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## Therapeutic management of demodicosis in golden hamsters: A review of 5 cases

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#### Abstract

*Demodex spp* is the most common ectoparasite recognized in golden hamsters (*Mesocricetus auratus*). *Demodex criceti* and *Demodex aurati* are the two distinct species causing demodicosis in hamsters. Five Golden hamsters belongs to different age groups were presented to Teaching Veterinary Clinical Complex, Mannuthy with alopecia and erythema on the dorsal aspect of the body. Physical conditions of animals were slightly below normal. Examination of deep skin scrapings revealed mites identified as *Demodex spp*. All the five hamsters were treated with subcutaneous administration of ivermectin @ 0.3mg/kg body weight. Topically amitraz dips were recommended at weekly intervals. Oral multivitamin supplements were also given as supportive therapy. The average time period for complete recovery was found to be five consecutive treatments at 2 weeks interval in all the cases. All the animals made an uneventful recovery by 10 weeks period.

**Keywords:** *Demodex criceti*, *Demodex aurati*, golden hamster, ivermectin, amitraz

#### Introduction

Demodectic mites are normal residents of many mammalian species including humans. *Demodex spp* is the most common ectoparasite recognized in hamsters. Two distinct species of the genus *Demodex*, *D. aurati* and *D. criceti* were isolated from Golden Hamster. (Nutting, 1961) <sup>[1]</sup>. *Demodex criceti*, a non-pathogenic mite that is a resident of keratinized layer of epidermis, has a short length compared to *Demodex aurati*, which is highly pathogenic and lives in hair follicles and sebaceous glands (Karaer *et al.*, 2009) <sup>[2]</sup>. Demodicosis in hamsters are manifested by non-pruritic, dry, scaly patches of mild alopecia mainly over the hindquarters, back, neck and abdomen (Ellis and Mori, 2001) <sup>[3]</sup>. Lethargy and emaciation may also be present (Karaer *et al.*, 2009) <sup>[2]</sup>.

#### Case history and clinical observation

Five golden hamsters belongs to different age groups were presented to Teaching Veterinary Clinical Complex, Mannuthy with alopecia and erythema on dorsal parts of the body. On physical examination there were scaling, erythema and alopecia on dorsal aspects (Fig 1, 2 & 3). Scaly lesions also observed on ventral areas (Fig 4). Body conditions of animals were below normal. Examination of skin scrapings revealed mites, identified as *Demodex spp* (Fig 5).



**Fig 1:** Alopecia, erythema and crusty lesions on the dorsal aspect



**Fig 2:** Alopecic areas on the body



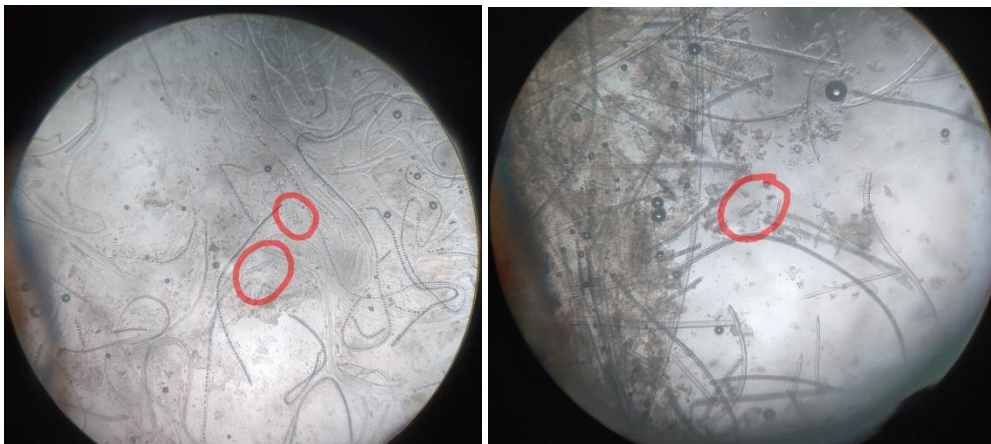
**Fig 3:** Alopecic areas on dorsal parts



