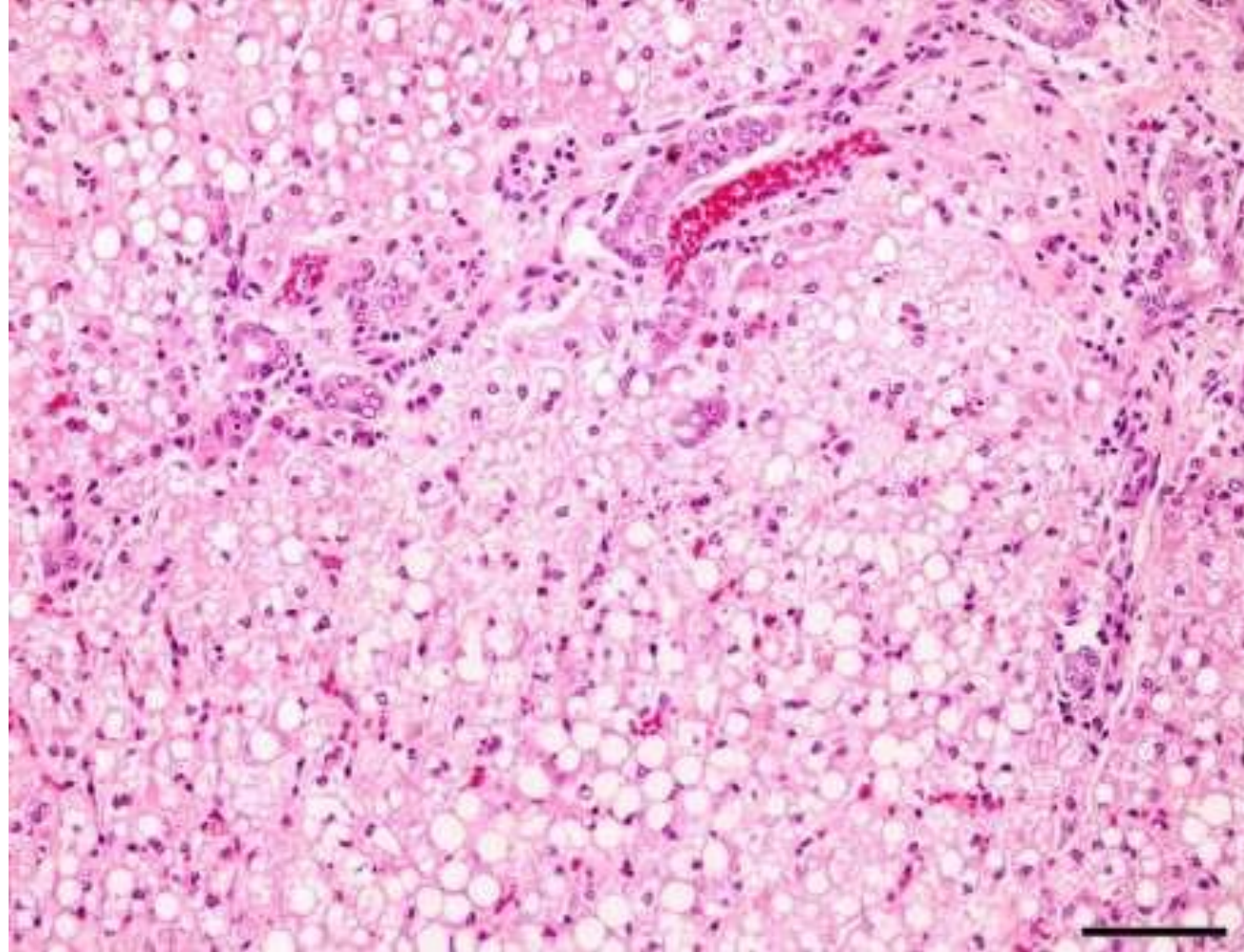
JKP, vol 2, pp 547-551.



Tissue from a rhesus macaque. This condition has been associated with which of the following?

- a. Advancing age
- b. Multiple myeloma
- c. Generalized inflammation
- d. **All of the above**

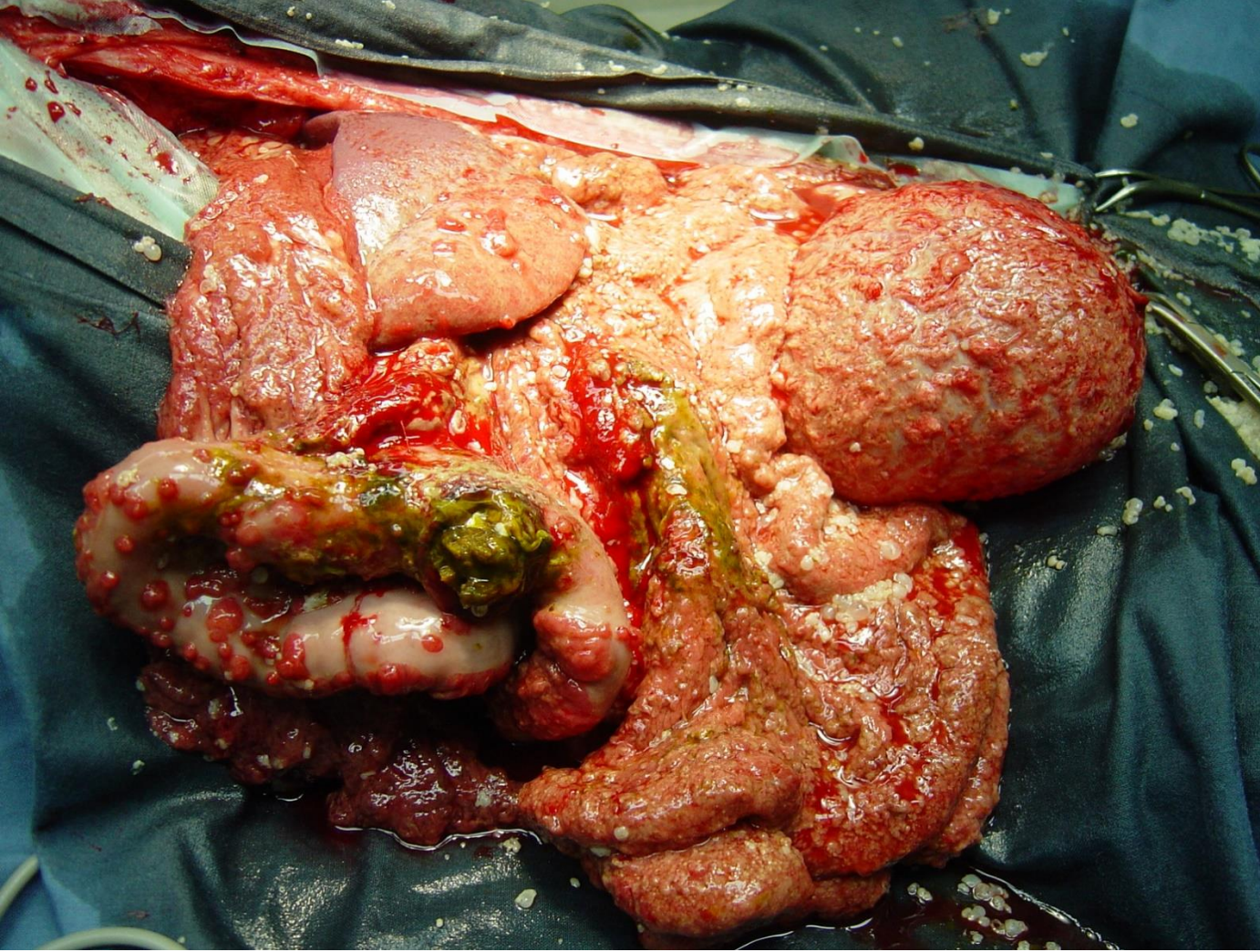
Simmons HA. Age-associated pathology in rhesus Macaques. *Vet Pathol* 2016. 53(2): 399-416.



Tissue from a dog. Which is the most likely cause?

- a. *Amanita*
- b. **Aflatoxin**
- c. *Xylitol*
- d. Depo-medrol

JKP, vol 2, pp 547-551.



Tissue from a dog. Name the cause?

- a. *Diphyllobothrium* sp.
- b. ***Mesocestoides* sp.**
- c. *Spirometra* sp.
- d. *Echinococcus multilocularis*

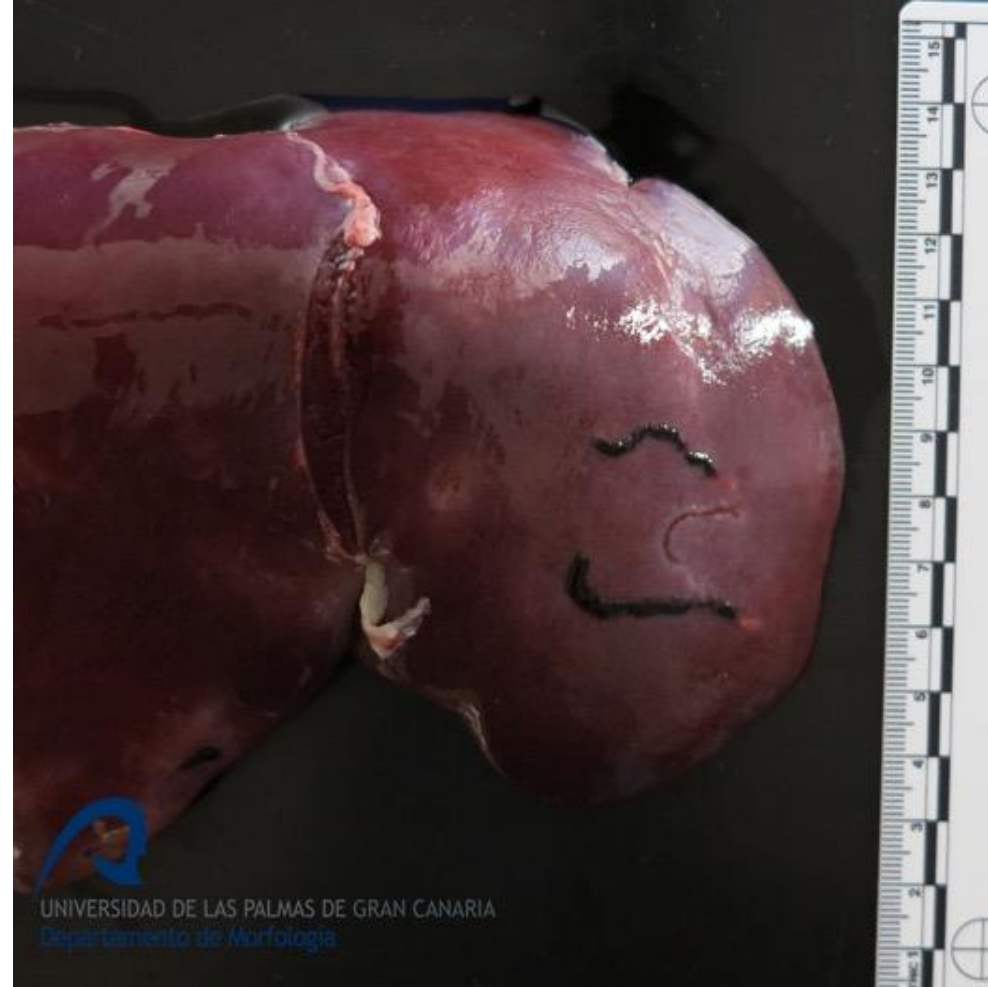
JKP, vol 2, p. 223.



