SUBCONJUNCTIVAL LOA LOA WORM: CASE REPORT

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SUMMARY:

A 38-year old Ghanaian suddenly had the sensation of a foreign body in his right eye. Slit-lamp examination revealed a transparent worm underneath the conjunctiva. With topical anesthesia, the complete worm, 3.5 cm long, was removed surgically. A microbiological analysis at the Institute of Tropical Medicine confirmed the diagnosis of Loa Loa. Laboratory tests showed negative blood eosinophilia, positive blood film examination for microfilariae and positive results for filarial serology. The postoperative treatment consisted of progressive doses of di-ethylcarbamazine (50→100→200 mg / d). A subconjunctival Loa Loa worm is rare in Belgium and usually occurs in immigrants or travellers returning from Tropical (Equatorial) West and Central Africa. Our patient visited Nigeria in 1985 and Ivory Coast in 1986. Those regions are highly endemic for Loa Loa.

RÉSUMÉ:

Un Ghanéen, âgé de 38 ans, se présentait avec la sensation d'un corps étranger dans l'oeil droit. L' examen au biomicroscope révélait un ver transparent sous la conjonctive. Après anesthésie locale, le ver a été enlevé dans son entièreté. Après analyse microbiologique, l'Institut de Médecine Tropicale a confirmé le diagnostic de Loa Loa. Les tests de laboratoire montraient une éosinophilie négative, une sérologie positive et des microfilaires présents dans une goutte de sang. Le traitement postopératoire a consisté en l'administration de doses progressives de diethyl-carbamazine. (50→100→200 mg / j). Le Loa Loa est rare en Belgique et se voit le plus souvent chez des immigrants ou des voyageurs revenant de l'Afrique Tropicale (Equatoriale). Notre patient a visité le Niger en 1985 et la Côte d' Ivoire en 1986. Le Loa Loa est très endémique dans ces régions.

KEY-WORDS

Loa Loa - Loaiasis - Ocular Parasitosis

MOTS-CLÉS

Loa Loa - Loaiasis - Infection Oculaire Parasitaire

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HISTORY

A 38-year old Ghanaian suddenly had the sensation of a foreign body in his right eye. Examination revealed a transparent worm underneath the conjunctiva. The worm was paralysed with 2 drops of Cocaine 4%. An additional subconjunctival injection with Scandonest® 3% (Mepivacaine Chlorhydrate 3%) was given. After a conjunctival incision the complete worm, 3.5 cm long, was removed. A microbiological analysis at the Institute of Tropical Medicine of Antwerp confirmed the diagnosis of Loa Loa. Laboratory tests showed negative blood eosinophilia, positive blood film examination for microfilariae (152 microfilariae / 10 ml blood) and positive results for filarial serology [IG E gammaglobulines 274 IE / ml (nl < 150 IE / ml)]. The patient visited Nigeria in 1985 and Ivory Coast in 1986. Those regions are highly endemic for Loa Loa. There were no other clinical features of loaiasis present (photo 1-2).

MORPHOLOGY

Loa Loa, also known as the African eye worm, is a filarial nematode with a typical morphology: a simple head with no lips and eight cephalic papillae, a long and slender body and a blunt tail. The cuticule is covered with irregular, small bosses, except at the head and tail. Males are 20-34 mm long by 350-430 μm wide. Females are 20-70 mm long and about 425 μm wide. The microfilariae mesure 250-300 μm. [8]

DISTRIBUTION

Loaiasis was first discovered in India during slavery but does not longer exist there.
Loa Loa is widely distributed and highly endemic in Tropical (Equatorial) West and Central Africa. In the Congo River basin up to 90% of the villagers are infected [8] (Figure 1).

Fig 1.

LIFE CYCLE

Loa Loa is transmitted to humans by day-biting deer flies, horse flies or mango flies. Once inside the human body the infective larvae develop slowly into a mature adult. During this period it lives and moves around the facial layers of the skin. In development period, Loa Loa often makes excursions through the subdermal connective tissues. Once they reach maturity, the adults mate and produce microfilariae. The microfilariae are diurnally in synchrony with their vector, the highest numbers being detected in blood between 10 am and 2 pm. Flies bite the human and ingest blood containing microfilariae. In the fly they undergo two stages of growth and become infective larvae (10-12 days) which can be transmitted back to humans. Humans harbouring microfilariae in the blood are likely the most important reservoir of loaiasis. Symptoms of loaiasis generally do not appear until several years after the bite of an infective fly, although they have been known to appear within four months. Microfilariae may become apparent in peripheral blood within 5 to 6 months of infection and may remain in blood as long as 17 years. [8]

