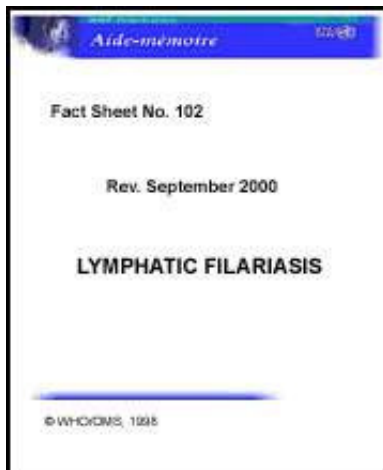


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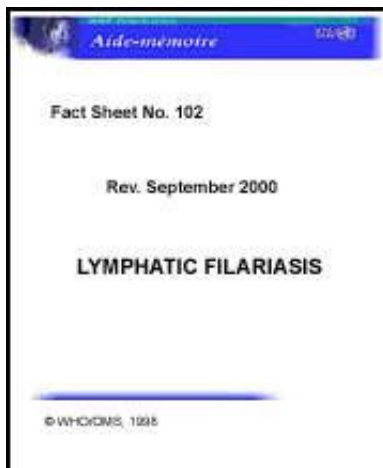
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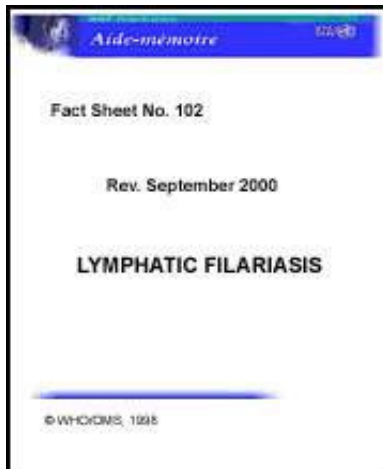
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Lymphatic Filariasis, known as Elephantiasis, puts at risk more than a billion people in more than 80 countries. Over 120 million have already been affected by it, over 40 million of them are seriously incapacitated and disfigured by the disease. One-third of the people infected with the disease live in India, one third are in Africa and most of the remainder are in South Asia, the Pacific and the Americas. In tropical and subtropical areas where lymphatic filariasis is well-established, the prevalence of infection is continuing to increase. A primary cause of this increase is the rapid and unplanned growth of cities, which creates numerous breeding sites for the mosquitoes that transmit the disease.

In its most obvious manifestations, lymphatic filariasis causes enlargement of the entire leg or arm, the genitals, vulva and breasts. In endemic communities, 10-50% of men and up to 10% of women can be affected. The psychological and social stigma associated with these aspects of the disease are immense. In addition, even more common than the overt abnormalities is hidden, internal damage to the kidneys and lymphatic system caused by the filariae.

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Cause

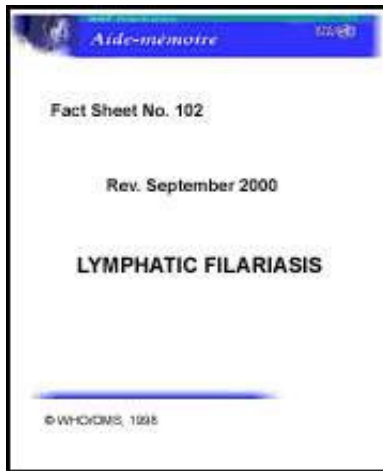
The thread-like, parasitic filarial worms *Wuchereria bancrofti* and *Brugia malayi* that cause lymphatic filariasis live almost exclusively in humans. These worms lodge in the lymphatic system, the network of nodes and vessels that maintain the delicate fluid balance between the tissues and blood and are an essential component for the body's immune defence system. They live for 4-6 years, producing millions of immature microfilariae (minute larvae) that circulate in the blood.









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Transmission

The disease is transmitted by mosquitoes that bite infected humans and pick up the microfilariae that develop, inside the mosquito, into the infective stage in a process that usually takes 7-21 days. The larvae then migrate to the mosquitoes' biting mouth-parts, ready to enter the punctured skin following the mosquito bite, thus completing the cycle.

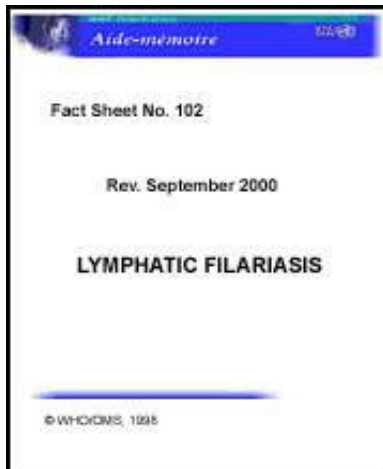
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Signs and Symptoms

The development of the disease itself in humans is still something of an enigma to scientists. Though the infection is generally acquired early in childhood, the disease may take years to manifest itself.

