



The Chinchilla Consortium: A Chinchilla Clinical Case Report Gold Mine



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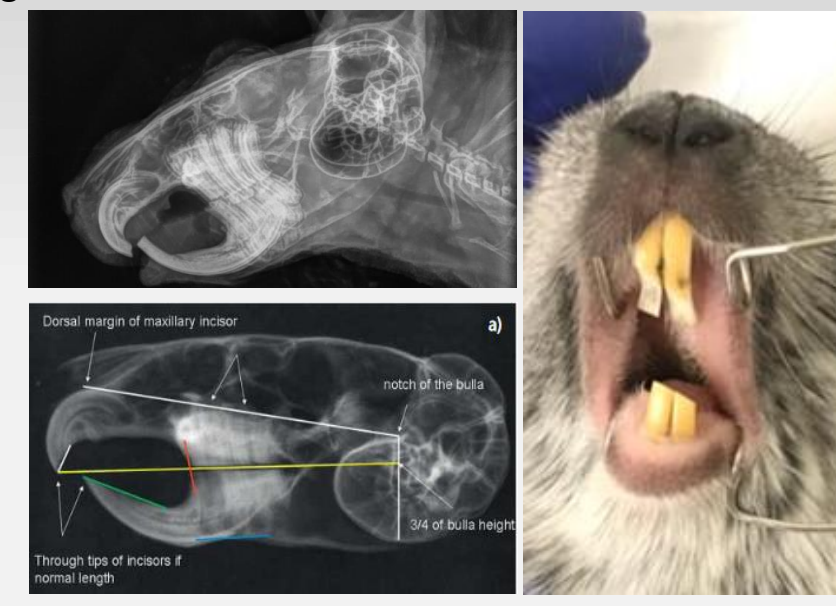
Abstract

Chinchillas serve a unique niche in biomedical research as an important laboratory animal model for otologic research. Unlike most of the domesticated species used in biomedical research, many of the resources specific to chinchilla husbandry, care, and medical management lie within the unorganized public domain. A relatively low number of chinchillas are used in research in the U.S. annually which hinders the monitoring of trending clinical cases. With approximately 2,200 chinchillas contributing to research advancements annually in the U.S., few individual institutions have a census that allows veterinarians to see trends in clinical cases. Further, unique cases are frequently siloed due to the lack of applicability to the broader field. The Chinchilla Consortium was founded in 2020 to establish a standard of care and bridge individual institutional knowledge about chinchilla use. The Consortium is currently comprised of 20 institutions contributing to this common goal, including the ability to follow trends of clinical cases with low incidence. Some cases have been noted from multiple institutions and thus considered more common, such as dental disease and subcutaneous abscess formation due to infection with *Streptococcus equi zooepidemicus*. Some common threads are just now starting to be identified between colonies such as idiopathic cardiovascular disease and hormone-related body weight fluctuations in female chinchillas. Finally, some cases are unique within research chinchilla colonies to date and include urolithiasis, umbilical herniation, and neoplasias such as histiocytic sarcoma and lymphosarcoma. The Consortium continues to meet on a quarterly basis to discuss new cases and trends to the benefit of the chinchillas within our care.

Malocclusion

History: 2 cases (9 and 10 mo old intact females), presented for malocclusion.
Diagnostics: Endoscopic examination under anesthesia, radiographs for evaluation of dental disease based on previously published dentition lines (Objective interpretation of dental disease in rabbits, guinea pigs and chinchillas, Boehmer, 2009).
Outcome: In one case, a Dremel tool was used to trim the incisors. In another, the chinchilla was euthanized due to the impact of repeat anesthesia and trimming on study outcomes.
About: Chinchillas have open-rooted, continuously growing incisor, premolar, and molar teeth. Malocclusion occurs when the teeth do not wear correctly, leading to overgrown teeth and clinical signs such as weight loss and salivation.

Caption: Note lack of "chisel" incisors and overgrowth of molar roots (top left) compared to reference chinchilla (bottom left, Boehmer 2009). This chinchilla had significant apical and intra-oral disease. Gross image of different chinchilla with malocclusion (right).



Pyelonephritis

History: Adult female, experimental history of noninvasive sedated auditory testing.
Clinical Signs: Presented with inappetence and weight loss.
Physical exam: Poor body condition score, abdominal palpation and PE normal.
Diagnostics: 10 days following initial PE, anesthetized for further work-up. A large mass was palpated in the cranial abdomen. On ultrasound, the mass appeared to be fluid filled and upon aspiration, purulent discharge was obtained.
Outcome: The investigator elected to euthanize. Upon necropsy the left kidney was enlarged and filled with pus. No normal architecture remained. Culture was positive for *Streptococcus equi zooepidemicus* in large quantities.
About: *Strep equi zoo* is a common agent found in chinchillas. It commonly causes abscesses of the lymph nodes or lungs. This is the first report of it causing pyelonephritis in a chinchilla.



Caption: Pyelonephrotic kidney with lack of normal architecture (top) and size within abdomen (bottom).