Tissue from a horse. What is the most likely cause of this lesion?

- a. **Cyathostome infection**
- b. *Salmonella typhimurium*
- c. *Neorickettsia risticii*
- d. Banamine toxicosis

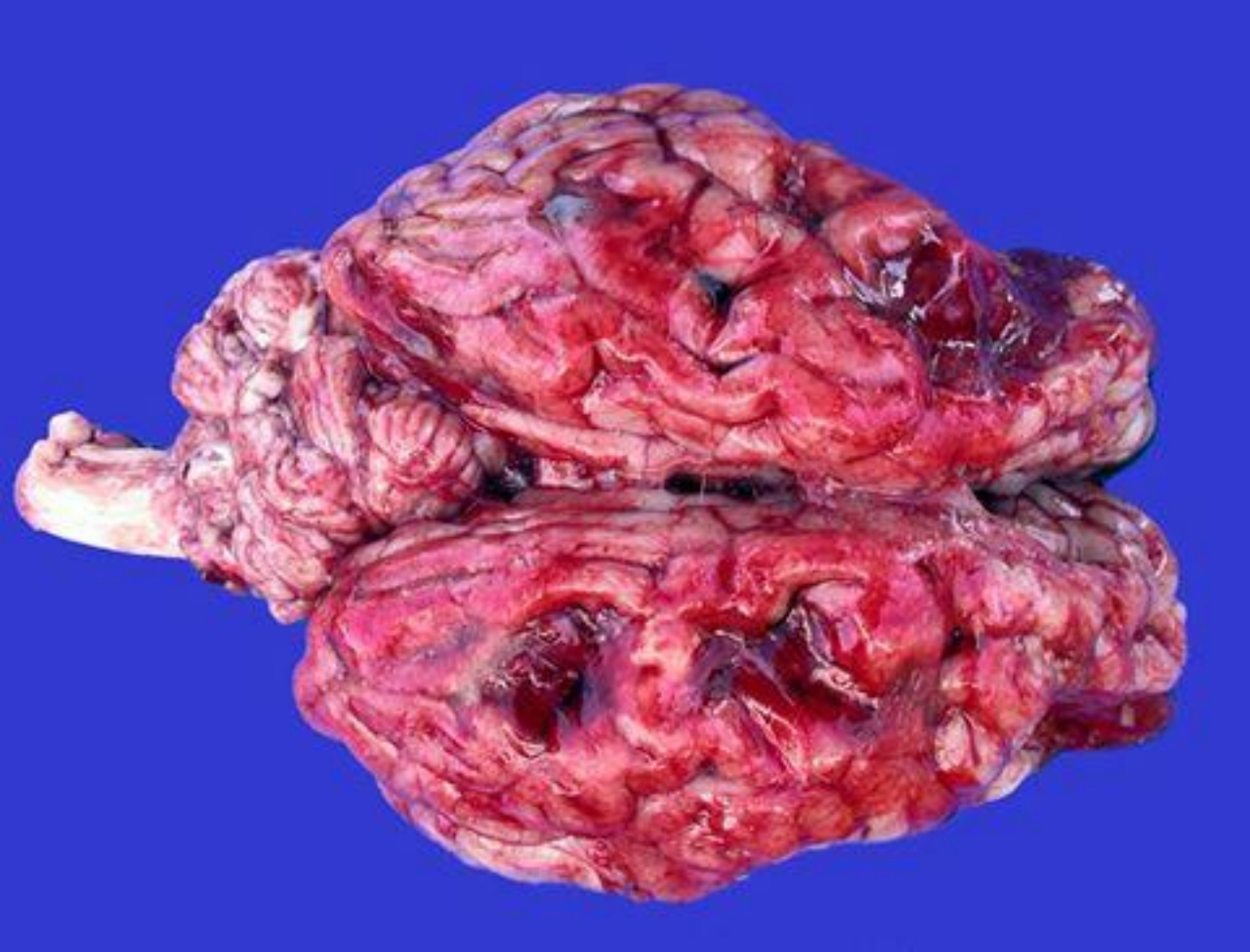
JKP, vol 2, p 217.



Tissue from a sheep. What is the most likely cause of this lesion?

- a. *Fascioloides magna*
- b. *Fasciola hepatica*
- c. ***Cysticercus tenuicollis***
- d. *Dicrocoelium dendriticum*

JKP, vol 2., pp 318-319.



Tissue from an ox. What is the most likely cause of this lesion?

- a. **Bovine herpesvirus-5**
- b. Excessive dietary sulfur
- c. *Histophilus somni*
- d. *Aspergillus fumigatus*

JKP vol 1, 381-382

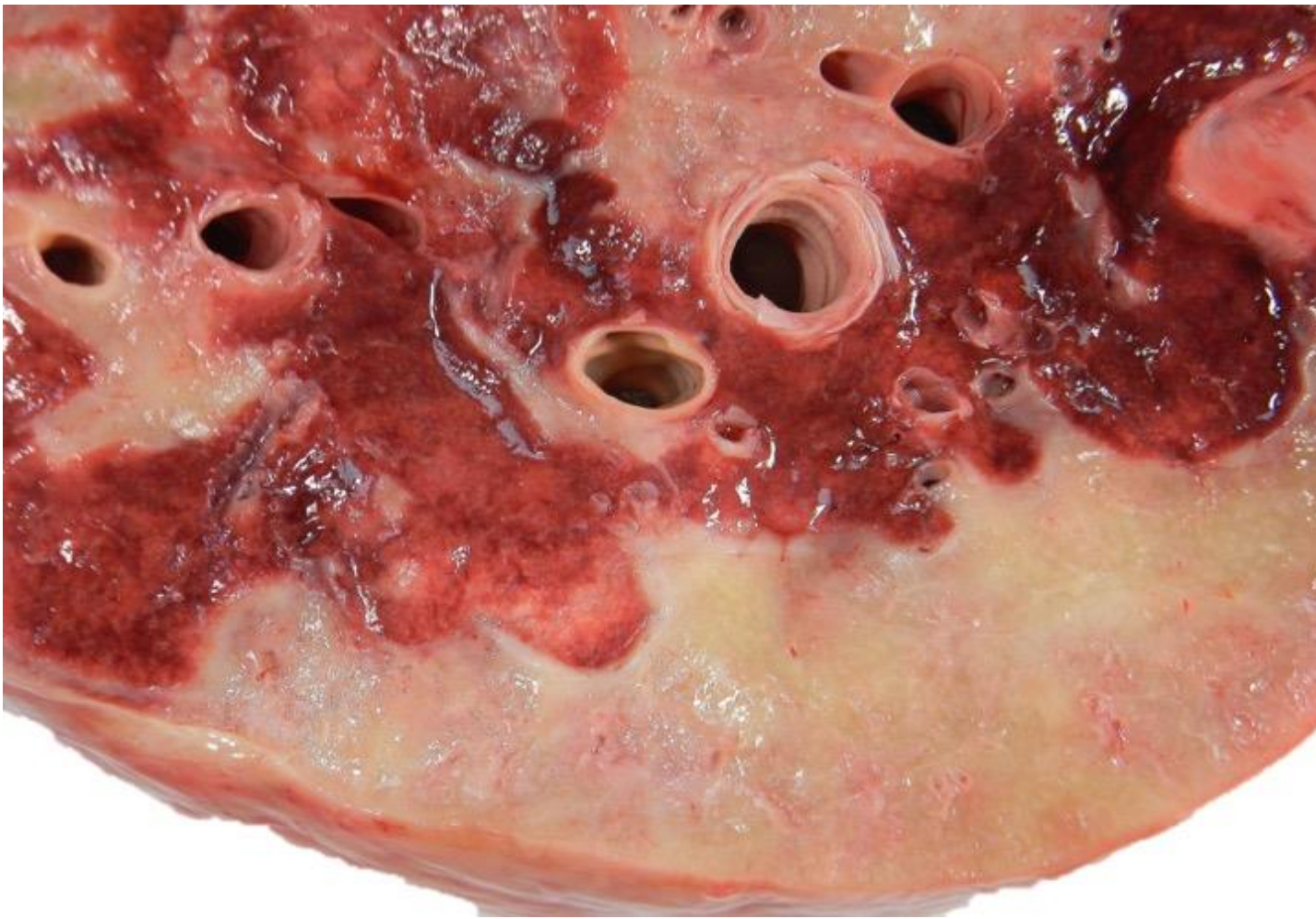




Tissue from a dog. Cilia-associated bacteria were identified on HE. What is the most likely cause of this lesion?

- a. **Bordetella bronchiseptica**
- b. Mycoplasma cynotis
- c. CAR bacillus
- d. Proteus mirabilis

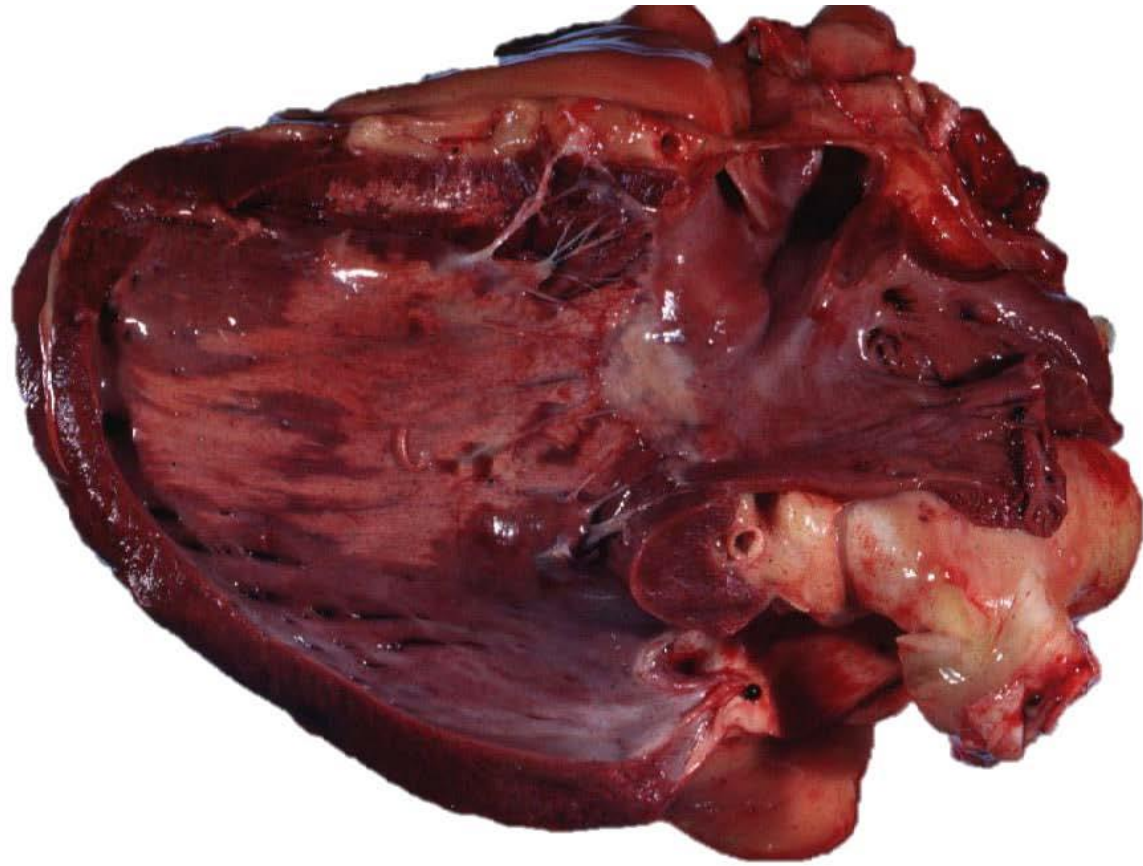
Taha-Abdelaziz K et al. Ciliary-associated bacteria in fatal Bordetella bronchiseptica pneumonia of dogs and cats. JVDI 2016 28(4) 369-376.