Indeed, many people never acquire outward clinical manifestations of their infections. Even though there may be no clinical symptoms, studies have now disclosed that such victims, outwardly healthy, actually have hidden lymphatic pathology and kidney damage as well. The asymptomatic form of infection is most often characterized by the presence in the blood of thousands or millions of larval parasites (microfilariae) and adult worms located in the lymphatic system.

The worst symptoms of the chronic disease generally appear in adults, and in men more often than in women. In endemic communities, some 10-50% of men suffer from genital damage, especially hydrocoele (fluid-filled balloon-like enlargement of the sacs around the testes) and elephantiasis of the penis and scrotum.

Elephantiasis of the entire leg, the entire arm, the vulva, or the breast - swelling up to several times normal size - can affect up to 10% of men and women in these communities.

Acute episodes of local inflammation involving skin, lymph nodes and lymphatic vessels often accompany the chronic lymphoedema or elephantiasis. Some of these are caused by the body's immune response to the parasite, but most are the result of bacterial infection of skin where normal defences have been partially lost due to underlying lymphatic damage. Careful cleansing can be extremely helpful in healing the infected surface areas and in both slowing and, even more remarkably, reversing much of the overt damage that has occurred already.

In endemic areas, chronic and acute manifestations of filariasis tend to develop more often and sooner in refugees or newcomers than in local populations continually exposed to infection. Lymphoedema may develop within six months and elephantiasis as quickly as a year after arrival.

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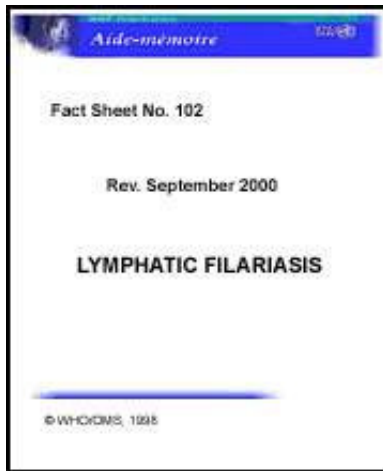
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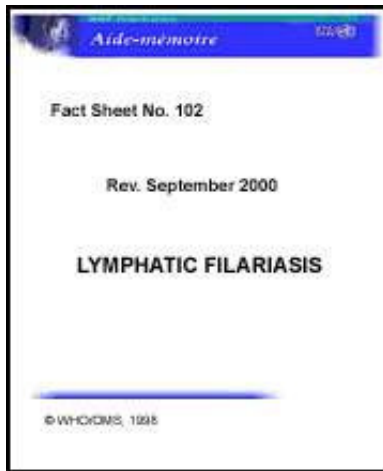
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Diagnosis

Until very recently, diagnosing lymphatic filariasis had been extremely difficult, since parasites had to be detected microscopically in the blood, and in most parts of the world, the parasites have a "nocturnal periodicity" that restricts their appearance in the blood to only the hours around midnight. The new development of a very sensitive, very specific simple "card test" to detect circulating parasite antigens without the need for laboratory facilities and using only finger-prick blood droplets taken anytime of the day has completely transformed the approach to diagnosis. With this and other new diagnostic tools, it will now be possible both to improve our understanding of where the infection actually occurs and to monitor more easily the effectiveness of treatment and control programmes.



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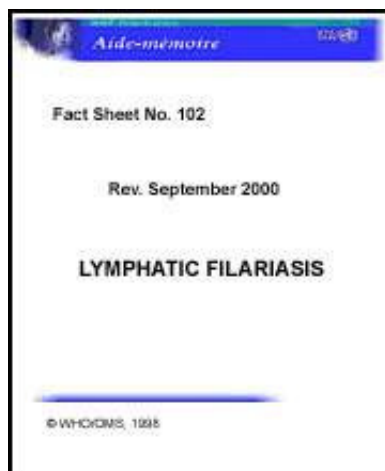
Treatment

Communities where filariasis is endemic. The primary goal of treating the affected community is to eliminate microfilariae from the blood of infected individuals so that transmission of the infection by the mosquito can be interrupted. Recent studies have shown that single doses of diethylcarbamazine (DEC) have the same long-term (1-year) effect in decreasing microfilaraemia as the formerly-recommended 12-day regimens of DEC and, even more importantly, that the use of single doses of 2 drugs administered concurrently (optimally albendazole with DEC or ivermectin) is 99% effective in removing microfilariae from the blood for a full year after treatment. It is this level of treatment effectiveness that has made feasible the new efforts to eliminate lymphatic filariasis.

