



CASE REPORT

Sancassania berlesei (Michael, 1903): an opportunistic mite infesting litters in poultry farms causing dermatitis in humans and animals

Mario Principato, Federica Lisi, Iolanda Moretta, Nada Samra,
Francesco Puccetti

Dipartimento di Scienze Biopatologiche Veterinarie. Università di Perugia, Italy

Corresponding author: Prof. Mario Principato. Dipartimento di Scienze Biopatologiche Veterinarie. Facoltà di Medicina Veterinaria, Università di Perugia. Via S.Costanzo 4, 06100 Perugia, Italy – Tel. +39 075 5857741 – Fax: +39 075 5857743 – Email: drprincipato@email.it

ABSTRACT

Reported herein are some cases of human dermatitis caused by *S. berlesei*, a mite coming from seriously infested poultry farms. It appears unable to determine traumatic lesions on human skin, but it causes itch and inflammation also at the level of mucosae. Besides this mite can be found accidentally also on reared fowls' wounds by peck.

Key Words: Mite, *Sancassania berlesei*, Dermatitis, Itch, Exam of home dusts.

RIASSUNTO

SANCASSANIA BERLESEI (MICHAEL, 1903): UN ACARO OPPORTUNISTA CONTAMINANTE LA LETTIERA DI ALLEVAMENTI AVICOLI, CAUSA DI DERMATITI NELL'UOMO E NEGLI ANIMALI

Vengono presentati alcuni episodi di dermatite umana provocati da *Sancassania berlesei*, un acaro proveniente da allevamenti avicoli fortemente infestati. Questa specie non sembra in grado di determinare lesioni traumatiche sulla cute dell'uomo, ma, piuttosto, prurito e infiammazione, soprattutto a livello delle mucose dei genitali. Questo acaro si rinviene, occasionalmente, anche nelle ferite da beccata di volatili in allevamento.

Parole chiave: Acaro, *Sancassania berlesei*, Dermatite, Prurito, Esame delle polveri ambientali.

Introduction

Sancassania berlesei, better known as *Caloglyphus berlesei*, is an environmental mite of zootechnic interest, for it develops both in dried feedstuff and in litters of big industrial poultry farms.

The species was described morphologically in 1903 by Michael and *Sancassania* genus in 1916 by Oudemans. The interest for this mite in veterinary medicine was reported for the first time in Italy by Principato *et al.* (1987; 1991a). Besides recording the presence of that mite both in dried feedstuff

and inside the farms, they described some lesions on fowls from which *S. berlesei* was isolated.

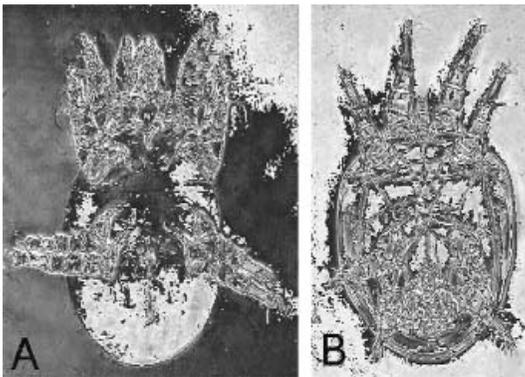
The hosts, where the mite was observed, were *Gallus gallus*, *Numida meleagris*, *Phasianus calchicus* e *Turdus merula*.

Crusty lesions were variously scattered on the hosts' skin, above all in periorcular areas, around the beak, but the mites were observed also on the feathers.

The inflammation caused itch and in some samples, particularly infested, the symptom of diarrhoea was reported as well.

Afterwards Principato *et al.* (1991b; 1991c) supplied with a S.E.M. description of adults and hypopial deutonymphs (Figure 1) of this species and in 1992 they recorded its presence in some umbrian intensive chicken farms. Nowadays, *S. berlesei* seems to be widespread and it is recorded everywhere, sometimes even in dwellings. Reported herein are some cases of human and animal dermatitis referred to the presence of *S. berlesei*.

