DISCLAIMER
I copied/pasted these pics from Dr. Meuten’s lectures and used notes, etc for descriptions, ddx, etiology, signalment. I hope it is all correct, but if it’s not, I apologize. Please let me know if you find errors so I can update the self test.
Turkey. Dx?
• Pericarditis (hematogenous spread) [Chlamydiossis]
• Pig
• Ddx?
• Etiol?
• Pig: fibrinous peri+epicarditis, epicardial hemorrhages
• Ddx: Glasser’s Dz, Edema Dz, Mulberry heart Dz
• Etiologies: hemophilus, E. coli, VitE/Se
• Cow. Describe lesions. Signs? Ddx? When would it most likely show?
• Cow: TRP
• Signs: dec. production/wt. loss, hunched, muffled heart sounds, CHF (jugular pulse), sternal thrust response,
• Ddx: TRP, LSA, cardiomyopathy, endocarditis
• Most likely see in late gestation
Cow: Describe & Ddx
• Aged severe TRP showing fibrin + fibrous deposits
• Cow: Describe & Ddx
• Restrictive constrictive pericarditis from TRP
• Progression from early fibrinous to restrictive pericarditis
• Goat. Describe. Ddx.
• Fibrinous pleuritis pericarditis
• Pleuropneumonia - Mycoplasma
• Pig. Small intestine. Describe, Ddx
• Shiny wet clear (NOT fibrinopurulent) Edema Dz. Vasculitis
- Describe. Ddx for cow, horse, cat
• Pyothorax, septic fibrinopurulent pleuritis + pericarditis
• Cow: shipping fever (Pasteurosis); Eq= shipping fever (Strep); Cat= bite wound => lung abscess rupture
• Name the lesion.
Hematocyst
• Name the lesion
• serocyst
• Dog. Describe lesions. Dx
• Glistening nodular white AV valves. No inflammation. Marked dilation of R atrium
• Endocardiosis.
• Dog. Describe lesions. Dx
• Valve with white-yellow to red, crumbly, dry dull lesions (all signs of inflammation)
• Valvular endocarditis
• Describe lesions. Ddx?
• White/pale foci
• Ddx= cells (neoplasia, inflamm), tissue (fat, bone, fibrous), necrosis (myoglobin gone), mineralization
• Describe lesions. Etiologic Ddx for ‘gritty’ lesions?
• Mineralization
• WMD – Vit E Se responsive
• Uremia
• Vit D
• Hypercalcemia (Ca X P >90)
• Brain heart
• Idiopathic
• Describe lesions. Give Dx. Etiologies?
• Dx= Brain Heart syndrome
• Myocardial lesions: white foci of degeneration & necrosis 2* to neural lesions
• Neural lesions: dunno
• Etiologies: AGD, Trauma
Describe each lesion
• Myocardial degeneration; endocardial mineralization; myocardial fat
• Dog. Describe lesions. Ddx?
• Multifocal flat white lesions on L
• Multifocal raised sessile white lesions/masses on R
• lymphoma
• Dog. Describe lesions. Ddx?
• Glistening, nodular valve & ventricular hypertrophy
• endocardiosis
• Dog. Describe lesions. Ddx?
• Nodular white glistening valve. Enlarged cardiac silhouette
• endocardiosis
What are your diagnoses for each of these?
• L=endocardiosi
• R=valvular endocarditis
• Cow. RAVvalve. What is the lesion
• Lesion=valvular endocarditis
• 2 problems: incompetent valves, emboli
• What happens w/ emboli in L vs R?
• Name the lesions
• Bottom L = valvular endocarditis
• Other 2 = mural endocarditis
• State inflammatory lesion & pathogenesis. Etiologies? Sequelae?
• Valvular endocarditis
• Pathogenesis: trauma, clot, sepsis
• Etiologies: trauma, stenosis (AV=dog/cat)(SL=cow), IVSD
• Sequelae: thromboemboli – if pulmonic => could bleed out thru lungs; if coronary => emboli can cause infarcts, myocarditis + abscesses
- State lesion. How common?
• Myocardial infarct
• RARE
Endocarditis

Antemortem Clinical
Mild to CHF to Death
F/UO (UFO6) - fever undetermined origin - endocarditis; immune mediated
Multisystem disease/problems
endocarditis

NONCARDIAC lesions - cardiac disease
Pulmonary edema, dyspnea, orthopnea etc. LIVER
LAME?

