

Research Note

Subconjunctival infestation with *Setaria*

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Summary

Most cases of human subconjunctival infestations with nematodes described in the literature belong to the genus *Dirofilaria*. This is a report of subconjunctival setariasis in a 65 years old man, diagnosed 2 years after a travel to Singapore. The parasite was removed immediately from the subconjunctival space and the patient was administered topical antibiotic and anti-inflammatory eye drops. The complete remission of symptoms and signs was noted. The parasite was identified on optical microscopy as belonging to the genus *Setaria*. The life cycle of the parasite and the accidental human contamination are described. The presence of a moving worm under the human conjunctiva is a rare condition that requires urgent action, in order to prevent its migration into less accessible locations. Since the human subject is a dead-end host who does not allow the multiplication of the parasite, its surgical removal is the only cure.

Keywords: nematodes; *Setaria*; subconjunctival

Introduction

Human ocular infestations with nematodes are rarely seen in Central and Eastern Europe, as they usually require higher outdoor temperatures for the development (Otranto *et al.*, 2011). Sporadic cases have been reported in Northern Europe and Poland (Melsom *et al.*, 2011; Wesolowska *et al.*, 2010). The nematode ophthalmic involvement in humans may be periorbital, subconjunctival or intraocular (Otranto *et al.*, 2011). Most cases of subconjunctival infestations with nematodes described in the literature belong to the genus *Dirofilaria* (Melsom *et al.*, 2011; Wesolowska *et al.*, 2010; Khorammia & Wegner, 2010). To our knowledge, the subconjunctival human infestation with nematodes belonging to the genus *Setaria* has been previ-

ously reported only in 4 cases in Romania (Panaitescu *et al.*, 1999).

Material and methods

We report the case of a 65 year old male who presented with a 24 hours history of redness, itching, swelling and discomfort in the right eye. The patient had no close association with domestic animals and had travelled to Singapore 2 years before this episode. On ocular examination, best corrected visual acuity was 20/20 (normal) in both eyes. Slit lamp examination revealed a moderate conjunctival injection over a temporal vermiform mass that could be seen moving independently of eye movements, in the right eye (Figs. 1A and 1B). The rest of the ophthalmological data were normal. The systemic examination showed no abnormality. The blood tests were within the normal limits: neither eosinophilia, nor microfilaremia were detected. With the suspicion of a parasitic infestation, the patient was operated immediately: a small conjunctival incision was performed as close as possible to the parasite, avoiding traumatizing it during extraction, in order to prevent the initiation of an anaphylactic reaction. The parasite was extracted alive and unbroken, put in saline and referred for the lab exams. For 5 days postoperatively, the patient was administered topical antibiotic and anti-inflammatory eye drops, with the immediate remission of the symptoms and signs. There was no need of systemic therapy.

Results

The thin and cylindrical worm measured 112 mm in length with a maximum width of 500 μm (Fig. 2). The identification of the parasite was performed according to the mor-

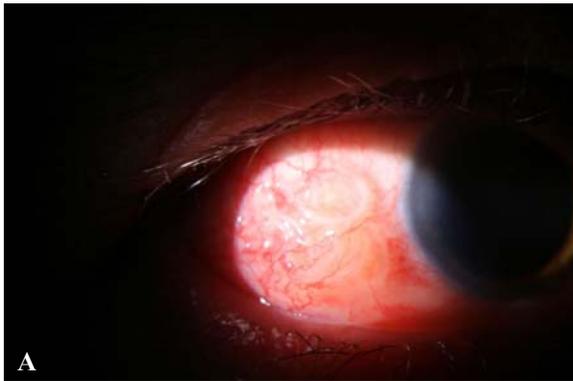


Fig. 1A – B. Vermiform mass under the temporal injected conjunctiva

phological features revealed by the optical microscopy, following published keys (Skryabin, 1991). It was classified in the family *Setariinae*, based on the following morphologic characters: cephalic end provided with circumoral sculpturings having the nature of perioral chitinized ring; the genus *Setaria*: perioral ring transformed into four protruding lips (Fig. 2).