Figure 1. *Sancassania berlesei* adult (A) and Hypopial deutonymph (Hypopus) (B).



Material and methods

The cases of dermatitis herein described were recorded through our exams of environmental dusts carried out from 2000 to 2004 in dwellings, whose owners had frequent contact with conserved farinaceous food and feedstuff and besides that took care of rearing fowls, such as chickens, turkeys, pigeons and geese. A number of 76 exams of dust samples nearly all coming from rural chicken farms was examined, coming from those dwellings where symptoms of dermatitis and itch of indefinite cause were reported.

A number of 27 were recorded in spring-summer and 49 in autumn-winter. The diagnosis was made by examining both home dusts and the dust removed from the poultry houses. The exam was effected by flotation with a saturated solution of NaCl after filtering and precipitation in absolute ethyl alcohol.

Results and discussion

The direct exam of home dusts of owners of fowls revealed the presence of *S. berlesei* in 68% of dermatitis observed in spring-summer (Figure 2) and 14% of the cases reported in autumn-winter (Figure 3). In all the cases in which *S. berlesei* was isolated in the houses, a great spread of that mite was recorded also in fowl runs with an average of mites of about n. 4000/g of dust in spring-summer and about n.1000/g of dust in autumn-winter. The number of hypopial deutonymphs increased about at half the cycle of rearing of animals. The dermatitis observed were in most cases itchy, though not continuously. The mites were frequently isolated in clothes and in underwear and itch occurred more frequently on patients' genitals, inguinal area, arms and head. In the most serious cases it was spread also on their trunk and neck. The dermatitis observed appeared always as folliculitis complicated by scratching.

Mites could be isolated from some pets' skin. On dogs the inflammation of their skin of abdomen and of the internal part of thighs resulted accompanied by a strong stimulus to scratch themselves.

On *Passeriformes* and on *Psittaciformes* the tendency of animals to pluck their feathers was evident. In chickens *S. berlesei* was present mainly inside the wounds caused by pecks, in their feathers and periocular and cloacal areas.

In general in spring-summer a higher percentage of cases of dermatitis by *S. berlesei* was reported (72%) in comparison with the autumn-winter period (28%).

Conclusions

Although the cases of human dermatitis caused by *S. berlesei* from birds are very few, it is a fact that this mites can determine itch and allergy in humans and animals. The presence of the arthropod also in underwear, with the high frequency of itch in the genital and perigenital areas appears to be interesting. *S. berlesei* is a mite that colonizes, though accidentally, animals' wounds and mucosas and its presence also in women's mucosa of vulva and vagina cannot be excluded. In this case its sanitary interest is to be correlated to the presence of bacteria of which the mite is certainly a reservoir. The possibility for this mite to

Figure 2. Frequency of cases of human dermatitis caused by environmental mites in spring-summer in people dealing with poultry houses.

