



Some Clinical And Pathological Features Of Enteritis In Broilers — Observations On Treatment In The UK — Mark Pattison, Ph.D., D.P.M.P., M.R.C.V.S.

“Biography”

Qualified as a Veterinary Surgeon in 1968 from Bristol University Veterinary School.

- 1968 - 1970 General Practice in Langport, Somerset.
- 1970 - 1974 Research and diagnostic work in Poultry Department, Central Veterinary Laboratory, Weybridge.
- 1972 Awarded MSc Veterinary Pathology from London University.
- 1974 - 1982 Head of Veterinary Services for Ross Breeders, Newbridge, Midlothian, Scotland.
- 1976 Awarded Ph.D for thesis “Studies on the Pathology of Infectious Bursal Disease”.
- 1982 Head of Veterinary Services for Sun Valley Poultry, Hereford.
- 1984 President of British Veterinary Poultry Association.

- 1987 Awarded R.C.V.S. Diploma in Poultry Medicine and Production.
- 1991 Group Technical Manager for Sun Valley Poultry, Hereford with responsibility for veterinary, technical and laboratory services for the Company.
- 1992 Editor of poultry text book “The Health of Poultry” published by Longman.
- 1996 Veterinary Services Director, Sun Valley Poultry, Hereford.
- 1996 Co editor with F.T.W. Jordan textbook Poultry Diseases, 4th Edition published by W.B. Saunders Company Ltd.
- 2001 Co editor with F.T.W. Jordan, D.Alexander, J.T.Faragher, 5th Edition published by W.B. Saunders Company Ltd.

Some Clinical And Pathological Features Of Enteritis In Broilers -- Observations On Treatment In The UK “Abstract”

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Introduction

The appearance of wet litter with birds producing abnormally wet droppings has become a regular feature of UK broiler production. It is important to recognise the problem quickly, make an appropriate diagnosis and treat as quickly as possible. It may also be possible to anticipate when the problem may arise and devise a preventive strategy to minimise the effects of the disease.

Clinical signs

The signs of enteritis are seen at any time from about 15 days. The disease is characterised by diarrhoea with the production of abnormally wet droppings. The faeces usually have a larger volume, are pale or viscous with an excess of fluid around them. The use of litter boxes (described elsewhere) can be helpful in recognising the early stages of the condition. At the onset of enteritis there is normally an increase in water intake but sometimes there may actually be a reduction in water consumption. Sometimes birds are huddled with ruffled feathers but this is not a consistent feature. Often selective feeding is reported where birds ‘flick’ feed or whole grains out of the pans onto the litter.

The end result is a reduction in growth and an adverse effect on feed conversion. There are often secondary effects such as an increase in leg problems due to osteomyelitis.

Post mortem features

The signs described above are similar for quite a broad range of pathological lesions. The most severe lesions are seen in necrotic enteritis, but these occur less frequently now, as most cases of enteritis occur without mortality.

Where death occurs, the birds are usually in good condition with food in the crop and gizzard indicating that death has been sudden. There is often a greenish tinge on the abdomen and the intestinal tract is swollen and flaccid, with a thin wall. There are usually focal areas of ulceration or larger patches of necrosis, which ultimately coalesce resulting in sloughing of the intestinal lining.

It is much more common to investigate cases of wet litter or enteritis where no mortality has occurred. In this situation it is convenient to examine six freshly culled birds per house. They should be average birds neither the biggest nor the smallest. The intestines are incised at three points to include the duodenum, mid intestine and lower intestine. The aim is to follow the digestive process and examine the contents to see if they become progressively more solid.

Where the enteritis is mild the wall of the intestine maybe thinned, ballooned or slightly inflamed. The gut contents may be full of bubbles, watery or contain viscous orange-coloured mucus. Occasionally the contents appear yoghurt-like and the presence of whole grains of wheat is indicative that digestion is not occurring properly. This condition is often referred to as dysbacteriosis.

In many cases, there is no enteritis and the intestine contains an abnormal amount of fluid, which is clear and like water. The caecae may be dilated.

It is important to distinguish this condition from malabsorption syndrome which can produce similar clinical signs, in particular selective feeding behaviour. Also the possibility of coccidiosis either at a clinical or sub-clinical level must be considered.

Prevention and Treatment

Various strategies have been employed within one integration with varying degrees of success. These regimes have to be changed regularly because, not surprisingly, the antibiotics become less effective over time.

Tylosin tartrate (Tylan[®], Elanco Animal Health) was used in a prevention programme for three crop cycles as follows:

Treatment was given for two days at 14 and 15 days, repeated at 21 and 22 days at a dose of 100mg/5000 kg bodyweight. The farms were categorised according to the effectiveness of the treatment. Of 78 farms, 55 completed three cycles of production without any clinical signs of enteritis. On 15 farms,

some or all the houses had to be treated and the product used was amoxycillin. Eight farms did not receive the Tylan programme and all had to be treated and amoxycillin was used.

After three cycles, in order to prevent the response to Tylan becoming -less satisfactory, it was decided to rest this product.

