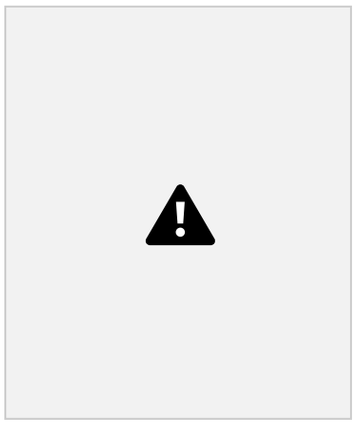
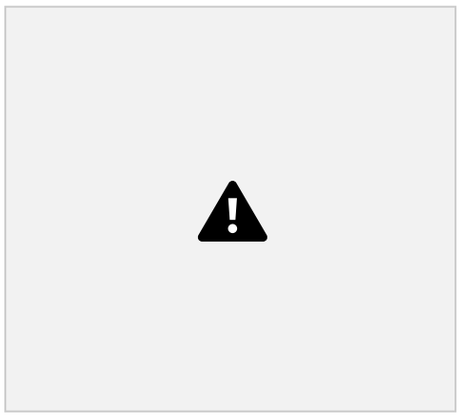


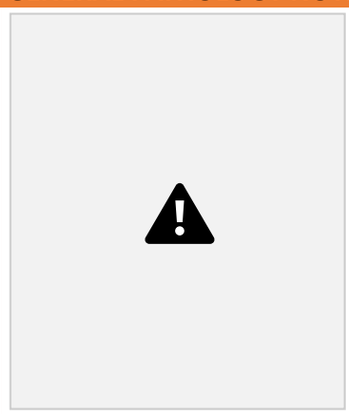
INTRACELLULAR DEGENERATIVE CHANGES (CELL SWELLING, BALLOONING DEGENERATION, DEGENERATION INVOLVING FATS, INTRACELLULAR INCLUSIONS)

- Cell swelling/cloudy swelling
- Most common response to injury
- Observed in the epithelium and endothelium
- Autolysis (self-digestion of the cell bc of death; tissue, cells undergo changes w/o diseases, cannot conclude the cause of death) results in similar microscopic lesion



Intracellular degenerative changes

- Hydropic degeneration /ballooning degeneration more advanced; for microscopic lesion only
  - Associated with *epithelial* lesion and clues to diagnosis of specific disease ex. Canine Distemper inclusion bodies in *urinary tract* epithelium, carbohydrate rumen overload in the cattle



(**hydrophic degeneration in Canine Distemper inclusion bodies)**

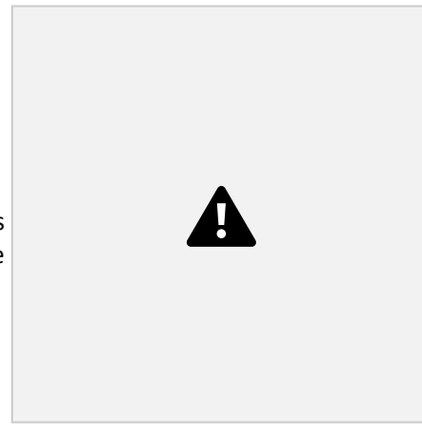
Eosin = pinkish color

Eosinophilic inclusion bodies

Degeneration involving fat

1. Fatty degeneration

- abnormal accumulation of fat in the parenchymal cells - Liver is the best known organ but also occur in renal tubular epithelium and myocardial cells
- Well known in diabetes (more on cats and dogs; not naman sa ruminants. Bc of. Diet) and ketosis (body does not have enough carbohydrates to burn for energy)
  - Utilization/availability of glucose is impaired, lipids are mobilized as an energy source; liver functional overloaded



Accumulation of triglycerides in fatty liver. Defects in any of the steps of uptake, catabolism, or secretion can result in lipid le mechanisms leading to accumulation.