MURMUR
SEE - flow, ultrasound

Clinical findings in 61 dogs with endocarditis:
- Fever (T° > 103° F) 42 (70%)
- Murmur 45 (74%)
- L lamenessness 21 (34%)

Clinical Pathology results:
- Monocytosis 53 (90%)
- Leukocytosis 48 (81%)
- Anemia 35 (60%)
Endocarditis

Horses - S. vulgaris - Aortic

Pigs - Erysipelothrix

Sheep - Strep,
Cattle - right AV
Animal, all species
Young animals, all species - Strep.; anomalies
Mural - Cattle - Clostridium
                  Ary - Jugular catheter
Cat - Cardiomyopathy
Dog - Strep, Staph, Enterobacter, Bartonella

[- intima of aorta
[- aortic semilunar valves
[- source - tail docking, castration,
[- teeth extractions
tail docking, castration
Describe lesion. Ddx? Etiology?
Description: arteritis, intestinal infarct (thromboembolic colic)

Ddx: valvular endocarditis 2’ to S.vulgaris

Etiology: focal trauma-induced endothelial disruptoin on the surface of valves allows bacteria to adhere, proliferate, and initiate inflamm rxn resulting in deposition of fibrin
• L=cat; R=cow; describe/Ddx
• Mural endocarditis
  – Cat= d/t cardiomyopathy
  – Cow=d/t C.chauvoei
• Describe lesions; Ddx
• Cardiomegaly
• idiopathic
• Describe; Ddx
• Pale foci; NO cardiomegaly
  – Toxins: monensin; adriamycin
  – Mineralization:
  – Nutritional: WMD(vitE/sel resp), mulberry heart, hypercalcemia, brain-heart
  – Viral: corona, parvo
  – Bacterial
  – Ischemia: emboli, atherosclerosis, GDV
• Describe, Ddx, etiology?
• Cardiomegaly
• LV hypertrophy
• Hyperthyroidism (cats)
  – Notice NO THROMBI
• Cat: describe; Ddx; pathogenesis
• Cardiomegaly
• Cardiomyopathy 2’ to hyperthyroidism
• Inc BMR=> inc tissue demand for O2=> inc CO=> inc O2/protein synth by myocytes
• Turkey: Ddx
• Cardiomyopathy (round heart dz)
  – idiopathic
• Chicken: Ddx
• Cardiomyopathy (ascites syndrome)
  – Gray, gelatinous material in abd
  – Transudate to mod. trans
Cat: describe lesion
• Cardiac tamponade
• Dog: describe
• Dilatory cardiomyopathy
• Describe lesion(s); Ddx.
• Dilated right side
• Aneurysm of PA and aorta
• PDA
• Name most common breed/species affected.
• #1: Dogs: mini/toy poodles, saluki, GSD, shelties, collies, pom
• #3: cow/horse
• #4: cat
• Describe lesion(s); Ddx.
• Aneurysm (aorta)
• Cardiomegaly
• Hydrothorax
• Hepatomegaly
• PDA
• Describe
Pulmonic stenosis

- Top L: prevalvular
- Top R: valvular
- Bottom: postvalvular
• Name the common breed/species affected
• Describe clinical signs
• #2 dogs: beagle, newfoundland
• Asymptomatic to R sided heart failure
• CPC-L
• Exercise intolerance
• Ascites
• Describe lesion(s). ID fluid type. Ddx.
• Hepatomegaly
• Nutmeg liver
• Ascites
• Modified transudate
• Pulmonic stenosis
• Describe lesion. Ddx.
• Severe LV hypertrophy
• Aortic stenosis
• Name common species/breed affected.
• Describe clinical signs
Aortic stenosis

• #3 dog: G.retriever, rott, GSD, newfoundland, boxer
• Asymptomatic
• Sudden death
• Pulmonary edema/dyspnea
• endocarditis
• Describe lesion(s). Ddx.
• Marked endocardial fibrosis from LV turbulence
• IVSD
• Name species/breed commonly affected
IVSD

• #1 horse: arabians, TBs
• #1 cattle: assoc w/ microphthalmia in Herefords
• Dog: bulldog, keeshond
• Ddx. species commonly affected. Clinical signs.
• Interatrial septal defect
• Aka: patent foramen ovale
• Pigs
• #1 cats
• Asymptomatic, exercise intolerance
  – Depends on severity
• Name the four anomalies associated w/ tetralogy of the Fallot
• Clinical signs
• signalment
Tetralogy of the Fallot

- IVSD, pulmonic stenosis, overriding aorta, RV hypertrophy
- Reduced blood to lungs
  - Dyspnea, cyanosis, 2’ polycythemia d/t hypoxia
- Uncommon, but most common cyanotic
  - #2 cattle, horse
  - #2 keeshonds
• Describe condition.
• provide differentials.
megaesophagus

- Vascular ring anomaly
- M.gravis
- Foreign body
- idiopathic
• Which shunt is congenital/acquired?
• Why?
• Top: congenital: hypoplastic, small lobules
• Bottom: acquired: severe lesion (cirrhosis, neoplasia, etc.)
- ID condition.
- Clinical signs.
shunt

• Wt loss
• Hepatic encephalopathy
  – Head press, biting, circling, lethargy
### PORTOCAVAL SHUNTS

