

A Successful Therapy of Mite Infection with Topical and Spray Application of Ivermectin in Four Pruritic Pigeons

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Abstract : Four pigeons which lived together of same cage were referred due to excessive feather loss, severe itching, and erythema on the head, neck and flank regions. They had behavioral problem with feather bloating and plucking. Although they were mildly depressed, appetite was normal. On microscopic examination of feather picking, prominent external parasite infection was found. Mite infection was diagnosed with morphological confirmation. On analysis of complete blood count (CBC), eosinophilia was evident. The patients were treated with ivermectin (apply 200 mcg/kg topically two times per every other week and spray 200 mcg/ml solution every week). Clinical signs of four pigeons were improved 45 days following first therapy. This case report indicates that mite infection is accompanied with severe feather loss, itching, and generalized erythema on the skin and behavioral problem with feather bloating and plucking. And this infection can be managed with topical and spray application of Ivermectin without injection.

Key words : feather mite, pigeon, ivermectin

Introduction

Feather mites are symbiotic arthropods of birds all over the world. There are two types of mites on the body of birds; Northern Fowl Mite (or Tropical Fowl Mite; *Ornithonyssus sylviarum*) and Chicken Mite (or Red mite; *Dermanyssus gallinae*). Northern Fowl Mite is the most common external parasite in bird, it lives in the tropical regions. Chicken Mite is nocturnal mite that suck at night and then hide during the day. Since mite can live off the birds and some are nocturnal, inspect bird facilities at night (7,8). These mites are the main blood-sucking mites in pigeons.

Clinical signs include broken feather, baldness and proliferative lesions on unfeathered skin around the beak, cere, eyes, vent, legs, and feet. Birds may show behavioral problem including feather bloating or plucking cause of pruritus. Lesions have a characteristic honeycomb appearance and raised yellowish. This may lead to restlessness, fatigue, anemia and even death (2,3). Severe infestations may be accompanied with Psittacine Beak and Feather Disease, psittacine circovirus (PBFDV) and mycobacterium infections and related to a lapse in immune function such as with demodex or fungal infection (12). The red mites also serve as the vector for avian spirochetes (7). Therefore, secondary infection can be occurred (fungal, bacterial, etc.) and bacterial and fungal culture is

necessary. The purpose of this case report is to present the successful ivermectin therapy with topical and spray methods in birds without injection.

Case Report

Four pigeons which lived together of same cage were referred to Konkuk University Veterinary Teaching Hospital (KVTH) due to excessive feather loss and severe itching on the head, neck and flank regions since one month ago. The patients were imported from Taiwan one year ago and used for magic shows.

On physical examination, proliferative and erythematous lesions were observed on the head, neck and flank region (Fig 1). And they had behavioral problem with feather bloating and plucking. Although they were mildly depressed, appetite was normal. On the result of complete blood count (CBC), eosinophilia was noted. On microscopic examination of feather picking on the neck, prominent external parasite infection was found (Fig 2). Mite infection was diagnosed with morphological confirmation. Feather mites differ from feather lice in body size, number of legs, appearance of the skin, and structure of the mouthpart (1). Although the presence of fungal hyphae was not confirmed on the microscopic examination, contaminated saprophytic fungus was grown in fungal culture after 7 days.

The pigeons were given ivermectin (IVERMED[®], Alcomed B V, Netherland, apply 200 mcg/kg topically every other week and spray 200 mcg/ml solution every week). And L-thyroxine

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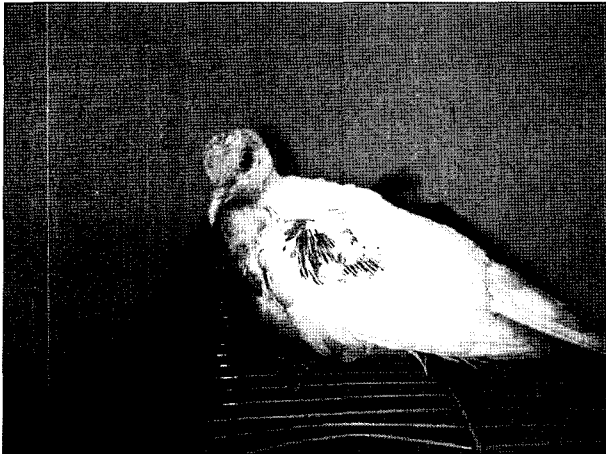


Fig 1. Proliferative and erythematous lesions on the head, neck and flank region in a pigeon.

