

# Dental Disease in Central Bearded Dragons

**Thomas H. Boyer, DVM, DABVP (Reptile & Amphibian Practice)**

*Pet Hospital of Penasquitos*

*San Diego, California*

## In the literature

Mott R, Pellett S, Hedley J. Prevalence and risk factors for dental disease in captive central bearded dragons (*Pogona vitticeps*) in the United Kingdom. *J Exotic Pet Med.* 2020;36:1-7.

## FROM THE PAGE ...

This study represents the first large-scale investigation of risk factors for the prevalence of dental disease in one of the most common captive reptiles—the central bearded dragon (*Pogona vitticeps*). Data from 20 veterinary clinics in the United Kingdom showed dental abnormalities in half of the examined population of central bearded dragons ( $n = 304$ ). Only 24.8% of dragons with dental disease exhibited clinical signs, and all of these had advanced dental disease. Central bearded dragons, like chameleons, have acrodont teeth (ie, laterally compressed triangular teeth directly ankylosed to the mandibles and maxilla).<sup>1</sup> During development, the pulp of the teeth is lost to a mineralized matrix that fuses teeth to bone.<sup>1</sup> In these lizards, teeth are permanent and not replaced throughout life; this is unlike the pleurodont dentition of most other lizards.<sup>2</sup> Also unlike other lizards, the gingiva of acrodont lizards does not attach at the base of the teeth; instead, a thin layer of stratified squamous epithelium covers exposed mandibular and maxillary bone, which is predisposed to bacterial colonization.<sup>3,4</sup> Acrodonts also lack periodontal ligaments,<sup>1</sup> and the authors state that although periodontal disease has been widely described in acrodont reptiles, dental disease is likely a better descriptor.

The authors graded dental disease as normal (grade 0: clinically normal, no dental disease); mild (grade 1: staining of teeth and exposed bone only; grade 2: mild tartar development, gingival erythema); and advanced (grade 3: moderate tartar development, gingival erythema and recession; grade 4: severe tartar buildup, severe gingival erythema and recession, osteomyelitis of jawbones; grade 5: end-stage disease, severe tartar buildup, severe gingival recession, osteomyelitis, pathologic fractures).

**The percentage of central bearded dragons with dental disease increased from 11.5% in those <1 year of age to 36.9% in those 1 to 3 years of age and to 86.8% in those >8 years of age.**

Continues ►

Topical Solution  
**profender**<sup>®</sup>  
 (emodepside/praziquantel)

For the treatment and control of hookworm, roundworm, and tapeworm infections in cats and kittens that are at least 8 weeks of age and weigh at least 2.2 pounds (1 kg).

**Brief Summary:**

Before using PROFENDER Topical Solution, please consult the product insert, a summary of which follows:

**CAUTION:**

Federal law (U.S.A.) restricts this drug to use by or on the order of a licensed veterinarian.

**Product Description:**

PROFENDER Topical Solution is a ready-to-use solution, packaged in single unit dosing applicator tubes for topical treatment of cats. Emodepside, a semi-synthetic molecule is a cyclic depsipeptide. Praziquantel is an isoquinoline cestocidal.

**INDICATIONS:**

PROFENDER Topical Solution is indicated for the treatment and control of hookworm infections caused by *Ancylostoma tubaeforme* (adults, immature adults, and fourth stage larvae), roundworm infections caused by *Toxocara cati* (adults and fourth stage larvae), and tapeworm infections caused by *Dipylidium caninum* (adults) and *Taenia taeniiformis* (adults) in cats.

**HUMAN WARNINGS:**

Not for human use. Keep out of reach of children.

To prevent accidental ingestion of the product, children should not come in contact with the application site for twenty-four (24) hours while the product is being absorbed. Pregnant women, or women who may become pregnant, should avoid direct contact with, or wear disposable gloves when applying, this product. Studies performed in rats and rabbits suggest that emodepside may interfere with fetal development in those species.

PROFENDER Topical Solution may be irritating to skin and eyes. Reactions such as facial, tongue and hand swelling have been reported in humans in rare instances. Avoid contact with the application area while it is wet and wash hands thoroughly with soap and warm water after handling. People with known hypersensitivity to butylhydroxyanisole, emodepside or praziquantel should administer the product with caution. If the product accidentally gets into eyes, flush thoroughly with water. May be harmful if swallowed. In case of accidental ingestion or if skin or eye irritation occurs, call a poison control center or physician for treatment advice.

For customer service or to obtain product information, including the MSDS, call 1-800-633-3796. For medical emergencies or to report an adverse reaction, call 1-800-422-9874.

**PRECAUTIONS:**

Safe use of this product has not been evaluated in cats less than 8 weeks of age or weighing less than 2.2 lbs (1 kg), in cats used for breeding, during pregnancy or in lactating queens. The effectiveness of this product when used before bathing has not been evaluated.