Tissue from a horse. What is the most likely cause of this lesion?

- a. An alpha-herpesvirus
- b. A beta-herpesvirus
- c. **A gamma-herpesvirus**
- d. A retrovirus

Williams et al. Gammaherpesviruses and Pulmonary Fibrosis: Evidence From Humans, Horses, and Rodents. *Vet Pathol* 2014 Mar;51(2):372-84.



Tissue from an adult horse. Name the most likely cause?

- a. **Cantharidin toxicity**
- b. Equine herpesvirus-1
- c. Equine aphthovirus
- d. Halicephalobus gingivalis

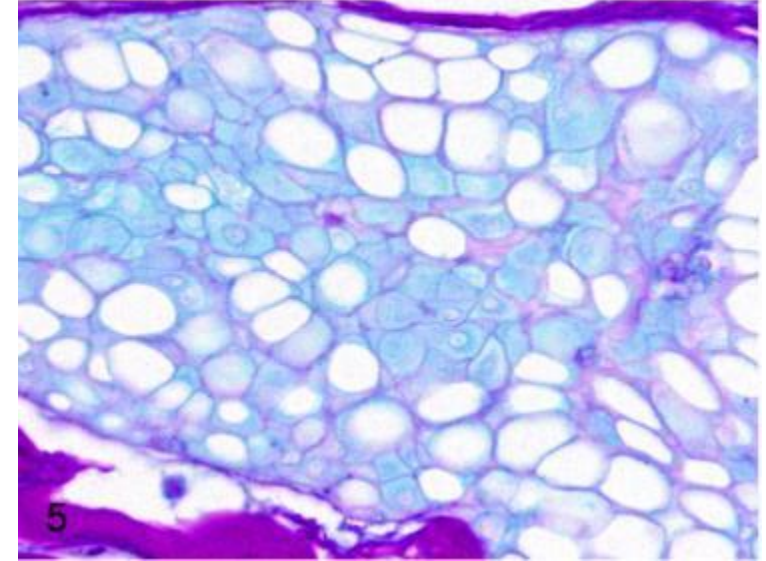
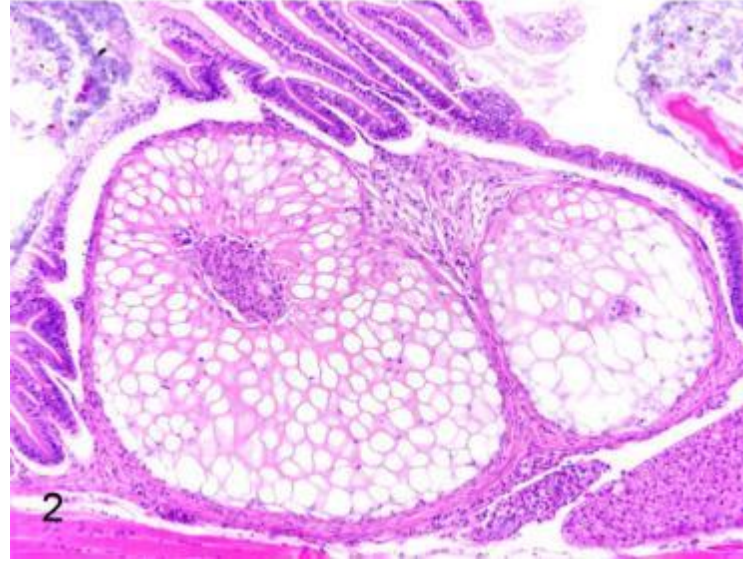
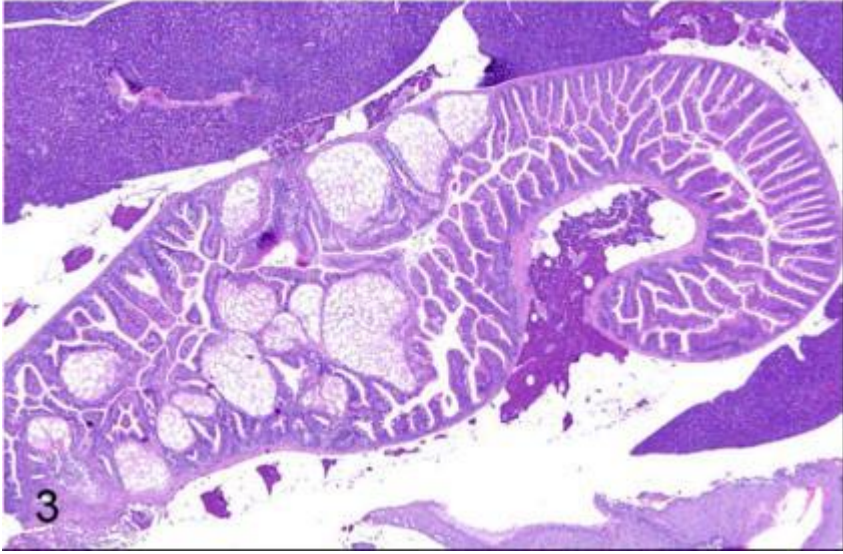
JKP, vol 2, pg 52



Tissue from a chimp. What is the most likely cause of this lesion?

- a. Poxvirus
- b. **Papillomavirus**
- c. Polyomavirus
- d. Herpesvirus

Nonhuman primates in Biomedical Research, pp 34-35.



Tissue from an aged zebrafish. What is the diagnosis?

- a. Liposarcoma
- b. **Chordoma**
- c. Chondroma
- d. Hibernoma

Alcian blue stain with  
hyaluronidase digestion

Cooper, T. Primary Intestinal and Vertebral Chordomas  
in Laboratory Zebrafish. *Vet Path* 52(2) 388-392



Avian Disease Manual, 7<sup>th</sup> ed., pp 62-66.

Tissue from a chicken. Name the disease

- a) Avian metapneumovirus
- b) Avian Influenza
- c) Splenomegaly
- d) **Newcastle Disease**



The mouse strain most resistant to the disease is:?

- a. BALB/C
- b. CBA
- c. CD1
- d. **B6**

Percy and Barthold Pathology of  
Laboratory Rodents and Rabbits, p.22



- Tissue from a white-tailed deer. What is the cause of this lesion?
- a. Viral infection of the horn bud
  - b. Mutation in p53
  - c. **Disruption in testosterone production**
  - d. Trauma

Munk, BA et al. Antleroma in a free-ranging white-tailed deer. *Vet Path* 2015; 52(1) – 213-216

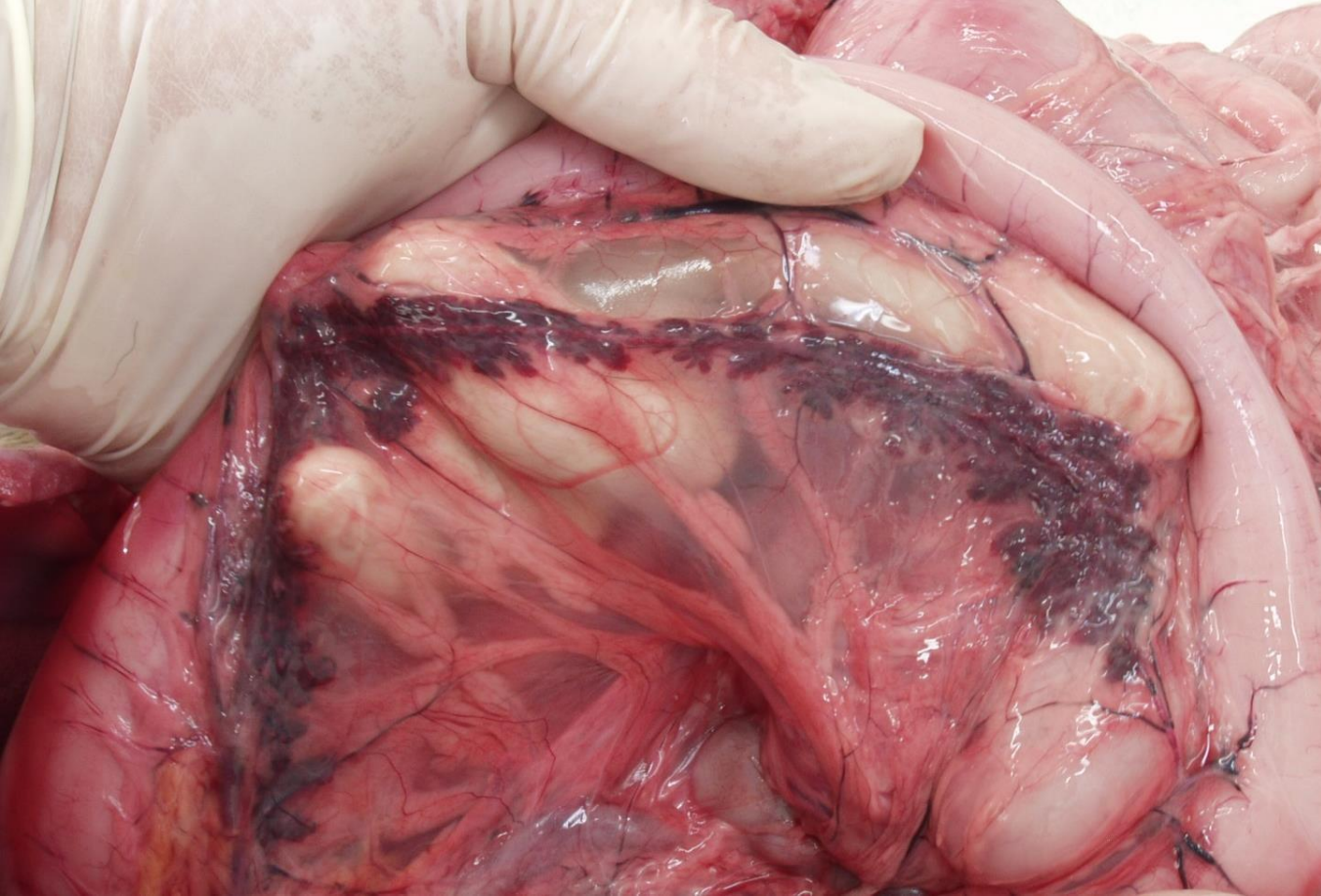




Tissue from a guinea pig. Name the most likely cause:

- a. *Yersinia pseudotuberculosis*
- b. *Streptococcus equi* var. *zooepidemicus*
- c. ***Streptococcus pneumoniae***
- d. *Bordetella bronchiseptica*

Percy and Barthold Pathology of  
Laboratory Rodents and Rabbits,  
p.228-230



Tissue from a German Shepherd dog. What is the cause of this lesion?

