



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; 12(5): 1327-1329  
© 2023 TPI

[www.thepharmajournal.com](http://www.thepharmajournal.com)

Received: 10-03-2023

Accepted: 14-04-2023

**Dr. N Arulnathan**  
Department of Animal  
Nutrition, Veterinary College  
Research Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**Dr. M Chellapandian**  
Department of Animal  
Nutrition, Veterinary College  
Research Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**P Anuradha**  
Institute of Animal Nutrition,  
Kattupakkam, Tamil Nadu,  
India

**Dr. D Thirumeignanam**  
Department of Animal  
Nutrition, Veterinary College  
Research Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

**Corresponding Author:**  
**Dr. N Arulnathan**  
Department of Animal  
Nutrition, Veterinary College  
Research Institute, Tamil Nadu  
Veterinary and Animal Sciences  
University, Tirunelveli,  
Tamil Nadu, India

## Effect of scientific feeding management on indiscriminate feeding practices induced dermatitis in native dog breeds

**Dr. N Arulnathan, Dr. M Chellapandian, P Anuradha and Dr. D Thirumeignanam**

### Abstract

A field study was carried out to diagnose the cause of dermatitis in native breeds dogs in Tirunelveli district of Tamil Nadu, India. Based on the complaints received from the native dog breeders, that they dogs were having hairless patches on the body and not responding to the treatment for parasitic and fungal and microbial infections. Hence, in order to address that problem, and for differential diagnosis a detailed questionnaire was designed and the complete management and feeding practices followed by the native dog breeders in that area were collected. Based on the analysis of observed data, indiscriminate feeding of raw eggs lead to unavailability of biotin due to the effect of avidin binding nature and in turn lead to biotin deficiency that the cause of hairless patches. An awareness programme was organized for scientific feeding practices and advices were given to the native dog breeders recommended to feed their dogs with boiled eggs instead of raw eggs and also advised to multivitamin supplement 5-10 ml per day based on the body weight of the dogs for one month to rectify the biotin deficiency induced dermatitis. On the observation made by after two months around 78% of the dogs were cured from dermatitis problem which was induced by the indiscriminate feeding raw eggs to the native dog breeds.

**Keywords:** Native dog breeds, feeding of raw eggs, biotin deficiency, dermatitis

### Introduction

In the world there are more than a thousand dog breeds, only about 350 of them are recognized. Of these 350, seven are Indian breeds. Moreover, of these seven breeds, Kanni, Kombai, Chippiparai and Rajapalayam are having their home tract from Tamil Nadu. Chippiparai dogs are mainly found in Thoothukudi, Tirunelveli, Virudhunagar and Madurai districts of Tamil Nadu. Estimated population is about 6000. Chippiparai dogs are also called as Kanni (virgin) or vettainai (hunting dog). These are medium in size. Coat color varies from fawn to dark brown, brownish black and black. Black dogs have white markings on both sides above eyes, or black circle around the eyes. Eyes are golden and oval. Ears are medium in size and drooping or semi drooping. Height at wither ranges from 60 to 76 cm in males and 54 to 70 cm in females. Adult body weight ranges from 13.6 to 32.5 Kg. The utility of this dog is mainly for guarding and hunting, but also kept as a hobby and pride by the owners. These dogs are high in obedience and easy to train (National Bureau of Animal Genetic Resources, Haryana).

Keeping of dogs as pet and use it for watch and hunting is a traditional and having a status for prestigious for the people especially in southern districts of Tamil Nadu. This thoughts and habits are noticed among the normal people to followers of former Jamins of these areas. Kanni Dog, Chippiparai Dog, Rajapalayam Dog and Kombai dogs are the important and major native breeds of dogs seen in Southern Tamil Nadu. For these dog breeds till now no studies were done to assess the nutrient requirement for its various physiological status and purpose of rearing. The feeding strategies are also not yet standardized to match with its requirement. Simply they area following their own schedule and house made unbalance food to their dogs.

On the initial enquires made with dog breeders they are commonly facing a problem retarded growth, still birth, giving birth to weak puppies and also skin related disorders. Based on the complaints received from the native dog breeders, a field study was carried out to diagnose the cause of dermatitis in native breeds dogs in Tirunelveli district of Tamil Nadu, India.

**Materials and Methods**

In order to differential diagnosis of the dermatitis problems in native Dog breeds a extensive field research was planned and carried out. For this villages around Pannamparai village of Tuticorin district of Tamil Nadu, India were selected since the native dog population was high and the request to address the dermatitis issues were made from that area. On the enquiry reports from the native dog breeder, their dogs are hairy hairless patches throughout the body and not responding for any treatment for long time. A team from Veterinary College

and Research Institute, Tirunelveli attended the issues and took samples for parasitic, fungal or bacterial infection, no evidence were found to the above. And they were not responded for anti-parasitic antifungal and antibiotic drugs. Hence for differential diagnosis to ensure whether it might be any nutritional cause, a detailed questioner (as in the Table 1) was formulated and distributed to the native dog on feeding practices and general managements were recorded. The collected data observations made were analysed to diagnose the cause of the dermatitis in the native dog breeds.

