GERBILS

Meriones unguiculatus – Mongolian Gerbil; outbred; limited number of inbred strains are available.

ANATOMIC FEATURES

Hematopoietic – high proportion of red cells with polychromasia, basophilic stippling, reticulocytosis; 10-day short half-life of erythrocytes; lymphocytes predominate; normally lipemic, hypercholesterolemic, (used in studies of cholesterol metabolism).
Incomplete Circle of Willis – stroke research, cerebral ischemia on ipsilateral side following common carotid artery ligation.
Behavior – desert-dwelling, burrowing, resistant to heat stress and dehydration; monogamous pairs.
Urinary – long renal papillae, long loops of Henle; myofibroblasts comprise the lamina muscularis of Bowman's capsule, comprised of cells intermediate between fibroblasts and smooth myocytes; unique to *Meriones*.
Reproductive – 4-6 day estrous cycle; gestation 24-26 days; permanent pairings of male and female; if one mate dies, survivor will reject others; 4 teats; no prepucial gland.
Ventral Marking Gland – midventral sebaceous gland with specialized hairs, prominent in males.
Adrenal Gland – very large/body weight.
Very large auditory bullae.
Epileptiform Seizures – common especially in black gerbils.

VIRAL DISEASES

(No reported naturally occurring viral infections, perhaps due to ignorance.)

BACTERIAL DISEASES

TYZZER'S DISEASE
Etiology: *Clostridium piliforme*
Transmission: common, highly susceptible; environmental sentinel.
Clinical: diarrhea; mortality in 5-7 days with multifocal hepatic necrosis; pale hepatic foci, ecchymoses on small intestine and cecum.
Pathology: pinpoint pale foci of hepatic coagulative to caseous necrosis concentrated in periportal regions, intracytoplasmic bacilli in adjacent hepatocytes (Warthin-Starry silver, Giemsa stains); necrosis and sloughing of enterocytes, blunting of villi, transmural edema, polymorphonuclear leukocytic infiltrates; focal necrosis of Peyer's patches, mesenteric lymph nodes; focal myocardial coagulative necrosis; suppurative encephalitis.
Ddx:.*Salmonella.*
Significance: particularly susceptible, fatal; interspecies spread.

SALMONELLOSIS
Etiology: *Salmonella typhimurium.*
Transmission: cockroaches?
Clinical: diarrhea, dehydration, neutrophilia; mortality rate among 3-10 week old >90%.
Pathology: multifocal hepatitis, crypt abscesses.
Ddx:.Tyzzer's.
Significance: adolescents very susceptible; interspecies transmission.

STAPHYLOCOCCUS
Etiology: *Staphylococcus aureus*, beta-hemolytic.
Clinical: alopecia, erythema, moist brown exudates.
Pathology: diffuse moist suppurative dermatitis of face, nose, feet, legs, ventrum; acanthosis, hyperkeratosis, ulceration; occasionally with associated focal suppurative hepatitis.
Significance: high morbidity and mortality possible among young.

NASAL DERMATITIS
Etiology: also referred to as sore nose; perhaps associated with *Staphylococus xylosus (saprophyticus)* and *S. aures*; temporally related to stress, trauma, excessive attempts to burrow and accumulations of porphyrin-containing Harderian lacrimal gland secretions (Harderian secretions are mixed with saliva during normal thermoregulatory grooming); absence of sand.
Transmission: incidence 5% in juveniles, adults.

Clinical: dermatitis, alopecia around external nares and upper labia.
Pathology: ulcerative dermatitis with exudation, excoriation, crusting of around nares, upper lip, around eyes, forepaws.
Significance: remove stressors, provide sandy bedding, clean and treat lesions.

Bordetella bronchiseptica – susceptible; not natural infection; contact with guinea pigs, rabbits.

CAR bacillus – susceptible.

Leptospira – susceptible, not natural infection, persists, zoonotic.

PARASITIC DISEASES

Demodex meriones – perhaps *D. aurati* or *D.criceti* (hamster mites), localized to tailhead alopecia, scaling, ulceration.

Giardia – highly susceptible to experimental infection; not natural disease.

Oxyuriasis – potentially become asymptomatically infected with several pinworms, interspecies transmission of *S. obvelata, S. muris*; none as clinical problems.

Hymenolepis nana – diarrhea, possible zoonosis.

OTHER DISORDERS

Epilepsy – common, spontaneous, audiogenic, incidence 40-80% within 6-10 months age; single autosomal locus with at least one dominant allele with variable penetrance; myoclonic, clonic-tonic seizures, vestibular aberrations, no apparent histopathological lesions; do not treat with diphenylhydantoin, fatal.

Periodontal disease, Dental Carries – prone, common by 1 year age.

Focal Myocardial Degeneration – with interstitial fibrosis, >50% male breeders

Aural Cholesteatoma – accumulations of keratinized epithelium on tympanic membrane and external auditory canal; incidence >50% at 2 years age; (otitis media/interna are rare in gerbils).

Cystic ovaries – incidence 50% females over 400 days age.

NEOPLASMS

Relatively low incidence of mammary, pituitary, lung neoplasms. **Ovarian granulosa cell** tumors, **adrenocortical**, and **cutaneous** tumors most commonly described.