- a. Incomplete development
- b. Blockage of the pancreatic duct
- c. **Autoimmunity**
- d. Zinc deficiency

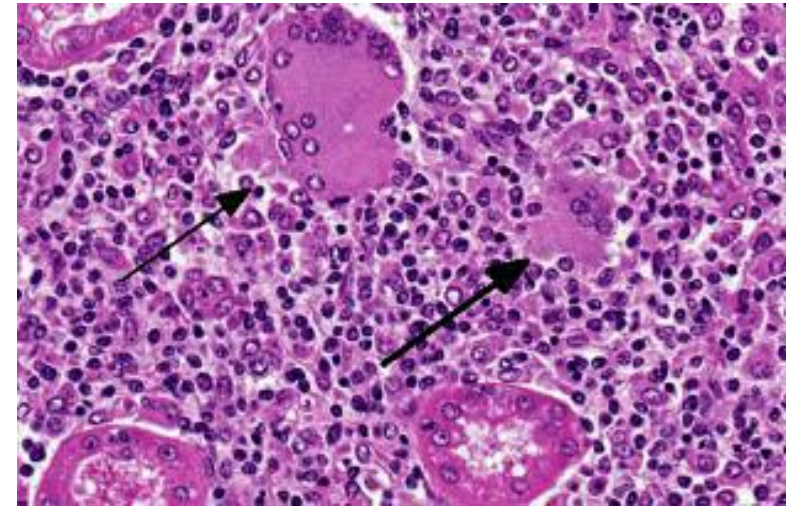
JKP, vol 2, p. 362



Tissue from a cat. Name the most likely outcome.

- a. Visceral metastasis, often to the liver.
- b. Nothing. The cat's eye just looks weird.
- c. **Glaucoma**
- d. Metastasis to the local lymph node.

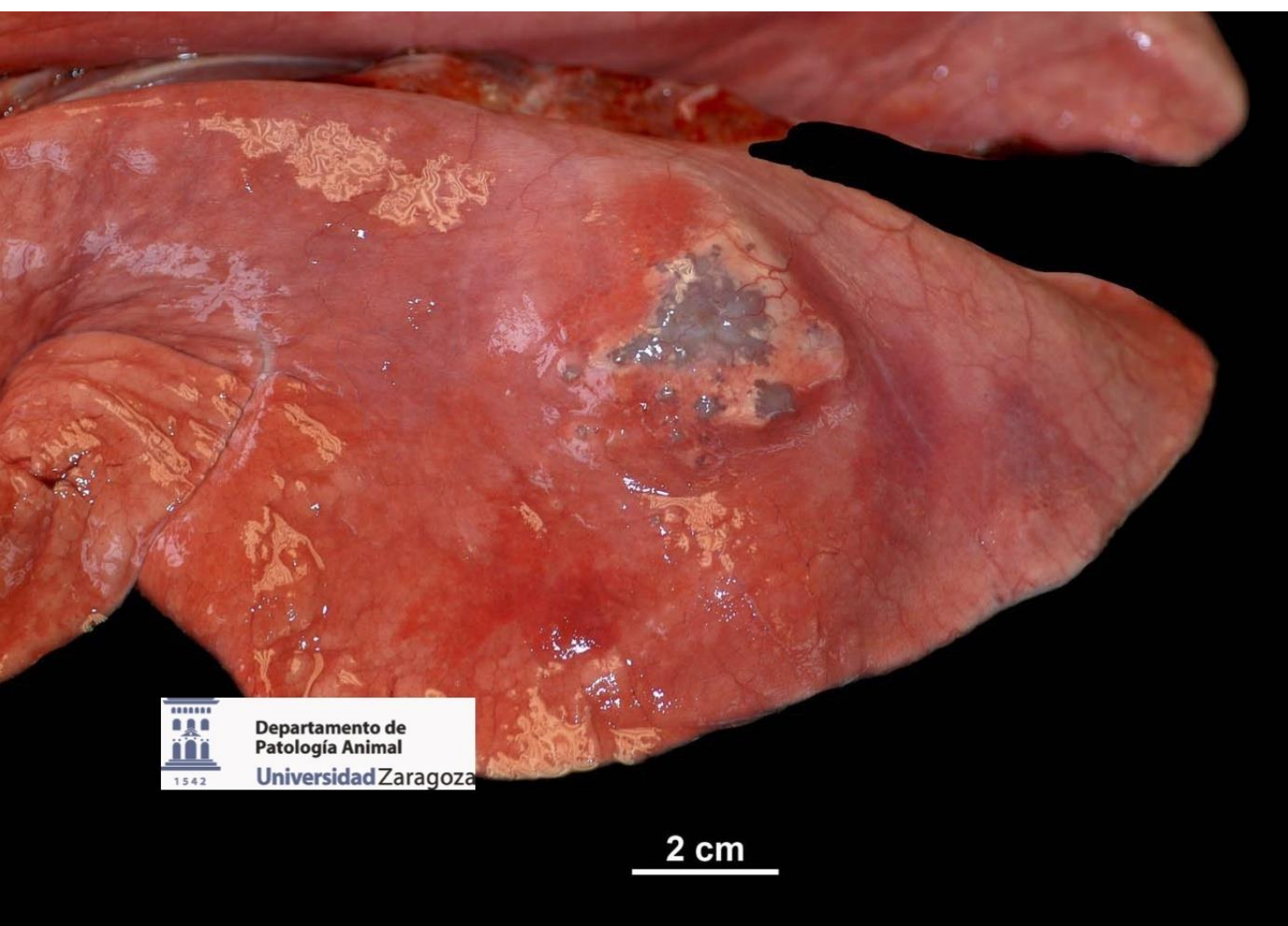
JKP, vol 1, pp 483-484.



Tissue from an ox. Similar lesions are often seen in what other organ?

- a. Liver
- b. Lung
- c. **Heart**
- d. Brainstem

JKP, vol 3, p. 43



Tissue from a sheep. What is the most likely diagnosis?

- A. **Pulmonary adenocarcinoma**
- B. Pulmonary muelleriasis
- C. Ovine progressive pneumonia
- D. Mycoplasmal pneumonia

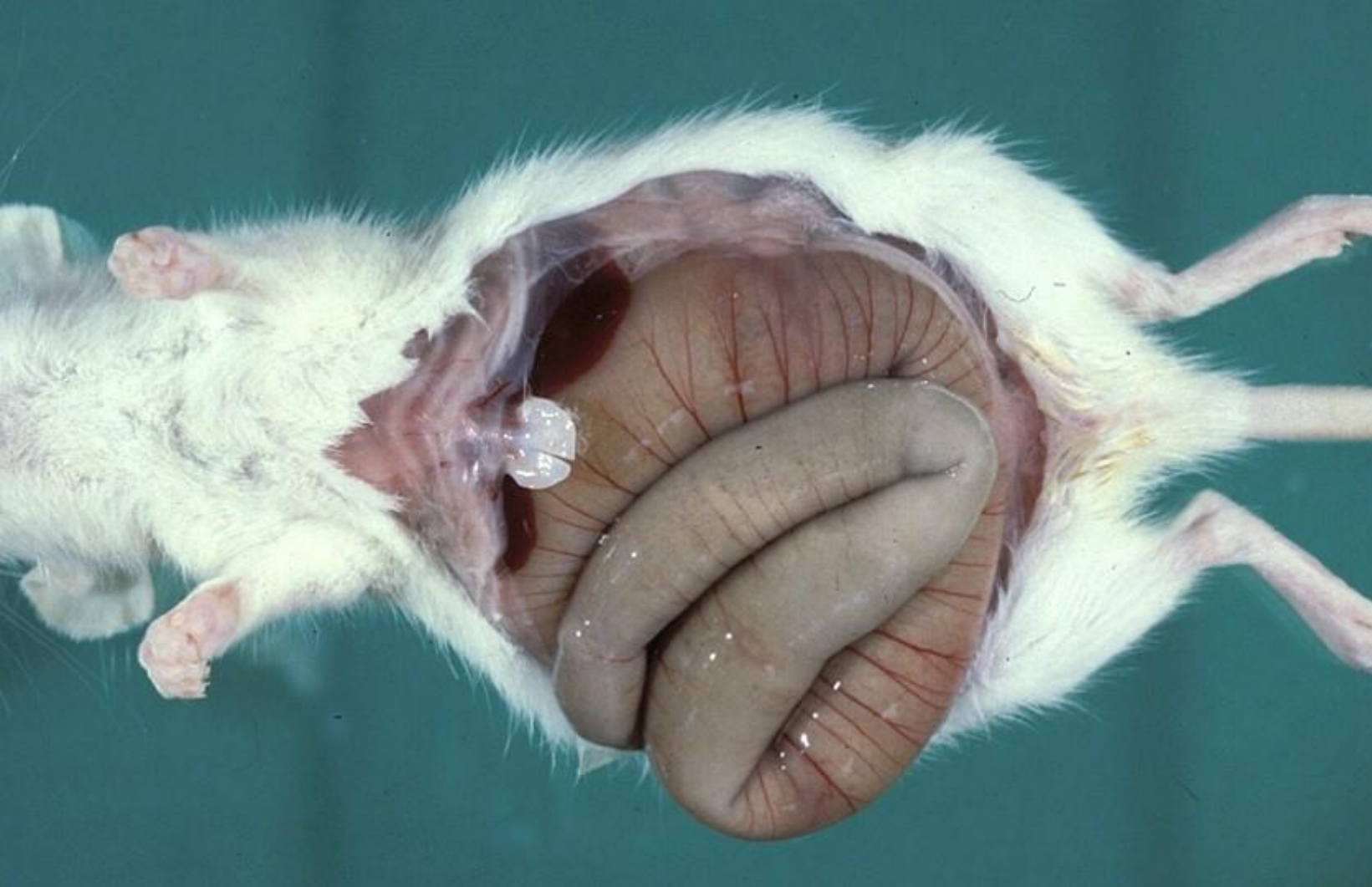
JKP Vol. 2.  
page 561



Tissue from a duck infected with H5N1 virus. What was the precipitating histologic lesion?

- a. **Loss of corneal endothelium**
- b. Anterior uveitis
- c. Rupture of Descemet's membrane
- d. Type III hypersensitivity to corneal stromal antigens.

