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(2010 / 7 / 13 2010 / 1 /26)

 $.810 \times 1.5$

E.tenella

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The Study of the Histopathological Changes in Cecaum of Experimental Infection of Salmonella spp. and Eimeria tenella in Broiler

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ABSTRACT

Co - experimental infection with *Eimeria tenella* and *Salmonella spp*. was conducted in broilers. Ninty broilers at thirty days of age were divided in to three groups, 30/ group. The first group was considered as control, the second group was given orally $5x10^4$ sporulated oocysts of *E. tenella*. The third group was inoculated with the same number of sporulated oocysts in addition to the inoculaton of 1.5×10^8 *Salmonella* microorganisum.

The clinical signs observed in these group were restricted only to the second and third group. The gross lesions in these groups showed clinical signs which were charectrized by necrosis and bleeding of cecal tissue especially the second generation of schizogony and gametes was evident in tissue section with the severity of lesion. In addition there was an inflammatory reaction with polymorphneuclear leucocyte especially among third group which was infected with *Salmonella spp*.

Keywords: Salmonella spp., Eimeria tenella, Broiler.

(Fitz- coy, 1991)

. (Andrewes , 1996)

E.tenella

. (Williams, 19998)

29

E.tenella Sporozoa Eimeria . (Reid et al., 1984) 46 - 7 Salmonella PH = 4 - 9PH = 7(Lister, 1988) 37 .(2004 Andrewes, 1996) . (Nakamura $et\ al.$,1997) u.m 2,4 x 0.6 ² 4 x 3.5 (1 90 / 30 (2 E.tenella Potassium dichromat 28 ² 1

⁴10 x 5

Haemocytometer

. (Hortvikova & Bedrank, 2002)

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        (SSA)
     3
           0.3
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                    . (Fernandos etal., 2001) ^810 \times 1.5
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       <sup>4</sup>10 x 5
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                                    E.tenella
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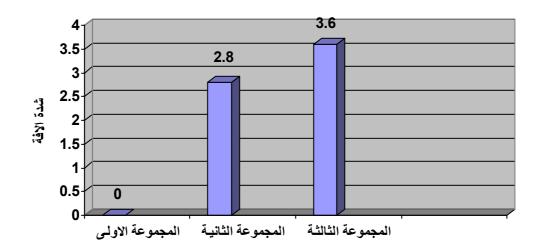
. (Johnson and Reid, 1970) (E.tenella %10 2 5 Sony - DCS - W30 /)(Luna, 1968) (Japan (E-leitz, GmbH, Wetzlar) 10 2 . (2005,) 10 X

31

%23.3 %43.3

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3.6 (1) 2.8 .(5,4,3,2)



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(7,6)

. (9,8)

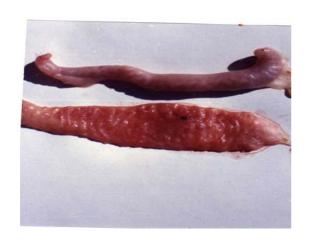
. (11)

(14, 13, 12)

33

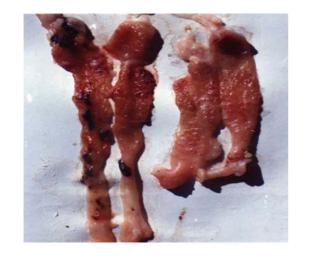
(16, 15)

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(3) : 3 : 2

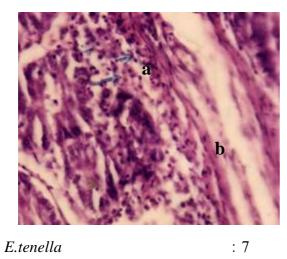
.(4+) .(2+)

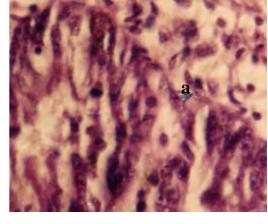


(3) : 5 (2)

: 4

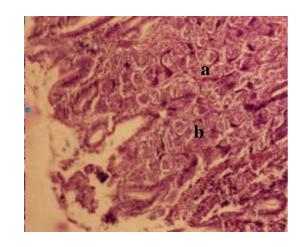
) .(3+

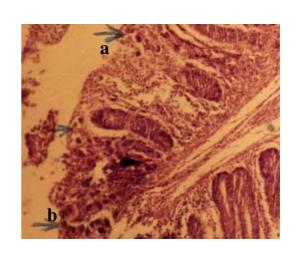




E.tenella : 7
(2)
(a)
. (400X) H&E (b)

