

Community dermatology

Podoconiosis control in rural Ethiopia: the roles of expert patients, appropriate treatment and community mobilization.

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Introduction

Podoconiosis is a tropical lower limb lymphoedema distinct from lymphatic filariasis (LF). It is a geographically localized disease, distinguished from LF in being found at high altitudes and through being an ascending lymphoedema which rarely involves the groin. It is highly prevalent in focal areas, where irritant clay soils (formed by the weathering of rock of volcanic origins in areas of high altitude - over 1000m - and seasonal rainfall - over 1000mm per annum) are farmed by barefoot farmers. Its precise pathogenesis is still unclear, but it appears that soil particles penetrate the skin of subsistence farmers, and in genetically susceptible individuals cause inflammation of the lymphatic endothelial cells, eventually leading to blockage and subsequent elephantiasis¹ (Figure 1). Podoconiosis has been reported in at least ten countries across tropical Africa, with high burdens of disease in Ethiopia², Cameroon³, Uganda⁴ and Rwanda⁵. This article uses the example of a community-based programme in southern Ethiopia to illustrate distinctive approaches to treatment and prevention of the disease.

The Mossy Foot Treatment and Prevention Association in Ethiopia

Although an estimated one million Ethiopians (of a total population of 77 million) are affected with podoconiosis², creating a huge economic burden in endemic areas⁶, there is as yet no national policy to control or prevent the condition, and most affected communities remain unaware of treatment options. The Mossy Foot Treatment and Prevention Association (MFTPA) was founded in 1998 as an Ethiopian non-governmental organization⁷. It was created in response to the problem of podoconiosis (also called “Mossy Foot” by lay people because of the moss-like skin lesions that develop on many patients’ feet) in the community around Sodo, a town of about 80,000 people in an administrative ‘zone’ of 1.7 million inhabitants in southern Ethiopia.

Although the MFTPA was founded by health professionals concerned by the lack of treatment available for patients, it took the development expertise of the project director, Meskele Ashine, to build a programme that has expanded to include approximately 30,000 patients per year across the administrative zone. This article will focus on three characteristics that have ensured the success of the program: training and leadership by expert patients; locally-appropriate treatment items; and community mobilization through ‘Network Groups’.

Training and leadership by expert patients

One key element of the work of the MFTPA is the transformation of patients who have successfully treated themselves into Community Podoconiosis Agents. Community Podoconiosis Agents are selected on the basis of success with treatment and having been educated to Grade 10/12 (school leaver's certificate). Potential Community Podoconiosis Agents are given full-time clinical training over a period of one week, and then become responsible for approximately 2000 patients per annum in their own community. Their roles include:

- Actively identifying patients and inviting them to treatment clinics
- Leading weekly clinics (at which patients are registered, evaluated and directed in lymphoedema care – Figure 2)
- Facilitating experience-sharing “conversations” between patients at clinic
- Management of treatment supplies
- Liaison with the central MFTPA office, including field testing of new treatment or administrative strategies
- Onward referral of patients with ‘danger’ signs
- Home visits to patients to disabled to attend clinic
- Identifying children eligible for free preventive shoe distribution, and
- Local preventive advice and education in e.g., schools, churches, community meetings

Community Podoconiosis Agents remain in their own community, but are a core part of the practice team. They embody the effectiveness of lymphoedema treatment and act as ambassadors of the MFTPA within the community. Patients often indicate that their motivation to succeed with treatment is boosted by contact with Community Podoconiosis Agents. Conversely, Community Podoconiosis Agents are motivated in their demanding roles by the feedback they receive from patients and unaffected community members. Expert patients showing particular aptitude are offered further training, and may progress to management positions or into (for example) wound care.

Development of a disease control programme that does not depend heavily on health professionals is appropriate, given that:

- a) Podoconiosis is easy to diagnose in endemic areas⁸, with few likely differential diagnoses (lymphatic filariasis, for example, does not occur at the altitudes at which podoconiosis is found)
- b) Treatment is simple and unlikely to cause harm

- c) The aim is ultimately to extend treatment to 1 million patients across Ethiopia, in regions in which the average physician:population ratio was 1:250,000 in 2006⁹.

Locally appropriate treatment items

The basic components of podoconiosis treatment, recently documented to be effective over a one-year period¹⁰ are listed in Box 1.

<p>Box 1: Components of Podoconiosis Treatment</p> <ol style="list-style-type: none">1. Foot hygiene;2. Skin care;3. Bandaging;4. Socks and shoes;5. Elevation and movement;6. Surgery.