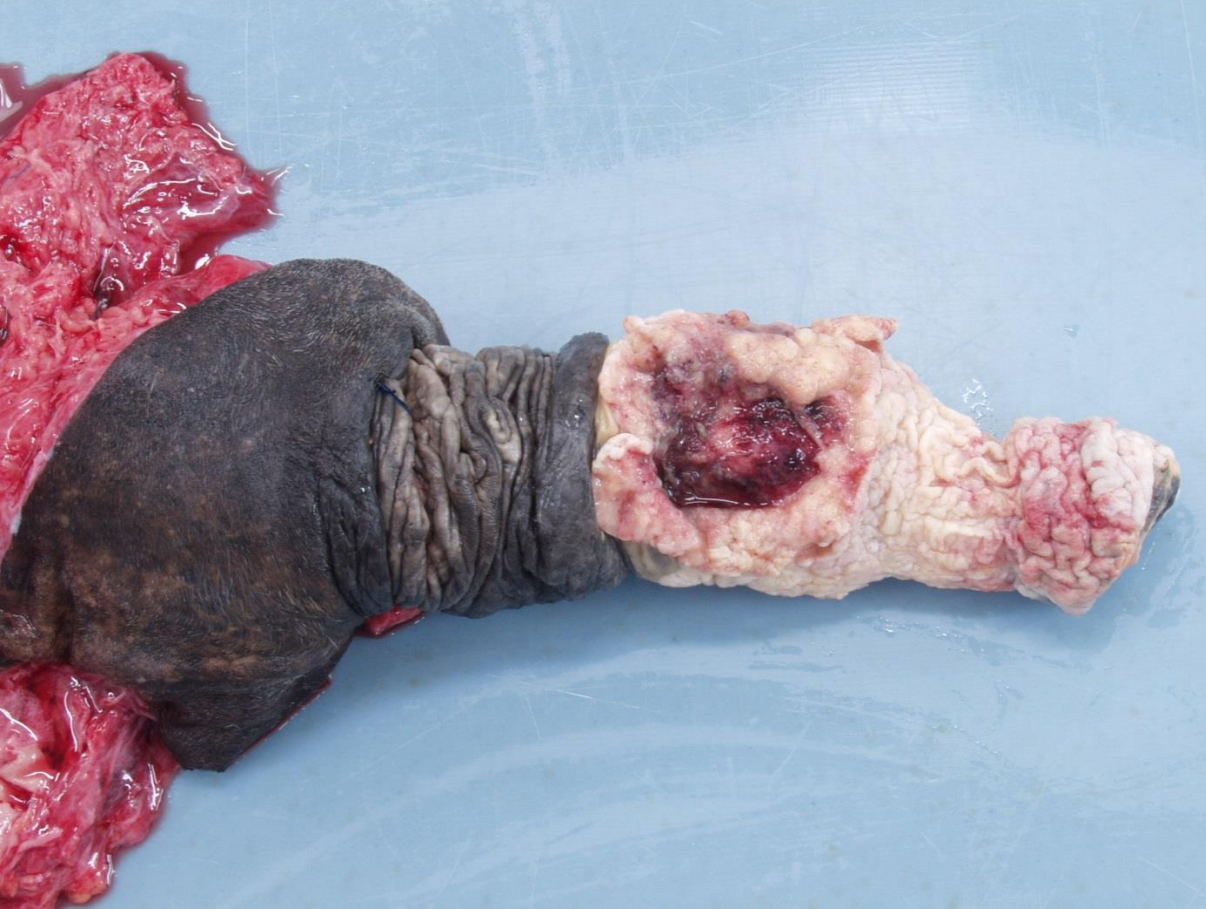
Yamamoto, , p. 162



Tissue from a rat. Cause?

- a. *Citrobacter rodentium*
- b. **IP injection of chloral hydrate**
- c. Atresia ani
- d. Rectal stricture

Percy and Barthold, p. 162



Tissue from a horse.. What was the precipitating viral infection?

- a. EcPV-1
- b. **EcPV-2**
- c. ECPV-3
- d. BPV-1

Zhu, KW et al. Equine genital squamous cell carcinoma: In situ hybridization identifies a distinct subset containing Equus caballus papillomavirus 2. Vet Pathol 2015 52(6): 1067-1072.





Tissue from a pig. What is the cause?

- a. Finely ground feed
- b. **Endotoxemia**
- c. Gastric volvulus
- d. Ingestion of T-2 toxin

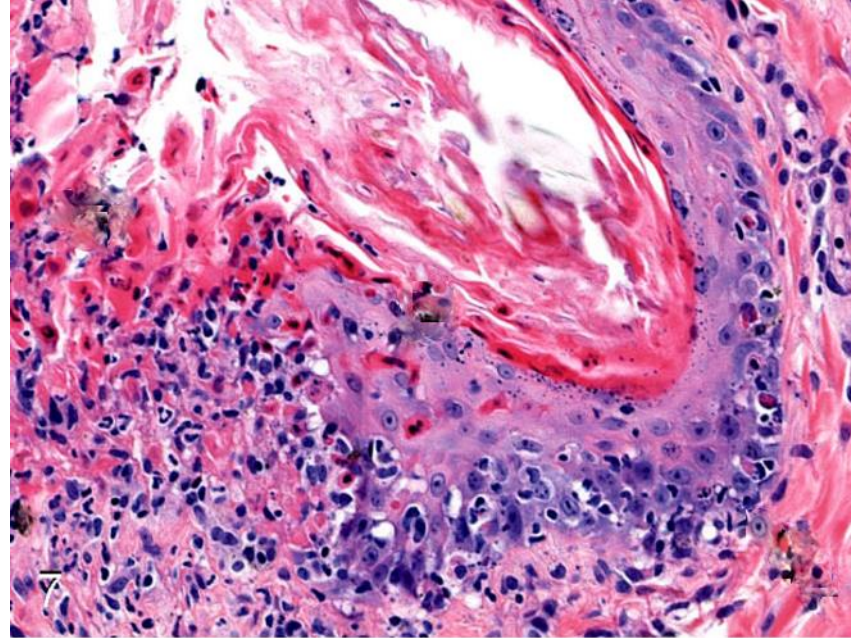
JKP, vol 2, p. 51



Tissue from a dog. What is the cell of origin for this tumor?

- a. Schwann cell
- b. T-cell
- c. B-cell
- d. **Histiocyte**

JKP, vol 3, p. 448-449



Clinical and Microscopic Characteristics of  
Canine Toxic Epidermal Necrolysis. Vet Pathol.

First Published June 6, 2014; pp. 321–330

Tissue from a dog. What is the most likely diagnosis?

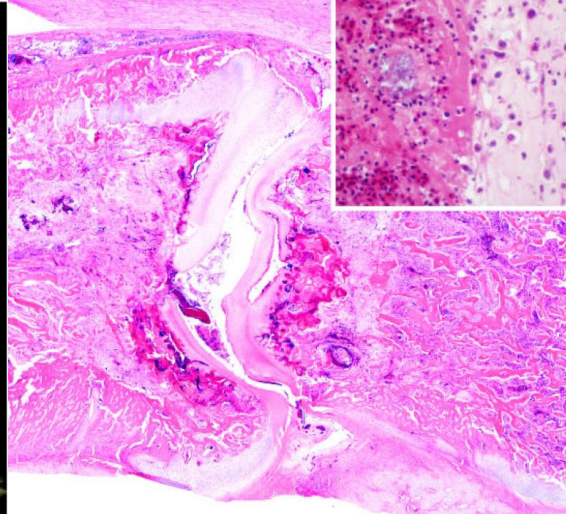
- A. **Toxic epidermal necrolysis**
- B. Pemphigus foliaceus
- C. Cutaneous lupus erythematosus
- D. Thermal burn
- E. Superficial necrolytic dermatitis



Solitary Large Intestinal Diverticulitis in  
Leatherback Turtles (*Dermochelys  
coriacea*) Vet Pathol 2015 52(4)

Tissue from a leatherback sea turtle. This lesion has which of the following characteristics?

- A. Mucosal proliferation/hyperplasia
- B. Commonly occurs in the ileum
- C. Common cause of death in this species
- D. Attenuation of muscular layer**



Pathogenesis of Enterococcal Spondylitis  
Caused by

*Enterococcus cecorum* in Broiler Chickens.  
*Veterinary Pathology*. 2017, Vol. 54(1) 61-73.



Tissue from a broiler chicken: Which of the following is associated with the pathogenesis of this condition?

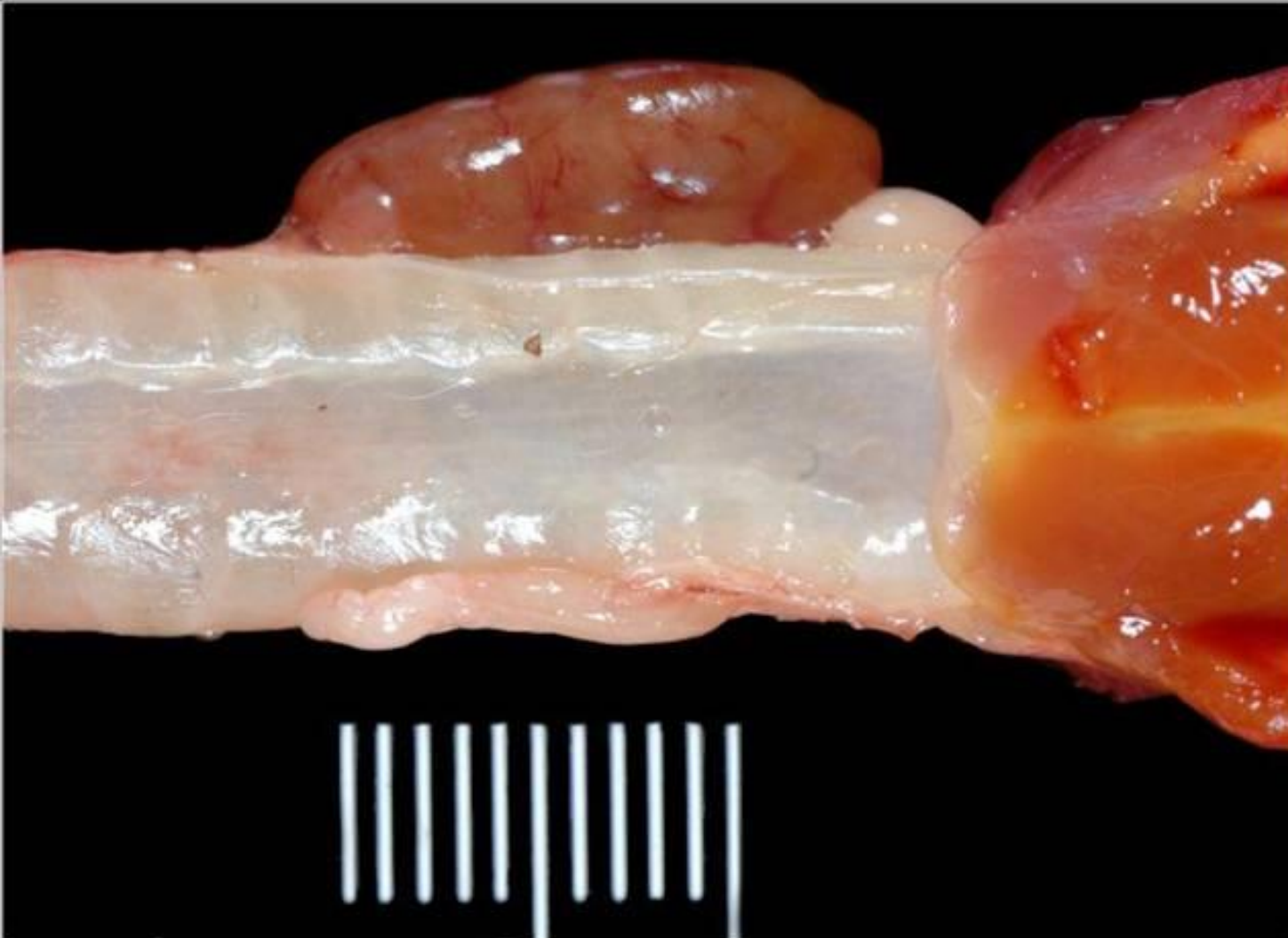
- A. Viral infection early in life
- B. Gram negative bacteremia
- C. Clinical enteritis
- D. **Osteochondrosis dissecans**



Avian disease  
manual pages 103  
and 106

Tissue from a chicken. What is a possible cause?

- A. *Bordetella avium*
- B. *Avibacterium paragallinarum*
- C. *Mycoplasma gallisepticum*
- D. **B & C**



JKP Volume 3 page 327-329  
Thyroid adenomatous hyperplasia

Tissue from a cat. What is an associated finding?

