Abstract

On April 2014, 6 months old male Brown bear cub that found in the Saray district of Van province was brought into Directorship of Wild Animal Protection of University of Yüzüncü Yıl. Despite all the intervention, bear cub, very poor condition in clinically, dead after two days. In postmortem patological and parasitological examination were detected severe hemorrhagic enteritis and many hookworms with white colour and approximately 1 cm diameter in surface of the small intestine. In stereo microscopic examinations, it was concluded that this worms are *Uncinaria* spp. This case report represents the first time *Uncinaria* spp. have been reported in Brown bear in Turkey.

Keywords: *Uncinaria*, Brown bear cub, Turkey

INTRODUCTION

The Brown bear (*Ursus arctos*) is the national animal for a number of states in North America, Europe and Asia. The Brown bear is the largest carnivore living in Turkey. Its present distribution is mainly confined to the intact natural habitats of the Black Sea and Eastern Anatolian regions [1]. Brown bears are omnivorous and opportunistic, feeding on fruit, roots, insects, mammals and carcasses [2].

Many intestinal parasites including protozoa, tapeworms, cestodes and nematodes are found in bears. *Ascaris* and *Baylisascaris* are common ascaridoid nematodes in bears. Members of *Baylisascaris* are common in bear and have been reported all species except *Tremarctos ornatus*. The hookworms detected in bears are *Ancylostoma* and *Uncinaria* species. Four species of hookworm in *Ancylostoma* (*Ancylostoma brasiliensis*, *A. ceylanicum*, *A. malayanum* and *A. caninum*) were reported from captive sloth bears in India [3,4]. Four species of *Uncinaria* (*U. yukonenensis*, *U. rauschi*, *U. stenocephala* and *U. ursi*) have been reported from bears [4,8].

Hookworm infections in bears like in any other gastrointestinal parasite it is likely that the most severe effects may be seen in newborn cubs and impaired absorptions from the intestines and can cause severe clinical sings. In...
infected animals, there are bloody faeces, anorexia and weight loss. In juveniles, severe infection may result in poor body condition and can be fatal \cite{2,7}.

*Uncinaria* spp. is a common parasite of carnivores. Adult form of *Uncinaria* spp. live in the intestine and feed on blood, which can lead mucosal damage, serious clinical signs that may occur with *Uncinaria* spp. including haemorragic diarrhoea, anemia and weight loss due to malabsorption \cite{8}.

**CASE HISTORY**

On April 2014, 6 months old male bear cub that found in the Saray district of Van province in wooded area by shepherds was brought into Directorship of Wild Animal Protection of University of Yüzüncü Yıl (Fig. 1). In bear cub, despite all the interventions that can be kept alive for 2 days, hypothermia, bloody diarrhea, apathy and anorexia were clinically present.

In pathological examination severe ulcerative hemorrhagic enteritis was detected. In postmortem macroscopic parasitological examination numerous worms with white color about 1 cm in length in surface of small intestine was detected (Fig. 2). A large number of hookworm eggs were seen in microscopic faecal examination (Fig. 3).

Measurements of some morphofological properties of worms that was found in small intestine of bear cub: The length of males was 7.4-8.2 mm and the diameter was 0.340-0.387 mm. Oesophagus was club-shaped, 0.784-0.820 mm long and 0.178-0.196 mm thick (Fig. 4). Both spicules were slender, long, equal in length as 0.813-0.889 mm. The bursa comprised two big lateral lobes and a single small dorsal lobe (Fig. 5). Buccal capsule was keyhole shaped, has cutting plate (Fig. 4). Buccal capsule was 0.179-0.191 mm long and 0.128-0.134 mm wide.

The length of females was 8.4-9.6 mm and the diameter was 0.348-0.439 mm. The distance of anus from the back-end was 0.205-0.212 mm. Female’s tail was short and tapered and has a pointed terminal end (Fig. 6).

**DISCUSSION**

*Uncinaria* species are small nematodes, classified in the order of Strongylata, family *Ancylostomatidae*, and infect...
many animal species including bear in various parts of the world \cite{10}. The northern carnivore hookworm (Uncinaria stenocephala) was found in Brown bears from the vicinity of the Caspian Sea \cite{4}. In North America, a new species of hookworm, Uncinaria (=Dochmoides) yukonensis, was described from specimens collected from wild black bear in Yukon Territory, Canada \cite{5}. A new species of hookworm, U. rauschi, was described by Olsen in both black and brown bears in Alaska \cite{10}. Uncinaria species, originally described as Dochmius ursi were collected from polar bear \cite{4}. Dochmius was considered a synonyms of Uncinaria in later years \cite{11}.

Bursa copulatrix and spicules of male Uncinaria and posterior end of female Uncinaria are similar to Ancylostoma, but Uncinaria species in the bear cub that was detected in this study are smaller than Ancylostoma species in length.

Uncinaria species that was found in bear cub were very similar to Uncinaria rauschi in terms of size and many morphological characteristics. The length of the males of Uncinaria rauschi is 7.4-9.1 mm and the diameter is 0.243-0.297 mm. Oesophagus was club-shaped 0.763-0.856 mm long and 0.167-0.191 mm thick through bulb. Spicules were slender and 0.819-0.954 mm long. The length of the females was 7.2-10.5 mm and the width was 0.275-0.381 mm at the level of vulva \cite{10}. But because of not having the possibility for molecular diagnosis, we also approved to name as Uncinaria spp. the worm that we detected in bear cub.

The importance of Uncinaria species in terms of public health is not known exactly, but human infections with Uncinaria species were reported \cite{12}. Thus, people who handle bears should use of disposable gloves during clean up of bear faecal material.

REFERENCES