Amoxycillin has been used as the standard for treatment but proved not to be effective in a prevention programme. There are signs, too, that this product became less effective over time and several flocks have had to be treated twice or even three times. Other prevention programmes have been tried:

- Penicillin in starter crumb at 1.2 Kg/tonne for 10 days was not effective, compared with two years ago when it worked well.
- Lincospectin at 50mg/Kg in water for 5 days at the start followed by chlortetracycline at 20-25 days in feed was reasonably effective. If the chlortetracycline was given earlier at 10-20 days, it was less effective.

In relatively mild cases it can be very difficult to decide whether to treat. There is always the possibility that if you decide not to treat, feed conversion will suddenly be lost with disastrous financial consequences.

Conclusion

Some farms are regularly affected by enteritis whereas others only see the problem intermittently. So there must be important factors of management and farm conditions which influence this syndrome.

It is quite clear that treating this condition with therapeutic medicines is not a sustainable long-term proposition.

A solution needs to be found so that these important medicines are being used sparingly and resistance does not become a problem.

The answers may differ between organisations and farms but will involve a combination of more optimal management, nutrition and satisfactory control of intercurrent disease.

Some Clinical And Pathological Features Of Enteritis In Broilers — Observations On Treatment In The UK

“Slide Presentation”

Figure C-1.

Some clinical and pathological features of enteritis in broilers- observations on treatment in the UK

Dr Mark Pattison
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Figure C-2.

HISTORY

March 2000	Removal of AGPs
November 2000	Appearance of wet litter @ around 21 days
December 2000	Use of Amoxycillin for treatment/prevention
June 2001	Use of Tylan as preventive




Figure C-3.

GROWING REGIME

No. of birds killed/week	970,000
No. of farms	78
Killing ages	37 days pullets 47 days pullets 52 days cockerels
Coccidiostat to May 2001	Nicarbazin 0-20 days Ionophore 21-32 days
Coccidiostat after June 2001	Nicarbazin 0-12 days Ionophore 13-32 days




Figure C-4.

Clinical Signs

- Droppings - larger volume with excess fluid around- maybe pale and viscous
- Water intake- usually increases, but may decrease
- Mortality may rise
- Selective feeding 'flicking of wheat or feed
- Ruffled feathers - sometimes
- Huddling - sometimes
- Secondary disease - leg problems





Figure C-5.

Post mortem procedure

- Examine duodenum/ mid intestine/ terminal intestine
- Follow the digestive process
- Cull 6 birds/house



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Figure C-6.

Cholangiohepatitis



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Figure C-7.

Post mortem findings- three conditions

- Necrotic enteritis
- Dysbacteriosis/ mild enteritis
- Watery gut contents




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Figure C-8.

Necrotic enteritis



- Birds in good condition- food in crop
- Greenish tinge on abdomen
- Intestine swollen and flaccid
- Gut lining ulcerated or necrotic and sloughing



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Figure C-9.

Severe and extensive necrosis typical of field cases of necrotic enteritis




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Figure C-10.

Dysbacteriosis/mild enteritis

- Intestine thinned, ballooned or slightly inflamed
- Gut contents
- full of bubbles
- watery
- viscous, orange mucus
- yoghurt-like
- whole grains of wheat



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Figure C-11.

Watery gut

- No enteritis
- gut wall slightly thin with watery contents
- caecae may be dilated



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Figure C-12.

Mild Enteritis and ballooning



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Figure C-13.

Mild enteritis and ballooning



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Figure C-14.



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Figure C-15.

Differential diagnosis

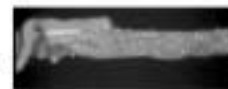
- Malabsorption syndrome
- Coccidiosis



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Figure C-16.

• *Eimeria acervulina*



• *Eimeria maxima*



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Figure C-17.



Figure C-18.

USE OF TYLAN

Preventive regime	-	14 & 15 days
	-	21 & 22 days
Dose	-	100g/5,000kg bodyweight
Cost	-	1.3p/m ² per week
Average grower margin	-	65p/m ² per week

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Figure C-19.

RESULTS OF TREATMENT

Category 1	-	Tylan used, no enteritis or clinical signs
Category 2	-	Tylan used, some or all houses treated with amoxicillin
Category 3	-	No Tylan used, amoxicillin used as required
Category 4	-	No antibiotic treatment

No. of farms in each category:-	Category 1	55
	Category 2	15
	Category 3	8
	Category 4	0
		78

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Figure C-20.

- OBSERVATIONS**
1. Most farms consistently fall into same category - after 3 cycles.
 2. On at least 5 farms, only Ross had to be treated (especially abnormal feeding).
 3. Tylan prevention programme was generally successful.
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Figure C-21.

- Other prevention programmes**
- Penicillin in starter crumb 0-10 days, 1.2Kg/tonne
 - Lincospectin 50mg/Kg - 5 days in water
 - Chlortetracycline 4Kg/tonne-10-20 days or 20-25 days
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