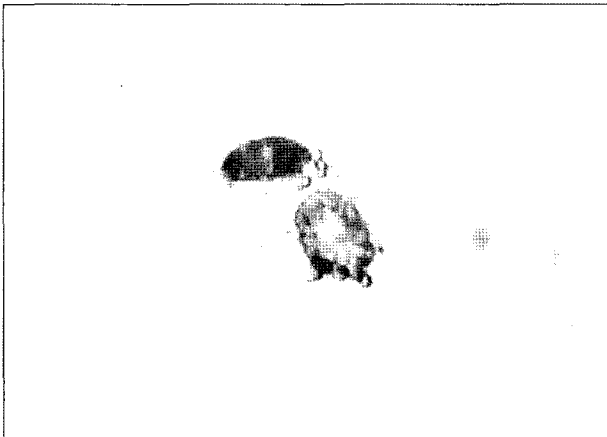


Fig 2. Mites were noted on microscopic examination of feather picking on the neck region of a pigeon (Original magnification, $\times 100$).

(20 mcg/kg, PO, Bid) was used for feather loss as a moulting dose. In addition, cages were changed to new one and each pigeon was caged separately.

Clinical signs of pigeons were improved 45 days after first therapy. Itching sign was diminished and proliferative and erythematous skin lesions were relieved.

Discussion

Many species of ectoparasite may occur in pigeons. *Ornithonyssus sylviarum* and *Dermanyssus gallinae* are the main blood-sucking mites in pigeons (6,7). They are major importance, because it feeds on pigeon blood that they can cause severe anemia (2,3,6,10,11). The mites have life cycle with four stages-egg, larva, two nymph and adult. The nymphs and adults have piercing-sucking mouthparts (chelicerae) with scissor-like structures on the end (chela) and take blood meals

from birds (7). Otherwise, feather lice found on birds do not suck blood as the lice found in other species of animals or as the feather mites. They feed on dry skin scales, feathers, and scabs instead of blood (7,8). Feather mites are non-host specific but feather lice are highly host specific and are not usually transmitted from birds to other birds (4). Lice and mites show similar general symptoms, visual evaluation is recommended when these generalized symptoms are observed (9). On the microscopic examination, feather mites (<1 mm in length) are smaller than lice (1-5 mm in length) and characterized by fused body divisions, no antennae, and four pairs of legs (larvae have 3 pairs of legs) with suctorial cups or claw-like hook. But feather lice are divided into three segments (head, thorax, and abdomen) with one pair of antennae attached to the head and three pairs of legs attached to the thorax and trachea for respiration (1).

Diagnosis is based on observation of the mite or eggs in a skin scraping or skin taping collected from the affected area (2,3,9). To diagnose blood-sucking parasite, it is often necessary to visit the pigeon loft during night (8). Taping samples are placed onto a microscopic slide after one drop of mineral oil and observed microscopically.

Effective clinical management of mite infestations requires accurate identification which is based on the anatomic features of mite. It is help to selection of the most appropriate antiparasitic agents. However ivermectin is the best ascaricide available and wide safety margin in birds. Application type and frequency may be different from species of bird, type of mite and environment (12). Treatment should be repeated two times per two weeks as needed, because the life cycle of the mites is approximately two weeks and more. Ivermectin is safe ectoparasidal drug and much less side effect in bird than mammal. According to the previous reports (4,5), application over the right jugular vein is safer than other site. Therefore we tried ivermectin to four pigeons topically two times per two weeks on the neck region and spray every week. Clinical signs were improved to the ivermectin therapy.

This case report is demonstrated that feather mite can cause feather and behavioral problems such as feather bloating, picking, and plucking in birds and also topical and spray application of Ivermectin in pigeons can be used without injection.

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네 마리의 소양감을 보이는 비둘기에서 발생한 진드기 감염(Mite Infection)의 성공적인 Ivermectin 치료 증례

이소영 · 박 철 · 김하정 · 정동인 · 강병택 · 김주원 · 임채영 · 고기진 · 조수경 · 박희명¹

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요 약: 동일 새장에서 함께 사육되는 네 마리의 비둘기가 두부, 경부, 견부의 심한 탈모, 소양감, 그리고 발적을 주 증상으로 하여 내원하였다. 이들은 약간의 움직임 저하를 보였으나, 식욕은 정상이었다. 경부 깃털 부분의 피부 소파 검사(scraping examination)상에서 외부 기생충 감염이 확인되었다. 외부 기생충은 형태학적 검사 상에서 진드기로 진단되었으며, 총 백혈구 검사(CBC)에서, 호산구 증가가 현저하게 나타났다. 비둘기에게는 ivermectin (200 mcg/kg 국소적으로 2주마다 2회 적용, 스프레이 1회 적용)이 적용되었다. 임상 증상은 첫 처치 후 45일이 지나 현저히 호전되었다. 이번 임상 증례 보고서에서는, 새의 진드기 감염인 경우에는 피부의 심한 탈모, 소양감, 그리고 전신적인 발적 등의 임상 증상 및 행동상의 문제가 나타나며 이에 대한 처치로는 ivermectin의 국소적인 처치가 유용하다는 것을 보여준다.

주요어: feather mite, pigeon, ivermectin.