



Rapid assessment procedures to detect hidden endemic foci in areas not subjected to mass drug administration in Sri Lanka

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ABSTRACT

For the declaration of elimination of lymphatic filariasis, reliable epidemiological data in all parts of a country are required. In Sri Lanka, due to social disturbance, there are 3 provinces whose endemicity has been declared unknown. Further, a recent report revealed an endemic pocket, which is on the border with the district that was not covered by the national elimination program. These facts indicate the necessity of more extensive studies to discover hidden endemic foci. To facilitate such studies, we evaluated 2 methods of Rapid Assessment Procedure (RAP) in Hambantota district, where the filariasis endemicity was low: (1) indirect questioning by mailing a questionnaire to each local leader (IndQ), asking about the presence of clinical cases, and (2) focus group discussion (FGD) by villagers. The information given by people was validated with clinical examination by doctors (CE) and IgG4 ELISA using urine samples. In the results: there was a strong positive correlation between CE and ELISA rates. The hydrocele rates obtained by FGD or IndQ were associated significantly with CE rates. The rates by FGD or Cluster-IndQ ('modified' IndQ) were also associated significantly with ELISA rates. The IndQ was most cost-effective. Based on these findings, we have concluded that screening by IndQ and confirmation by the ELISA would be an effective and practical way in Sri Lanka to locate endemic foci in hitherto unsurveyed districts.

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1. Introduction

Following the Global Programme to Eliminate Lymphatic Filariasis (GPELF), the Sri Lankan Ministry of Health initiated the national Programme to Eliminate Lymphatic Filariasis (PELF) in 2000 [1] aiming for the elimination by 2020. In 2000, the national PELF started mapping the distribution of Bancroftian filariasis in the country and selected eight endemic districts for annual mass drug administration (MDA), three in the Southern province (district nos. 1, 2, and 3 in Fig. 1), three in the Western province (4, 5, 6) and two in the North-western province (7, 8). Under the national PELF, the first MDA with the combination of diethylcarbamazine and albendazole commenced in July 2002 covering the 8 districts. The planned 5 rounds of MDA were completed successfully in 2006, covering more than 80% [2] of the targeted population of 10 million.

Meanwhile, the infection status of lymphatic filariasis (LF) has not been studied well in inland districts of Monaragala, Ratnapura, Kegalle, Kandy, Matale, and Anuradhapura that adjoin the known endemic districts. Our recent identification of an endemic area in the border area between endemic Matara and non-endemic Ratnapura districts aroused the suspicion that endemic foci could be in these yet unsurveyed districts [3]. In addition, only earlier evidence of Brugian filariasis was available in once politically unstable Northern (21,22,23,24) and Eastern (18,19,20) provinces, and Mannar district of the North-western province of the island (Fig. 1).

At present, the national PELF is at the verification stage of elimination and transmission assessment surveys are being carried out inside the known endemic districts as recommended by WHO [4]. However, the issue of 'hidden' foci in the unsurveyed districts has to be cleared before the elimination will be declared. Therefore, Sri Lankan national PELF is seeking a simple, rapid, and low-cost method to facilitate studies on filariasis distribution and its intensity. Several such rapid assessment procedures (RAPs) had been validated in other endemic countries [5–12]. One of the RAPs is based on the fact that community prevalence of hydroceles was found to correlate well with the prevalence of LF infection, and that key informant interviews were successful in identifying areas with hydrocele cases. Further, this RAP was reported to be the most cost-effective method when compared with other RAPs such as clinical examination by clinicians or trained health workers, focus

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group discussions, and systematic sampling survey with ICT card tests which detect the filarial antigen [8].

In the present study, 2 different RAPs by people, (1) indirect self-administration of questionnaire by local leaders (IndQ), and (2) focus group discussion (FGD) by people were tested in Hambantota district, where the endemicity level was known to be very low. In addition, clinical examination by doctors and IgG4 ELISA using urine samples was carried out as reference to validate the 2 different RAPs.

2. Materials and methods

2.1. Study area and its administrative structure

Hambantota district (Fig. 1) covers an area of 2609 km². The area is generally flat lowland, and much of the area is dry savannah. The land is interspersed with coconut groves and rice fields. The poorest housing and drainage systems were observed in some study localities, mainly in urban and semi-urban areas of the district. Anon (2003) reported that over 20% of the population lived in houses with mud walls, and thatched roofs with coconut fronds in the district [13]. The population of 525.4 thousand, the majority of whom are farmers, is sparse compared to other endemic districts. Of the total population, 86.4% have been living there since birth, another 7.3% for more than 10 years, and only 5.5% have migrated into the district within the last 10 years. The average size of a household is 4.2 persons.

According to the national government administrative structure, a district is headed by a District Secretary or Government Agent (GA). Hambantota district is divided into 12 Divisional Secretariat divisions (AGA divisions), each under the charge of a Divisional Secretary or Assistant Government Agent (AGA). The district is further subdivided into 576 Grama Niladhari (GN) divisions, each manned by a Grama Niladhari (Village Headman). The GN divisions in an AGA division vary in number from 21 to 72. GNs are involved in all administrative and social activities. Their main task is to maintain the electorate-register every year, and for this, they have to visit all households in their divisions to collect information. In addition, GNs are responsible for maintaining birth, death, and disease outbreak registries.

