



## CASE REPORT

# Ceruminous otitis in native chicken breeders belonging to *Robusta Lionata* breed

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### ABSTRACT

At the beginning of 2005, an outbreak of ceruminous otitis has been observed in a breeders flock belonging to the *Robusta Lionata* breed, a native chicken breed reared in a Centre for the valorisation and conservation of native poultry breeds. The disease caused a high morbidity rate (90% of birds), whereas the mortality affected only 10% of the birds. The death of the birds was preceded by clinical signs, such as worsening of the ceruminous otitis with abundant secretion of bad-smelling cerumen, lack of appetite and depression. The otitis externa, mainly bilateral, was the only evident finding at necropsy. Laboratory examinations showed only the presence of *Mycoplasma synoviae*, either by isolation on culture media or by PCR, on ear and choana samples. *Aspergillus fumigatus* was detected only in one bird. In this paper, the Authors report for the first time on an outbreak of ceruminous otitis in native chicken breeds and point out that the only pathogenic agent isolated from the birds has been *Mycoplasma synoviae*.

*Key Words:* Native chickens, Otitis, *Mycoplasma spp.*

### RIASSUNTO

#### FOCOLAIO DI OTITE CERUMINOSA IN POLLAME DA RIPRODUZIONE DI RAZZA ROBUSTA LIONATA

Agli inizi del 2005 è stato osservato un focolaio di otite ceruminosa in un gruppo di riproduttori di *Robusta Lionata* allevati in un Centro per la valorizzazione e la conservazione delle razze avicole del Veneto. La patologia si è manifestata con un'alta morbilità (90% dei capi), mentre la mortalità ha interessato solo il 10% degli effettivi ed è stata preceduta dal progressivo aggravarsi dell'otite con abbondante secrezione di cerume maleodorante, inappetenza ed abbattimento. L'esame necroscopico ha evidenziato solo la presenza di otite ceruminosa, in genere bilaterale. Gli esami di laboratorio hanno evidenziato la sola presenza di *Mycoplasma synoviae*, sia con metodo culturale classico sia mediante PCR, in campioni prelevati dall'orecchio e dalle coane. Solo in un soggetto è stato isolato anche *Aspergillus fumigatus*. Con questo lavoro gli AA. intendono segnalare un episodio di otite ceruminosa mai descritta in bibliografia ed evidenziare il fatto che l'unico agente patogeno riscontrato in tutti i soggetti è stato *Mycoplasma synoviae*.

Parole chiave: : Razze avicole autoctone, Otite, *Mycoplasma spp.*

### Introduction

In the last years many programs for the valorisation and protection of native chicken breeds

have been implemented in Italy. In the '50s native chicken breeds were commonly reared in our countryside, but after the industrialization of poultry production in the '70s and '80s, they

have undergone to a rapid decrease.

Only recently, following the work of many regional Agencies and Universities, some endangered chicken breeds have been reintroduced on our territories.

Health status of these native chicken breeds is interesting to investigate in order to obtain an outline of the diseases that can affect every breed and that may be very different to those of intensive reared chickens, either for the pathogenesis or for the morbidity and mortality rates.

At the beginning of 2005, an outbreak of ceruminous otitis has been observed in a breeders flock belonging to the *Robusta Lionata* breed, a native chicken breed reared in a Centre for the valorisation and conservation of native poultry breeds (Veneto Region, Northern Italy).

*Robusta Lionata* is a native breed reared in the Veneto Region, with a high rate of egg production, but mainly reared for meat production. The adults are distinguished by a tawny-coloured feathering, a black tail with greenish tints and dark colouration of the wings. Feet and skin are yellow-coloured. The standard weight of cocks is about 4 kg, whereas the hens weight up to 3 kg (Fracanzani, 1985; Zanon *et al.*, 2001).

## Material and methods

### *Birds*

The outbreak occurred in a breeding Centre working for the conservation of native chicken breeds in the Veneto Region. Chicken breeders belonging to *Robusta Lionata* breed, placed in flocks of 40 birds, were reared in open paddocks of about 400 square metres. Other than *Robusta Lionata*, in the Centre various other chicken breeds were reared, such as *Ermellinata di Rovigo*, *Pèpoi*, etc. About a thousand of birds were housed in the Centre.

The otitis affected a flock of male breeders at the end of the reproductive season, late in the spring.

The disease caused a high morbidity rate (90% of birds), whereas the mortality affected only 10% of the birds. The death of the birds was preceded by clinical signs, such as worsening of the ceruminous otitis with abundant secretion of bad-smelling cerumen, lack of appetite and depression.

### *Post-mortem examination*

Necropsy was performed on few dead birds. The birds showed a good feathering, absence of external parasites and weight loss. The otitis externa, mainly bilateral and with different degrees of severity, was the only evident finding at necropsy.

### *Bacteriological examination*

A bacteriological screening on swabs from the ear canals was carried out by direct streaking and following enrichment on Blood Agar (with 5% sheep blood) and MacConkey Agar incubated under aerobic, anaerobic and microaerophilic conditions. The bacteriological examination was performed on brain and liver samples of dead birds, as well.

Furthermore, the presence of mycoplasmas was investigated either by classical isolation techniques or by PCR on swabs collected from ear and choana.

### *Mycological examination*

Direct streaking on Sabouraud Agar and following incubation at 37°C for 12 days was carried out from ear swabs.

Finally, cerumen samples were examined by stereomicroscopy for the possible presence of parasites.

## Results and discussion

Cases of otitis externa have never been reported in chickens, therefore it is very difficult to explain our findings and determine the true cause of the disease.

Gross examination of bird carcasses showed only the presence of ceruminous otitis, usually bilateral; oedema on wattles or sinusitis were never detected.

Bacteriological examination performed on brain and liver samples showed no signs of bacterial growth, while the material collected from the ear canals yielded an aspecific polymicrobism, such as *Bacillus* spp., *E.coli* and *Corynebacterium* spp. *Pasteurella multocida* was never isolated. *Mycoplasma synoviae* was detected either by isolation on culture media or by PCR on both ear and choana samples.

*Aspergillus fumigatus* was detected only in one bird, whereas stereomicroscopy showed neither parasites nor foreign bodies.

### Conclusions

In this paper, we report on an outbreak of ceruminous otitis in local chicken breeds and we point out that the only pathogenic agent isolated from the birds has been *Mycoplasma synoviae*. Nevertheless, it is unlikely that *M. synoviae* was the primary cause or a predisposing agent of the disease, because of its weak invasiveness through the stratified epithelium of ear canal. The presence of *M. synoviae* in loco could be ascribed to the deposition of environmental bacterial aerosol in non-SPF birds.

Certainly, one of the predisposing factors of the otitis is the characteristic anatomical conformation of the ears of this chicken breed, that is abundant presence of feathers which obstruct entirely the external ear opening.

Attempted systemic antimicrobial therapy (oxytetracycline, amoxicillin and tylosin) and topical medication (iodine solutions) of affected birds have yielded only a transitory, but never a complete recovery.

Cases of otitis have been reported in other animals, such as cattle and swine (Morita *et al.*, 1995; Duarte *et al.*, 2004; Lamm *et al.*, 2004), where mycoplasmas have been isolated and considered the primary agents of the disease.

Nevertheless, this condition has to be taken into account in breeding selection programmes, especially inbreeding of commercial broiler lines.

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