

Morphology and Presence of Helminth Parasites in *Anas platyrhynchos* (duck) Collected from Dal and Wular Lakes of Kashmir

Aqsa Altaf¹ and Syed Tanveer²

¹P.G. Department of Zoology, University of Kashmir

²Department of Zoology University of Kashmir

E-mail: ¹aqsaaltaf911@gmail.com, ²syedtnv@gmail.com

Abstract—The present study was aimed to study the diversity and morphology of helminth parasites in duck (*Anas platyrhynchos*). The study involved collection and examination of duck from the local lakes of the valley of Kashmir, particularly the Dal lake and the Wular lake. During the study Trematodes, Cestodes and Acanthocephalans were encountered. The Trematode, Cestode and Acanthocephalan after identification according to the keys and description given by Soulsby (1982) and Yamaguti (1958) were found out to be *Echinostoma revolutum*, *Raillietina tetragona* and *Polymorphus magnus*. The study revealed that the parasitic load was highest during summer and mostly the Acanthocephalan parasite i.e. *Polymorphus magnus* was abundantly found in the host i.e. *Anas platyrhynchos*.

Keywords: *Anas platyrhynchos*, *Echinostoma revolutum*, *Raillietina tetragona*, *Polymorphus magnus*.

1. INTRODUCTION

The Kashmir valley is included in the Himalayan mountain system of the oriental region. The valley is approximately 135 km long and is located at an elevation of more than 1500 m above sea level.

The valley of Kashmir is a land of lakes, rivers, flowers and fast running streams. The important lakes being the Dal Lake, Wular lake, Manasbal lake, Anchar lake etc. These water bodies are responsible for providing habitat to a large number of fauna in the valley. *Anas platyrhynchos* is a commonly found faunal element close to the water bodies mentioned above. Being included in poultry it is considered as a prime supplier of eggs and meat and as well as a source of income. Due to its presence and importance it has served as a subject to a number of research works carried out in the past. Over the years work has been done concerning mostly its environment and the helminth parasites infecting it. Noteworthy work on *Anas platyrhynchos* in the valley of Kashmir have been performed by M.Z. Chisti (1960-1983), Khan (1977), Dhar, Raina and Fotedar (1988), Fayaz (1992), Tanveer S (2008).

The present study aims at the possible presence and morphological study of helminth parasites found in *Anas platyrhynchos* (duck) collected from Dal and Wular lakes.

2. MATERIALS AND METHODS

The study was carried out in the most scientific manner and all the important instructions were followed in order to reach a correct conclusion.

During the present study *Anas platyrhynchos* (Duck) were purchased from the local people living in the adjoining areas of the Dal and the Wular lakes. The hosts were taken to the laboratory at Department of Zoology, University of Kashmir for parasitic examination. The ducks were laid out flat in the dissecting trays, dissected and examined carefully. The viscera like the alimentary canal, liver and kidneys etc. were gently removed, teased and placed in physiological saline solution. The visible parasites were gently collected with the help of a brush.

The recovered parasites i.e., Trematodes, Cestodes, Acanthocephalans were collected, fixed with Carnoy's fixative and stained with borax carmine. The other steps included dehydration, dealcoholisation, clearing, mounting and labeling. Parasites were identified according to the keys and descriptions given by Soulsby [1] and Yamaguti [2]. On comparing the recovered parasites were identified as: *Echinostoma revolutum*, *Raillietina tetragona*, *Polymorphus magnus*.

3. RESULTS

The three different helminth parasites belonging to two phyla—Platyhelminthes (*Echinostoma revolutum*, *Raillietina tetragona*) and Acanthocephala (*Polymorphus magnus*) were observed during the present study. The description of the recovered parasites is as:

Trematoda

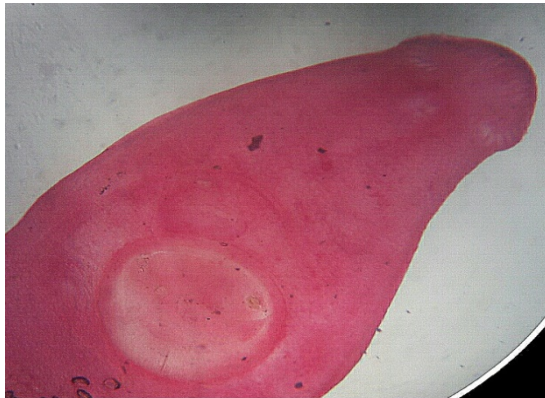
Echinostoma revolutum

Generic diagnosis:

Non-host specific. Circumoral collar spines arranged in two rows. Number of spines ranges from 27-51. Eggs are large and operculate. Genital pore is median and pre acetabular. Cirrus pouch large passing dorsal to voluminous acetabulum[3].

