Pathology of Guinea Pigs, Hamsters and Gerbils

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Guinea Pigs
Albino guinea pigs are actually not albino at all, but "acromelanic."

Mammary glands

Two inguinal conical nipples.

2-4 pups per litter. (Not "piglets"!)
Vesicular glands

Boars have prominent vesicular glands which have been misinterpreted as uterine horns!

Vaginal closure membrane

The membrane is open at estrus, parturition, and day 26-27 of gestation.
Pulmonary arterial media walls of pulmonary arterioles are naturally thick.

Pulmonary lymphoid nodules

Cause??
Pregnancy
Imminent delivery
by separation of symphysis.
Pups are precocious.
Kurloff bodies

Normal inclusions in leukocytes – elevated in pregnancy and with estrogen supplementation.

Most common in spleen in non-pregnant animals.

• In pet guinea pigs, is important.
• Mortality most common in young.
• Bordetella bronchiseptica guinea pigs in winter.
• Interspecies transmission can occur.
• Transmission is primarily airborne.
Fibrinous pleuopneumoniae

Not common today, but infected colonies can have up to 50% carriers.

Necrotizing bronchopneumonia

Focuses on a

Low morbidity and mortality, so current estimates of incidence may be low.

Rhabdomyomatosis

Incidental finding – foci of glycogen laden cardiomyocytes.
May affect soft tissues or Metastatic calcification of the viscera. The cause is unknown by dietary factors. Malocclusion is a continuous growth like other rodents. Overgrown cheek teeth are a worse management problem than incisors.
Moist dermatitis

- Rarely clinical
- Inclusions also in liver, spleen, lung, kidney

Systemic disease in weanlings, rarely in pregnant animals.

Gastric torsion/bloat
intussusception

• Common in breeding colonies
• Weanlings
• Clinical disease is seen only with heavy infections
Fecal impaction
Seen in older guinea pigs due to muscle atrophy or impaired cecotrophy.

Liver – lipidosis – preg toxemia

Yes, I know this picture sucks!!!

Spleen salmonella
Subcapsular areas of coagulative necrosis. May be due to Idiopathic hepatic necrosis terminal hypoxia. Have to rule out infectious causes.
Cavian leukemia

C-type retrovirus

Malignant lymphoma

Usually lung adults

Usually associated with leukemia

Leukemia may reach >150,000 mm$^3$

Cells are lymphoblastic

Liver – leukemia - percy

Malignant lymphoma
Guinea pigs require Vitamin C supplementation.

Vitamin C deficiency is a cofactor of lysyl oxidase and proline hydroxylase, which are integral in tropocollagen formation

Ribs - scurvy

Bumblefoot

Predisposed by poor sanitation, rough flooring, unclipped nails.

May develop osteomyelitis
Parasitic dermatitis - trixascarus
Alopecia
• Pregnancy
• Weaning (loss of baby fur)
• Protein deficiency
• Rough cages
• Parasites
• Infections
• "Weepy eye"
• Chlamyphila psittaci
• Guinea Pig Inclusion Conjunctivitis
• Widespread self-limiting disease
• Young guinea pigs
• Can see genitourinary and respiratory lesions.
Cystic ovary - percy
Bordetella – endometritis - percy
Glomerulosclerosis

Multifactorial disease of gp's disease of gp's >1yr. Cause unknown, but glomeruli are largely spared.
Kidney - polycystic

Urinary calculi

Proximity of urethra to anus in older sows predisposes to E. coli cystitis

Dystocia-anasarca
Hamsters

- "Golden Hamster" - 22 chromosome pairs
  - Popular pet - comes in a variety of colors and angora (teddy bear)
  - Will bite you as soon as look at you

- "Grey Hamster" - 11 chromosome pairs

Chinese Hamster
Cheek Pouches

Pigmented sebaceous glands
Mark territory
Secrete during sexual arousal

Lawsonia intracellularis
"Wet-tail"
Diffuse proliferative ileitis
High morbidity and mortality in Syrian hamsters
Hamsters resistant to experimental disease by 10-12 weeks
Rectal prolapse

Hepatocyte inclusions

Look hard enough, you can see them in any species.

Polycystic disease

Common problem in hamsters – liver most common site. Also seen in repro organs, pancreas, adrenals.
Amyloidosis

Atrial thrombosis

• Syndrome ranges from asymptomatic to CHF.

• May show evidence of organization and hypertrophy of heart muscle.
Atrial thrombosis

Arteriolar Nephrosclerosis

Very similar to disease seen in rat.

Cause unknown.
Nothing new here – let’s keep Paraovarian cysts moving…

Spontaneous hemorrhagic necrosis

- Fetal hamsters deficient in Vitamin E during development.
- Recognized in the last third of pregnancy.
- Dam may cannibalize (yum yum!).
Hamster papovavirus

• Polyomavirus very similar to PVM.
• Transmissible lymphoma
• Keratinizing hair follicle tumors
• Virus can cause lytic infection or transformation of cells.
• Passed in urine

Demodicosis

• D. aurati or D. criceti
• Very common in old hamsters or those being experimentally manipulated
Demodicosis

D. aurati – live in hair follicles
D. criceti – live in epidermal pits

Cutaneous lymphoma
Guinea pig harem says ‘hello Sooty’

A GUINEA pig called Sooty had a night to remember after escaping from his pen and tunnelling into a cage of 24 females. He romanced each of them in turn and was yesterday the proud father of 13 offspring.

Staff at Little Friends’ Farm in Pontypool, South Wales, were over-whelmed by Sooty’s pro-duction and began looking for homes for the guinea pigs.

His owner, Carol Fychan, 43, said: “I’m sure a lot of men will be looking at Sooty with envy. We knew that he had gone missing after wriggling through the bars of his cage.

“We looked for him everywhere but never thought of checking the pen where we keep 24 females. We did a head count and found 23 guinea pigs — Sooty was fast asleep in the corner.

“He was absolutely shattered. We put him back in his cage and he slept for two days.”