It is vital that items needed for treatment (water, soap, antiseptic, emollient, bandages, socks and shoes) are accessible to patients, who are mostly subsistence farmers with incomes substantially less than \$1 per day.

Water. Access to clean water remains a significant issue for many rural Ethiopian communities. Use of the disinfecting/flocculating agent, *Pur* renders contaminated water safe to drink, and may increase the effective supply of clean water for patients in the dry season. Plastic containers to store water and bowls to soak and rinse feet in are cheap and widely available in small markets in podoconiosis-endemic countries. Soap should ideally be unscented and as pH-neutral as possible to avoid delay in recovery of barrier function. Groups in western Ethiopia train patients to make soap using local *neem* extract. The MFTPA tries to ensure availability of antiseptic by using diluted bleach rather than potassium permanganate (which is not widely available in Ethiopia). However, there are concerns about the effect of bleach on skin barrier function. An alternative antiseptic widely available in rural Ethiopia is eucalyptus leaf soak.

Skin care. Oil or ointment will help restore the skin's barrier function against irritant soil particles and micro-organisms, and the MFTPA use Whitfield ointment at present.

Bandaging. Bandaging is highly effective in reducing swelling in most patients with podoconiosis, and the MFTPA has found that most patients can be trained to apply bandages safely (Figure 3). Those that cannot themselves may designate a family member to be trained; occasionally a Community Podoconiosis Agent will go to the home to change bandages regularly. Bandages are manufactured in Ethiopia, but the cost of two pairs of bandages (one pair to be worn while the other is washed), at about \$4, is beyond most patients.

Socks and shoes. Socks and shoes are vital for treatment of podoconiosis. This component is of such great importance that the MFTPA trains treated patients to make large size custom shoes for patients. Shoes are the most expensive part of treatment and prevention. Materials and production of shoes by the MFTPA cost around US\$8 (2010 price); however, they are provided to patients either free or heavily subsidized at around 50cents. The cost is not meant to cover the cost of production but instead to create ownership and commitment from the patients.

Elevation and movement. All patients are taught ankle circles, calf raises and shown how to elevate their bed or mattress to improve lymph return at night.

Surgery. Surgery is the most expensive component of podoconiosis treatment, and is required by only a small minority of patients. Onward referral of the small percentage of patients who require nodulectomy is managed according to clear referral criteria agreed between the MFTPA team and the lead surgeon. Feedback on the long term results of surgery is passed by the field team back to the surgical team.

Community mobilization through “Network Groups”

About seventy Network Groups have been established by the MFTPA around Wolaita zone. These Network Groups typically consist of between 20 to 25 volunteers from the community; however, some have up to 35 members. In addition to ordinary community members, each network group includes a wide array of community leaders. Network groups consist of at least six local government officials, local religious leaders, and treated podoconiosis patients. The Network Groups have several objectives, but the primary goal of a group is education and empowerment of the local community. Most of this is achieved by word of mouth. Not all Network Groups utilize the same types of messages or channels, but each has discovered what works within their particular community: meetings held around coffee ceremonies, school assemblies or church gatherings. MFTPA Network Groups have the following responsibilities:

- *Development of an organizational structure.* MFTPA network groups are structured with a chairperson, assistant chairperson, secretary, and detailed work plan.
- *Contact with podoconiosis patients.* Members must be familiar with the podoconiosis patients in their communities and have regular contact with the clinic site.
- *Assistance for patients.* Members ensure that patients are receiving regular treatment and following treatment directives correctly.
- *Increasing awareness.* Members of network groups use a range of organizations and channels (schools, community meetings, government meetings, religious meetings) to engage others in discussions about podoconiosis.
- *New member recruitment.* Group members encourage other government officials, church leaders, and influential community members to volunteer.
- *Shoe distribution.* Group members are responsible for establishing channels of children’s shoe distribution.

Conclusion

This article highlights three distinctive features of the community-based podoconiosis prevention and treatment programme in southern Ethiopia. Each is potentially transferrable to other international community dermatology programmes: training expert patients to provide simple, close-to-patient services is a potentially powerful solution to lack of care in countries with low formal health services coverage. Adaption of management protocols to include from locally available treatment items must be done cautiously and under expert review, but may again solve problems of procuring and distributing imported pharmaceuticals. Finally, harnessing the power of the local community to advocate for patients is likely to improve social support and diminish stigma in relation to a range of dermatologic conditions.

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Figure 1. Patients with podocniosis in southern Ethiopia.



Figure 2. Expert patient assessing new patient prior to treatment.



Figure 3. Patient being trained to bandage his feet.