

A Case Report of Human Thelaziasis

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동양안충의 인체감염 1예

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The authors report a case of infection with *Thelazia callipaeda* in a Korean man. The patient was a 47 year-old man. He experienced epiphora and foreign body sensation of the right eye since 3 weeks ago. Total of 2 worms were removed from the conjunctival sac; one by himself 1 day prior to examination and the other by an ophthalmologist. The worm was slender creamy white in color which was fixed in a 10% formaline solution. The worm was 17.38 mm in length, 0.45 mm in body width, 0.026 mm in length of buccal cavity, 0.63 mm in length of anterior end to vaginal opening, 0.76 mm in length of anterior end to the esophagointestinal junction and 0.06 mm in length of posterior end to the anus. There were numerous striations on surface of worms and vaginal opening was located anterior to the esophagointestinal junction. Based on aforementioned findings, it was confirmed as a female worm of *Thelazia callipaeda*, and the authors report it with literature.

Key Words : Conjunctival sac, *Thelazia callipaeda*

INTRODUCTION

Thelazia callipaeda is a nematode which parasitizes in the conjunctival sac or in the lacrimal apparatus of the dogs, rabbits, deer, cows, etc and it rarely infects the human species. Its prevalent area tends to be widening. First human infestation in Korea was described by Nakada (1), and other cases are continuously being reported (2,3).

This present report deals with a case of two worms obtained from the conjunctival sac of a 47 year-old male. They were removed and confirmed as *Thelazia callipaeda* and the authors report them with literature along with microscopic pictures.

CASE REPORT

47 year-old male patient complaining of foreign body sensation and lacrimation in the right eye was admitted to hospital. He had two pet dogs at home and he had these symptoms since three weeks before admission. The day before admission he removed one creamy white colored worm from his right eye by himself, put it in the normal saline and brought it to the hospital. His bare eyesight were both 1·2, and there was follicular hyperplasia with conjunctival edema in the internal palpebral conjunctiva of his right eye. Slit lamp examination showed that another creamy white worm was present in the conjunctival sac of his right eye, and it was removed by forceps under local anesthesia. The two worms were fixed in a 10% formaline solution and they were sent to Kyunghee medical school, department of parasitology for a confirmation.

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No more worms were found after a repeated examination done two weeks after admission. Symptoms such as conjunctival edema, foreign body sensation and lacrimation were cleared. At the time of initial examination, the eosinophil count was within normal range, and neither parasites nor ova were found on the stool exam, although there was positive result on occult blood test. Colon polyp located 27 cm above the anal verge was found and removed by colonoscopy.

Two worms were the same in color (creamy white) and the body shape (slender head and tail with thick body), which was the typical shape of Nematodes. Morphological features of these worms fixed in a 10% formaline solution are as follows; One worm was 17.38 mm in length, 0.45 mm in width, 0.026 mm in length of buccal cavity, 0.76 mm in length of esophagus, and 0.63 mm in length of anterior end to vaginal opening (V.O) located anterior to the esophagointestinal junction. Head papilla (P) was observed and there were numerous

striations on the body surface. In the uterus, there were coil-shaped mature larva filling the vagina from the anterior end to the 1/4 of the posterior end of the body. Posterior end to the anus (A) was 0.06 mm in length and papillae were found in the posterior end of the body (Table 1, Figure 1-3).

The other worm had the same shape but it was rather small, measuring 16.75 mm in body length and 0.4 mm in width.

These findings matched the measuring range described by Hsu (4), therefore these worms were con-

Table 1. Measurement Data of the Worm

Structure	Female worm (mm)
Body	
length	17.38
width (max.)	0.45
Buccal cavity length	0.026
Anterior end to vaginal opening	0.63
Anterior end to esophagointestinal junction	0.76
Posterior end to anus	0.06

