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Case of eyeworm in Kenyan indigenous chickens?

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Clinical history

- Birds were mainly of various ages and sexes, presenting with swollen eye(s)
- Uni- or bi-lateral
- Mainly indigenous
- Some raised free-range, others backyard
- Some also had lice or mites
- Were paper-weight
- All of them were brought live



History by the farmers

- One bird affected at a time
- Goes off feed
- Becomes wasted (emaciated)
- Then dies
- Farmers will have used all sorts of antibiotics
- Some had vaccinated their birds against ND and Gumboro
- Farmers frustrated by the condition



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Swollen right eye - LCB



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Left eye not swollen -
LCB



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Seems to be feeling pain
- LCB



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After removal –
pus material - LCB

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Reaction peri-orbital - LCB

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Carcass emaciated - LCB





Other organs okay





Laboratory diagnosis

- Since suspected bacterial infection, pus swab taken for bacteriology
 - *Pseudomonas aeruginosa*
 - *Staphylococcus aureus* - severally
 - *Staphylococcus* and *Pasteurella*, but *Staphylococcus* more abundant
 - *E. coli*

Concluded

- Pus due to bacterial infection
- There must be some irritation of the eye, facilitating secondary bacterial infection
- Bacteria involved depended on ones in the bird's environment
- Explaining the variation of bacteriological results



Differential diagnosis of the underlying problem

- Dust/wind
- Vitamin A deficiency
- Pneumo virus
- Pasteurellosis
- Coryza
- Aspergillosis
- Pox
- Eye worm



ELIMINATIONS

Dust

Ruled out as all except one farmer said there was no dust where they kept the birds

Vitamin A deficiency

Ruled out because:

- Normally night blindness + caseous material but not as much
- Both eyes would be involved
- No signs of deficiency in the oesophagus (glands not prominent)
- No improvement on supplementation



Pneumo virus

Ruled out because

- More birds would be infected at one time
- Normally both eyes would be infected
- No pathology seen in upper respiratory tract

Pasteurellosis

Ruled out because

- Swelling is normally due to oedema, not pus
- It was isolated in only two of the cases
- If the cause, should have been isolated in all of the cases
- This was not the case
- Where isolated, they were not the main ones



Coyza/Swollen-head syndrome

Ruled out because

- Normally the whole head swells – sinusitis





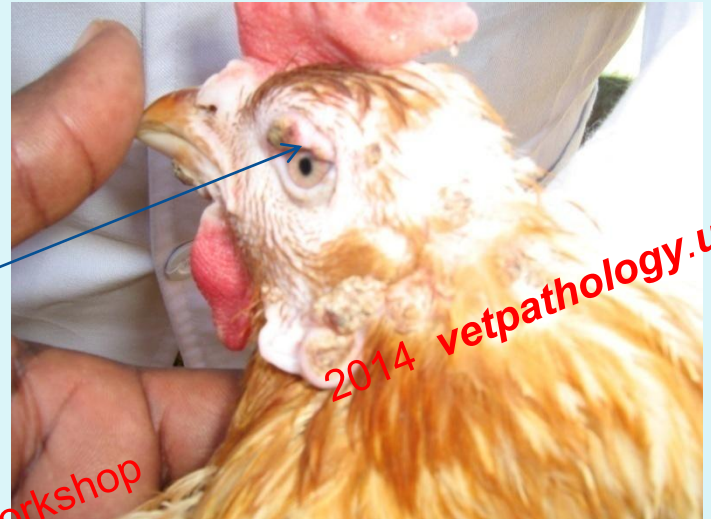
Aspergillosis

Ruled out because:

- *Can affect one or both eyes
- *Normally accompanied by respiratory signs
- *Would have grown when isolating bacteria
- *Didn't grow

Fowl pox:

Ruled out because, the lesions are typical





Treatment

- Mainly towards the infection – antibiotics
- Did not solve the problem
- Later changed tact and included vitamins, in case it was Vitamin A deficiency
- Also no change
- Brought in when too advanced?



Eye worm

- 10 days later farmer still complaining – losing birds
- Agreed to bring some of the sick birds for further investigation

Decided to google “Swollen eye”:

- Found lots of literature on eye worm
- That it is common in backyard chicken
- Is a small white worm that lodges in the corner of a chicken’s eye
- * The eye becomes swollen, inflamed, and watery, impairing vision
- * The eyelids may stick together and the eye may turn cloudy and eventually be destroyed
- * Meantime, the chicken scratches the eye, trying to relieve irritation



Eye worm (cont)

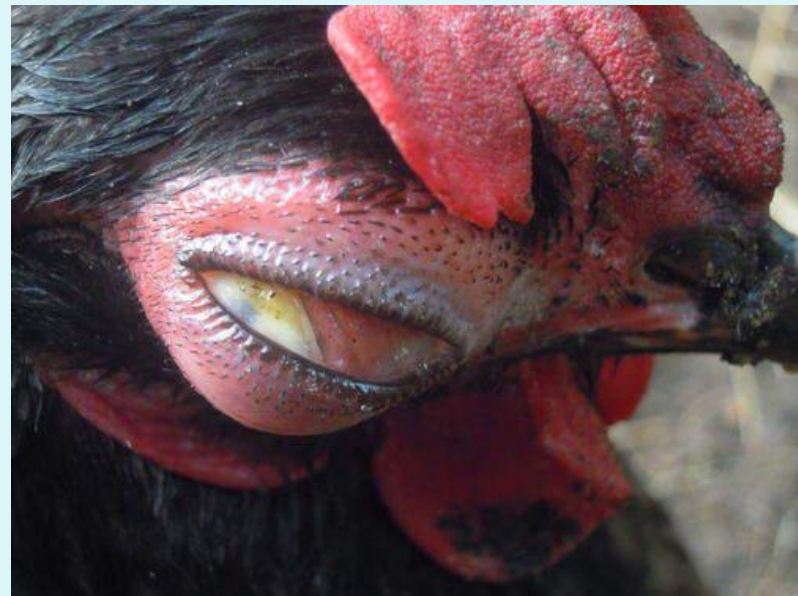
- Eye worms have an indirect cycle
- * Worm eggs deposited in the eye pass into the tear duct, are swallowed by the chicken and expelled in droppings, and are eaten by cockroaches
- * When a chicken eats an infective cockroach, worm larvae migrate up the oesophagus to the mouth, through the tear duct, and into the eye
- Controlling cockroaches around the hen house controls eye worm

The latest farmer we communicated with said he doesn't have cockroaches in his farm

- Later learnt that any arthropod can serve as intermediate host



Some of eye worm pictures on the internet resembled what we were seeing – mainly affecting one eye but sometimes both eyes



Pictures from internet



Picture of eye worm (from net)





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Wild birds are also infected by eye worm and may help spread it to chicken flock

Picture from the net -
Quail





We did not see the worms since we did not look for them

Also, may be, when the birds were brought-in the conditions were already at advanced stage

The farmer, we communicated with, said there were many of his friends battling the same condition

Since he had brought in birds from a friend, he believed that they were the ones that brought the disease



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THANK YOU