THE FIRST OCCURRENCE OF THOMINX CYANOPICAЕ (Lopez-Neyra, 1947) IN PHEASANTS (Phasianus colchicus L.)

FLORISTEAN IULIA* and PAVLOVIĆ I**

*Directia Sanitara Veterinara Iasi, Iasi, Romania **Scientific Veterinary Institute of Serbia, Serbia

(Received 3. February, 2003)

Parasitoses caused by helminths of the family Capillaridae (Neuve-Lemaire, 1936) take an important place within the parasitic fauna of pheasants (Phasianus colchicus L.). The investigations were carried out on a pheasant farm in Romania during the period 1999-2001. The necroscopic examination revealed the presence of Capillaria sp. in 38.09% (48/84) of the adult pheasants and 43.85% (79/114) of the young pheasants. During our examination we identified 7 species of the family Capillaridae: Capillaria annulata, C.bursata, C.columbae, C.contorta, C.gallinae, C.phasianina and Thominx cyanopicae.

This was the first recorded occurrence of Thominx cyanopicae (Lopez-Neyra, 1947) infection in pheasants.

Key words: Capillaridae, pheasants, Thominx cyanopicae

INTRODUCTION

Helminthoses, especially involving nematode species, are the most frequent parasitic infection in pheasants (Phasianus colchicus L.). Numerous papers have reported helminthoses in free living pheasants, and most of those examinations were performed in Europe. Pav and Zajček (1968) and later Bejšovec (1970, 1971) examined pheasant helminth fauna in Czechoslovakia. Arnasteikskene et al. (1970 investigated these parasites in pheasants in Lithuania. The occurrence of nematodes in pheasants was reported by Okulewitz and Modrezejavska (1980) in Poland, Githkopoulos (1984 a) in Greece, Pavlović et al. (1995) in Yugoslavia and Hospes (1996) in Germany.

Similar examinations were made in artificially raised pheasants and revealed that helminthoses normally occur in farm bred birds and have a significant place in the pathology of pheasants (Fagasinski, 1964; Bickford and Gaafar, 1966; Bejšovec, 1968; Cvetajeva, 1971; Cosoaraba and Ciolofan, 1985; Chroust, 1990; Pavlović, 1990, 1991; Pavlović et al. 1990, 1992, 1996; Schricke, 1991).

In our paper we give an outline of the helminthic fauna of breeding pheasants in Romania with special emphases on Capillaria species pointing out the first occurrence of a new species – Thominx cyanopicae.
MATERIAL AND METHODS

The helminthic fauna in pheasants were studied in a pheasant farm near Iasi (Romania) in the period 1999-2001. A total of 84 adult pheasants and 114 young pheasants were examined by parasitological necropsy. Parasites found were fixed in 10% formalin and either mounted in lactophenol for identification, or mounted in Canada balsam. They were identified using keys given by Skrjabin et al. (1957), Soulsby (1977) and Euzeby (1981). Samples of intestine from the pheasants with helminth infections were fixed with 10% formalin, embedded in paraffin, sectioned at 6 micrometers and stained by hematoxylin – eosin (HEA).

RESULTS

Investigations infection with nematodes was found in 57.14% (48/84) of the adult pheasants and 69.29% (79/114) of the young pheasants. Helminths of the family Capillaridae were found in 32 (38.09%) adult pheasants and 50 (43.85%) young pheasants. Seven species were identified: Capillaria annulata, C. bursata, C. columbae (syn. C. obisignata), C. contorta, C. gallinae (syn. C. caudinflata), C. phasianina and Thominx cyanopicae. The most frequent species in adult and young pheasants were C. contorta and C. gallinae.

Infection with Thominx cyanopicae was detected in two adult pheasants (2.38%). In the cecal lumen of these two birds were found four parasites (3 males and 1 female), which were identified as Thominx cyanopicae. Males had the following morphological characteristics: 12-17 mm long and 59.4-67 micrometers wide; a threadlike body, anteriorly and posteriorly attenuated; an esophagus 6.39-7.57 mm long (fig. 1); a spicule 2.103-2.117 mm long and 9.39-10.9 micrometers wide.
wide with a spicule sheet covered with spines, which measured 53.6-73.7x20-20.1 micrometers (fig. 2). The female was 17.6 mm long and 87.6 micrometers wide (fig. 3); the esophagus was 6.7 mm long.

Figure 2. Spiculae and spucule sheat of Thominx cyanopicae (x 100)

Figure 3. Thominx cyanopicae – female body /with eggs/ (x 200)

Histological examinations revealed the presence of Thominx embedded between the villi and in the cecal lumen and cellular infiltration in to the mucosa (fig.
4). A few sections of those capillarids were found in the submucosa and mucosa (fig. 5 and 6).

