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First record of cestode Mathevotaenia erinacei Meggitt, 1920 from Hedgehog Hemiechinus auritus in Basrah Province, Iraq

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Abstract

The present study was carried out on 35 specimens of long eared hedgehog *Hemiechinus auritus* Gmelin,1770 in several localities of Abu Al-Khasib district, Basrah province during the period from March to September, 2004.The intestine of hedgehog was removed and examined to searching for helminth parasites. One species of cestode were collected from 4(11.4 %) of examined animals . The isolated cestode was similar to original description of *Mathevotaenia erinacei*, therefore redescription and Comparison between two measurements were given. The present finding of this cestode represent its first Record in iraq.

Introduction

Hedgehog pose a risk for a number of potential zoonotic disease (Fairley et al., 1999), these include microbial infection such as *salmonella* and *Mycobacterium* which reported in several studies that shown the hedgehog play a major role in transmission of bacterial disease especially *Salmonella* (Woodward et al., 1997). Fungal and Viral disease also reported as a zoonotic infection in hedgehog (Rosen and Jablon, 2003). Many disease conditions can cause immunodeficiency in human (AIDS) (Maertens et al., 2001), and immunocompromised persons may be at in increased risk for infections from hedgehog and should be particularly careful (Riley and Chomel, 2005). Parasites regarded a major agent of disease that infect hedgehog and became a source of human infection such as *Capillaria hepatica* (Brander et al., 1990) and *Cryptosporidium parvum* that cause a death in captive juvenile African pygmy hedgehog (Graczyk et al., 1998), in contrast most hedgehogs carry a parasite load that is asymptomatic in healthy animal (Reeves,1994). Several studies was carried out in the world concerned with helminths of hedgehog. Prokopic (1971) collect the cestode *Rodentolepis erinacei* from the *Erinaceus europaeus* and *E. roumanicus* in various localities of Czechoslovakia, Egg of adult cestode were used for experimental infection of beetles. Some Helminths was collected from hedgehog *E.europaeu*include lungworms *Crenosoma striatum*, intestinal nematode Capillaria sp. , cestodes *R. erinacei*, trematode *Brachylaemus erinacei* and acanthocephalan *prosthoryhnchus* sp. (Keymer et al., 1991). Bunnell(2001) isolate the nematode C. *striatum* and cestode *Hymenolepis erinacei* during the survey on parasites of 168 hedgehog *E.europaeus* in York, England between 1998 to 2000.While the acanthocephalan *Moniliformis moniliformis* was isolate from the hedgehog *Hemiechinus auritus* from Mongolia (Tinnin *et al.*, 2008). In Iraq only two studies was available deals with isolation and identification of hedgehog helminthes, Jawdat and Al-Jafary (1979) isolate the acanthocephalan *M. moniliformis* from the intestine of *H. auritus* in Baghdad province. Al-Zihiry (2002) examine 30 hedgehog *H. auritus* in Basrah Province and record two species of nematode, *Pterygodermatites plagiostoma* and larval stage of physalopteridae. The aim of present study is to gain the knowledge of helminth fauna of small mammals in Southern Iraq.

Materials and Methods:

Thirty five specimen of long eared hedgehog *Hemiechinus auritua* were collected from several areas of Abu-Al-Khasib (South east of Basrah center) by some metal traps, Live animals were brought to the laboratory then anesthetized using ether or chloroform. All collected individuals were dissected and their internal viscera were kept in normal saline and examined using dissecting microscope.

The collected cestodes were relaxed in refrigerator for 24 hours then fixed in A.F.A (Alcohol-Formalin-Acetic acid) solution or 70 % ethylalcohol (Berland, 1984). To preparation the cestode for study, stained in Semichon's carmine, dehydrated in serious of ethyl alcohol reaching to 100 % concentration, cleared in xylene and mounted on slides using Canada balsam as cited in Garcia and Ash, 1979; Berland, 1984. All measurements were taken and drawing

were done using drawing tube of Olympus microscope. Meggitt, 1920; Santa, 1956, Yamaguti, 1959 and Schmidt, 1986 were depended for classification the cestode in present study .

Results

From 35 hedgehog *Hemiechinus auritus* were collected in present study, 4(11.4 %) were found to be infected with cestode *Mathevotaenia erinacei*

Description (based on 5 specimen,All measurements in millimeters)Small size tapeworm, total length of worm 14-17,having approximately 30 proglottids.Rostellum absent. Scolex unarmed 0.53-0.61 long, 0.44-0.51 wide, has four suckers 0.19-0.27 long, 0.16-0.19 wide. Neck short. Immature proglottids wider than long, 0.2-0.26 long, 0.22-0.36 wide. Mature proglottids 0.63-0.69 long, 0.46-0.51 wide. Gravid proglottids longer than wide, 0.97-1.27 long, 0.78-0.95 wide. Genital pores irregularly alternating. Testes numerous, semi-rounded , lying at the posterior part of proglottid 37-39(microns) long, 24-31(microns) wide. Cirrus sac elongated 0.17-0.20 long, 0.04-0.07 wide. Seminal vesicle absent. Ovary bilobed occupying median area of proglottid, 0.10-0.14 long, 0.19-0.22 wide. Viteline gland lying behined the ovary, 0.05-0.09 long, 0.04-0.09 wide. Uterus relapsed by thin egg capsules each one with single egg.

