

Suspected dermatophytosis in Sentul Debu chickens at a chicken farm in Majalengka Regency, West Java

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ABSTRACT: Dermatophytosis in chickens or avian ringworms is a zoonotic disease caused by fungi in the Dermatophyta group. This article reports a case of suspected dermatophytosis in Sentul Debu chickens on a chicken farm in Majalengka Regency, West Java. Three 11 month old male Sentul Debu chickens in one of the postal system rearing cages showed clinical symptoms in the form of white scales on their head, comb, and wattles. Diagnosis and treatment are based on clinical symptoms and visible lesions. Treatment uses an ointment with the active ingredient sulfur which is given 1-2 times/day for 7 days. The results of the treatment showed healing, with the head, comb, and wattle appearing to be clean from white scales.

Keywords:

suspected dermatophytosis, Sentul Debu chicken, avian ringworm, sulfur ointment

■ INTRODUCTION

Dermatophytosis is a disease caused by mould which is included in the Dermatophyta group, and this disease can be zoonotic. The causative agents of dermatophyte diseases include *Trichopyton* spp. and *Microsporum* spp. (Yamaguchi *et al.* 2014). Poultry is one of the animals that is susceptible to fungal infections, one of which is free-range chickens (Taghavi *et al.* 2014). Dermatophytosis in common chickens, also known as avian ringworm, is caused by keratinophilic moulds which attack body parts, such as skin, hair, and nails (Murata *et al.* 2013). Clinical symptoms include white spots on the comb, which can then spread to the face to the neck and develop into a layer of sandy crust. The skin can thicken and cause feather loss in infected chickens.

Tropical areas with high humidity levels have good conditions for mould growth (Taghavi *et al.* 2014). Moulds can survive in moist and warm environments such as chicken coops. Disease transmission occurs directly through interactions with the infected animals. Mould spores can survive for long periods in cages, soil, straw, and wood. This article reports the incidence of suspected cases of dermatophytosis in chickens at a chicken farm in Majalengka, West Java, with an intensive rearing system; however, there are several cages that do not receive enough sunlight. This is thought to be one of the predisposing factors for some chickens on farms to show clinical symptoms that lead to dermatophytosis.

■ CASE

Signalement: 3 male Sentul Debu chickens aged 11 months.

Anamneses: Visible hair loss in the neck area accompanied by white scales on the skin of the head, comb, and wattle.

Observations for three days showed that the chickens were still active, eating, and drinking normally. **Clinical Symptoms:** White scales do not disappear after rinsing with water. The same clinical symptoms were also found in chickens from other cages, namely postal cages E and F, colony cage B (Figure 1), and battery cage E. **Treatment:** Sulfur ointment was applied to the lesion area 1-2 times a day for 7 days, after the crust was cleaned by rubbing it with a damp sponge.



Figure 1. Chickens with clinical symptoms of feather loss in the neck area and white scales on the head and comb (cage B).

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RESULTS AND DISCUSSION

Based on the clinical symptoms in chickens from postal pen B, dermatophytosis was suspected (Figure 2A and B). Sentul Debu chickens showed clinical symptoms and lesions similar to case studies that occurred in chickens due to *Microsporium gallinae* infection (Ferreira *et al.* 2015).

The avian ringworm or dermatophytosis in roosters is mainly caused by *Microsporium gallinae* (Yamaguchi *et al.* 2014). The visible lesions are white patches accompanied by scabs on the scalp, comb, and wattles and can reach the neck accompanied by hair loss. However, other lesions can also be observed which occur due to secondary infections in the damaged skin areas (Swayne 2013). The pathogenesis of avian ringworms occurs when mould spores are present in the environment. Spores stick to the surface of the chicken skin and feathers. The keratinase enzyme in the mould breaks down the protein structure so that it can transform into skin.

Suspected dermatophytosis infection in this case was more common in male chickens than in female chickens. Cage conditions that lack exposure to sunlight can be a supporting factor for mould survival in the cage (Swayne 2013). Postal cage B is characterised by shady trees which prevent sunlight from entering the cage. Regularly cutting down tree branches is aimed at optimising the sunlight entering the cage, thereby reducing humidity and preventing recurrent infections.

There are two diagnostic methods that can be used (Swayne 2013): (1) microscopic examination of mould cultures by embedding skin scraping samples on agar media, and (2) observation of clinical symptoms and visible lesions. The diagnosis in this case was made based on clinical symptoms, and the lesions that appeared were suspected to be dermatophytosis resulting from *Microsporium gallinae* infection.



Figure 2. Conditions of Sentul Debu chickens before and after treatment. Scabs and white scales on the head, comb, and wattles of Sentul Debu chicken on (A) the left side and (B) the right side of the head. The results of the treatment showed that the head, comb, and wattles of the chicken were clean from white scales on (C) the left side and (D) the right side of the head.

Treatment of chickens uses sulfur ointment which works with a keratolytic mechanism which can help soften and exfoliate the outer layer of the skin so that dead skin cells and mould crust layers can be removed. As an antifungal, sulfur can inhibit enzymatic processes in mould metabolism, thereby inhibiting mould growth (Amich 2022). The results of the treatment showed that the head, comb, and wattles of Sentul Debu chicken were clean from white scales (Figures 2C and D). Prevention can be achieved by implementing biosecurity measures in cages through routine cleaning using disinfectants and isolation when someone has symptoms. Effective disinfectants for *Microsporium gallinae* include Benzalkonium Chloride, Chlorhexidine, Ethanol, Formaldehyde, Glutaraldehyde, Phenol, Povidone-Iodine, and Sodium hypochlorite (Thongkham *et al.* 2022).

CONCLUSION

Sentul Debu chickens at Majalengka Farms were diagnosed with suspected dermatophytosis caused by *Microsporium gallinae* infection. Treatment with sulfur ointment is considered effective for treating cases of this infection. It is recommended that trees be cut around the cage to avoid blocking sunlight, and it is necessary to increase sanitation and disinfection of the cage to prevent recurrent infections.

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