Treating the individual. Both albendazole and DEC have been shown to be effective

in killing the adult-stage filarial parasites (necessary for complete cure of infection), but ideal treatment regimens still need to be defined. It is clear that this anti-parasite treatment can result in improvement of patients' elephantiasis and hydrocoele (especially in the early stages of disease), but the most significant treatment advance to alleviate the suffering of those with elephantiasis has come from recognizing that much of the progression in pathology results from bacterial and fungal "superinfection" of tissues with compromised lymphatic function caused by earlier filarial infection. Thus, rigorous hygiene to the affected limbs, with accompanying adjunctive measures to minimize infection and promote lymph flow, results both in a dramatic reduction in frequency of acute episodes of inflammation ("filarial fevers") and in an astonishing degree of improvement of the elephantiasis itself.

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The strategy of the Global Programme to Eliminate Lymphatic Filariasis has two components: firstly, to stop the spread of infection (i.e. interrupt transmission), and secondly, to alleviate the suffering of affected individuals (i.e. morbidity control).

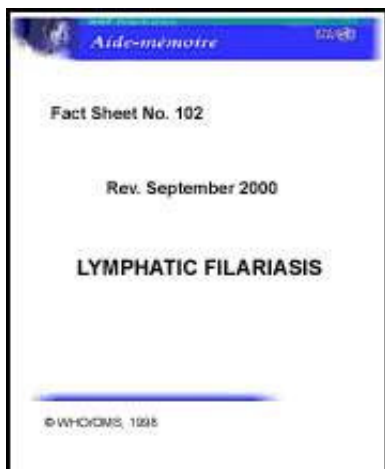
To interrupt transmission, districts in which lymphatic filariasis is endemic must be identified, and then community-wide ("mass treatment") programmes implemented to treat the entire at-risk population. In most countries, the programme will be based on once-yearly administration of single doses of two drugs given together: albendazole plus either diethylcarbamazine (DEC) or ivermectin, the latter in areas where either onchocerciasis or loiasis may also be endemic; this yearly, single-dose treatment must be carried out for 4-6 years. An alternative community-wide regimen with equal effectiveness is the use of common table/ cooking salt fortified with DEC in the endemic region for a period of one year.

To alleviate the suffering caused by the disease, it will be necessary to implement community education programmes to raise awareness in affected patients. This would promote the benefits of intensive local hygiene and the possible improvement, both in the damage that has already occurred, and in preventing the debilitating and painful, acute episodes of inflammation.

The generous pledge in 1998 by the global healthcare company SmithKline

Beecham to collaborate with the World Health Organization in its elimination efforts included the donation of numerous resources (but especially albendazole, one of the mainstay drugs in the elimination strategy), free of charge, for as long as necessary to ensure success of the elimination programme. This donation, coupled with the recent decision by Merck and Co., Inc., to expand its ongoing Mectizan[®] (ivermectin) Donation Programme to include treatment of lymphatic filariasis where appropriate, and the creation of additional partnerships with other private, public and international organizations, including the World Bank, have all further strengthened the prospects for success of these elimination efforts.

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Because of its prevalence often in remote rural areas, on the one hand, and in disfavoured periurban and urban areas, on the other, lymphatic filariasis is primarily a disease of the poor. In recent years, lymphatic filariasis has steadily increased because of the expansion of slum areas and poverty, especially in Africa and the Indian sub-continent. As many filariasis patients are physically incapacitated, it is also a disease that prevents patients from having a normal working life. The fight to eliminate lymphatic filariasis is also a fight against poverty.

Lymphatic filariasis exerts a heavy social burden that is especially severe because of the specific attributes of the disease, particularly since chronic complications are often hidden and are considered shameful. For men, genital damage is a severe handicap leading to physical limitations and social stigmatization. For women, shame and taboos are also associated with the disease. When affected by lymphoedema, they are considered undesirable and when their lower limbs and genital parts are enlarged they are severely stigmatized; marriage, in many situations an essential source of security, is often impossible.

**For further information, journalists can contact the Spokesperson's Office, WHO, Geneva. Telephone: +41 (22) 791 2599, Fax +41 (22) 791 4858; email inf@who.int
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