**Table 1:** Management and Feed Practices of Native Dog Breeds

Name and Address of the Dog Owner Details regarding your dog Age : Breed: Sex : Is your dog neutered? Weight Do you consider your dog to be: (please circle as appropriate) Underweight / Overweight At his/her ideal weight Do you feed your dog: (please circle as appropriate) Home-cooked food only Commercial food only A mixture of both If a mixture of both, approximately what percentage of commercial food do you feed your dog? (please circle as appropriate) 25% / 50% / 75% How many meals per day does your dog receive? Do you feed the same food at each meal or do you feed different foods? If you feed commercial food as all or part of your dog's diet please answer the following questions. If you do not feed any commercial food please move to the next section. What brand of commercial dog food do you feed your dog? What type of diet is it? (please circle as appropriate) Adult diet Puppy diet Weight loss diet Specific breed diet (please specify breed) Other (please specify) How many meals of <i>dog food</i> (on its own or with home-cooked food) does your dog receive per day? How much does he/she receive per meal (g/cups) If you feed home-cooked food as all or part of your dog's diet, please answer the following questions. How many meals of <i>home-cooked food per day</i> (on its own or with commercial food) does your dog receive? What do you feed your dog in a typical day? Main protein source (please circle as appropriate) Fish	Type of fish: Chicken Chicken legs/wings/thighs/breast/neck/other (please delete as appropriate) Beef Other (please specify) Quantity (number of pieces/grams/cups) per day How is it cooked? (please circle as appropriate) Boiled/ Fried Other (please specify) Main carbohydrate source (please circle as appropriate) Rice: White/Brown Bread: White/ Red Quantity (cups/grams/number of slices) per day Any other additions Vegetables (please specify what vegetables) Other (please specify and give details) Additional questions Is your dog given milk as a separate meal? Yes/No If Yes: How many cups? What brand of milk do you use? Do you use full fat or non-fat milk? If you use powdered milk, how many spoons of milk powder do you use? Does he/she receive any additions along with milk? Bread Number of slices Biscuits (please specify type) Number of biscuits Does your dog receive any additional treats during the day? Yes/No If Yes: What sort of treats (brand) Approximately how many per day Does your dog receive any vitamin, mineral or other supplements? Yes/No. If Yes: What type and brand of supplement? How many tablets/spoons/etc. per day?
<b>Health of the Dog</b>	
<b>Come across any of the following health problem</b>	
<b>Disorders</b>	<b>If any please specify</b>
Digestive disorders	
Dermatological disorders	
Neurological Disorders	

**Results and Discussion**

Based on the enquiry and complaints from the native dog breeders, that they dogs were having hairless patches throughout the body and not responding to the treatment for parasitic and fungal and microbial infection. For differential diagnosis a questioner was designed and the complete feeding management practices followed by the native dog breeders in that area were collected. Based on the analysis of survey the observed that the native dog breeders having a practice to feed

three to four native chicken eggs in raw along with few spoons of sesame oil to their dogs thrice in a week. On analysis while continuous feeding of raw eggs to the dogs, the anti-nutritional factors which is present in the raw eggs would bound the essential nutrient biotin and made it unavailable to the dogs. This indiscriminate feeding leads to biotin deficiency and confirm that the cause of hairless patches were mainly due to biotin deficiency.

An awareness programme was organized for scientific feeding practices and advices were given to the native dog breeders to not feed the raw eggs to the dogs instead recommended to feed them with boiled eggs. And also advised to multivitamin supplement 5-10ml per day for one month to rectify the biotin deficiency induced dermatitis. After two months around 78% of the dogs were cured from the indiscriminate feeding raw eggs to the native dog breeds. This results was agreed with the report by Frigg *et al.*, (1989)<sup>[2]</sup> that favourable effect of biotin for treatment of fur and skin conditions in dogs. In a collaborative study with small-animal veterinary surgeons, dogs with fur and skin conditions were treated with biotin (approximately 5 mg biotin/10 kg body weight/day) for 3 to 5 weeks (Frigg *et al.*, 1989)<sup>[2]</sup>. A definite biotin requirement for dogs has not been established. (NRC, 2006; AAFCO, 2007)<sup>[3, 4]</sup>. However, diets containing raw egg white and/or antibiotics may need biotin supplementation. For dogs suggests 30 µg biotin per 1,000 kcal metabolizable energy (ME) as a safeguard against a possible deficiency.

### Conclusion

Continuous feeding of raw eggs to the native dogs should be avoided, since the anti-nutritional factor Avidin present in the raw egg might bind the biotin and make it unavailable to the dogs in turn lead to biotin deficiency especially dermatitis. The anti-nutritional factor avidin would be denatured by cooking and the essential vitamin Biotin would be available for the dogs for its utilization. Hence feeding of cooked eggs for Native Dog Breeds is recommended.

### Acknowledgement

The research team is grateful to the Authorities of Tamil Nadu Veterinary and Animal Sciences University and The Dean VCRI, Tirunelveli for according permission to carry out this research work by Department of Animal Nutrition, VCRI, Tirunelveli. The team express its hearty thanks to Head of the Department of Clinics, VCRI, Tirunelveli for guidance and Department of Animal Husbandry for their support.

### References

1. <https://nbagr.icar.gov.in/en/chippiparai-dog/>
2. Frigg M, Schulze J, Volker L. Clinical study on the effect of biotin on skin conditions in dogs. *Schweiz Arch Tierheilkd.* 1989;131(10):621-5. PMID: 2602924
3. National Research Council. *Nutrient Requirements of Dogs and Cats.* Washington, DC: National Academy Press; c2006.
4. <https://www.aafco.org/wp>