- Microscopic lesion: large, clear, discrete droplets with foamy appearance
- Gross appearance: enlarged, uniformly yellow corresponding to the extent of fat accumulation, greasy texture on cut surface; dogs- *groups of lobules affected called fatty cysts*

- Differential diagnosis: hydrophic degeneration or glycogen stored and postmortem change
- Special stains for kidney and myocardium; cats have large amount of fat in renal tubules therefore pale

2. Fatty infiltration/fatty replacement

- Accumulation of adipose cells in tissue which are not normally present (2 types of adipose cells: Unilocular *most common* or white fat and the multilocular or the brown fat) - Replacing atrophied tissue
- Occurs in myocardial and skeletal muscle less common pancreas
  - *Steatosis* : pale *muscle due to fatty infiltration* in heavy muscles of leg, loin and shoulder in cattle and pigs - *Panniculus adiposus* where the fat should be; but if meron sa ibang organs dapat wala kay magkaroon ng fatty infiltration

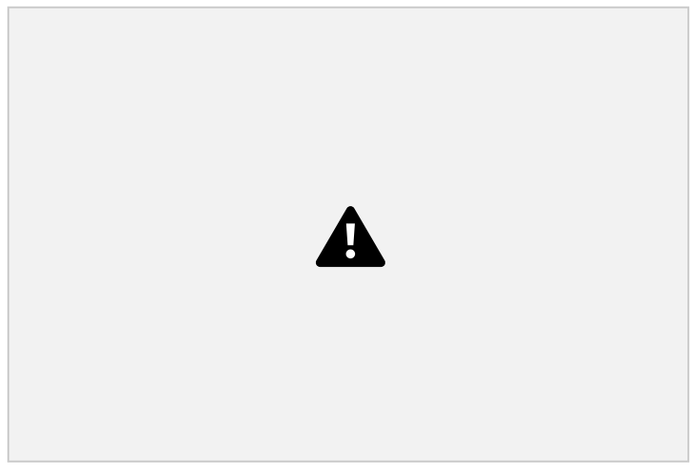
Intracellular inclusion

- <u>Hyaline droplets/hyaline degeneration</u>

Microscopic: eosinophilic structures in the cytoplasm in renal

Ovine, submandibular lymph node, with a disease called “caseous lymphadenitis” caused by infection with bacteria *Corynebacterium pseudotuberculosis*; note the type of necrosis in this exudate is caseous (not quite liquefactive, but more broken than coagulation necrosis, IE it would be a thick pasty texture, if you could cut/feel it); onion like

pneumonia due to *Rhodococcus equi;* not caseous exudate (arrows)



equine, lung tissue, pyrogranulomatous

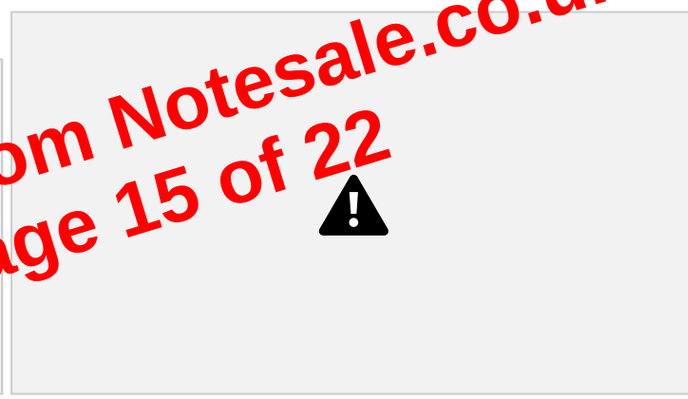
VP61 GENERAL PATHOLOGY NOTES (jong pogi)

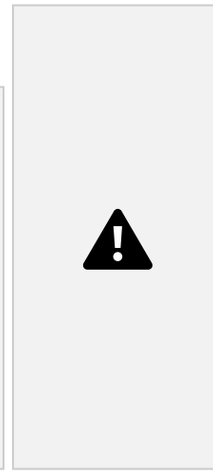
GANGRENOUS NECROSIS

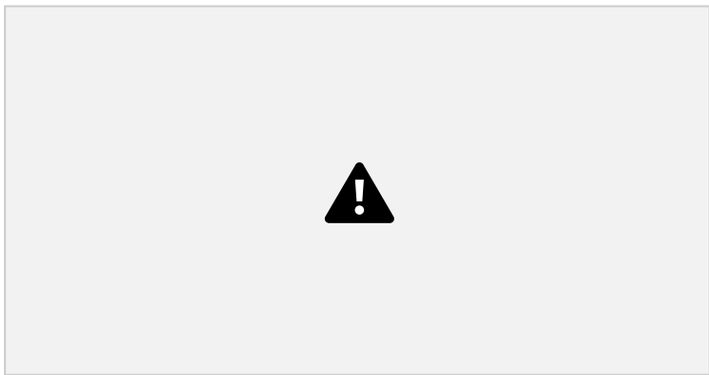
- Definition = necrosis (usually ischemic) of extremities eg.

