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A CASE OF HUMAN OCULAR THELAZIASIS

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As a kind of zoonosis, thelaziasis is caused by *Thelazia callipaeda*, which is parasitic on lacrimal duct and conjunctival sac of humans, dogs, cats and other hosts. As its distribution is mainly in Asian countries, thelaziasis is also called the oriental eyeworm disease. Initial cases in humans were first noted in Beijing and Fujian in 1917[1]. In the past, thelaziasis got less focus on due to low incidence and narrow distribution. With constantly increasing reports and genetic researches these days, more and more understanding to this disease has been obtained and applied to clinical work. In order to share the experience of diagnosis and treatment of human ocular thelaziasis, we reported a case of human ocular thelaziasis and reviewed related literature.

***Key words**: Thelazia callipaeda*; human thelaziasis.

A 49-year-old man came to the First Affiliated Hospital of Harbin Medical University, Eye Hospital complaining of foreign body sensation and itching in the left eye for three days. Two days ago, four white worms were found in his conjunctival sac when he looked in the mirror. Even if he removed the worms by hand, the symptoms also existed. The patient reported to raise three dogs and was careless about his hygiene. On examination, the left eye revealed the presence of a creamy thread-like mobile worm in the inner canthus conjunctival sac (Fig. 1) and a white scar in the lower palpebral conjunctiva (Fig. 2).

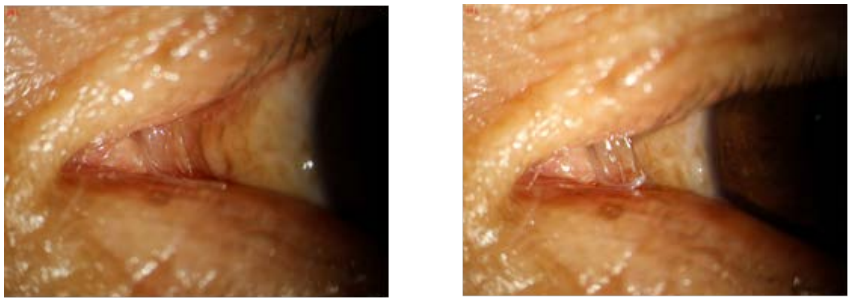

Fig. 1. Anterior ocular segment photograph.
A creamy thread-like mobile worms in the inner canthus conjunctival sac of the left eye were found

Fig. 2. The white scar in the lower palpebral conjunctiva

After dripping a few 1% dicaine eye drops, four worms in total appeared and they were all extracted by forceps under the slit lamp. Ocular symptoms resolved rapidly after the removal of the worms and there was no recurrence after the 6-month follow-up. We sent the four worms to the department of etiology immediately and they were all morphologically identified as female Thelazia callipaeda. According to that, the patient was diagnosed with human ocular thelaziasis caused by Thelazia callipaeda.

Discussion

Thelaziasis has a worldwide distribution but mainly occurs in eastern and southeastern Asia [2], such as China, India, Korea, Myanmar, Thialand, Japan [3]. There are also some case reports from America, Russia, Italy, France and so on [4]. China probably has the largest number of cases of thelaziasis in the world with more than 600 cases [5]. One of the major etiological agent of human thelaziasis is Thelazia callipaeda, a 8-14mm long white larva, which is mainly transmitted by Amiota okadai - a kind of fruit fly in China [6]. A recent research demonstrated that the Thelazia callipaeda from Europe and Asia should be divided into two separate sub-populations owing to the distinct gene sequences in some regions [7]. The other major causative agent is Thelazia californiensis which is mainly confined to the USA [8]. The main definitive hosts of Thelazia callipaeda are dogs and cats, while humans are occasional and accidental hosts. Drosophilid flies act as the vector host [9]. Thelazia callipaeda can parasitize the ocular tissues of these hosts who suffer from moderate to severe ocular signs and symptoms relating to inflammation stimulation and mechanical injury of the larvae, such as pain, sensation, itching, tearing, photophobia and scars of conjunctiva as this case report.

The transmission can be divided into three parts. First, flies feed on ocular secretions of the definitive host and ingest the first-stage worms

released by adult female nematodes in the conjunctival sac. Second, the first-stage worms carried by the vectors develop to the infective, third-stage worms in vectors' body. Third, when the flies feeds on lacrimal secretions of a new host, the infective worms are then delivered onto the conjunctiva and grow into the adult stage [9].

Human cases are usually associated with poor health and socioeconomic settings, in which domestic and wild animals live in close vicinity with humans. In this case, the patient was not able to bath enough due to the poor sanitation and surrounded by three dogs every day, which almost accounted for his infection. Etiological examination is the key to diagnosis and the treatment is to extract the worms under the induction of topical anesthesia. Although it was difficult to differentiate thelaziasis from allergic conjunctivitis in the past, several DNA markers and complete mitochondrial genomes have been applied in the taxonomy and genetic studies of Thelazia callipaeda these days, such as cox1 gene [10], ITS1 [11] and nad6 gene [12]. After the removal of larvae, follow-up is necessary since the hidden worms are difficult to be removed at once. As for prevention, elimination of fruit flies, strengthening the management of domestic animals and practicing good personal hygiene can be effective.

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ФАРМАКОГНОСТИЧЕСКОЕ ИССЛЕДОВАНИЕ ПЕРСИКА ОБЫКНОВЕННОГО ЛИСТЬЕВ

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Расширение исследований по изысканию источников для получения новых эффективных и безопасных лекарственных препаратов растительного происхождения является актуальной задачей. Одним из перспективных видов лекарственного растительного сырья являются листья персика обыкновенного. Они богаты растительными веществами фенольной структуры, которые оказывают противоопухолевое, желчегонное, капилляроукрепляющее, антиоксидантное и иммуномодулирующее действие, и являются перспективным сырьем для введения в научную медицину.

В статье представлены результаты морфолого-анатомического и фитохимического исследований листьев персика обыкновенного. Обнаружены значимые диагностические анатомические признаки: парацитный тип устьичного аппарата, простые толстостенные одно- и двухклеточные волоски, расположенные по краю листа и простые одноклеточные тонкостенные волоски, встречающиеся по жилкам нижней стороны листа; друзы и призматические кристаллы оксалата кальция.

Проведен качественный химический и хроматографический анализы листьев персика обыкновенного. Обнаружено наличие флавоноидов, дубильных веществ, алкалоидов и кумаринов.

Ключевые слова: персик обыкновенный, анатомия, морфология, качественные реакции.