

*Case report***FIRST REPORT ON *Centrorhynchus aluconis* IN COMMON BUZZARD (*Buteo buteo*) IN NORTHWEST IRAN**

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In July 2012 a male Common Buzzard (*Buteo buteo*) from the Department of Environment of East Azerbaijan was sent to the Parasitology Laboratory at the School of Specialized Sciences of Veterinary Medicine, Science and Research Unit, Tehran Islamic Azad University. Gastrointestinal parasites were isolated and sent to the Iranian National Parasitology Museum in order to specify the diagnosis. It was determined that the bird was infected with the acanthocephalan *Centrorhynchus aluconis*. This is the first report of Common Buzzard infestation with this parasite in Iran.

**Key words:** *Centrorhynchus aluconis*, Common Buzzard, Histopathology

## INTRODUCTION

The most common definitive host for *Centrorhynchus aluconis* belongs to orders *Falconiformes* and *Strigiformes* [1,2]. This case presentation describes the first report of *Centrorhynchus aluconis* in a Common Buzzard (*Buteo buteo*) in Iran.

## CASE PRESENTATION

Common Buzzard (*Buteo buteo*) is a raptor bird smaller than an eagle (medium size is 50-55 cm), with a small head, wide wings and a short tail. Common Buzzard is a protected animal species which belongs to the order *Falconiformes*, family *Accipitridae* (Fig. 1).

According to the protection rules given by the Department of Environment in Iran, collecting a suitable amount of samples is difficult, which implies limited information about their health. There are only a few reports of wild bird infection, especially Common Buzzard, with acanthocephalans all over the world and this is the first report of Common Buzzard infestation with *Centrorhynchus aluconis* in Iran.

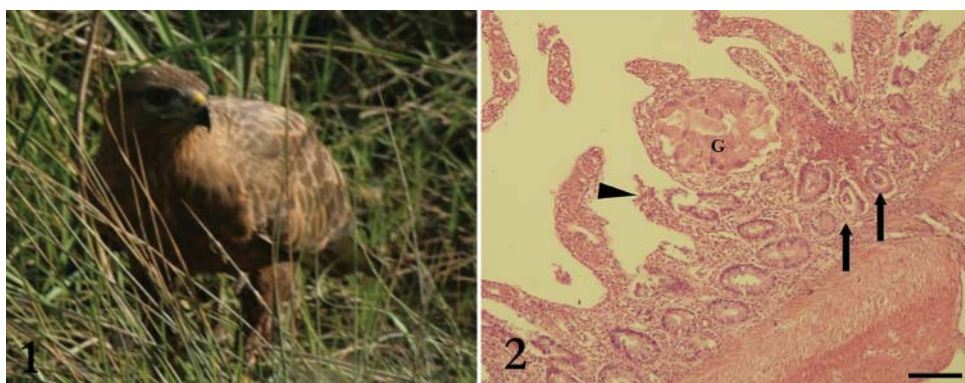
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In July 2012 a male Common Buzzard was found by the environment watchers in Kaleybar (38° 86 N' and 47° 04' E north east of East Azerbaijan). The bird's wings were broken and severe bleeding was present. The bird died despite of the given medical care. The bird was not treated with antiparasitic drugs prior to the incident, nor was kept in captivity.

After necropsy and tissue sampling, the digestive tract was sent to the Laboratory of parasitology, at the School of Specialized Sciences of Veterinary Medicine, Science and Research Unit, Tehran Islamic Azad University. The parasites were isolated by washing the intestines and passing the contents through a sieve. For histopathology, the tissue specimens were fixed in 10% formalin, and after routine tissue processing the parasite was identified based on its morphological features. Morphological changes in the small intestine were described, as well.

Out of the 9 acanthocephalans, 3 of them were found in the intestinal contents freely and the others penetrated with their oral proboscis into the small intestine wall. For further examination, all the specimens were sent to the Iranian National Parasitology Museum. The morphology of the oral proboscis, size, and the number of rows and spines were measured and counted. Morphological characteristic of free acanthocephalans [3], and also histological features from attached acanthocephalans in the intestine, as well as the results obtained from the Parasitology Museum have confirmed that all of the specimens were *Centrorhynchus aluconis*.