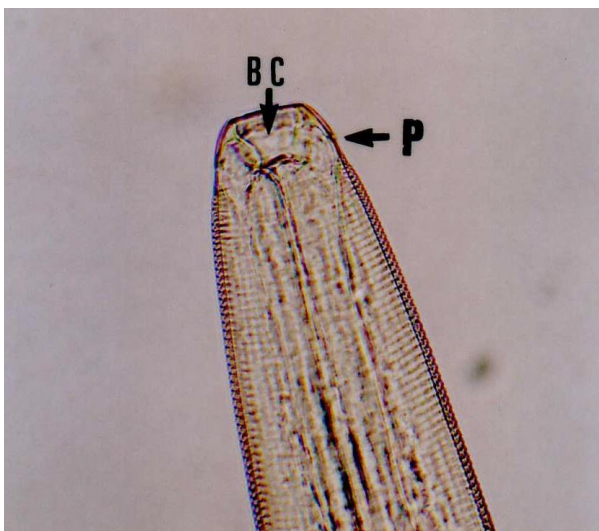


Figure 1. The mouth part of the worm, $\times 200$. P, Head papilla; BC, Buccal cavity

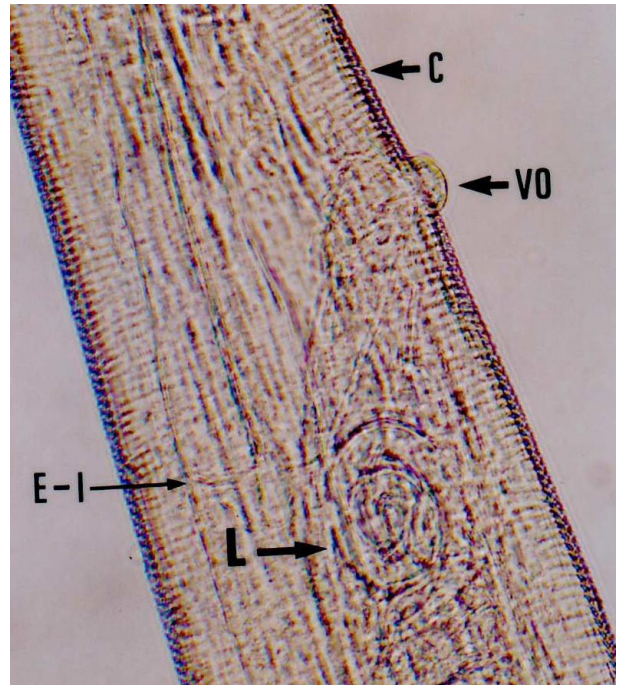


Figure 2. The anterior-middle part of the worm, $\times 200$. C, Transverse cuticular striations; VO, Vaginal opening; E-I, Esophagointestinal junction; L, Larva in vagina.

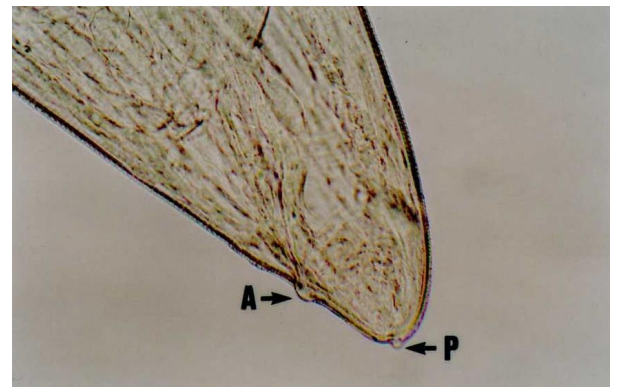


Figure 3. Posterior part of the worm, $\times 200$. A, Anus; P, Papilla

firmed as *Thelazia callipaeda*.

DISCUSSION

Thelazia was classified as one of the 13 species by Yamaguti (5), and among them only two species, *T. callipaeda* and *T. californiensis* are known to infect human (6). Their infection is in the form of zoonosis. Former was found in many countries of Asia, and latter was found in the states such as California, Nevada, and Oregon of the USA (7). The identification keys between these two species are morphological differences, such as number of striations of the body, number of papillae in the posterior end, and location of the vaginal opening in a female (8), (Table 2). There are 150–300/mm striations in the body of *T. callipaeda*. The female worm has the vaginal opening located anterior to the esophagointestinal junction, while the male worm has 8–10 pairs of precloacal papillae and 5 pairs of postcloacal papillae, which help distinguishing *T. callipaeda* from *T. californiensis*.

The female *T. callipaeda* was first reported by Raillet and Henry (9) based on the female worm obtained from an eye of a dog in India. Human infection case was first reported by Stuckey (10) in China, and Trimble (11) reported a case with the symptoms of lower eyelid paralysis and palpebral eversion in the same year. In Korea, Nakada reported the first human infection case in 1934, and it is expected that more human infection cases will further be detected in Korea since these worms are frequently being found in the recent times.

