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Received 29 June 1988

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FOLIA PARASITOLOGICA 36: 287–288, 1989.

OCCURRENCE AND LOCALIZATION OF CRYPTOSPORIDIUM SP. IN SPONTANEOUSLY INFECTED PHEASANTS (PHASIANUS COLCHICUS L.)

An increasing number of scientific papers, giving results of coccidian research on the genus *Cryptosporidium* (Apicomplexa), demonstrates the considerable attention being dedicated to these protozoa. Owing to new diagnostic methods and widespread information about these protozoa, cryptosporidia are being described in an inereasing number of hosts from various taxonomic groups. They are found not only in the main species of farm animals but also in zoo animals and wild living animals.

Cryptosporidial infections have also been reported in pheasants (*Phasianus colchicus* L.), particularly in those bred in farms. *Cryptosporidium* sp. (developmental stages) were first demonstrated in pheasants, in the respiratory tract, by Wittington and Wilson (1985: Australian Vet. J. 62: 284) in New South Wales. The authors described clinical signs and pathological changes in three pheasants which died and in one necropsied 6-week-old pheasant, submitted alive to the laboratory for examination. Their findings confirm data of Hoerr et al. (1978: J. Amer. Vet. Med. Assoc. 173: 1591), describing respiratory cryptosporidiosis in turkeys, peacocks and quail. It is stated that the hyperplastic laryngitis and tracheitis, absence of cilia etc., in association with the presence of many cryptosporidia and the failure to demonstrate other respiratory pathogens, indicates that the respiratory disease in these pheasants was due to cryptosporidial infection. The second report of *Cryptosporidium* sp. is by Randall (1986: Veterinary Record, 118: 211—212) in 6-week-old pheasants in Scotland, suffering poor growth and eye abnormalities — conjunctivitis. According to the author, hyperplasia of epithelial cells o the conjunctiva was the same as the changes of epithelial cells of trachea and bursa of Fabricius, observed in broiler chickens infected with cryptosporidia (Randall, 1982: Avian Pathology 11: 95), although the number of parasites was lower on the conjunctival surface in pheasants than in the infected tissues in broilers.

The present study is focused on the first findings of coccidia, genus *Cryptosporidium*, in pheasants bred in aviaries in farms, in Poland. Results of localization of endogenous developmental stages of these protozoa are described in three incidentally chosen and spontaneously infected pheasants at 70 (one) and 71 days (two) of age.

Employing the method of Pavlásek (1987: Veter. Med. (Praha) 32: 509—510), 260 21 to 81-day-old pheasants on four pheasant farms were examined for the presence of *Cryptosporidium* oocysts. Cryptosporidial infections were found in all farms in 56 to 70-day-old pheasants with a prevalence between 20.0 % and 66.0 %. In native preparations, at a magnification of 1.000×, 50 *Cryptosporidium* oocysts were measured (5.6—7.2×4.5—5.6 μm, diameter 6.4× ×4.8 μm, index width/length 0.7).

For the detection of *Cryptosporidium* developmental stages, one pheasant at 70 days of age and two pheasants at 71 days of age were necropsied. Smears and imprints from the surface of mucosal epithelia of organs of the respiratory, digestive and excretory systems were fixed in methanol and Giemsa stained. The pieces of tissues from the above organs were fixed for histological examinations in 10 %

neutral formalin, embedded conventionally in paraffin and section stained with the wet method of Giemsa.

All hitherto known developmental stages of *Cryptosporidium* coccidia were observed in heavily infected bursal smears and in histological sections of all three spontaneously infected pheasants. The result of cloacal examinations: cryptosporidial trophozoites, meronts, zygotes and oocysts were sporadically present in one 71-day-old pheasant; only oocysts were present in the second pheasant of the same age — in the content of cloaca. In no other examined organs of necropsied pheasants were developmental stages of these protozoa observed.

It is evident from the results that cryptosporidial infections are probably widely spread in pheasant farms. For the first time *Cryptosporidium* sp. oocysts in live pheasants were detected and isolated, and in this way information about localization of these protozoa according to the age of pheasants was obtained from four farms.

Morphology of the oocysts and their size are consistent with oocysts of cryptosporidia, as described by Pavlásek (1987: Folia parasitol. 34: 193—197) in broiler chickens and with oocysts of *C. baileyi*, parasitizing these hosts, described by Current et al. (1986: J. Protozool. 33: 289—296). Previously conducted, successful experiments have demonstrated infections of 14-day-old pheasants exposed to oocysts of *Cryptosporidium* sp., isolated from spontaneously infected chickens (Pavlásek, unpublished). It can be supposed that in all probability the same or very similar avian cryptosporidia can infect both domestic and free-living birds.

From the results of necropsy of three spontaneously infected pheasants it is evident that developmental stages of *Cryptosporidium* sp. were localized particularly in the epithelium of bursa of Fabricius and in one case light infection was also registered in the cloaca. This is thus also the first record of cryptosporidial infection of this organ in pheasants, as in broiler chickens; these findings support the idea of Cryptosporidium sp. identity in both of these hosts.

For the moment the role of cryptosporidial infection in the general state of health of pheasants remains uncertain.

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