

Histomoniasis in turkeys and chickens: prevention and treatment

Turkeys are by far the most susceptible species for the disease histomoniasis (blackhead). The disease caused by the parasite *Histomonas meleagridis* may lead to outbreaks characterised by high losses with mortality that may increase up to 100%.

by **Monita Vereecken,**
Technical Team of
Huvepharma NV, Belgium.
www.huvepharma.com

Histomoniasis causes very typical lesions in caeca and liver, therefore the diagnosis can be easily made when doing necropsy on dead or diseased turkeys. Laboratory diagnosis by microscopy, histology, PCR or cultivation can be used for diagnosis confirmation.

Emerging disease for breeders and layers

Recently, histomoniasis has been reported as an emerging disease for breeders and layers. Where, in the past, chickens were believed to be mainly asymptomatic carriers for *Histomonas meleagridis*, nowadays more outbreaks in chickens have been reported with increased

mortality and a drop in egg production.

Organic flocks as well as conventional farms may be affected and clinical signs vary from acute forms with rapidly increasing mortality to lingering elevated mortality for several weeks.

Typical caecal cores and necrotic lesions in the livers are the predominant lesions reported. In chickens, co-infection with other diseases might increase mortality.

Histomoniasis has been described as a complicating factor in chronic *Escherichia coli* infections.

Often, histomoniasis is diagnosed after antimicrobial treatment against *Escherichia coli* infections fails.

In these cases where co-infection occurs, typically after diagnosis of *Escherichia coli* septicaemia (by necropsy and bacteriological investigation), there is limited or no improvement of treatment with antimicrobials, even though their use is based upon sensitivity testing.

In these cases, *Histomonas meleagridis* can be a possible reason for the lingering mortality. Diagnosis for *Histomonas* is then most frequently made based upon PCR testing of the typical caecal cores that are often observed in these cases.

Due to ever increasing regulatory restrictions, no drugs against



Turkeys affected with histomoniasis will be sick, sitting down silently (hunching) with closed eyes and drooped wings.

histomoniasis have been registered for food producing animals on the European market for several decades.

New veterinary premix

The only exception is the product 'Paromomicina Huvepharma', a veterinary premix containing the active paromomycin sulphate, which is registered in Italy with the indication that it can be used in

turkeys for the treatment of histomoniasis when the disease has been diagnosed in the flock.

It is currently the only registered product in Europe for this indication.

It has been demonstrated that paromomycin is an effective molecule for the reduction of mortality and lesions due to histomoniasis when it is applied in an early stage of the infection.

Paromomycin is an antibiotic,

Continued on page 28

Typical lesions caused by *Histomonas meleagridis* in caeca and liver after experimental infection in chickens. Administration of paromomycin sulphate was able to decrease the occurrence of severe lesions in the caeca and prevented the occurrence of specific *Histomonas* lesions in the livers (Vereecken et al, 2015).



Continued from page 27

belonging to the aminoglycosides group. Besides the antibacterial activity, paromomycin also exerts an activity against certain parasites.

This is also shown for the parasite causing histomoniasis, where the binding site of paromomycin on the parasite has been demonstrated.

The need for early application is linked to the fact that paromomycin is poorly absorbed from the gastrointestinal tract.

The parasite will only be present in the gut (caeca) at an early stage of infection, where it is sensitive for the activity of the product.

In a later stage of infection, the parasite will move to the inner organs (especially the liver) where it is difficult for the product to reach it.

Early diagnosis is crucial

Early diagnosis of histomoniasis is crucial to avoid disaster in the flock. Turkeys affected with histomoniasis will be sick, sitting down silently (hunching) with closed eyes and drooped wings.

Typical sulphur-coloured diarrhoea can be found in the flock. Increased mortality should be checked as quickly as possible by performing necropsy on the dead animals;

paying special attention to caeca and the livers.

In breeder or layer flocks, with elevated mortality special attention should be paid to the caeca when doing necropsies. The presence of caecal plugs are an indication that *Histomonas* might be involved.

Another possibility is to use the sensitive PCR testing to detect histomoniasis at a very early stage.

Dust is a sensitive substrate to detect *Histomonas* and can help to identify farms where the parasite is present and where special attention should be paid when doing necropsy.

Once the disease is present in the flock, paromomycin should be applied as quickly as possible.

Besides treatment with paromomycin, attention must be paid to the management of the farm. Sick turkeys will spread the disease and must be culled or isolated as quickly as possible.

Good hygiene and litter management

Good hygiene and litter management in affected farms is crucial to try to stop the spread of the disease.

Bringing fresh, new litter into the house, dividing the house into compartments, removing affected

birds and an increased level of biosecurity in the farm will contribute to the decrease of spreading of the parasite.

The importance of *Heterakis gallinarum* for the transmission of the disease is often questioned. It can be assumed that *Heterakis gallinarum* is of importance as an intermediate host for the introduction of the disease into the farms.

The flagellated form of *Histomonas* is only able to survive for several hours outside the host, whilst the form in *Heterakis* eggs can survive for years.

Horizontal transmission by cloacal drinking is probably of more importance for the spreading of *Histomonas* within the flock.

Even though chickens are better hosts for *Heterakis gallinarum* than turkeys, the presence of *Histomonas* will compromise the survival of the worm and the production of eggs.

This aspect, in combination with the low sensitivity of the classic worm count investigation, may underestimate the actual role of *Heterakis gallinarum* in turkeys and in chickens.

It is therefore advisable to regularly deworm flocks where *Histomonas* outbreaks occur so that infection of *Heterakis* eggs with *Histomonas* (and spread of the

disease to the next or other flocks) is avoided as much as possible.

This is especially important in breeders and layers as they are better hosts for *Heterakis* and they usually live for longer periods, allowing an infection pressure to build up.

Therefore, deworming should be considered an important strategy in the management of histomoniasis outbreaks.

Summary

In summary, histomoniasis remains a severe problem in turkeys and is an emerging problem in breeders and layers.

Currently, only paromomycin (*Paromomicina Huvepharma*) is registered in Europe (Italy) with the indication of treatment of histomoniasis in turkeys.

The product needs to be applied in the very early stages of infection and should be accompanied by increased management of the affected flocks.

In breeders and layers, it is recommended to regularly deworm in order to avoid infection of *Heterakis* eggs with *Histomonas*. ■

References are available from the author on request