Cellular Injury and Death II - Lecture
Thursday, April 10, 2008
1:00 PM

- **Viruses – 3 Effects**
  - Lethal injury – kills cell
  - Cytopathic – changes shape of cell, doesn’t proliferate or kill
  - Oncogenic – stimulate cellular proliferation (cancer)
- **Cytomegalovirus**
  - Occurs only in immunocompromised patients (AIDS, transplant, young/old)
  - Commonly occurs in lungs, also present in liver, GI tract, salivary glands
  - Involves present of large macrophages having a granular cytoplasm (inclusions)
- **HPV**
  - Occurs as skin warts – usually either on hands, oropharynx, or genitals
  - Involves the presence of koilocytes – cells with cleared-out cytoplasm, shreveled raisin-like nucleus
- **Other Viruses**
  - Herpes Esophagitis – occurs in esophageal tissue, proliferation?
  - Herpes Hepatitis – large macrophages in liver tissue
  - Rabies – occurs in cerebral cortex tissue
  - Measles – involves presence of Warthin-Finkeldey cells – “mulberry” clusters
  - Hepatitis B – can detect through antibody & stain --> visualize indirectly
- **Fate of Necrotic Tissue**
  - Inflammatory response – leads to scarring, after macrophages phagocytose and fibroblasts rebuild
    - Renal infarct – often will form scar tissue after inflammatory response over
  - Separation – autoamputation of tissue means tissue falls off body (ex: toes from frostbite)
  - Persistence – remains, and undergoes dystrophic calcification, forming granuloma
    - Lymph nodes can calcify from carbon debris
    - Heart valves can also calcify
- **Calcification Types – Dystrophic, Metastatic; Ductal**
  - Dystrophic – caused from dead tissue
  - Metastatic – caused from hypercalcemia, stimulate by hypersecretion of PTH – increased serum Ca^{2+}
  - Ductal carcinomas of breast can often lead to microcalcifications on x-ray, comedonecrosis in duct
  - Purple Under Microscope – can be karyorhectic debris or bacterial endocarditis
- **Deposits – Intracellular (2), Extracellular Intrinsic & Extrinsic**
  - Intracellular deposits – include primarily hemosiderin (iron from lysed RBCs), and melanin (melanoma)
    - Also include lipid, water, carbohydrates, hyaline droplets, lipofuscin
  - Extracellular Deposits with intrinsic source – cholesterol/urate crystals, amyloid
    - Cholesterol crystals – from atherosclerotic plaques
    - Urate crystals – causes gout
    - Amyloid – protein often from abnormal proliferation of plasma cells (often mult. myeloma)
      - Means “starch-like”, but not a carbohydrate; instead a protein
      - Has a pink hyaline appearance, appears between vessel walls
      - Can deposit during high levels of plasma cells, or from chronic infections/age
      - Occurs in kidney, heart, spleen, etc. & causes shit to bounce
  - Extracellular Deposits with extrinsic source – tattoo