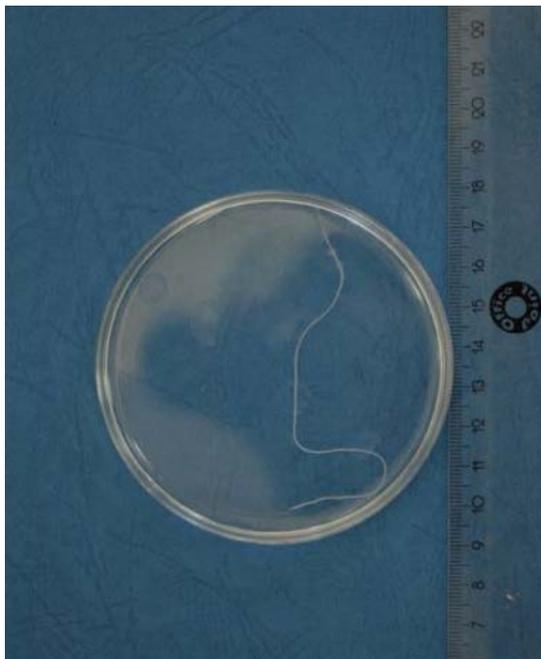


Fig. 2. Macroscopic aspect of the parasite

Discussion

Cattle are the natural hosts of *Setaria* and are not greatly affected by the parasite (Mohanty *et al.*, 2000). The vector (the mosquito *Armigeres* sp.) transmits the microfilariae (larvae of *Setaria* spp.) that migrate into the cow's bloodstream. As they take blood meals, mosquitos can inject the parasite into abnormal hosts, such as deers, goats, horses and sheep, causing inflammation of the eyes, liver, lungs, lumbar paralysis or the often deadly cerebrospinal setariosis (Ahmad & Srivastava, 2007). *Setaria* spp. rarely survives in the abnormal hosts and the microfilariae of *Setaria* spp. rarely can be identified in blood tests (Mohanty *et al.*,

2000; Ahmad & Srivastava, 2007). The microfilariae of *Setaria* spp. can develop in the central nervous system, eyes, heart, lymphatic system and under the skin, causing: abscesses, allergic reactions, lung inflammation, enlarged lymph nodes and eye lesions (Ahmad & Srivastava, 2007). Because the mosquito *Armigeres* sp. has an antropophilic biting habit, a large proportion of humans are exposed to the infestation with *Setaria* spp., but the parasite does not go through its all lifecycle in humans (Mohanty *et al.*, 2000). Surgical extraction is the treatment of choice and since the worm is unable to replicate itself in human, no systemic antiparasitic therapy is necessary. This is unlike the cases of ocular loiasis, in which another nematode, *Loa loa* is the infective parasite, that require the antifilarial systemic medication (Khorammnia & Wegner, 2010). Symptoms appear mostly weeks or months after the infestation (Mohanty *et al.*, 2000). In our case, the interval between the presumable infestation (in Singapore) and the onset of symptoms was of 2 years. It is possible that the infestation with *Setaria* spp. was produced in Romania, in the conditions of the late climatic changes, defined by the global warming. This hypothesis is also sustained by the previous report of 4 similar cases in Romania (Panaitescu *et al.*, 1999).



Fig. 3. Aspect of the parasite on optical microscopy

Conclusions

The risk factors for the *Setaria* infections spreading in unusual geographical areas are represented by the global warming and the development of tourism and travel, allowing people to reach remote destinations with high outdoor temperatures. The presence of a moving worm under the human conjunctiva is a rare condition that requires urgent action, in order to prevent its migration into less accessible locations. Since the human subject is a dead-end host where the parasite cannot multiply, its surgical removal is the only cure.

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