# New record of the larval trematod (*Strigea*: Tetracotyle) (Trematoda: Strigeidae) from the muscles of *Ardeola ralloides* in Basrah Province

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## تسجيل جديد للدور اليرقي (*Strigea*: Tetracotyle) (Trematoda: Strigeidae) من عضلات طائر الواق الأبيض الصغير *Ardeola ralloides* في محافظة البصرة

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**المستخلص**

جمع 23 نموذجاً من طائر الواق الأبيض الصغير *Ardeola ralloides* من اهوار المسحب شمال محافظة البصرة وفحصت بحثاً عن الطفيليات. وجد الغشاء المحيط بعضلات الرقبة والمرئ والقصبة الهوائية والصدر والبطن للطائر الواق الأبيض الصغير مصاباً بالدور اليرقي tetracotyle لطفيلي *Strigea* وقد عد تسجل اول في العراق.

## Abstract

A total of 23 specimens of *Ardeola ralloides were* collected from Al-mashab north of Basrah- and examined for helminth parasites. The loose fascia over the skin muscles of neck, esophagus, trachea, thorax and abdomen of *Ardeola ralloides were* found to be infected with *Strigea*: Tetracotyle, which is reported here for the first time in Iraq.

Key words: Strigea: Tetracotyle, *Ardeola ralloides*, trematoda, Basrah

## Introduction

The tetracotyle larval stage of *Strigea* sp. was found naturally in Amphbian, snaks, birds and mammals (1). The life cycle of this parasite may be completed in four hosts: The first intermediate host is an aquatic snail, the second intermediate host is a tadpole of frogs, and the third is many kinds of vertebrates (2). Prey birds of order strigiformes and falconiformes may be parasitzed the adult stage of the parasite when they feed on metacercariae (3). The adult stage of

*strigea strigis* wae recorded from the aquatic birds *Larus genei*, *L. icthyatus* and *Ardea cinerea* from Babylon (4).

The aim of the present study was to identify and describe the larval stage of *Strigea* sp. from aquatic bird *Ardeola ralloides* in Basrah province.

## Materials and Methods

A total of 23 aquatic birds *Ardeola ralloides* were collected from Al-Mashab north of Basrah during the period from January, February & March 2012, using shooting gun. The birds were transferred to the laboratory of Biology Department Education College, Basrah University to examined for adult and larval stages of the trematode *strigea* sp. The skin was taken out at different parts of the birds. The encyst larval stage of the parasites were removed from the loose tascia over the skin muscles of neck, esophagus, trachea, thorax and abdomen. The larval stage was washed by physiological saline and fixed by AFA fixation. Lactophenol and sometimes glycerine were used to clear the parasites. Some specimens were stained by semichon's acid carmine. The identification of the specimens was confirmed by Prof. Dr. John Mike Kinsella from U.S.A. The description of the larva is given. Camera lucida and digital camera were used for drawing and photographing of the specimens. All the measurements of the larval stage were taken in millimeters.

## Results and Discussion

The encysted larval stage containing tetracotyle was found within the loose fascia over the muscles of neck, esophagus, trachea, thorax, legs and abdomen of the examined birds. The total bodies of the birds were heavily infected with the total percentage infection 8.6% (Fig 1, 2 and 3).

## The cyst

Oval in stage and its easily to opened, its wall is consisting of two layers: outer one is thick and inner one is thin. The outer layer is semihyalin contain bundles fibers. It is subdivided into two equal parts. The outer half is flexible, non-granular: length: 1.09-1.38 (1.23), thickness 0.10-0.21 (0.16). The inner half: length 0.67- 1.05 (0.86), thickness 0.12-016 (0.14).The inner layer is

thickness, transparent and yellowish: length 0.44-0.63 (0.52), thickness 0.31-0.35 (0.33) it become thicker at the anterior end of the larva.