E.tenella : 6
(2)
(a)
.(450X) H&E

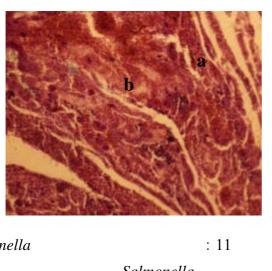


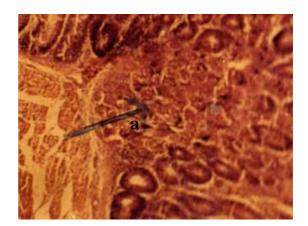


E.tenella : 9
(3) Salmonella
(a)
(b) . (100X) H&E

E.tenella : 8
(3) Salmonella
(a)
(b)
. (90X) H&E

35





: 10

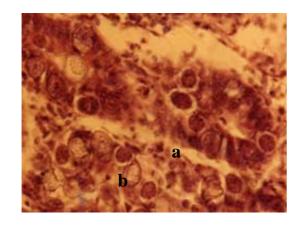
E.tenella (3) Salmonella

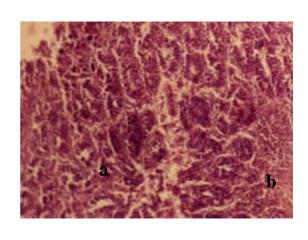
(2) (a)

(b) (a) . (100X) H&E

. **(90X)** H&E

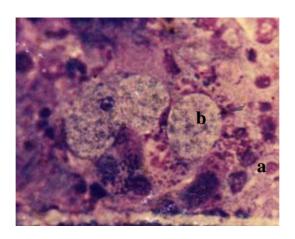
E.tenella





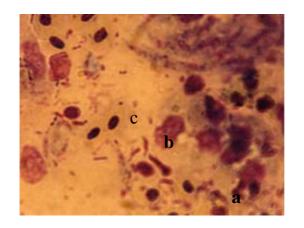
: 13 E.tenella (2) (b) (a) Н&Е . (650X)

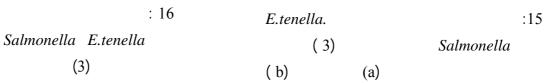
E.tenella : 12 (2) (a) (b) Н&Е . (100X)



E.tenella. : 14
(a) (2)

. (650 X) H&E (b)





(a) (b) (b)

(c) . (650X) H&E (c) . (650X) H&E

37

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(Ruff, 1998)

% 10 - 6

.(Al-Attar, 1981)

Enterobacteriaceae

Barbour and Nabbut,)

Gast,) .(1982

.(1997

E.tenella

E.tenella

.(Kazumi et al., 2008; Mckenzie and Long, 1986)

.Salmonella E.tenella

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E.tenella Salmonella E.tenella

. (Qin et al., 1995a)

.2.8

.(Ventzislav, 2005; Qin et al.,1995b)

E.tenella

(Baba *et al.*, 1985 ; Tellez *et al.*, 1994) .(Reid *et al.*, 1984)

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E.tenella

E.tenella

E.tenella

Salmonella

.(Henderson et al., 1999)

. (2000,

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Salmonella (Asheg et al., 2003)

E.tenella

Salmonella

.(Henderson et al., 1999)

.(Kaiser et al., 2000)

(Konjufca et al., 2008; Fernandos et al., 2001)

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E.tenella Salmonella

. (2005) .

. 26

.(2004).

. 9- 6

.(2000) .

.49 - 24

- Al-Attar, M. A. (1981). Factors affecting the pathogenesis of *E. necatrix* in checken. PhD. Thesis, University of Guelph, Canada.
- Andrewes, W. H. (1996). Evaluation of method for the detection of Salmonella in food. *J. AOAC*. *Int.*, **79**, 4-12.
- Asheg, A.; Levkut, M.; Revajova, V., Sevcikova, Z.; Kolodzieyski, L.; Pistl, J.; Pilipcinec, E. (2003). Spreading of *Salmonella enteritidis* in the cecum of chickens Folia. *Microbiol.*, **48**(2), 277–279.
- Baba, E.; Yaono, M.; Fukata, T.; Arakawa, A.(1985). Effect of Salmonella typhimurium, S. agona, S. enteritidis or S.infantis of chicks with caecal coccidiosis. Br. Poult Sci. 26(4), 505 11.
- arbour, E. K.; Nabbut, N. H.(1982). Isolation of *salmonella* and other potential pathology from two chicken breeding farms in Saudia. *Arabia Avian Dis.*, **26**, 234 -244.
- Fernandos, A.; Lare, C.; Loste, A.; Calvo, S.; Marco, M. (2001). Control of *Salmonella enteritidis* phage type -4 experimental infection by fosfomycin in newly batched chicks. *Comparative Imunmicrobiol. Inf. Dis.*, **24**, 207-216.
- Fitz-coy, S. H. (1991). Antigenic Variation among strains of E .maxima and E. tenella of the chicken. Avian disease, 36, 40-4.
- Gast, R. K. Paratyphoid infection In: Clanek, B. W.; Barnesh, S.; beard, C.W.; Medoglad, L. R.; Saif, Y. M. (1997). "Disease of Poultry" .10th edn. Mosby wolf / Iowa State University press, pp. 81 121.

