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Man With Disappearing Subconjunctival Foreign Body

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Figure 1. Patient cellular phone photograph of the left eye shows an irregular serpiginous extension from beneath the plica semilunaris toward the corneal limbus with localized conjunctival hyperemia.

A 33-year-old man with no prior ocular problems presented to the emergency department in central Florida with a chief complaint of a "pulling and popping" sensation in his left eye that had occurred the previous night. Ophthalmology was consulted to evaluate for a conjunctival foreign body of the left eye. At the time of the examination, his symptoms had resolved; however, he had a photograph from a cellular phone taken during the episode (**Figure 1**). The photograph shows an irregular, serpiginous extension from beneath the plica semilunaris toward the corneal limbus with localized conjunctival hyperemia. He reported a similar sensation of movement in his left eye that occurred for 1 night about 5 years ago for which he visited an urgent care center where he was diagnosed with allergic conjunctivitis. He also reported recent swelling of the left side of his face with associated numbness and occasional swelling of his left hand, all of which resolved after a few days. He had immigrated from Nigeria 10 years prior, had not returned since, and was working as a traveling nurse. A slitlamp examination did not reveal any conjunctival hyperemia, foreign bodies, or other abnormalities like those shown in the photograph. His uncorrected visual acuity was 20/20, extraocular movements were full and without pain or abnormal sensation, and intraocular pressure was normal. His dilated fundus examination was unremarkable. A comprehensive blood cell count revealed mild elevation in the relative (but not absolute) eosinophil count (6.9% reference; 6.0% of white blood cells).

WHAT WOULD YOU DO NEXT?

- **A.** Treatment with diethylcarbamazine
- **B.** Peripheral blood smear
- **C.** Serological testing for onchocerciasis
- **D.** Exploration of conjunctiva and removal of foreign body

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Diagnosis

***Loa loa* infection**

What to Do Next

B. Peripheral blood smear

Discussion

In this Nigerian patient with a sensation of movement of the left eye, a photograph showing serpiginous conjunctival elevation, and intermittent swelling of the dorsum of the hand, the most likely diagnosis is *Loa loa*. Also known as the African eye worm, *Loa loa* is a filarial nematode transmitted by day-biting flies of the genus *Chrysops* endemic to Western and Central Africa.[1] After a bite from an infected fly, filarial larvae introduced into the subcutaneous tissue mature into adult worms that shed microfilariae that migrate into the spinal fluid, urine, sputum, and peripheral blood.[2] Most infections are asymptomatic despite high numbers of circulating microfilaria; however, patients may have characteristic symptoms

that include migratory angioedema of the extremities (so-called Calabar swellings) and migration of adult worms into the subconjunctival space as in this patient.[3,4]

The recommended next step in the treatment of this patient is a peripheral blood smear for species identification and quantification of circulating microfilariae (choice B). Blood should be drawn between 10 AM and 2 PM during the migration of microfilaria from the lungs into the peripheral circulation; this diurnal pattern coincides with the biting activity of the vector. Diethylcarbamazine is the first-line therapy due to its ability to eradicate both microfilaria and adult worms, while empirical therapy (choice A) can result in intense inflammatory reactions during the rapid death of the nematodes. Due to the risk of fatal encephalopathy in patients with microfilarial concentrations greater than 8000 per mL of blood, it is recommended to first measure the concentration prior to treatment with diethylcarbamazine.[4] Treatment with diethylcarbamazine in patients who are coinfected with onchocerciasis can also lead to vision loss and blindness.[5] Therefore, in patients from coendemic areas such as Nigeria, serological testing (choice C) should be used to rule out onchocerciasis prior to treatment, but only after identification of microfilariae in peripheral blood.[6] Surgical removal of the adult worm from the conjunctiva (choice D) may treat localized symptoms and provide an opportunity for species identification; however, removal is not necessary for diagnosis and treatment with curative antiparasitic medication.

Peripheral blood smears with Wright and Geimsa stains (**Figure 2**) revealed microfilaria (1000/mL) with characteristic morphology of *Loa loa* that included an approximate length of 250 µm, shortened headspace, a dense nuclear column continuous to the tip of the tail, and the presence of a sheath.[7] The patient was prescribed albendazole, which is only effective against adult worms and decreases the load of microfilariae through the reduction in shedding of microfilariae.[8] Serologic testing for onchocerciasis was ordered, and the US Centers for Disease Control and Prevention was contacted to obtain diethylcarbamazine, which is no longer US Food and Drug Administration–approved or commercially available in the US due to the low incidence of this disease in the US.[9] The results of the onchocerciasis serology were negative, and the patient was given the diethylcarbamazine obtained from the US Centers for Disease Control and Prevention. Three weeks later, he reported no recurrence of his symptoms, and there were no eye worms on examination.

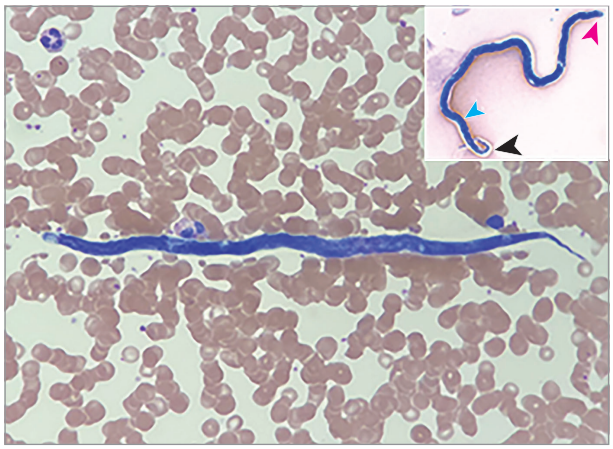

Figure 2. Peripheral thick blood smears stained with Wright and Geimsa (main panel [original magnification ×400] and inset panel [original magnification ×200], respectively) revealed microfilaria (1000/mL) with characteristic morphology of *Loa loa* that included an approximate length of 250 µm, shortened headspace (pink arrowhead), a dense nuclear column continuous to the tip of the tail (blue arrowhead), and the presence of a sheath (black arrowhead).

ARTICLE INFORMATION

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