- A. Elevated TSH
- B. Hypophosphatemia
- C. Diffuse Chief cell hyperplasia**
- D. Markedly distended follicles in affected areas

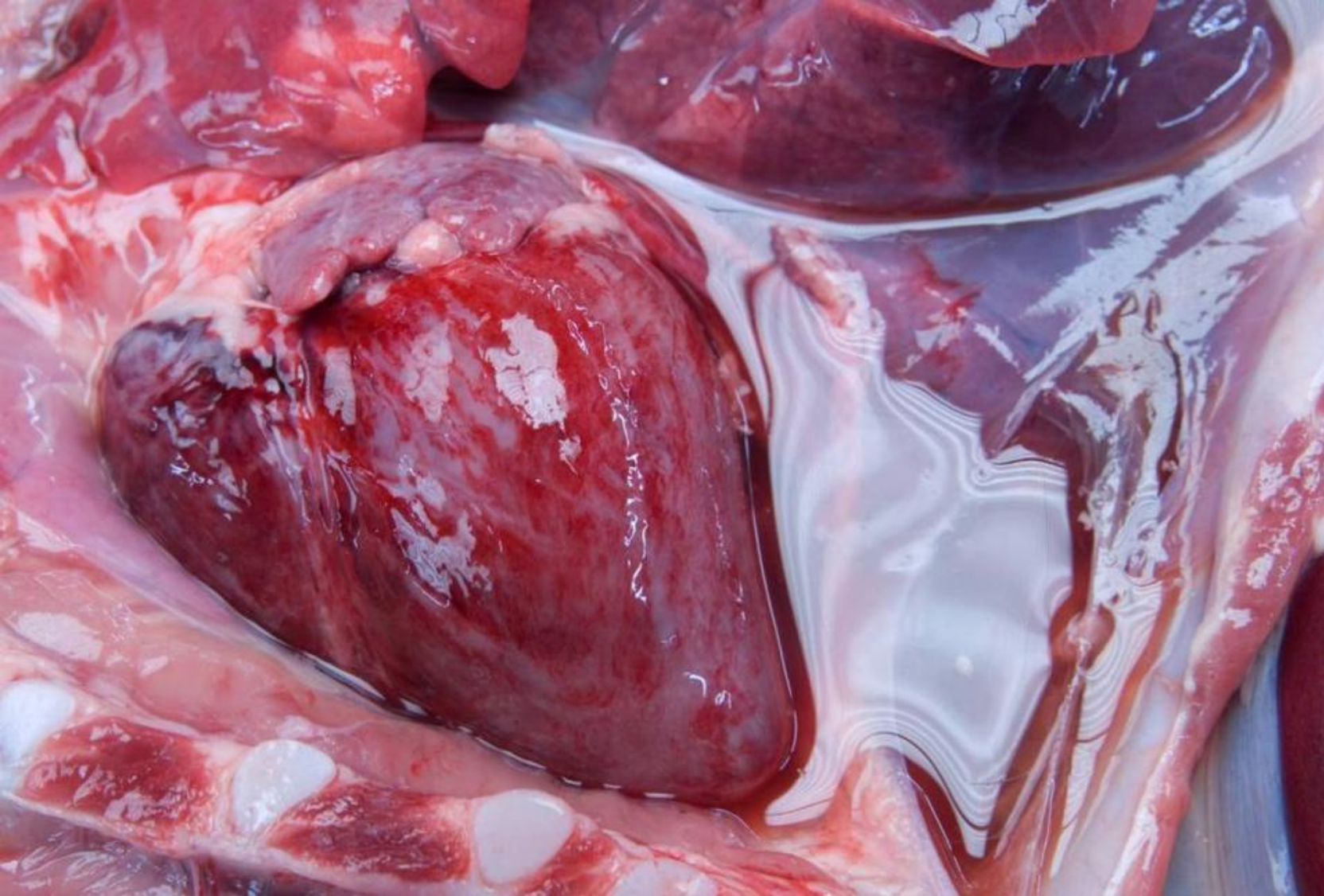


JKP Volume 1 page 314  
Nigropallidal  
encephalomalacia,  
yellow star thistle or  
Russian knapweed tox

Tissue from a horse. What is the cause?

- A. Fumonisin B1
- B. Repin**
- C. Methylmercury
- D. Swainsonine





NHP in  
biomedical  
research. Pages  
363, 654

This is mulberry  
heart in a pig,  
vitamin  
E/Selenium def.

Tissue from a pig. The cause of this lesion results in what lesion or condition in non human primates?

- A. Cataracts
- B. Hepatosis dietetica
- C. Hemolytic anemia**
- D. Cerebellar hemorrhage



JKP Volume 1 page  
649-653

Tissue from an Ox. What is the cause?

- A. Capripox virus
- B. Bovine herpesvirus 2
- C. Dermatophilus congolensis
- D. Trichophyton mentagrophytes**



Barthold, Griffey  
and Percy, 4<sup>th</sup> ed.  
page 306

Tissue from a rabbit. A cardinal feature of this condition includes which of the following?

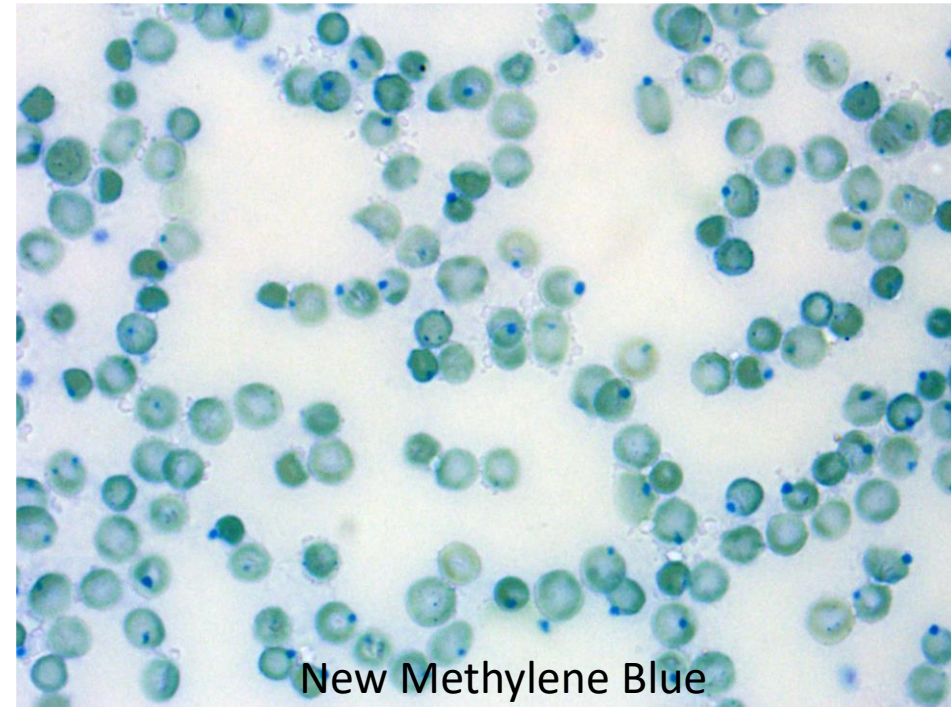
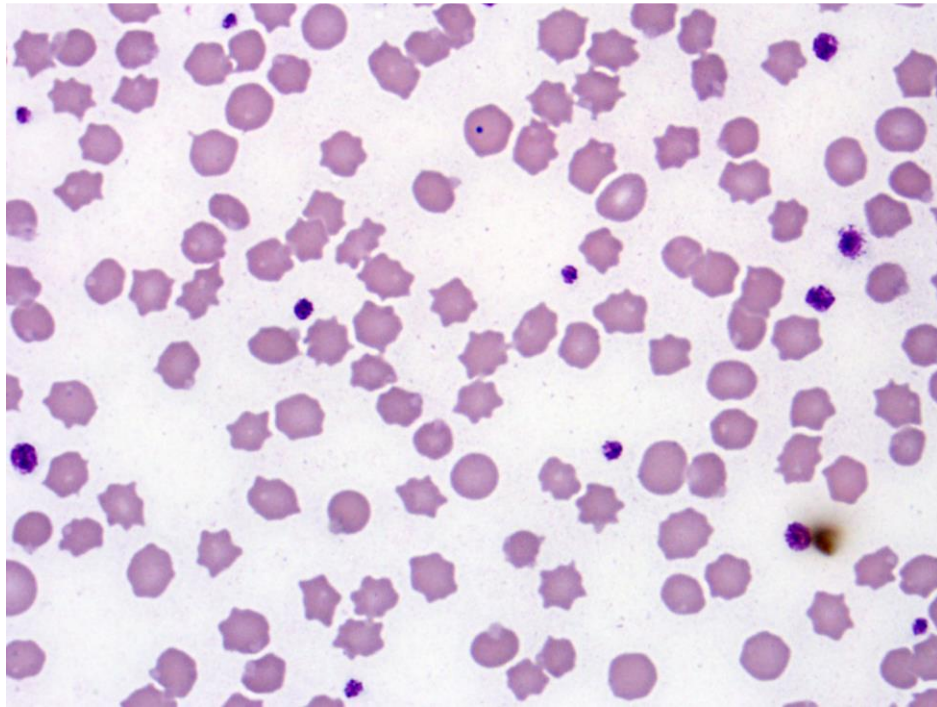
- A. **Gastric bloat**
- B. Ileal muscularis atrophy
- C. Gastric pyloric hypertrophy
- D. Lymphoplasmacytic colitis

- Evaluate the following clinical pathology data from a dog and select the most likely diagnosis from the list below.

Analyte	
Serum Calcium	↑
Serum Phosphorus	↓
Serum PTH	↓

- A. Renal secondary hyperparathyroidism
- B. Primary hyperparathyroidism
- C. Hypercalcemia of malignancy (D&P:300)
- D. Hypervitaminosis D

# Cat- Blood Smear



Which is the most likely cause?

- A. Acetaminophen toxicity (D&P table 1-2)**
- B. *Cytauxzoon felis*
- C. Pelger huet anomaly
- D. *Mycoplasma haemofelis*

- Evaluate the following clinical pathology data from a dog and select the most likely diagnosis from the list below.

Folate	↑
Cobalamin (B12)	↓
TLI	N

- A. Exocrine pancreatic insufficiency
- B. Proximal small intestinal disease
- C. Distal small intestinal disease
- D. Bacterial overgrowth (D&P:241)

- Evaluate the following clinical pathology data from a horse and select the most likely diagnosis from the list below.

Analyte	Patient	RI
Ammonia	406	7-49
Bile acids	4.9	0-19
Urea	45	11-26
Creatinine	2.0	0.9-1.9
GGT	10	5-23
AST	243	190-380
ALP	231	109-352
CK	749	80-446
Ca	8.5	11.0-13.5

- A. Cholestasis
- B. Colic (D&P:241)**
- C. Reduced functional hepatic mass
- D. Portosystemic shunt

- Evaluate the following results of a low-dose dexamethasone suppression test in a dog and select the most likely diagnosis from the list below.

	Cortisol		
	Pre-dex	4h-post	8h-post
Reference	0.5-6.0	<1.4	<1.4
Patient	5.0	1.0	3.5

- A. Pituitary dependent hyperadrenocorticism (S&S:816, 819)
- B. Functional adrenal tumor
- C. Hypoadrenocorticism
- D. Healthy (normal)



- Evaluate the following thyroid panel from a dog and select the most likely diagnosis from the list below.