Figure 4. Section of T. cyanopicae in the cecal lumen. Cellular infiltration in the mucosa. HEA (x 200)

Figure 5. Necrosis in the cecal epithelium and the glandular crypts. HEA (x 400)
Helminths from the family Capillaridae usually occur in pheasants. Studies performed by Bickford and Gaafar (1966), Cosoaraba and Ciolofan (1979), Githkopoulos (1984 a), Pavlović et al. (1990, 1992, 1995), Hospes (1996) and Florestean et al. (2001), showed that Capillaridae were found in free living and farm breeding pheasants. During those examinations the following species were found: Capillaria annulata (Mollin, 1858), C. bursata (Freitas & Almeida, 1934), C. gallinae /syn. C. caudinflata/ (Kowalevski, 1859), C. columbae /syn. C. obsignata/ (Rudolphi, 1819), C. contorta (Creplin, 1839), C. phasianina (Kotlan, 1940), C. retusa (Railliet, 1893) and C. uropapillata (Freitas & Almeida, 1935). The most frequent species in Europe, the Far East of Russia and America were C. annulata, C. columbae /syn. C. obsignata/, C. gallinae /syn. C. caudinflata/ and C. bursata (Skrijabin et al., 1957; Bickford and Gaafar, 1966; Bejšovec 1970/1971; Kellogg and Pestwood, 1972; Githkopoulos, 1984 a; Pavlović, 1991; Pavlović et al., 1996; Hospes, 1996).

In our investigations, C. contorta and C. gallinae were the most frequent species but T. cyanopicae was found for the first time in pheasants.

Thominx cyanopicae belongs to the order Trichocephalida (Skrijabin and Schultz, 1928, Spassky, 1954), suborder Trichurata (Neveu-Lemaire, 1936) (syn. Trichocephalata, Skrijabin & Schultz, 1928), family Capillariidae (Neveu-Lemaire, 1936) and genus Thominx (Dujardin, 1845). Thominx cyanopicae (syn. Echinococcus cyanopicae) was detected for the first time in the cecum of Cyanopicae cyanus, by Lopez-Neyra (1947), in Spain. Parasites were slender from both sides, especially the anterior. The cuticule was smooth, without strips. The male was 9.5-12.5 mm long and 65-80 micrometers wide. The spicule was 1.18-1.285 mm long.
and 80-100 micrometers wide. The spicule sheet measured 100-120 x 25-40 micrometers. The female was 17-18.8 mm long and 80-100 micrometers wide. Dorsal and ventral bacillar lines were noticed (Lopez-Neyra, 1947; Skrjabin et al. 1957).

In our case, the male was 12-17 mm long. The spicule was 2.103-2.117 mm long and the spicule sheat measured 53.6-73.3 x 20-20.1 micrometers.

Infection with *T. cyanopicae* was found in 2.38% of the adult pheasants examined. Its presence in pheasants or other birds, except for *Cyanopica cyanus* (Skrjabin et al., 1957) was not reported in the available literature. The presence of adult nematodes, male and female, in the cecum opens the possibility of adaptation of *Thominx cyanopicae* to parasitism in a new host – pheasants. This is not unique, because Raysky (1964) found *Brachylaemus fuscatus* and *Plagorchis megalorchis* in pheasants in Scotland. During examination of pheasants in Nebraska Greiner (1972) detected *Zygocotyle lunata* in 1.6% of the examined birds. Isakova (1973) described pheasants as a new host to the trematode *Brachylectium americanum*, and Pavlović et al. (1990) found infection with *Ornithostrongylus quadriradiatus* in pheasants in the Belgrade zoo.

Our histological findings in the cecum revealed the pathological effect of *Thominx cyanopicae* in the new host, the pheasant, and its full adaptation to it.

The first occurrence of *Thominx cyanopicae* in pheasants has epidemiological importance and indicates the necessity for continuous parasitological examination of this bird species.

Address for correspondence:
Iulia Floristean
Directia Sanitara Veterinara Iasi,
119A Ciurchi Street Bl. S8 Ap. 22, Iasi, Romania

REFERENCES

17. Kellogg FE, Pestwood AK, 1968, Case report and differentiating characteristic of Capillaria phasianina from penraised at Maryland, Av Dis, 14, 468-75.
PRVI NALAZ THOMINX CYANOPICAEE (Lopez-Neyra, 1947) KOD FAZANA (Phasianus colchicus L.)

FLORESTEAN IULIA i PAVLOVIĆ I

SADRŽAJ

Parazitoze uzrokovane helmintima iz roda Capillariidae zauzimaju značajno mesto u patologiji fazanske divljače. Ovo je potvrđeno i tokom istraživanja vršenih u Rumuniji kada je putem paraziološke sekcije kapilarioza ustanovljena kod 38,05% (32/84) odraslih fazana i 43,85% (50/114) mladih fazana. Pri tome su ustanovljene sledeće vrste kapilarija: Capillaria annulata, C.bursata, C.columbae, C.contorta, C.gallinae, C.phasianina i Thominx cyanopica.

Thominx cyanopica je do sada jedino nađena kod vrste ptica Cyanopica cy-anus i nije zabeležena kod drugih ptičijih vrsta, tako da je ovo prvi nalaz T.cyanopicae kod fazana.