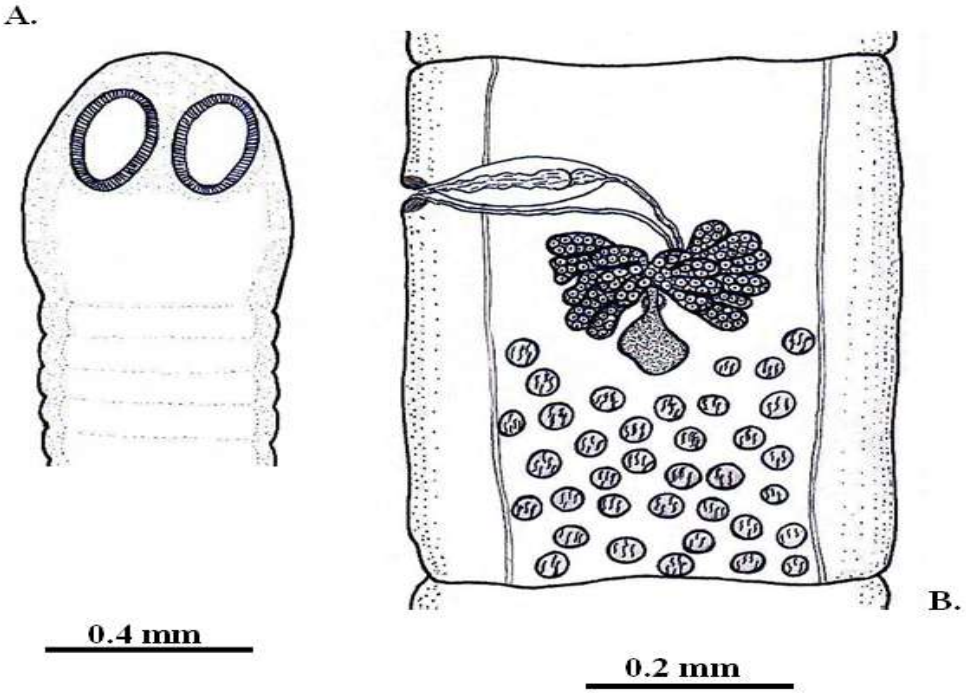

Figure (1): *Mathevotaenia erinacei*
A. Scolex B. Mature proglottid

Discussion:

The genus *Mathevotaenia Akhumian* 1946 Syn. *Oochoristica* Luhe, 1898 is a large unwieldy complex of species parasitizing more than 56 species of mammals and reptiles (McAllister *et al*., 1985), and many species of arthropods serve as a intermediate hosts for those parasites (Yamaguti, 1959).

Several species of *mathevotaenia* were reported from mammals especially from rodents and insectivores such as *M. rodentium* that recorded from *Gerbillus gerbillus* and *Acomys dimidiatus* in Southern Sinai (Werthem and Greenberg, 1970). In pakistan Noor-Un-Nisa,(2001) report the cestode *M.symmetrica* from small intestine of *Tatera indica*. *M.argentinensis, M.bivitta* were isolated from Marsupials in Argentina (Campbel et al., 2003).

Concerning the hedgehog, *M. skrjabini* was recorded from intestine of *Hemiechinus auritus* in Kuwait (Khalil and Abdul-Salam, 1985). Only two species *M. symmetrica, M. rodentium* were recorded in Iraq, these cestodes were isolated from rodents for the first time by Mahmoud, (1974), Salih,(1975) .

Human infection with *Mathevotaenia* were reported in 10 months old girls in Bangkok, Thailand following treatment with niclosamide (Lamon and Greer, 1986). The worms closely resembled *M.symmetrica*, a cosmopolitan intestinal cestode of rodents . The diarrhea associated with this infection resolved after anthelminthic treatment (John and Petri,2006) .

The measurements of present specimen was similar to that given in original description by Meggitt (1920) from hedgehog *Erinaceus* sp. in Mesopotamia.Table (1) .

Table (1): The measurements (mm) of *Mathevotaenia erinacei* in present study and Meggitt (1920)

	Present study	Meggitt (1920)
Body		
Long	14-17	15
Wide	0.78-0.95	1.0
Scolex		
Long	0.53-0.61	0.62-0.65
Wide	0.44-0.51	0.50-0.52
Oral Suckers		
Long	0.19-0.27	0.2-0.25
Wide	0.16-0.19	0.21-0.24
Mature Proglottids		
Long	0.63-0.69	0.66
Wide	0.46-0.51	0.46
Testes		
Long	37-39 microns	38-44 microns
Wide	24-31 microns	32-38 microns
Cirrus Sac		
Long	0.17-0.20	0.09 in diameter
Wide	0.04-0.07	
Ovary		
Long	0.10-0.14	0.14
Wide	0.19-0.22	0.16
Vitteline gland		
Long	0.05-0.09	0.09
Wide	0.04-0.09	0.08
Host	*Hemiechinus auritus*	*Erinaceus* sp.

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التسجيل الأول للدودة للشريطية *Mathevotaenia erinacei* Meggitt, 1920 من القنفذ ألأذاني *Hemiechinus auritus* Gmelin,1770 في محافظة البصرة, العراق

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الخلاصة

أجريت الدراسة الحالية على ٣٥ عينة من القنفذ طويل الأذن *Hemiechinus auritus* في مناطق عدة من قضاء أبي الخصيب في محافظة البصرة للمدة بين شهر آذار ولغاية شهر أيلول عام ٢٠٠٤. فحصت أمعاء تلك الحيوانات بحثا عن الديدان المتطفلة فيها وكانت النتيجة العثور على نوع واحد من الشريطيات هو *Mathevotaenia erinacei* في أربعة من الحيوانات المفحوصة بنسبة إصابة ١١,٤ % شخصت هذه الشريطية اعتمادا على التشابه مع قياسات الوصف الأصلي لها المسجل في العالم , كذلك عملت مقارنة لقياسات كلا العينتين.يعد وجود هذه الشريطية في الدراسة الحالية هو التسجيل الأول لها في العراق.