Histiocytic Sarcoma

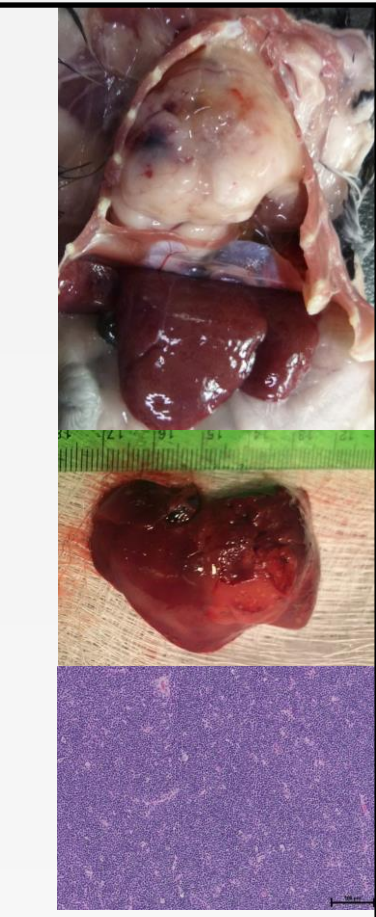
History and clinical signs: Naïve intact female, age unknown, insidious weight loss, decreased appetite, hunched and lethargic. Humane euthanasia elected.
Diagnostics: Grossly, multiple lymph nodes and thymus were moderately enlarged. Histologically, the parenchyma of the lymph nodes and thymus were effaced by sheets of round to oval neoplastic cells with marked anisocytosis and anisokaryosis. Numerous multinucleated and mitotic figures. The lungs had multiple perivascular areas and kidneys had focal peripelvic accumulations of the same neoplastic cells.
About: Histiocytic sarcomas are highly aggressive, rare, neoplasms of mature histiocytes that can result from the transdifferentiation of low-grade B-cell lymphomas. Based on gross exam lymphoma was suspected, however morphologic evaluation provided accurate classification. To date only 1 published case report of disseminated histiocytic sarcoma can be found in chinchillas so true prevalence is unknown.



Caption: Enlarged axillary (top) and mesenteric (middle) lymph nodes. Histology showing neoplastic cells (bottom).

Lymphosarcoma

History & clinical signs: 2F,1M chinchillas (~5-8 yrs) humanely euthanized due to weight loss +/- inappetence, respiratory distress, or for being chronic poor doers.
Diagnostics: CBC- increased lymphocyte counts; Radiographs- nonspecific findings. Gross Pathology- enlargement of various lymph nodes, thymus, and/or liver, or space occupying focal nodules. Histology- sheets of lymphocytic infiltrates effacing and expanding parenchyma of involved organ.
About: Lymphosarcoma is the proliferation of malignant lymphocytes within the lymphatic system classified by location and cell type (majority are B-cell lymphomas). While it is not widely published in this species, over a 5-year period in our aging colony; cases of intestinal, mediastinal (thymic), and multicentric (lymph nodes +/- liver) malignant lymphoma have been diagnosed.



Caption: Enlarged thymus (top), liver mass (middle), lymphocytic sheets in lymph node (bottom).

Umbilical Hernia

Clinical Signs: 2-year-old, 537 g, intact female chinchilla presented for swelling at the ventral portion of abdomen near the umbilicus.
Diagnostics: Physical exam, radiographs, and bloodwork (CBC/Chem). Radiographs revealed a round opacity extending from the ventral abdominal wall, located near mid-ventral abdomen. Bloodwork was normal.
Treatment: Surgical incision noted adipose tissue protruding from the defect in the abdominal wall. Adipose tissue was excised, and the incision was closed in two layers (abdominal wall and skin).
About: Abdominal hernias are openings in the abdominal muscle wall in which tissue such as fat or intestines may protrude though and appear as a swelling on the abdomen. They may or may not be reducible.



Caption: Outpouching of fat on radiograph (top), visible hernia on abdomen (middle), fat protruding through abdominal wall (bottom). **Acknowledgement:** Natalie Celeste, DVM MPH

Urolithiasis

History & clinical signs: 3 independent cases of male chinchillas (~5-8 yrs), displaying intermittent hematuria, pollakiuria, stranguria, dribbling, or anuria.
Diagnostics: Ante-mortem examination of enlarged firm bladder, urinalysis, and radiographs. Diagnostic necropsy revealed uroliths in the bladder or urethra, with mild to moderate renal pelvis dilation, and a combination of hydroureter or hydronephrosis.
About: Urolithiasis is poorly described in chinchillas with unknown risk factors. We have seen it present solely in males in our colony. Cystic uroliths had a milder clinical presentation than urethral uroliths. Hematuria was the first clinical sign that presented in all cases. Urinalysis was not diagnostic and radiographic evidence was not always present.



Caption: Uroliths in bladder (top), urolith blocking urethra (middle), bilateral hydroureter (bottom).

Hormonal Body Weight Fluctuation

History: 10-month-old female intact chinchilla presented for soft stool and persistent weight loss during the months of March and April, noted during weekly weigh-ins. Over about a month and a half, the chinchilla dropped in weight from a maximum of 770 g to a low of 594 g. The chinchilla remained bright, and in fair body condition during this time. This chinchilla had not undergone any experimental manipulation.

About: Reproductive disease (pyometra, endometritis, "hard estrus cycle") is a key differential for intact female chinchillas especially during breeding season (Nov – May in northern hemisphere). Institutions have noticed a weight fluctuation in female chinchillas relating to the estrus cycle. The chart (right) shows weight differences between male and female chinchillas throughout the year.