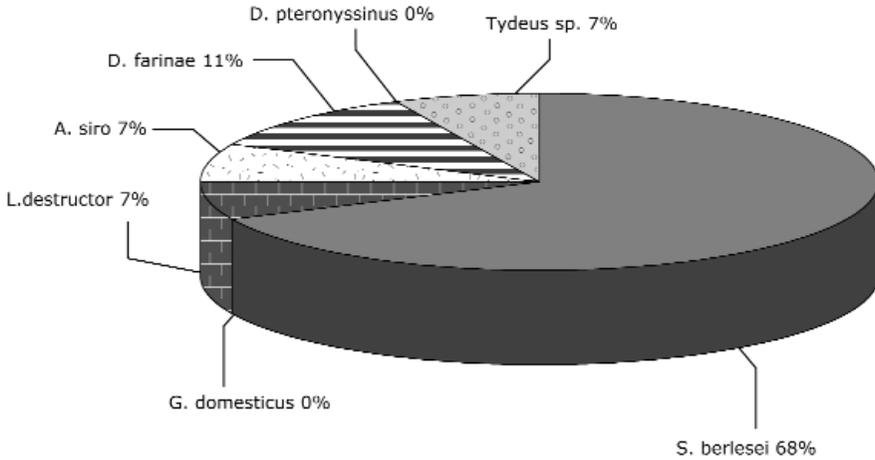
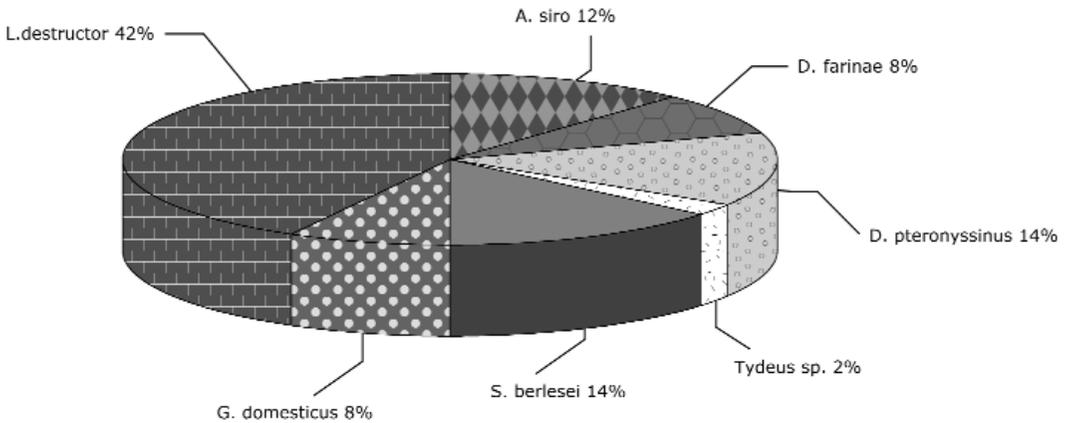


Figure 3. Frequency of human dermatitis caused by environmental mites in autumn-winter in people dealing with poultry houses.



transform itself in hypopes makes it possible the infestation from poultry houses to human dwellings with problems of allergy that can arise even some years after the contagion.

Since *S. berlesei* is a mite present in a lot of poultry farms and it is easily adaptable to any fowl run, it is necessary to contain its number through

targeted treatments of litters, in order to avoid the chance of human contagion.

A useful note for a differential diagnosis is that, contrarily to the dermatitis caused by *Glycyphagus domesticus*, the one caused by *S. berlesei* appears mainly in springtime and in summer without strophuloid lesions.

REFERENCES

- PRINCIPATO, M., COLETTI, M., SACCONI, G., 1987. Studio sull'acarofauna dei volatili. Il ruolo degli acari negli stati patologici aspecifici. Isolamento di nuove specie patogene. *Summa*. 4:229-237.
- PRINCIPATO, M., GALLI, R., SANNIPOLI, C.G.T., 1991a. Observations on the presence of *Caloglyphus berlesei* (*Astigmata: Acaridae*) in the litter of some industrial poultry farms in Umbria. *Zootecnica International*. 13(2):40-45.
- PRINCIPATO, M., GROSSI, M., POLIDORI, G.A., 1991b. Osservazioni al M.E.S. sulle forme invasive di *Caloglyphus berlesei* (*Acarina: Acaridae*). pp 99-100 in Proc. 18th Nat. Congr. Microscopia Elettronica, Padova, Italy.
- PRINCIPATO, M., ROSSODIVITA, M.E., GROSSI, M., POLIDORI, G.A., 1991c. Le ninfe ipopiali di *Caloglyphus berlesei* (*Michael*) (*Acarina: Acaridae*): osservazioni al M.E.S. pp 95-96. Atti del 18° Congr. Naz. di M.E., 24-28 Sett. 1991. Padova, Italia.