PATHOGENESIS

Many patients infected with Loa Loa appear to be asymptomatic and the migration of the adult worm through the subcutaneous tissues often goes unnoticed, unless passing beneath the conjunctivae of the eye. The most common pa-

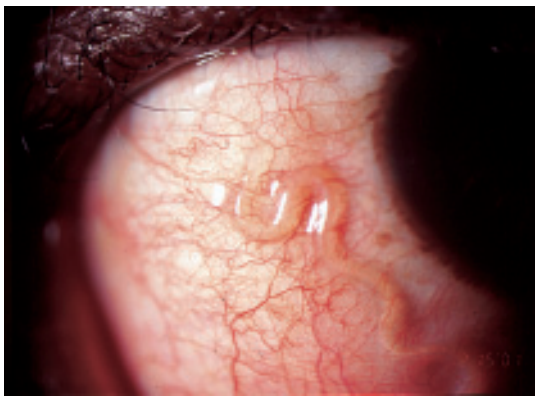

Photo 1: Subconjunctival Loa Loa

Photo 2: Extraction of Loa Loa

Photo 3: Calabar Swelling

thology associated with Loa Loa infections are transient localised Calabar swellings. When the adult worms are motionless within the subcutaneous tissues, an allergic reaction cause the so called Calabar swelling. When the worm moves on, the swelling reduces. These swellings may be the host reaction to products released by the worm, perhaps the microfilariae. They develop rapidly and last one to three days. The most common sites of Calabar swelling are the extremitities, especially the wrists and ankles. Joint pain, swelling and loss of movement can occur if the swelling is in close proximity to a joint. Calabar swellings are not diagnostic of Loa Loa without other confirmation. The worms may also transit the eye beneath the conjunctivae.

Subconjunctival migrations are pathognomonic for Loa Loa. These migration cause no permanent damage to the patient but can cause localised discomfort due to swelling of the conjunctivae. Other ophthalmologic related problems due to Loa Loa infection ever published are retinal detachment and anterior chamber invasion[2,7] (photo 3).

The disease may occasionally involve acute allergic symptoms with giant urticaria, fever and frequently recurring episodes of angioedema, especially in Caucasian visitors to endemic areas. Evidence of cardiomyopathy, encephalopathy or renal pathology are recorded.

The dying worm can also cause chronic abscesses followed by granulomatous reactions and fibrosis[4,5].

In the differential diagnosis Onchocerca Volvulus should be taken into consideration, which is a filariosis with typical intra-ocular impairment: keratitis, uveïtis, chorioretinitis and optic nerve atrophy. [8]

DIAGNOSIS

Subconjunctival migration of the Loa Loa worm is pathognomonic for loaiasis. However, when filariasis is suspected, a geographical and clinical history helps to make the diagnosis.

Laboratory tests include eosinophilia, C-reactive protein and IgE quantification. Thick blood examination needs to be performed; however, this is an insensitive method due to the need of high presence of microfilariae. [8]

TREATMENT

A complete surgical removal after topical anesthesia is simple and effective but most of the worms are unapparent.

A di-ethyl-carbamazine treatment (Notesine®, Hetrazan®, Banocide®) has been the mainstay

antifilarial drug for the past 40 years and it has proven to be very effective in treating loaiasis. The treatment dose and treatment duration is controversial. The Merck Manual notes 3 mg/kg for 14 days. Di-ethyl-carbamazine kills both the microfilariae and adult worms. Allergic reactions are common during the early treatment stage due to an acute and massive number of dying microfilariae. An antihistaminic and corticosteroids should be given during the first 4 days. To avoid those potential allergic reactions, treatment can be started at low-dose and increased progressively. There is no immunity to loaiasis and repeated infections are possible[1,3,8].

Personal and protective measures against insects are indicated for temporary residents of regions where Loa Loa is endemic. The use of an effective repellant (containing Dimethylphthalate), wearing long pants and sleeping in well screened areas are recommended. Di-ethyl-carbamazine given orally once weekly (300mg) can be effective to prevent loaiasis [6].

CONCLUSION

A subconjunctival Loa Loa worm is rare in Belgium and usually occurs in immigrants or travellers returning from Tropical (Equatorial) West and Central Africa.

Thinking of loaiasis in at risk patients with an unexplained foreign body sensation prevents significantly morbidity and even mortality due to Loa Loa which is easy to treat.

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