A Case Report of the Management of Demodicosis in the Golden Hamster

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ABSTRACT. A 1.6 year-old male golden hamster was presented with alopecia on the back. The animal's physical condition was slightly below normal, and moderate pruritus was observed. Examination of skin scraping revealed mites identified as *Demodex* sp. Initially, combined therapy using 1% of selenium sulfide shampoo and a topical application of 0.013% amitraz was carried out, although this was not completely successful. Repeated use of 0.017% coumaphos was effective in achieving a complete cure of the alopecia associated with demodicosis. No adverse side effects were recognized during the treatment of this case.—**KEY WORDS:** alopecia, *Demodex* sp., golden hamster.

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Demodex mites have been found in many animal species, such as human, horse, cattle, dog, cat, mouse, hamster, and rat [5]. Two distinct species of the genus *Demodex*, *D. aurati* and *D. criceti*, were isolated from golden hamster (*Mesocricetus auratus*) in 1961 [7]. *Demodex* is thought to be a common parasite in aged hamster [1], though there are only two reports from Japan dealing with demodicosis in the golden hamster [5, 10]. Previous reports generally described the morphological properties of *Demodex* and/or distribution of the mites in the hosts [2, 5–10], hence, there is little information on the management of demodicosis in the golden hamster [1, 4, 11]. The number of rodents kept as pocket pets is increasing annually in cities, making it necessary that such information be available. Clinical signs, course, and the management of demodicosis in a golden hamster are reported in this paper.

A 1.6 year-old male golden hamster was presented to the Faculty of Agriculture's Veterinary Teaching Hospital at Miyazaki University, with focal alopecia on the back (Fig. 1). Slight hyperemia and moderate pruritus were also noted in the animal, and its physical condition was somewhat poorer than normal. Decreased appetite was also observed. Examination of skin scraping revealed mites identified as *Demodex* sp. Only one species of parasites was found in the examination, and the shape of the mites was narrow and elongated with a total length of

Fig. 1. Skin lesions of a 1.6 year-old male golden hamster with demodicosis. Alopecia, slight hyperemia, and moderate pruritus were characteristic of the lesions.

Fig. 2. *Demodex* mite collected in a skin scraping. The mite is cigar-shaped resembling *D. aurati*. $\times 150$.

153 μm (Fig. 2). The size of capitulum, podosoma, and opisthosoma was $13 \times 13 \mu\text{m}$, $23 \times 40 \mu\text{m}$, and $100 \times 20 \mu\text{m}$, respectively. *Demodex criceti* is a stubby mite ($87.4\text{--}103.4 \times 17.0\text{--}33.6 \mu\text{m}$) [5–7], while *D. aurati* is an elongated species ($183.1\text{--}191.9 \times 16.8\text{--}25.0 \mu\text{m}$) [5, 7]. The infestation of *D. aurati* results in dry skin, scaly alopecia, and pruritus, whereas the pathogenicity of *D. criceti* is low [1, 3, 6]. Judging from the morphological properties and pathogenicity, the demodex collected might be *D. aurati*. Since skin scrapings were negative for dermatophytes, the case was diagnosed as demodicosis.

The clinical course of the case is shown in Fig. 3. Upon admission the first treatment was a combined therapy using 1% selenium sulfide shampoo and a topical application of 0.013% amitraz. Shampooing with selenium sulfide was continued weekly for 6 weeks, and the alopecic area was reduced in size. Normal appetite and an overall good physical condition were also restored. When admitted for

Fig. 3. Clinical course of the hamster with demodicosis.

the second time, the hamster still had alopecia, although without pruritus. The alopecic area was again topically treated with 0.013% amitraz. The area increased in size 3 weeks after the second treatment of amitraz because of negligence in the manner of shampooing. Periodic shampooing was then done every 10 days for 8 weeks. In addition, 0.017% coumaphos was topically applied to the lesioned area at intervals of 4 days for the first 2 weeks and 7 days for the next 2 weeks. The alopecia was completely cured by this treatment, and no recurrence of the demodicosis was observed thereafter.

Among the sparse pieces of information on available the management of rodent demodicosis, Fukui [4] and Schwarzbrott *et al.* [11] described that selenium sulfide shampooing was a viable treatment for this condition. Therefore, this was the initial treatment applied. The alopecic area was also treated with 0.013% amitraz, because Burgmann [1] recommended the topical use of a miticidal preparation such as amitraz. Combined therapy using amitraz and selenium sulfide shampoo, however, did not result in a complete cure of the alopecia associated with demodicosis. The shampooing was done every 7 to 10 days, whereas amitraz was applied topically only twice in 8 weeks. The infrequent applications of amitraz may be the reason treatment was not completely effective. On the contrary, coumaphos which is one of the miticidal preparations was effective in healing demodicosis when the preparation was applied frequently to the alopecic area

(Fig. 3). This alternate treatment rid the host of demodectic mange in this case. It might actually halt the life cycle of demodex in the host. No adverse side effects were observed with treatment of either amitraz or coumaphos in the case.

The experience in this case suggests a couple of fundamental strategies applicable for the management of rodent demodicosis. 1) Miticidal preparations such as amitraz and coumaphos should be applied at least several times to gain complete cure of the lesions associated with demodicosis. 2) Miticidal agents should be used at low concentration to avoid adverse side effects. 3) Selenium sulfide shampooing is a useful supportive therapy in the management of rodent demodicosis, and allows a reduction in the topical application of the miticidal drugs with which it is used.

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