**The tetracotyle**

The total length of tetracotyle is 0.35-0.58 (0.46) width 0.23-0.27 (0.25). The tetracotyle characterized with trilobed at posterior part and median lobe bearing the oral sucker. The oral sucker is terminal: length 0.07-0.1 (0.09) width 1.08-0.11(0.096) pharynx and esophagus are not clear in the present specimens. The ventral sucker is large: length 0.07-0.10 (0.08) width 0.07-0.10 (0.086). Posterior to it lying the ventral lobe of holdfast, genital rudiment small, lying posterior to the holdfast. The isolation of the tetracotyle of the genus *strigea* in the present study is regarded as the first record in Iraq. Mhasin & Abu-Elis (4) were recorded the adult of *Strigea striges* from the *Larus genei, L. icthatus* and *Ardea cinerea* from Babylon.

The genus *strigea* is characterized by the presence of Psudosuker and lobed hold fast. Pearson (3) isolated the tetracotyle of *S. elegans* from experimentaly in feded birds and it is found that the cyct is enclosed with thin layer of fibrous tissue which connected the cyst to the subcutaneous skin and muscles. The tetracotyle is enclosed by two layers. The outer layer is easily to tear out while the inner one is opened from its end for emerge of the tetracotyle from the cyst. The life cycle of this parasite is complicated it requires many intermediate hosts for their life cycle: Strigiformes and falconiformes may serve as final definite hosts.

The presence of the tetracotyle in the *Ardeola ralloides* of the present study may inhabit a third intermediate host for *strigea* sp. The tetracotyle was found encysted within loose fascia on the skin and muscles of the bird.Which is not the final host of the adult stage that means, the parasite needs a fourth host to change into adult stage. The hawks and vulture may serve as a final host for this parasite (3).

Diet examination of the gizzard of the *Ardeola ralloides* in the present study showed that the majority of the foods of the birds is consist of frog which may be serve as a second intermediate host of the parasite. Pearson (3) who described experimentally the life cycle of *S. elegans* when he used fresh water snail *Gyraulus parvus* as a first intermediate host and tadpods of *Bufa americanus* and *Rana sylvatica* as a second intermediate host, then mesocercariae is developed

into tetracotyle in snaks and owls later on. Pearson (3) & Lutz (5) showed that the life cycle of *S. elegans* is similar to the life cycle of *S. vaginata*.

The tetracotyle was found to cause hage changes in the loose fascia of the skin of the *A. ralloides* in Basrah. The presence of deep whole on the mucus membrane of the intestine of *Falco rusticolus* infected with *S. macrop*