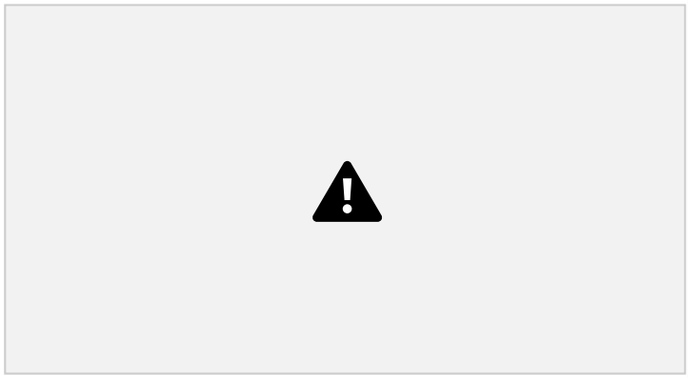
Digits, ear tips

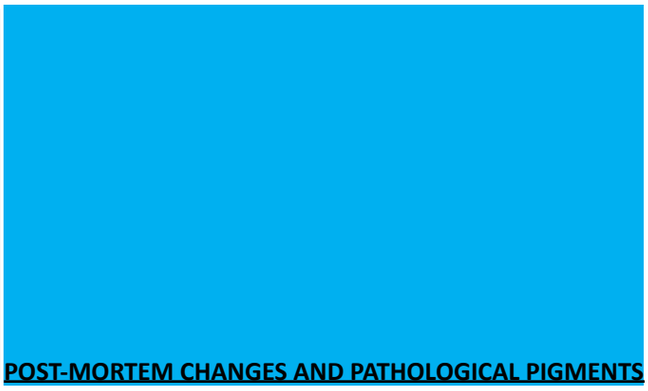
- **Dry gangrene** = coagulation necrosis of an extremity
- **Wet gangrene** = when the coagulative necrosis of dry gangrene is modified by *liquefactive action of saprophytic/putrefactive bacteria*
  - *Gangrene (lesion) is caused by*











POST-MORTEM CHANGES AND PATHOLOGICAL PIGMENTS

Postmortem scavenging – postmortem removal of organs of carcass by carrion eating animals (scavengers)

Predation – a predator is an animal that hunts and kills prey for food in an act called predation

Post-mortem autolysis

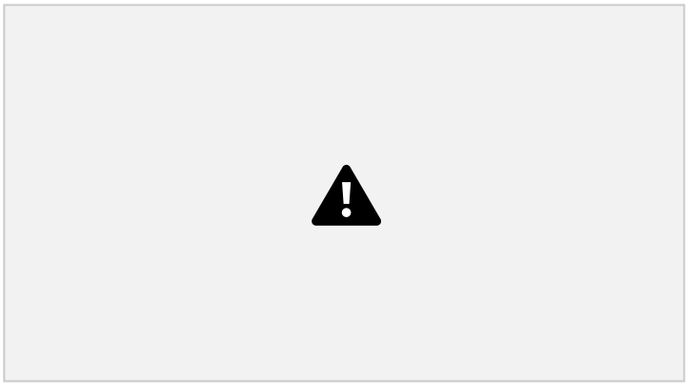
- Autolysis

-self-digestion by the tissue enzymes after death

-liver, pancreas, and kidney change relatively quickly

- Loss and increase of weight in organs

-Fixed ASAP: *retina is the most sensitive*, seminiferous tubules, intestine



VP61 GENERAL PATHOLOGY NOTES (jong pogi)

Rigor Mortis

- *contraction of muscles* after death
- usually within 106 hours after death & lasts 1-2 days (glycogen stores, ambient temp)
- after death, circulation of blood ceases → muscle cells resort to anaerobic glycolysis→ glycogen stored run out & ATP depleted (required for muscle relaxation) → Ca^++ floods into muscle cells causing myofilaments to “lock-up” mag tigas(all muscles affected, flexors/extensors, causing rigidity of joints)→ rigor gradually dissipates with autolysis of structural and functional muscle proteins

Algor Mortis

- gradual cooling of cadaver to ambient temperature (in humans 1.5 F per hr)

Livor Mortis (postmortem lividity)

- hypostatic congestion, ie. *Gravitational pooling of blood* to the dependent regions (“down side”) of the body

Postmortem clotting

- occurs in *heart and vessels*
  - *rbc’s may separate from plasma*; esp in animals with high fibrinogen eg horse=”chicken fat clot” (as seen in image)

Hemoglobin Imbibition

- HgB released by rbc breakdown (after death) →*staining tissues.*
- Especially lining of heart & blood vessels; also common in tissues of aborted fetuses