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<thead>
<tr>
<th>Analyte</th>
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<th>Acquired</th>
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<td>Present</td>
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• Describe lesions.
• Left: fibroelastosis
• Right: valvular dysplasias
• most common CV anomalies in cats
  – As well as PDA and AV septal defect
• Describe lesion
• Etiologies
• Ddx
• Gelatinous, grayish, shiny, translucent atrophy of normally yellow-white fat; see blood vessels normally unable to see
• Starvation; parasitism
• Serous atrophy of epicardial fat
• Ddx.
• When is it significant?
• General etiologies.
• Epi-/pericardial hemorrhage
• Only significant when extends into myocardium
• Thrombocytopenia
  – DIC, ITP, tick
• Vasculitis
  – Blackleg, RMSF, MCH, uremia, mycotic, Mulberry heart dz, edema dz
• Describe lesion
• Etiologies for dog, horse, cat
• Clinical signs; diagnostic plan?
Cardiac tamponade (hemopericardium)

- **Dog:** HSA in RA; idiopathic RA tear
- **Horse:** idiopathic aortic rupture @ semilunar valve
- **Cat:** cardiomyopathy, trauma
- **Clinical signs:** muffled heart sounds
- **Dx plan:** aspirate and examine fluid
• Describe lesion
• Ddx
chylothorax

- Lymphangitis
- Ruptured thoracic duct
- Both d/t inc lymphatic pressure
• Describe pericardial lesion.
• Ddx.
Suppurative pericarditis

• Vasculitis
  – Infectious: septicemia, TRP, Glasser’s dz, FIP
  – Toxic: Clostridial, etc
• Provide etiologies for transudate, mod trans, exudate
• Transudate
  – Renal: amyloid, glomerulonephritis
  – Liver: end stage, shunts, hypoalbuminemia
  – GI: protein-losing enteropathy
  – Neoplasia
• Modified transudate
  – CHF, neoplasia, chylothorax, uroabdomen, hemoabdomen, neolasia
• Exudate
  – Septic, non septic, GI obstruction, FIP, neoplasia
• Ddx
• Other locations?
• Species locations
• description
lymphoma

- Dog: also in In; usually R side
- Cow: In, abomasum, uterus, ocular, CNS; usually L side => CHF
- Cat: anterior mediastinum
- IN heart; pale foci, streaks, nodules; may be flat or raised
- Ddx; location
• Mesothelioma (cells lining cavities)
• ON the heart
- Ddx; location; CS; signalment; pathogenesis
Heart base tumor

- ON heart, around heart base, around aorta/PA
- Edema of head/neck d/t tumor encroaching on blood vessels of heart
- Brachycephalics; boston terr; M:F 2:1
- Stenorious respiration stimulates baroreceptors => hyperplasia
- AKA: aortic body, carotid body, chemodectoma, paraganglioma
• Ddx
• Lymphoma (thymus)
• thymoma
• Bovine heart: Ddx
• LSA
• Ddx; location; CS
HSA

- IN heart; 1’ in RA/auricle; 2” mets;
  - Other sites: spleen, SQ
  - Mets to lungs, regional Inn
- CS: pericardial effusion
Ddx. Etiologies. Species. pathogenesis
arteriosclerosis (atherosclerosis)

• Injury (inc cholesterol, hypertension); monoclonal mutation=> proliferation; clonal population of senescent cells=> prolif
• Dogs: assoc w/ DM and hypothyroidism
  – Prob w/ lipid metabolism
• RARE IN VET MED
• large elastic arteries (aorta, coronary, cerebral) harden and lose elasticity (thick, yellow)
• Ddx. Etiology. Signalment.
aneurysm

• Abnormal dilation of aa
• Horse: S.vulgaris
• Dog: S.lupi
• Cow: dec Cu d/t sweet pea toxicity
• All: congenital anomaly
- FIP (cat): etiology
• Immune vasculitis
• Horse: Ddx
• Arteritis

• Etiologies
  – S.vulgaris (aortic, cranial mesenteric)
  – Equine herpesvirus I
    • Abortion, resp dx/ myelitis/encephalitis
  – Equine viral arteritis (RARE)
• Ddx. Etiologies/pathogenesis
Pulmonary arteritis d/t D.immitis

- Heartworm=> RV, RA, pulm arteritis, pulm thrombi/infarct
  - Caval syndrome (rare): IV hemolysis d/t large # of HWs in RA/caud VC; can get aberrant migration (mesentery, aorta, brain)

- Other vasculitis etiologies
  - Adenoviris => blue eye
  - RMSF: widespread vasculitis= CNS, cardiac, skin, pulmonary
• Ddx. etiologies
Aortic-iliac thrombosis

• Equine: S.vulgaris
• Cat: CM w/ atrial thrombi causing saddle thrombus/ischemic rear limbs
• Dog: glomerular amyloidosis
  – Dec antithrombin III, hypercoag
• Any: endocarditis, sepsis
• Ddx. etiologies
phlebitis

• Repeated, caustic, dirty, or perivascular injection
• **Ddx. Etiology. Pathogenesis.**
Postcaval thrombosis

- Grain overload (frothy bloat)
- Toxic rumintis/acidosis => 2’ infection => hepatic abscess => pulmonary embolus => embolus erodes through vessels => exsanguination