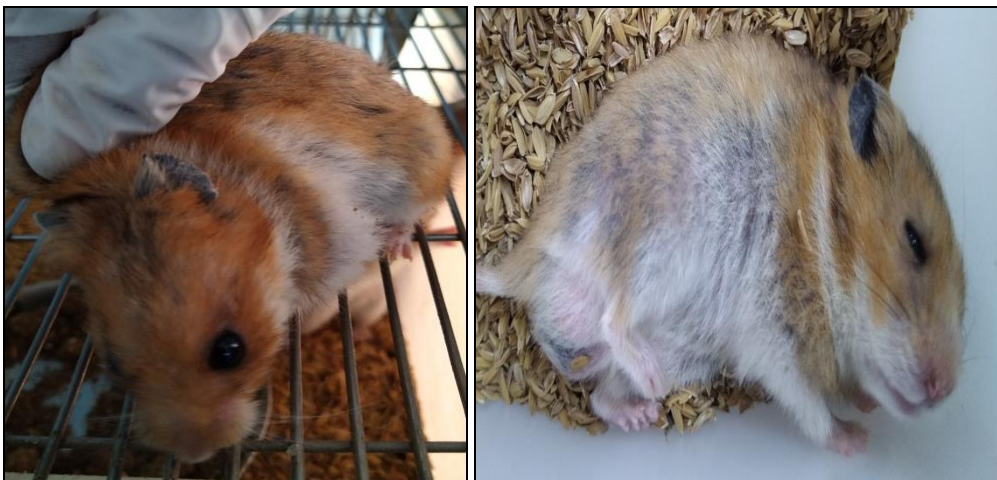
**Fig 4:** Scaly lesions on ventral area

#### **Diagnosis and treatment**

Based on clinical signs and laboratory examination findings, cases were diagnosed as demodicosis. All the five hamsters were treated with ivermectin at 0.3 mg/kg body weight subcutaneously at 2 weeks interval for 5 consecutive times. Topically amitraz dips were recommended at weekly intervals. Orally multivitamin supplements were given as supportive therapy. The animals made recovery from clinical signs and found negative for mites after 10 weeks of treatment (Fig 6).



**Fig 5:** *Demodex spp* on microscopic examination



**Fig 6:** Recovery after 10 weeks of treatment

## Discussion

The case study deals with the treatment of demodicosis using subcutaneous administration of ivermectin and amitraz topically.

Clinical demodicosis in hamsters are usually seen associated with underlying illness, immunosuppressive conditions, malnutrition and ageing (Ellis and Mori, 2001) <sup>[3]</sup>. In these cases animals were suffered from malnutrition. Usually the clinical signs associated with demodicosis in hamsters include scaly and scabby erythematous dermatitis. Alopecia is common over the back and rump area (Timm, 1988) <sup>[4]</sup>. In these animals also, lesions are mostly noticed in rump regions. Diagnosis of demodicosis is usually based on skin scrapings (Timm, 1988) <sup>[4]</sup> and histopathology.

Several treatment strategies are recommended for demodicosis in hamsters; oral, subcutaneous and topical ivermectin, topical amitraz, topical selamectin and benzoyl peroxide shampoos (Janczak *et al.*, 2017) <sup>[5]</sup> (Miller *et al.*, 2012) <sup>[6]</sup>. Miticidal agents like ivermectin can be used in small mammals at a dose rate of 0.2-0.5 mg/kg s.c., p.o. q7-14d (Meredith *et al.*, 2015) <sup>[7]</sup>. Amitraz can be used topically at 250 ppm once weekly (Miller *et al.*, 2012) <sup>[6]</sup>. These cases were managed using ivermectin at 0.3 mg/kg BW S.C., amitraz topically and oral multivitamins supplements as supportive therapy.

## Conclusion

Demodicosis is a common dermatological condition in golden hamsters caused by demodex mites of species *D. aurati* and *D. criceti*. Usually this condition is seen associated with other immunosuppressive conditions. Animals were treated using ivermectin, amitraz and multivitamin supplements. All the five golden hamsters made an uneventful recovery after 10 weeks of treatment.

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