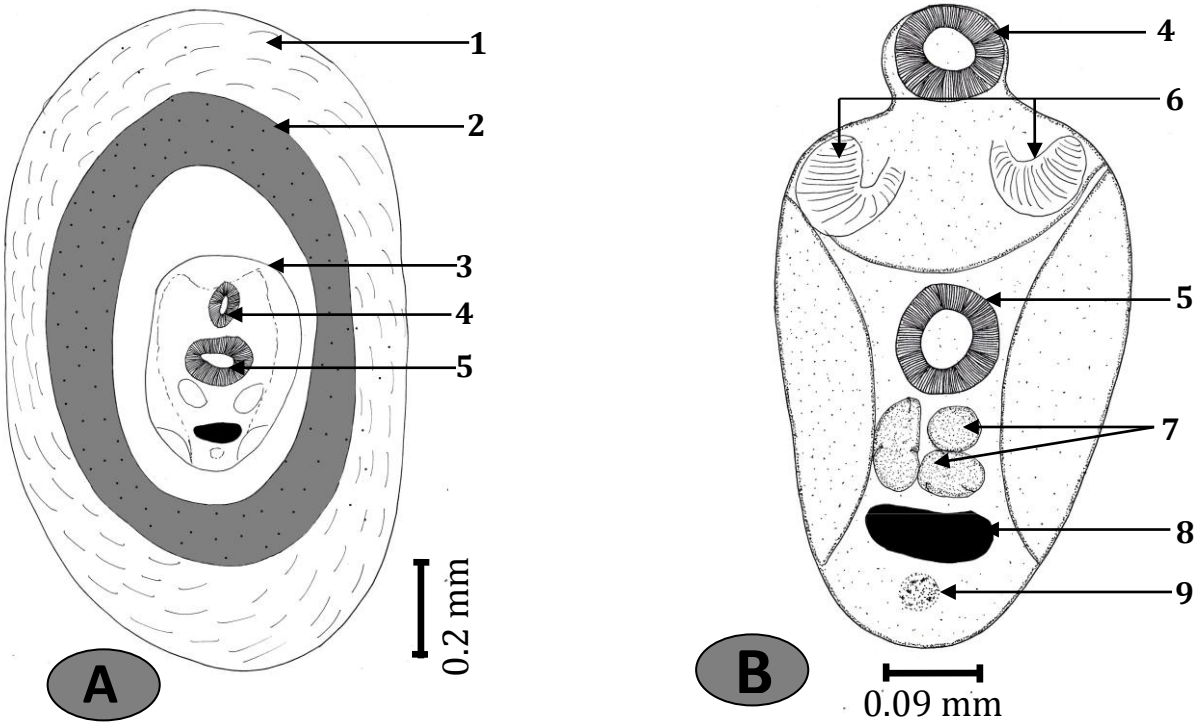


**Figure (1): Strigea sp. Tetracotyle A. Encystd tetracotyle B. Excysted tetracotyle**

1- Outer half of the cyst 2.inner half of the cyst 3.inner cyst 4.oral sucker 5.ventral sucker

6. Pseudosucker 7. Holdfast 8. Secretion of holdfast gland 9. Genital rudiment

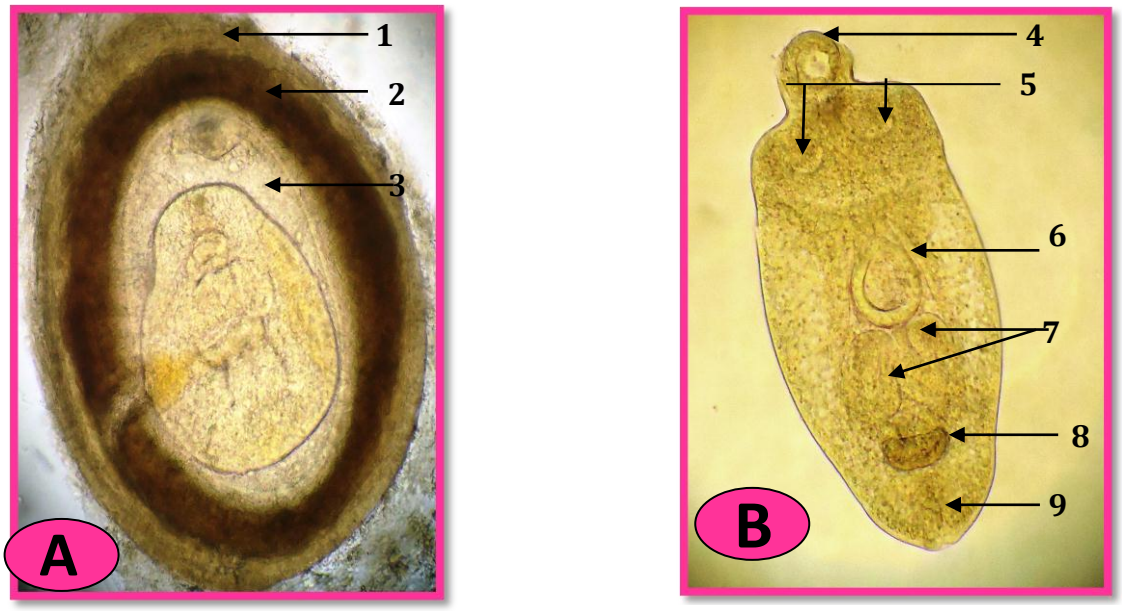


**Figure (2): Strigea sp. Tetracotyle A. Encysted tetracotyle B. Excysted tetracotyle**

1- Outer half of the cyst 2.Inner half of the cyst 3.Inner cyst 4.Oral sucker 5. Psudosucker