Description (*Echinostoma revolutum*):

It measures 10-22mm long and few mm broad. Head collar bears 37 spines, five of which form a group of corner spines on either side of body. Oral sucker, pharynx, oesophagus and two caeca present. Ventral sucker well developed. Ovary present near anterior testis [4].



“Figure 1. Anterior portion of *E. revolutum*.”

CESTODA

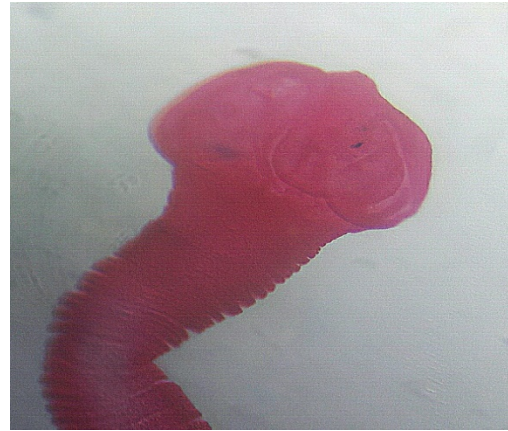
Raillietina tetragona

Generic diagnosis:

Numerous proglottids, Rostellum with hammer shaped hooks. Suckers armed with hooks; cirrus pouch small. Genital pores unilateral or bilateral. Parasites of birds and mammals. [4]

Description (*Raillietina tetragona*):

Upto 250 mm long, 1-4mm wide. Rostellum with double rows of 200-250 hooks, suckers armed with 8-12 rows of hooklets. 6-12 eggs in single capsule [5]. Fully gravid proglottids are somewhat rounded. Genital pores unilateral, located anterior to the middle of each proglottid laterally [4].



“Figure 2. Anterior end of *R. tetragona* showing scolex and rostellum.”

Acanthocephala:

Polymorphus magnus

Generic diagnosis:

Body is usually small, plump with anterior end provided with proboscis. Proboscis cylindrical, ovoid, spindle or pear shaped and armed with hooks. Testes are spheroid, contagious, oblique or opposite. Cement glands four or six. Parasites of aquatic, shore birds or occasionally of aquatic mammals and fish. [6][7].

Description (*Polymorphus magnus*):

Size is 5-8mm. Males are smaller than female. Proboscis armed with 14 longitudinal rows of 8 hooks per row. Lemnisci approximately 1mm in length. Testes are oval. Cement glands four; genital bursa bell shaped [8].



“Figure 3. Anterior end of *P. magnus* showing proboscis with hooks.”

4. DISCUSSION:

After extensive examination of bird host i.e. *Anas platyrhynchos* for helminth parasites, different species of helminth parasites were recovered. The species of *E.revolutum* were less commonly seen than those belonging to *R.tetragona* and *P.magnus*.

The remarkable incidence of infection observed in *Anas platyrhynchos* from the said water bodies can be attributed to a number of factors like presence of intermediate hosts, climatic conditions, water pollution etc.

REFERENCES

- [1] Soulsby E.J.L.(1982) Helminthes, Arthropods and Protozoa of domesticated animals, Bailliere Tindall London.
- [2] Yamaguti S.(1958) Systema Helminthum Vol 1, Interscience Publishers, Inc. New York, USA.
- [3] Gerald D. Schmidt and Larry Roberts, Foundations of Parasitology, 6th edition.
- [4] Naseem-ul-Gani, Helminth Parasites of Poultry in Kashmir, M.Phil. thesis, University of Kashmir.
- [5] Thomas C. Cheng, General Parasitology, Second edition.
- [6] OMAR.AMIN, Review of the genus *Polymorphus* Luhe, 1911 with the synonymization of *Hexaglandula* Petrochenko, 1950, and *Subcorynosoma* Hoklova, 1967, and a key to the species.
- [7] Tanveer S, Chisti M.Z, Zubair A D (2008), Acanthocephalan Parasites of Poultry birds in Kashmir with the histopathology of *Polymorphus* Luhe, 1911. Oriental Science.
- [8] Uzma Niyaz (2016), Diversity in Acanthocephalan in aquatic birds of Kashmir, M.Phil thesis, University of Kashmir.