If any RAP is to be applied in so-called “non-endemic” areas, it will have to be evaluated in a very low-endemic area. Hence the present study was carried out in Hambantota district, where the low LF prevalence had been recognized. The latest systematic district-wide microfilaria survey in 2003 revealed 0.34% (4/1190) prevalence (Weerasooriya, unpublished), though the district was given 2 MDAs in 2002 and 2003 before the survey. Additional 3 annual MDAs were done there under the national PELF.

2.2. Rapid Assessment Procedures (RAPs)

2.2.1. Indirect self-administration of questionnaire by GNs (IndQ)

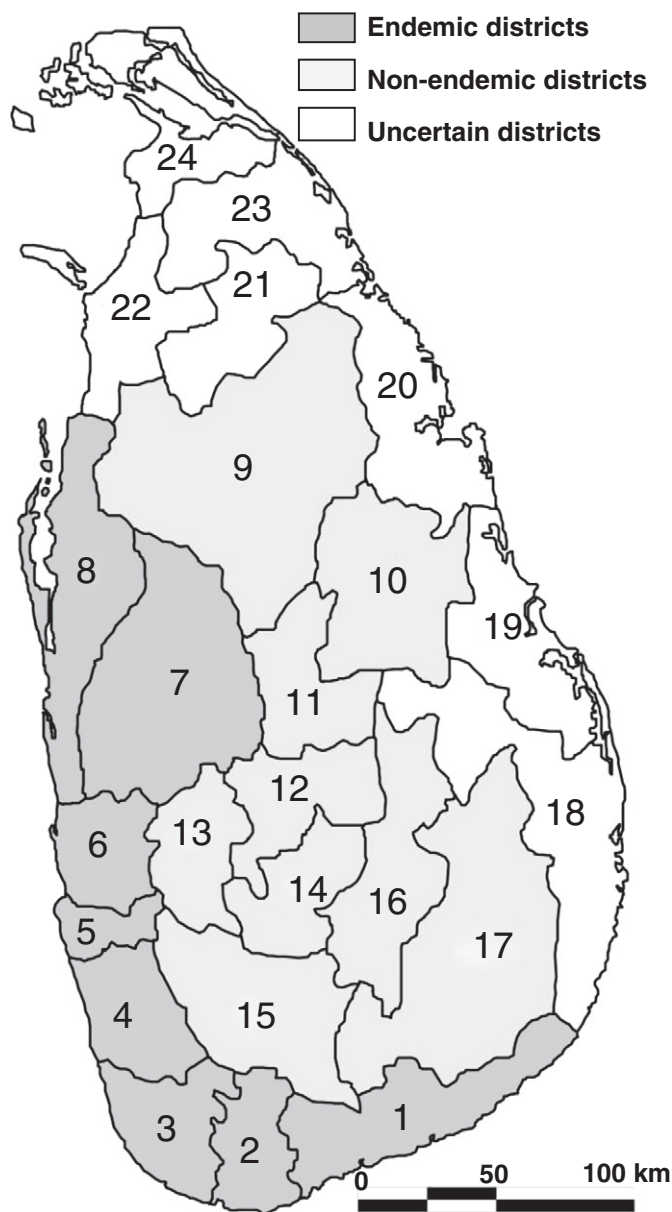
This procedure was carried out in all 576 GN divisions, with the prior approval of the GA. A questionnaire was posted to all GNs together with a return addressed envelope. They were given 4 weeks for their response. The procedure was repeated once to non-responders.

The questionnaire was prepared according to the WHO [8] with some modifications. The pre-tested questionnaire in the local language had 18 questions. They were, among others, on the total population of the GN division, total number of households, socio-economic status of the division, availability of a medical clinic, the presence and the numbers of elephantiasis (including lymphedema) and hydrocele cases, and several specific diseases such as dengue fever, goiter and leprosy.

2.2.2. Focus group discussions (FGDs)

Approximately 10% of the number of GN divisions in each AGA division (2–7 GN divisions/AGA division) were utilized for this procedure including a total of 57 GN divisions in 12 AGA divisions. Five prominent

persons in each GN division were selected with help of a GN. They were from among school principals, teachers, Buddhist monks, presidents of local bodies, and indigenous medical practitioners. They were gathered at the AGA office, provided with basically the same questionnaire as that



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|---------------|------------------|-----------------|
| 1. Hambantota | 9. Anuradhapura | 17. Monaragala |
| 2. Matara | 10. Polonnaruwa | 18. Ampara |
| 3. Galle | 11. Matale | 19. Batticaloa |
| 4. Kalutara | 12. Kandy | 20. Trincomalee |
| 5. Colombo | 13. Kegalle | 21. Vavuniya |
| 6. Gampaha | 14. Nuwara Eliya | 22. Mannar |
| 7. Kurunegala | 15. Ratnapura | 23. Mullaitivu |
| 8. Puttalam | 16. Badulla | 24. Jaffna |

Fig. 1. Map of Sri Lanka showing endemic districts: 2001.

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