

Discussion

In this case report, we describe superficial demodicosis suspected to be due to *D. gatoi* infestation in an Australian Ragdoll cat. While histopathological and cytological findings are consistent with *D. gatoi* and generally regarded as diagnostic for *D. gatoi* infestation, advances in molecular techniques in recent years have refined the diagnosis of parasite infection and shown repeatedly that morphologic features alone are insufficient for definitive speciation. Subsequently, definitive diagnosis of *D. gatoi* infestation requires species verification by molecular diagnostics. Such investigation is currently in progress at VPDS which we hope will lead to the development PCR test for detection and speciation of *Demodex* mites.

Cats with demodicosis due to *D. gatoi* infestation most commonly present with pruritis accompanied by varying degrees of self-induced alopecia, hyperpigmentation, erythema, scaling, excoriation and crusting due to excessive grooming behaviour.^{2,4} A miliary-type papular dermatitis is also evident in some affected cats.³ Cutaneous changes may arise at any site but are more commonly observed in areas easily reached by the cat (e.g., ventrum, flank, and limbs), and lesion severity usually correlates to the intensity of pruritis.⁴ Not all cats infested with *D. gatoi* will have pruritic skin disease and heavy mite infestation has been identified in some animals with non-existent clinical signs.¹ Due to this highly variable clinical presentation, it is suspected that pruritis is linked to the development of a hypersensitivity reaction to the mites.⁴ Unlike *D. cati* infestation, feline demodicosis caused by *D. gatoi* does not appear to be associated with underlying disease or immunosuppressive conditions, and the role (if any) of chronic prednisolone treatment in this case is unclear.²

Due to the inherent difficulties of identifying *D. gatoi* mites, a presumptive diagnosis is often made on the basis of favourable response to a treatment trial once other common causes of pruritic dermatosis have been excluded.^{1,3} Unfortunately, current treatments for *D. gatoi* are limited, mostly off-label and long-lasting, and have variable success.

The worldwide prevalence of *D. gatoi* and epidemiology of infection is poorly understood. The few published reports of *D. gatoi* infestation are limited to parts of Europe (Spain, Finland, France, Austria, and the UK) and the United States where infections are most commonly diagnosed in southern and south-eastern states.^{2,5-8} Pedigree cats (particularly the Cornish Rex breed) are over-represented in the literature.^{6,7} Cat shows and breeding catteries have been postulated to be the source of *D. gatoi* transmission in some cases, but further investigation is required to elucidate

their potential role in the epidemiology of *D. gatoi* infestation.^{6,7}

References

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SMALL

Raw meaty bones essentials

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Raw meaty bones are easily the strongest, safest, most gentle, most effective medicine for all domestic carnivores. Raw meaty bones are the key that unlocks the carnivore code. Catching, killing and consuming raw meaty bones is for carnivores the *sine qua non*, the motivation for living. It's their job. They take it seriously and building on genetic determinants and with practice become highly skilled at devouring the food/medicine combined.

Ideally raw meaty bones come covered with fur, feathers and fins. But even in the butchered form, providing the

bones are of a suitable size, then the medicinal benefits are adequate for most practical purposes.

Medicinal modes of action include:

1. Feeding frenzy – release of endorphins/immune stimulation – therapeutic.
2. Physical exercise – release of endorphins/immune stimulation – therapeutic.
3. Tooth cleaning – preventative medicine – therapeutic.
4. Stimulate gut enzymes/motility – therapeutic.
5. Natural food contains intracellular enzymes and is thus pancreas sparing – therapeutic.
6. Probiotics, maintenance of the microbiome – therapeutic.
7. Substrate conditioning of the colon environment leading to healthy balance of bacteria – therapeutic.
8. Behavioural conditioning (avoidance of stress/neurosis) – therapeutic.
9. Natural array of biochemicals – nutrition in the commonly used sense and providing all the essential macro and micro nutrients in the appropriate balance for optimal cellular growth, function and repair.

Clearly then, the medicine man, the vet, needs to have a good grasp of the biology, ecology, ethology, physiology and *pharmacology* of this most important carnivore medicine. And as with all medicines it's essential to be up to speed with procurement, storage, handling and administration.

Therapeutic risk management

All medicines come with inherent risks. Raw meaty bones are no exception – although happily if one keeps as close as possible to Nature's way of delivering the medicine then benefits are optimal and adverse effects minimal.

Eighteen years ago, when writing *Raw Meaty Bones: Promote Health*, I asked my contacts in two UK zoos to tell how captive wild carnivores deal with their food/medicine. See below.