Infection route and source of *T. callipaeda* remain uncertain. The dogs, cats, cows and flies seem to play an important role. Infection occurs when the flies lick

the tears of the final host such as the cats or the human, and it takes about 10–20 days for the ova to become infective larva, growing up to be an adult worm 4 weeks after infection (12,13). In this case, the patient had two pet dogs for more than ten years, and the worm was found in early September which was the active period of the flies, making it easy for the host to be exposed to the worm.

The blood exam and stool exam results of *T. callipaeda* patients are usually normal, but it was reported that the eosinophils may rise up to 24–33% when the anterior chamber is infected (3,14,15). In the present case, there was no elevation in the eosinophil count on the blood exam, and neither worms nor ova were observed on the stool exam, though occult the blood test result was positive. On colonoscopic exam, a colonic polyp located 27 cm above the anal verge was found and removed. Positive result on occult blood test is thought to be due to the colonic polyp, and there seems to be no direct association between the result and the worm.

Usually, the adult worm parasitizes in the conjunctival sac and lacrimal apparatus, and it repeatedly migrates across the conjunctiva and the lacrimal gland, producing the symptoms such as conjunctival injection and follicular hyperplasia along with foreign body sensation and lacrimation. Rare complications are scar formation, fibrous opacity, palpebral eversion and conjunctival papilloma (16). When the worm lies in the anterior chamber, it may produce iriditis (14,17). These symptoms usually clear after the extraction of the worm, but corneal scar and fibrous opacity remains.

Removing the worm using forceps or cotton swabs can be an effective treatment, and tetracaine or cocaine eyedrops can weaken the activities of the worm. Considering the fact that the female worm has ova, these eggs may remain in the conjunctival sac even after the removal of the worm. Therefore it is thought to be a good way to wash the conjunctival sac (18). In rare cases of worms parasitizing the anterior chamber, surgery is the method of choice, and Choudhury (14) reported a surgical case of stopping the movement of the worm using cocaine eyedrops, followed by a resection of the corneal limbus approached from the inferior auditory side. When it is difficult to extract the worm

Table 2. Differential Points between *T. callipaeda* and *T. californiensis*

	<i>T. callipaeda</i>	<i>T. californiensis</i>
Vulva opening in female	Anterior to esophagointestinal junction	Posterior to esophagointestinal junction
Perianal papillae in male	Preanal : 8–10 pairs Postanal : 5 pairs	Preanal : 6–7 pairs Postanal : 5 pairs
Cuticular striation (number per mm)	150–300	30–111

from the anterior chamber, oral intake of diethylcarbamazine 50 mg three times a day for two weeks is known to be effective (6,19). Considering the fact that it takes 4 weeks for a larva to become an infective adult worm, and the fact that the adult worm lives for 12 months, periodical follow up is thought to be necessary. In the present case, the worm was removed by forceps without complication, and no additional worm was found during the follow-up observation.

Thelazia infection usually goes through a mild infection course, and there were no symptoms besides foreign body sensation and lacrimation in the present case, but it has hazardous potentials. It is thought to be necessary to observe the further emerging cases, and studies on the life cycle and infection source of this worm should be focused on. Efforts to improve the environmental hygiene for the prevention of thelaziasis should be made at the same time.

ABSTRACT

한국 남자에서 발견된 동양안충 감염 1예를 보고하고자 한다. 환자는 47세의 남자로서 검진 3주 전부터 오른쪽 눈에 유루증과 이물감을 느껴왔다. 환자의 결막낭에서 충체 2마리가 발견되었으며, 한 마리는 검진 하루 전에 환자 자신에 의하여, 나머지는 안과의사에 의하여 제거되었다. 충체는 사상형에 유백색을 띠고 있었으며 10% 포르말린 용액에 고정되었다. 길이는 17.38 mm, 너비는 0.45 mm, 구강낭의 길이는 0.026 mm였다. 충체 전단에서 질개구부까지는 0.63 mm, 충체 전단에서 식도-장이행부까지는 0.76 mm, 후미부에서 항문까지는 0.06 mm였다. 충체 표면에는 많은 잔주름이 있었으며 질개구부는 식도-장이행부의 앞쪽에 위치하였다. 이상의 소견으로 충체는 동양안충의 암컷으로 동정하였으며 저자 등은 이를 문헌고찰과 함께 보고하는 바이다.

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