Henderson, S.; Bounous, D.; Lee, M. (1999). Early events in the pathogenesis of avian *Salmonellosis*. *Infec. Imm.*, 3580-3586.

- Hortvikova, M.; Bedrank, P. (2002). "The Sporulatin of Oocyst of Fowls Coccidia and Possibilities to Influence this Process". Department of protozology, Jilove 4 prahy, Gerch Republic. pp. 145-49.
- Johnson, J.; Reid, W. M. (1970). Anticoccidia drugs lesion scoring techniques in vatter and floor pen experiments with chickens. *Exp. Parasitology*, **28**, 30-36.
- Konjufca, V.; Jenkins, M.C.; Wang, S.; Juarez-Rodrigues, M. D.; Curtiss, R. (2008). Immunogenicity of recombinant attenuated *Salmonella enterica* serovar Typhimurium vaccine strains carrying a gene that encodes *Eimeria tenella* antigen S07. *Infection and Immunity*, **76**, 5745-5763.
- Kaiser, p.; Rothwell, L.; Galyov, E.; Barrow, P.; Burnside, J.; Wigley, P.(2000). Differential cytokine expression in avian cells in response to invasion by *Salmonella typhimurium*, *Salmonella enteritidis* and *Salmonella gallinarium*. Microbiol., **146**, 3217 3226.
- Kazumi, S.; Raymond, H.; Fetterer, H. L.; Satomi, M.; Constantin, C. C.; Makoto, M. Hiroyuki, T.; Eiichiroh, B. (2008). Characterization of monoclonal antibodies that recognize the *Eimeria tenella* microneme protein MIC2. *J. Parasitology.* **94**(6), 1432-1434.
- Lister, S. A .(1988). *Salmonella enteritidis* infection broiler and broiler breed . *Vet. Rec.*, **123**, 350 .
- Luna, H. T. (1968). "Manual of Histologic Staining Method of the Armed Forces Institute of Pathology". 3rd edn. Mcgaw hill book company, Newyork Toronto, London.
- Mckenzie, M. E.; Long, P. L. (1986). Imunization of checkens against coccidiosis with extracts of *Eimeria* infection tissue *Poult. Sci.*, **65** (5), 892-897.
- Nakamura, M.; Nagamin, N.; Ta kahashi, T.; Susuki, S.; Sato, S. (1997). The effect of flow of air on horizontal transmission of *Salmonella enteritidis* in chickens. *Avian Dis.*, **41**, 354 360.
- Qin, Z. R.; Fukata, T.; Baba, E.; Arakawa, A. (1995a). Effect of lactose and lactobacillus acidophilus on the colonization of *Salmonella enteritidis* in chicks concurrently infected with *Eimeria tenella*. *Avian Dis.*, **39** (3), 548 553.
- Qin, Z. R.; Fukata, T.; Baba, E.; Arakawa, A. (1995b). Effect of *Eimeria tenella* infection on *Salmonella enteritidis* infection in chickens. *Polut. Sci.*, **74**(1), 1-7.
- Reid, W. M.; Long, P.; McDouglod, L. R. (1984). "Coccidiosis: In Disease of Poultry". 3rd edn. by: Hofstad, Lowa State University press, pp. 692 –716.
- Ruff, M. D. (1998). Why cant we control coccidiosis. World Poultry, 14, 30-31.
- Tellez, G.; Kogut, M.; Hargis, B. (1994). *Eimeria tenella* or *Eimeria adenoeides* of morphological changes and increased resistance to *Salmonella enteritidis* infection in Leghorn chicks. *Poult. Sci.*, **73**(3), 396 401.
- Ventzislav, K. (2005). Effect of an experimental *Eimeria tenella* invasion upon an artificial *Salmonella Typhimurium* infection in broiler-chickens, *veterinary Archeives*, **75**(4), 349-357.
- Williams, S. (1998) . "Survey in to Nicarbazin Drug Residiues in Poultry Eggs Using SFE HPLC" . South Bank University , London .