Once one begins to think biologically it's easy to see that dry, virtually meatless bones are not a suitable medicine. A bored dog locked in solitary confinement may choose to chomp down on a lamb shank producing a potential foreign body. Or as is the case with femurs and bones cut lengthwise to expose the marrow, teeth, especially carnassials, get broken. And of course, cutting up the bones into small pieces only serves to increase the hazards and reduce the essential medicinal benefits of ripping and tearing.

In summary, raw meaty bones are not an adjunct – they are the *essential* food and medicine for all carnivores

from the time they cut their first teeth at three weeks of age. Nature does not apply labels; Nature does not differentiate between food and medicine. It's past time that the veterinary profession got up to speed.



Five working dogs on a raw-meaty-bones tucker box/medicine chest. Note the glossy coats and sunny smiles. The owners, Australian Working Dog Rescue, know a thing or two about feeding working dogs. They rescue around 1500 dogs a year from Australia's pounds. workingdogrescue.com.au

For the future

Please go to: rawmeatybones.com. Check out the articles and view the TV segments and videos. Please feel free to visit us. Take a tour of our shipping container freezer plant/medicine chest; meet our wonderfully enthusiastic staff and clients; ask any questions. Back in 1993 Dr Douglas Bryden, Director of the CVE, made a short courtesy call. We satisfied his most searching questions, whereupon he commissioned the raw meaty bones preventative dentistry chapter: rawmeatybones.com/PrevDent.html

If, as a profession, we pull together we can revitalise vet medicine; we can create an innovative Australian pet-food/medicine industry providing health and wellbeing for pets, pet owners and the wider community. Most certainly we should try.

Diets of zoo species of similar weight to domestic cats and dogs

Rusty-spotted Cat (India, Sri Lanka – 2 kg)

Mouse eaten completely. Very occasionally stomach left.

Rat stomach, colon and tail not eaten. Occasionally the liver is also left.

Day-old chick wing tips and feet uneaten. Gizzard occasionally left.

They have not been observed eating faeces, either theirs or that of other animals. Grass is regularly eaten. Some animals are known to do this daily. (Evidence in faeces samples and grass vomit.)

Desert Cat (Pakistan, India – 4 kg)

Fish everything eaten except sperm sac and roe.

Occasionally heads left.

Day-old chick gizzard, wing tips and feet are occasionally uneaten.

Mouse eaten completely.

Rat stomach, colon and tail not eaten. Occasionally the liver is also left.

Pigeon all internal organs, feet and wing tips left.

Plucked before eaten.

Quail eaten completely after first being plucked.

Caecum sometimes left.

Guinea pig plucked. Colon left. Occasionally the pelt is turned inside out and left.

They have not been observed eating faeces, either theirs or that of other animals. Grass is occasionally eaten.

Timber Wolf (Canada, USA – 33 kg)

Calf, horse, deer, goat

Carcass opened at groin, liver and heart eaten, lungs often left. The rumen is usually dragged across the enclosure; when this ruptures the contents are left where they lie. The colon, once dragged from the carcass, is usually left. The contents of the rumen are frequently rolled on by all members of the pack. The hide is turned inside out and left. Fur is not eaten. Horns are left although antlers are chewed and partially eaten. Hooves are eaten but only if from the carcass of a young animal. Bones from a young animal are mostly eaten, the exception being the larger bones. Bones from a larger animal are generally chewed on the ends. Particularly strong smelling male goats are avoided by most animals.

Rabbit sometimes eaten completely, at other times the pelt is left.

Fish eaten completely. Often rolled on.

Chicken preferred when feathers removed.

Carcass turned inside out to get at flesh. They have not been observed eating grass or faeces, either theirs or that of another animal.

Bush Dog (South America – 6 kg)

Chicken eaten completely. Gizzard and colon occasionally left.

Rabbit eaten completely.

Quail eaten completely.

Rats eaten completely. Fish Eaten completely.

Pigeon eaten completely. Wing tips, gizzard and colon occasionally left.

Fruit Bananas, pears and grapes offered. Small amounts eaten.

Antlers antlers in velvet (during the annual growth phase) mostly eaten, hardened antlers partially eaten.

Grass often eaten. 🌿



Figure 2. Sam, 12 y.o. staghound and Needle, 2 y.o. whippet floss their teeth and get a natural high.



Figure 3. George 11-year-old Maine Coon chows down on a rabbit head. September 2012 presented with severe diabetic polyuria/polydipsia and periodontal disease. Treated with quail and rabbit heads. Now in 2018, raw meaty bones are his sole medicine – correct weight, no gum disease, no pu/pd.