6. Ventral sucker 7. holdfast 8. Secretion of holdfast gland 9. Genital rudiment

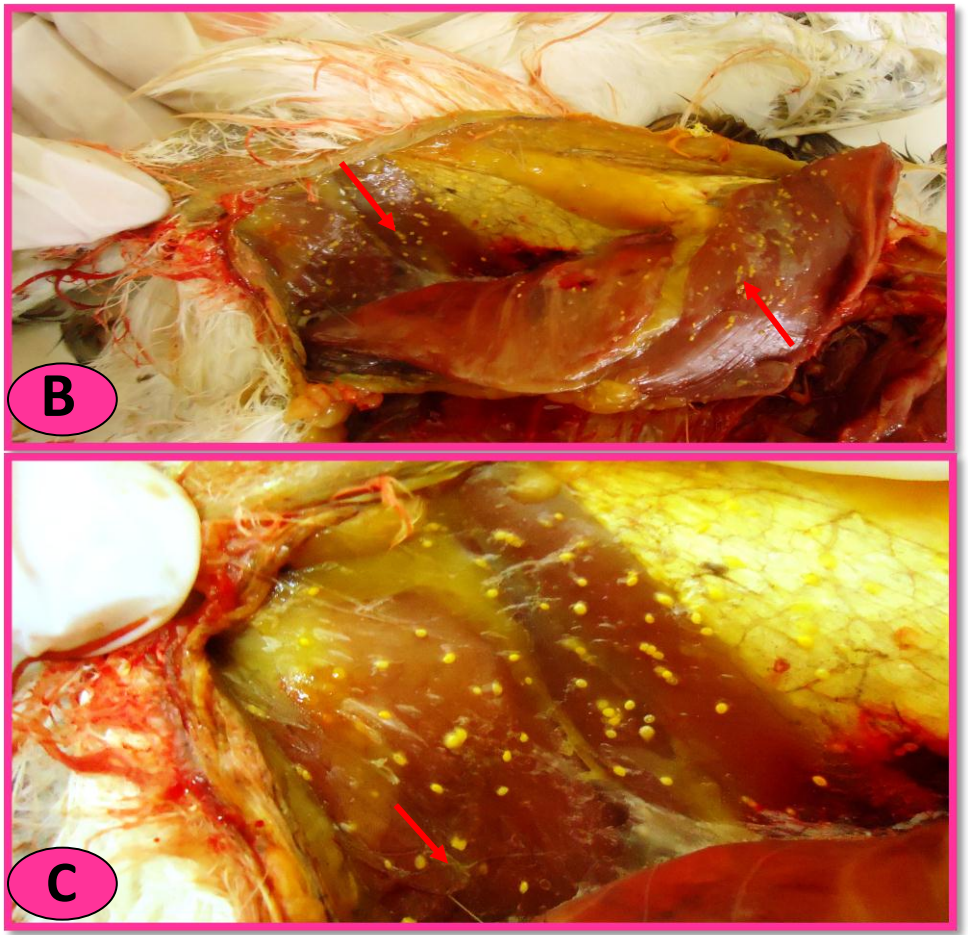


**Figure (3): *Strigea* sp. Tetracotyle loose fascia of skin of different parts of the body of Ardoula ralloides ( )**

A. neck , esophagus & trachea
B. Thorax & abdomen.
C. Loose fascia of the skin

## References

**1. Gibson, D . I.; Jones, A. & Bray, R. A. (2002).** Keys to the Trematoda vol. 1. Nat. Hist. Mus. U. K., CAB International Wallingford, 521 pp.

**2. Odening, K. (1965).** Der entwick lungszklus von *Parastrigea robusta* Szidak, 1928 (Trematoda, Strigeida) im raum Berlin, parasitenkunde, 26: 185-196 (Summary in English).

**3. Pearson, J. C. (1959).** Observation on the Morphology & Life Cycle of *Strigea elegans* Chandler & Rausch, 1947 (Trematoda: Strigeidae). Amer. Soc. Parasitol., 45: 155-174.

**4. Mhaisen, F. T. & Abu–Eis, E. S. (1992).** Parasitic helminths of eight species of aquatic birds in Babylon fish farm, Hilla, Iraq. Zool. Mid. East., 7: 115-119.

**5. Lutz, A.(1933).** Zur Kenntnis des Distoma tetracystis Gastaldi und aehnlicher Formen, die faelschlich als Agamodistomum bezeichnet werden. Mem. Inst. Oswaldo Cruz., 27: 50 – 60. (Cited by Pearson, J. C. ,1959).

**6.Dubois , G . & Rausch , R. L. (1965).** Studies on the Helminth Fauna of Alaska. XLIII. *Strigea macropharynx* sp. n., a Trematode Parasite of *Falco rusticolus* L. Parasitology, 51: 770 – 772.