TT4	Normal
fT4 <sub>ed</sub>	Low
TSH	High
TgAA	Positive

- A. Prolonged hypothyroidism with pituitary exhaustion
- B. Idiopathic 1° thyroid atrophy
- C. Lymphocytic thyroiditis with anti-T4 autoantibodies (D&P:307,309,310)
- D. Nonthyroidal illness (sick euthyroid)

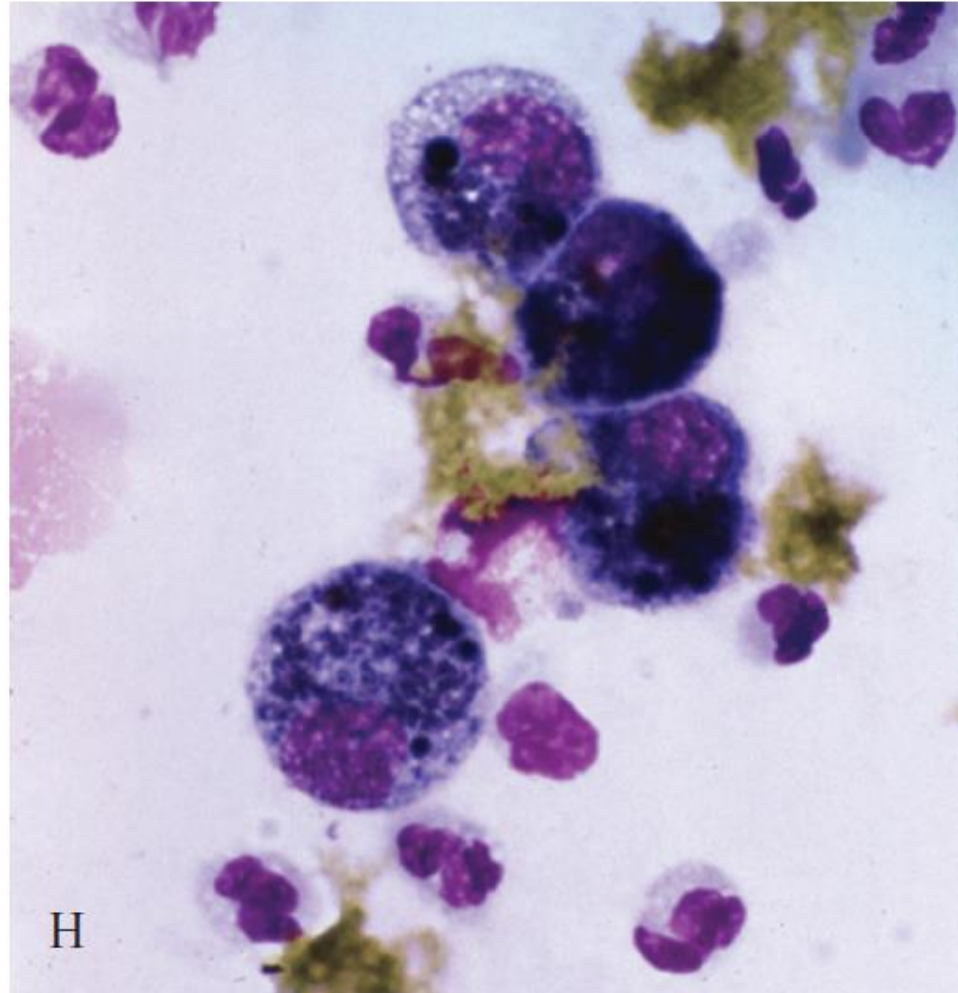
- Laboratory data from an ox:

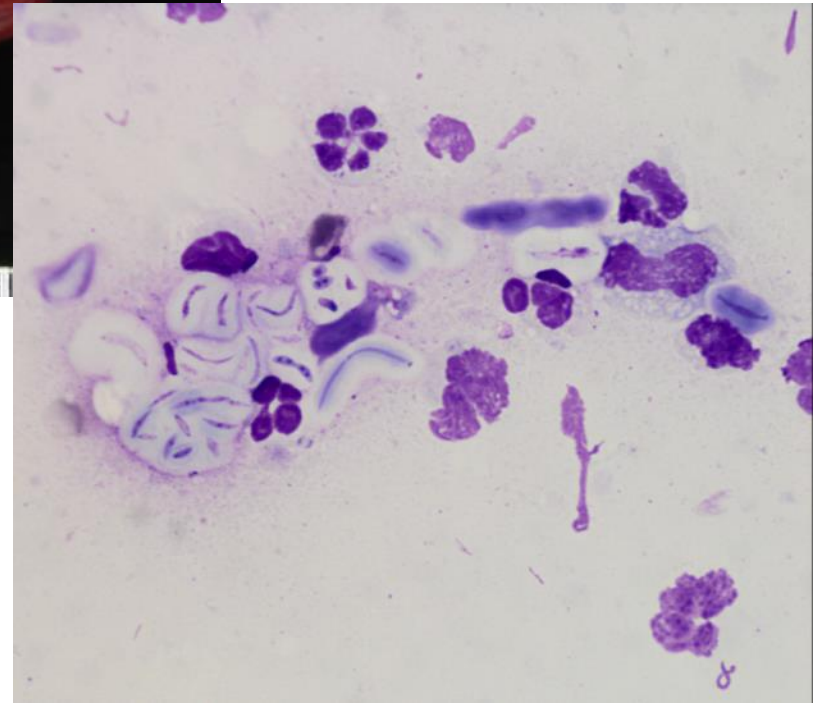
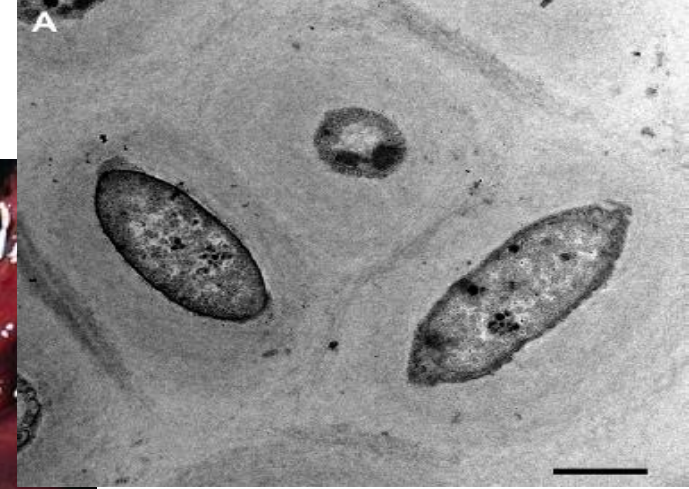
Test	Patient	RI	Units	Flag
Na	136	142-152	mEq/L	Low
K	3.0	3.9-5.1	mEq/L	Low
Cl	80	110-124	mEq/L	Low
TCO2	56	24-30	mEq/L	High

- What is the most likely diagnosis?
  - A. Ketosis
  - B. Diarrhea
  - C. Dehydration
  - D. Abomasal displacement

Cytology of abdominal effusion from a dog.  
What is the most likely cause?

- A. Cholelithiasis**
- B. GI rupture
- C. Hemoperitoneum
- D. Urinary bladder rupture

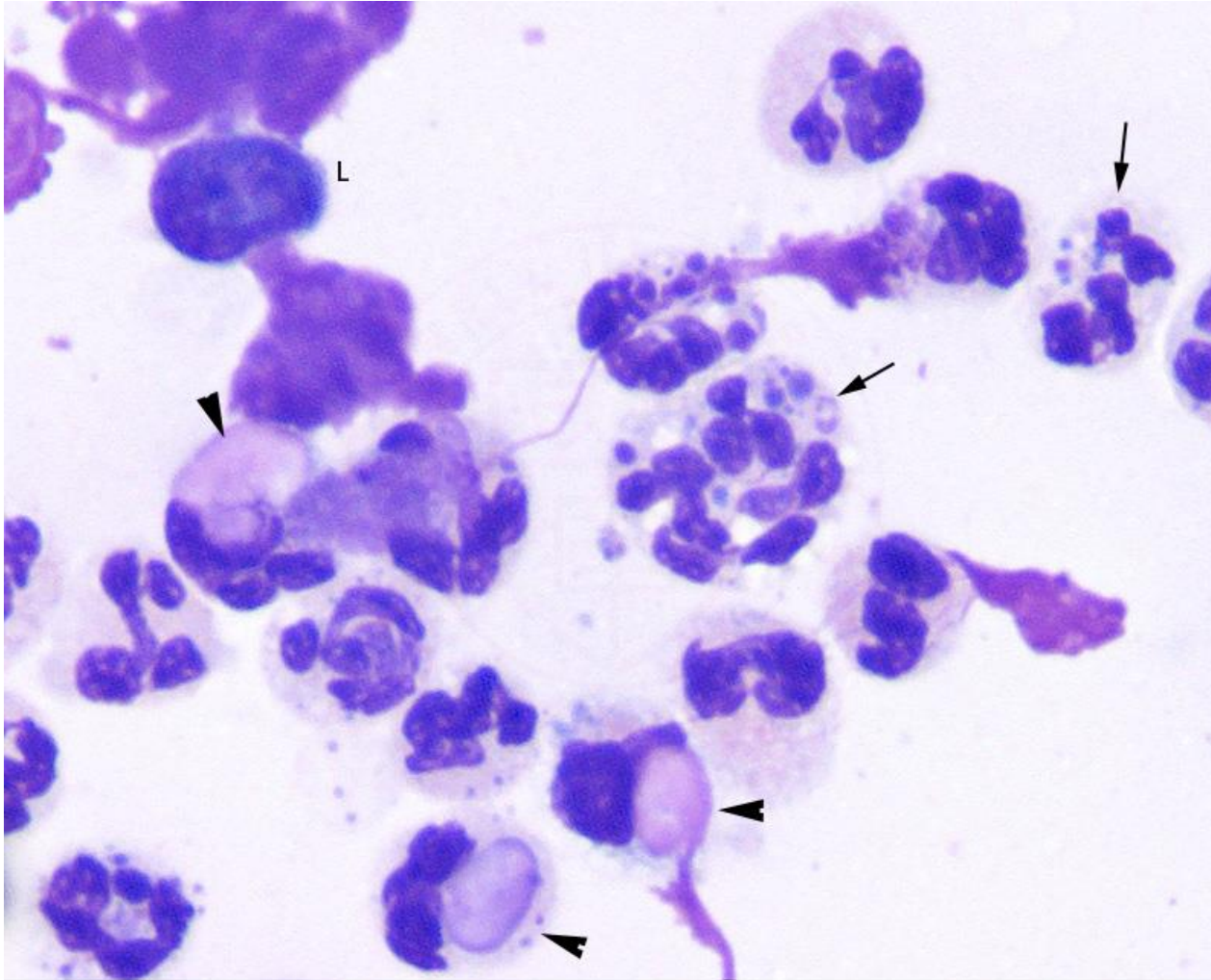




Which is the most likely cause?