Use with caution in sick or debilitated cats. Oral ingestion or exposure should be avoided. Use with caution in heartworm positive cats.

**ADVERSE REACTIONS:**

In a controlled, double-masked field safety study in which owners administered PROFENDER Topical Solution, the most common adverse reactions reported by the cat owners included licking, excessive grooming, scratching treatment site, salivation, lethargy, alopecia, agitation/nervousness and vomiting.

**POST APPROVAL:**

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using this data. The following adverse events are listed in decreasing order of reporting frequency in cats: Application site reaction (hair loss, dermatitis, pyoderma, edema, and erythema), hypersalivation, lethargy/depression, vomiting, ataxia, anorexia, trembling/twitching, diarrhea, mydriasis, fever, hyperactivity/nervousness. In some cases, death has been reported as an outcome of the adverse events listed. For a complete listing of adverse reactions for Profender Topical Solution reported to the CVM see: <http://www.fda.gov/ADEReports>.

The listing includes Adverse Events reported to CVM for products, such as Profender, that contain the combined active ingredients emodepside and praziquantel. Listings by active ingredient may represent more than one brand name.

**ANIMAL SAFETY:**

In a field study, PROFENDER Topical Solution was used in cats receiving other frequently used products including: analgesics, anti-fungals, non-steroidal anti-inflammatories, anthelmintics, antimicrobials, flea and tick products, sedatives, anesthetics, cardiac medications, anxiolytics, hormonal treatments, steroids, otic and ophthalmic preparations, and vaccines.

**General Safety Study in Kittens:** PROFENDER Topical Solution was topically applied at 0X (vehicle control), 1X, 3X and 5X the maximum dose to 48 healthy 8-week-old kittens every two weeks for six doses. One 5X kitten experienced salivation and tremors and another 5X kitten experienced salivation on the day of dosing. A third 5X kitten experienced tremors the day after dosing. Three cats vomited within 24 hours of dosing, one each in vehicle control, 3X and 5X groups.

Profender is protected by the following U.S. Patents: 5 514 773 and other patents pending.

Made in Germany

NADA 141-275, Approved by FDA

© 2015 Bayer HealthCare LLC

Bayer, the Bayer Cross and Profender are registered trademarks of Bayer.

82482521/03615026/82482572/03615034/82482580/82482602, R.2

March, 2015  
19659

Bayer HealthCare LLC  
 Animal Health Division  
 P.O. Box 330, Shawnee Mission, Kansas 66201 U.S.A.

**Bayer**

The percentage of central bearded dragons with dental disease increased from 11.5% in those <1 year of age to 36.9% in those 1 to 3 years of age and to 86.8% in those >8 years of age. There were significant associations among dental disease, increasing age, being under- or overweight, and concurrent disease. There was also a strong significant association between fruits in the diet and dental disease, with an odds ratio of 2.68; 66% of central bearded dragons with fruits in the diet had dental disease. In contrast, there was no significant association between vegetables in the diet and dental abnormalities or disease. The authors suggested eliminating fruits from the diet, as the high sugar content and acidity of fruits may contribute to dental disease.

## ... TO YOUR PATIENTS

Key pearls to put into practice:

- 1 Thorough oral examination and dental grading are always indicated in central bearded dragons. Dental disease increases with age, but dental cleaning can reduce disease, especially with early detection.
- 2 Tartar initially supports gram-positive aerobic cocci that shift over time to anaerobic gram-negative bacteria and spirochetes.<sup>5</sup> Fungal infections are less common.
- 3 In central bearded dragons, diagnosis and treatment of dental disease involve anesthesia with tracheal intubation; cytology; dental radiography; curettage of calculus, gingival sulci, and infected bone with a dental ultrasonic scaler; surgical removal of granulomas; long-term antibiotics—based on aerobic culture and susceptibility testing—that include anaerobic coverage; pain medication; and swabbing or flushing of the labial bones with 0.05% chlorhexidine or oral cleansing gels.<sup>5</sup>

## References

1. Dosedělová H, Štěpánková K, Zikmund T, et al. Age-related changes in the tooth-bone interface area of acrodont dentition in the chameleon. *J Anat.* 2016;229(3):356-368.
2. Cooper JS, Poole DFG, Lawson R. The dentition of agamid lizards with special reference to tooth replacement. *J Zool.* 1970;162(1):85-98.
3. Mans C. Clinical update on diagnosis and management of disorders of the digestive system of reptiles. *J Exot Pet Med.* 2013;22(2):141-162.
4. Stahl SJ. Pet lizard conditions and syndromes. *Semin Avian Exotic Pet Med.* 2003;12(3):162-182.
5. Stahl SJ. Periodontal disease. In: Divers SJ, Stahl SJ, eds. *Mader's Reptile and Amphibian Medicine and Surgery*. 3rd ed. Elsevier; 2019:1329-1330.