Chronic granulomatous enteritis was the most prominent histological finding. Attached adult parasites within the small intestine wall and encapsulated larval stages were present [4]. The inflammatory tissue reaction was intensive around the attachment of the adult worms. Granulomas surrounded by fibrous tissue were composed of a large number of macrophages and foreign body giant cells around the necrotic areas in the *Lamina propria mucosae*. Furthermore, fused short villi and cryptitis were present, as well (Fig 2).



**Figure 1.** Common Buzzard (*Buteo buteo*); **Figure 2.** Sections of small intestine with fused short villi (arrow head) and cryptitis (arrow). A granuloma with many giant cells (G) is shown in the lamina propria. HE, Barr: 200  $\mu$ m

## DISCUSSION

There are a few parasitological studies on *Centrorhynchusaluconis* especially in wild birds. Common Buzzard infestation with acanthocephalans has not been reported in Iran while there are surveys about this parasitic infection in raptor birds in other countries [5]. El-Dakhly et al, 2012 on necropsy and analysis of intestinal contents of a dead Japanese golden eagle described this acanthocephalan among other intestinal parasites and according to the lesions it was suspected that intestinal parasites were the cause of eagle death [6]. American researchers in 1998 reported infection by *Centrorhynchus Sp* in 10% of 19 eagles in Florida, USA [7,8]. Infestations with the other species of acanthocephalans have been reported by other researchers [8]. Richardson and Cole, 1997 in a survey of eagles in North America reported some species of acanthocephalans, but there was no report of *Centrorhynchus Sp*. Bolette in 2007 described *Oligacanthorhynchusnickolin* in owls and a hawk from central Arizona, USA [9,10]. With the study on falconiformes and strigiformes in Mexico various gastrointestinal parasites were described by Santos et al, 2011 but none of them were acanthocephalans [11]. There is no report of this acanthocephalan in Nestling Red-shouldered hawks (*Buteo lineatus*) in northeast Wisconsin [12]. According to previous studies it has been shown that this acanthocephalan is not a common parasite in Common Buzzard but owls are one of the most important hosts for it.

*Centrorhynchusaluconis* is the most common helminth in Tawny Owls in Great Britain. It is suggested that this specie is dependent on shrews (*Sorexaraneus* and *Sorexminutus*) as a paratenic host [13]. In 2004 this parasite with the highest prevalence was described in six species of owls in Spain [14]. This acanthocephalan has been reported also in mammals. The study carried out in the United Kingdom found that encysted acanthocephalans, which belong to the *Centrorhynchus Sp*. were found in the body cavities of common shrew and pygmy shrew. It seems that shrews are paratenic hosts for *C. aluconis* [15]. The larval stage of *C. aluconis* was described from shrews in Russia [16]. There is a report of infection of 4.6% stray domestic cats in Dubai with this acanthocephalan [17]. Investigations on protected bird species are of interest for other authors [18].

Finally it is suggested that there is not a clear rate of *C. aluconis* prevalence in wild birds of Iran and it is the first report of infestation with this parasite in northwest Iran. Further investigation will highlight this subject.

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## **PRVI SLUČAJ *Centrorhynchus aluconis*-a KOD ORLA MIŠARA (*Buteo buteo*) U SEVEROZAPADNOM IRANU**

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DAVOODI Jaber

Tokom jula 2012. mužjak orla mišara (*Buteo buteo*) je poslat iz Departmana za životnu sredinu istočnog Azarbejdžana u Laboratoriju za parazitologiju Škole za specijalizovane nauke veterinarske medicine, Odeljenje za nauku i istraživanja, Teheranski islamski Azad univerzitet. Izolovani gastrointestinalni paraziti su poslani radi specifikacije i dijagnostike u Nacionalni parazitološki muzej. Utvrđeno je da je ptica zaražena sa *Centrorhynchus aluconis*. U prikazu prvog slučaja dat je opis infestacije orla mišara parazitom *Centrorhynchus aluconis*, na području Irana.