DISEASES OF THE PERICARDIUM

- Primary disease rare
- Secondary disease common
  - Direct extension
  - Heart, pleura, lungs
  - Systemic
- Reaction is limited
- May provide clues
Non-Inflammatory Pericardial Disease

- **Hydropericardium**
  - Definition: Excess accumulation of transudate

- **Causes**
  - Hypoproteinemia
  - Congestive heart failure
  - Neoplasia
  - Systemic disease

- **Significance**
  - Acute
    - cardiac tamponade
  - Chronic - extensible
  - Reversible - if cause can be removed
Systemic Diseases
Resulting in Hydropericardium

- Mulberry Heart Disease
  - Swine
- Septicemia in pigs
- "Heartwater"
  - Richettsial disease
- Viral Diseases
  - African Horse Sickness
  - Bovine Ephemeral Fever
  - African Swine Fever

(Courtesy College of Veterinary Medicine, University of Illinois)
Hemopericardium

- **Definition**
  - Accumulation of blood in pericardial sac

- **Causes**
  - Aortic or Pulmonary artery - rupture within pericardial sac
  - Iatrogenic
  - Bleeding from a tumour within pericardial sac
  - Atrial rupture

- **Significance**
  - Cardiac tamponade
Hemopericardium

Canine – Valvular endocardiosis, → LHF → ruptured atrium

Sow with aortic stenosis and rupture of aorta at origin.
Idiopathic Hemorrhagic Pericardial Effusion of Dogs

- **Etiology**
  - Unknown
  - Bleeding tumour inside of pericardium

- **Breeds affected**
  - Large Breed Dogs
    - Golden retriever
    - Great Dane
    - St Bernard
    - Great Pyrenees
    - German shepherd

- **Right heart failure**
Serous Atrophy of Fat

• Definition
  – Degeneration (atrophy) of adipose tissue with replacement by loose, edematous connective tissue.

• Causes
  – Inadequate nutritional supply
  – Starvation or inanition
  – Illness

• Significance
  – Condition of health
  – Little effect on function
Congenital and Miscellaneous Disorders

1. Absence
2. Diaphragmatic-Pericardial Hernia
3. Visceral Gout
4. Epicardial mineralization
Inflammatory Diseases of the Pericardium

• Infectious process
  – Out from myocardium
  – In from pleural space
  – Via the vasculature
Fibrinous Pericarditis Lesions

• Gross
  • Fluid and fibrin within pericardial space
  • Surfaces may be opaque
  • Fibrin will break loose
    – “bread and butter

• Histo
  • Mild inflammation
    – Neutrophils
    – Macrophages
  • Fibrin on surface
Etiologies
Fibrinous Pericarditis

- Cow
  - Mannheimia, blackleg, coliform septicemias
  - Fetus – Brucella, Arcanobacter pyogenes
- Pig
  - Glasser’s disease, Streptococcus, Mannheimiosis, Mycoplasma, Salmonella
- Horse
  - Streptococcal infections
- Birds
  - Psittacosis
- Cat
  - FIP
- Sheep
  - Pasteurella, Streptococci
Significance
Fibrinous Pericarditis

• Death
  – Often associated with pathogenic organism
  – Acute lesions seen at necropsy

• Progression
  – Fibrous adhesions
  – Could become suppurative
Purulent Pericarditis
Suppurative

- **Gross**
  - Cloudy, thick fluid
  - Liquefied inflammatory debris
  - May not smell good!

- **Histo**
  - Moderate #’s of pmn’s, macs
  - Fibrous connective tissue
    - If present for a period of time

- **Cause**
  - Pyogenic bacteria
  - Pyothorax – horses, cats
  - Migrating plant awns – dogs
  - Traumatic reticulopericarditis
Bovine Traumatic Reticulopericarditis
“Hardware Disease”

- Extension of foreign material (usually sharp, metal object) through wall of reticulum, diaphragm and pericardial sac
- Development of inflammation within pericardium
Bovine Traumatic Reticulopericarditis - Chronic
Outcome
Pericarditis

• Mild fibrinous
  – May resolve completely
  – May have focal areas of scarring

• Severe fibrinous
  – May have focal areas of scarring
  – May result in constrictive periarteritis

• Suppurative
  – Rarely resolve
  – Fibrous adhesions
Constrictive Pericarditis

• Definition
  – Chronic inflammation with fibrous adhesions of pericardial sac to epicardium

• Result
  – Compensatory cardiac hypertrophy
  – Right heart usually fails
Bovine Traumatic Reticulopericarditis - Chronic
Gangrenous Pericarditis
A Cool Case

History

1-year-old Pit Bull
“Exercise” Intolerant
Owner elected euthanasia

Pluck – pericardial sac not open
Pericardial sac open – fluid removed
Congenital and Miscellaneous Disorders

1. Epicardial mineralization – Cardiac Calciosis mice
Which is NOT substantiated by the photograph of dog heart

1. Subaortic Stenosis
2. Jet Lesions - Aorta
3. Endocardial Fibrosis
4. Eccentric Left Ventricular Hypertrophy
5. Interventricular Septal Defect
Cyanosis is most often associated with which disease process...

1. Pulmonic Stenosis
2. Patent foramen Ovale
3. Interventricular Septal Defect
4. Tetralogy of Fallot
5. Patent Ductus Arteriosus
Persistent Right Aortic Arch – which structure is **NOT** associated with the “Vascular Ring Analmy”?

1. Ascending aorta
2. Ligamentum Arteriosum
3. Ductus Arteriosis
4. Main Pulmonary artery
5. Heart Base