- A. *Candida albicans*
- B. *Pseudomonas luteola*** (J Comp Path. 2015;152(2-3):114-118; J Comp Path. 2012;146(1):4-10)
- C. *Sporothrix schenckii*
- D. *Toxoplasma gondii*

# CAT with swollen carpi/tarsi: SYNOVIAL FLUID, Sediment smear

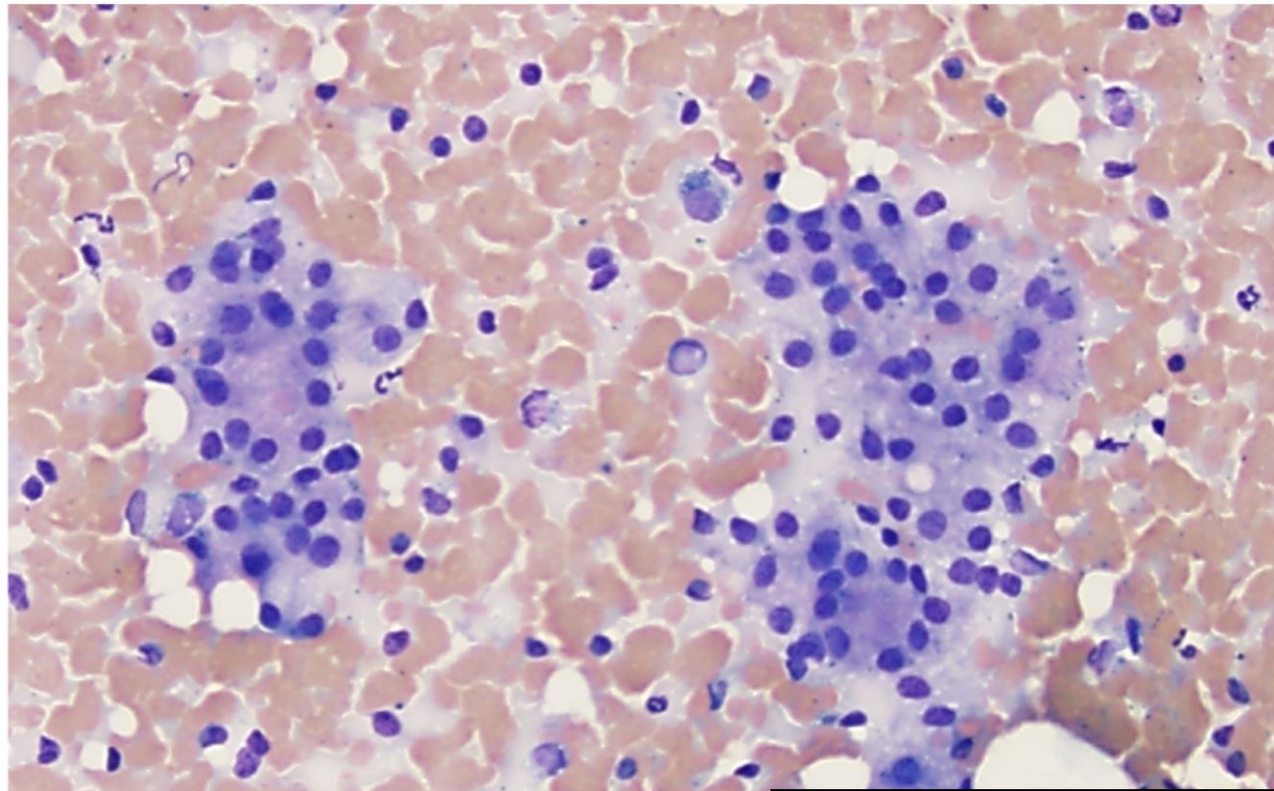


Which is the most likely diagnosis?

- A. SLE
- B. DJD
- C. *Ehrlichia* sp.
- D. Synovial cell sarcoma with secondary neutrophilic inflammation
- E. *Bartonella henselae*

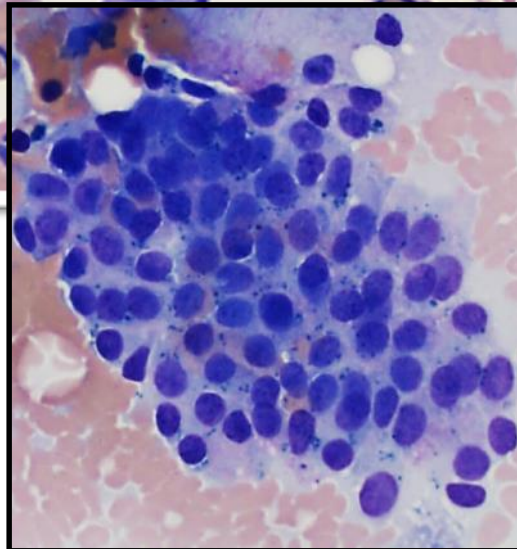
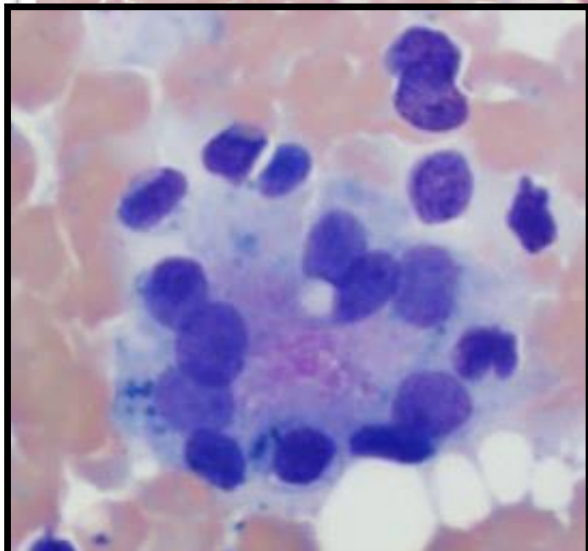
Nucleated cell count increased (>3,000/uL): primarily neutrophils, fewer lymphocytes

# Dog: Subcutaneous mass, ventral cervical region



What is the most likely diagnosis?

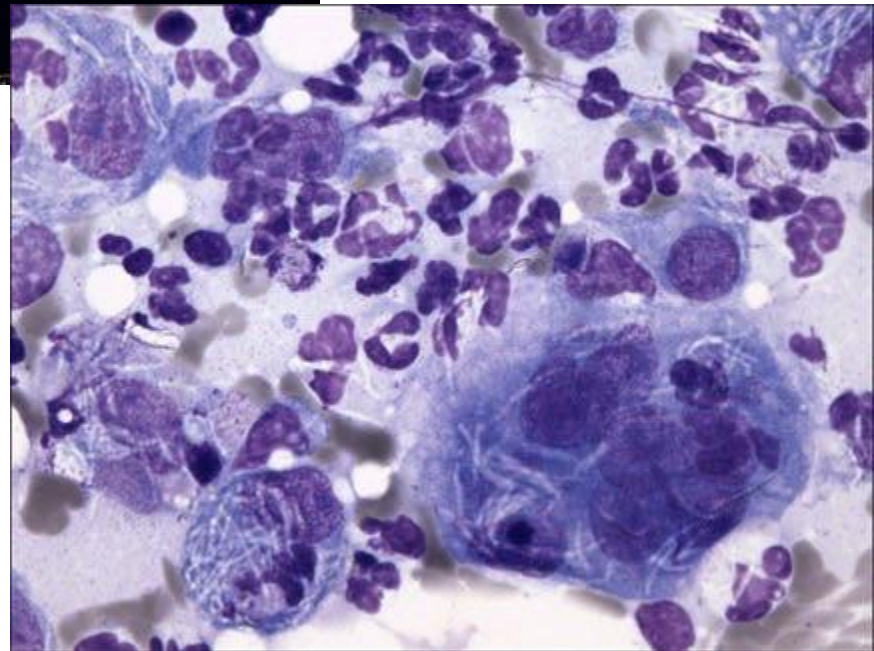
- A. Apocrine adenoma
- B. Lymphoma
- C. Salivary gland carcinoma
- D. Thyroid carcinoma**



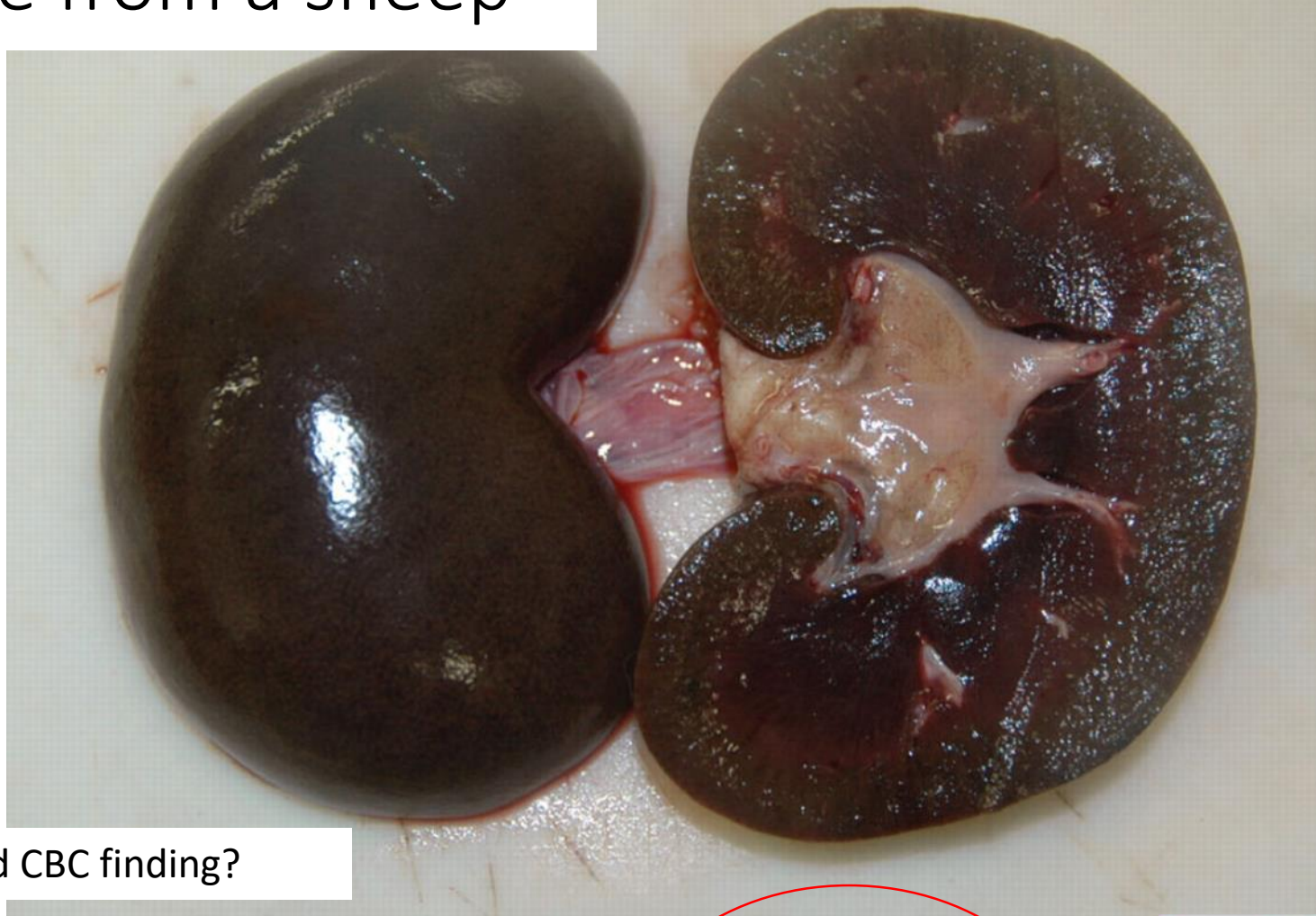


Tissue from a foal. What is the most likely diagnosis?

- A. *Actinobacillus equuli*
- B. *Aspergillus niger*
- C. *Clostridium piliforme***
- D. *Salmonella* sp.

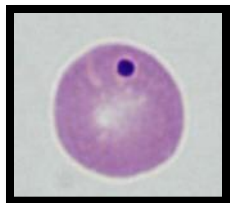


# Tissue from a sheep



Associated CBC finding?

**A**



**Howell-Jolly body** – nuclear remnant  
Regeneration, splenectomy

**B**



**Schistocytes**: shearing or  
turbulent blood flow

**C**



**Heinz bodies**: oxidative damage  
Denatured/precipitated Hb

**D**



**Microagglutination**: IMHA