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CHASING GUINEAWORM OUT OF EBONYI STATE: THE JOURNEY SO FAR

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Guineaworm, previously a serious public health problem in Ebonyi State has been effectively controlled using health education, vector control and improved water supply as strategies.

ABSTRACT

Prior to 1986 when the first campaign to eradicate guineaworm was launched in Effium, via Abakaliki, guineaworm disease (dracunculiasis) had remained a major contributor to ill-health, school absenteeism, and loss of agricultural productivity. The disease was highly endemic in parts of Ebonyi State as documented by the National case search conducted in 1987 and 1988 respectively.

Intervention approach adopted for the effective control of the disease included epidemiological surveillance, health education and community mobilization, as well as chemical treatment of ponds with Abate to kill the intermediate vector of guineaworm, and supply of potable water. With assistance from donor agencies the prevalence of the disease has decreased by about 98% between 1987 and 2001 in Ebonyi State.

Health education with community participation is considered an indispensable strategy for the eradication of guineaworm disease.

KEY WORDS: *Guineaworm eradication, Ebonyi State, health education.*

INTRODUCTION

Guinea worm disease or dracunculiasis occurs mainly among older children and adults. The disease can have a serious effect on economic productivity because the symptoms, which are often completely debilitating, characteristically appear during the season of greatest agricultural activity. On the average four to six weeks may elapse before an uncomplicated guinea worm lesion completely heals¹. Complicated lesions may of course take a much longer period.

A UNICEF - sponsored study in 1987² in the rice-growing area of south-eastern Nigeria (including some Local Government Areas (LGAs) in Abakaliki zone), documented enormous annual losses in rice production due to guinea worm's adverse effects on a large number of farmers at critical times in the agricultural season. It was estimated that \$20,000,000 worth of rice production is lost annually in this area with a population of one and a half million because of the effect of the disease.

Furthermore, guinea worm disease can significantly affect school attendance in endemic areas. Nwosu et al (1982) calculated the rate of school absenteeism in thirteen schools in the endemic area of Abakaliki to increase from 13.2 percent to nearly 60 percent at the height of the guinea worm season³. In another study in Nigeria Ilegbodu (1983)⁴ found guinea worm to be the leading cause of school absenteeism with infected pupils out for an average of nine weeks. Often the same students were out year after year.

Undoubtedly, guinea worm had existed in Ebonyi State, as in many other states of Nigeria, for a very long time. As in all these places, it had been the 'forgotten disease of the forgotten people' with little recognition and few efforts, if any to control it.

The public health importance of the disease in Nigeria was brought to the attention of the national health system first in 1986 by the then Anambra State Ministry of Health when the government of the State set up a task force specifically for guinea worm eradication. With the launching of the first phase of the guinea worm eradication campaign eighteen days after in Effium, forty-eight kilometers from Abakaliki, this body, the Task Force, became the key to guinea worm eradication in the country. The war against guinea worm in Nigeria can therefore be said to have been first declared in Ebonyi State.

MAGNITUDE OF THE PROBLEM

Ebonyi State from time immemorial was known as the home of guinea worm, even though the disease existed in almost all the other States of Nigeria. (Ebonyi State comprises Abakaliki zone of the former Anambra and later Enugu State, and the adjoining Afikpo zone in the former Imo and later Abia State). The LGAs that were most affected by the disease were Abakaliki, Izzi, Ezza, Ikwo, Ohaukwu and Ishielu. Those are the food-producing areas of the state.

National case search conducted in 1987 recorded a total of 653,620 cases of guinea worm in the then 21 States plus Abuja. Of these, 175,432 cases (26.8%) were from Anambra State, out of which 153,601 (87.6%) were from the six LGAs in Abakaliki zone. In 1988, a total of 622,651 cases were recorded in the country; 298,803 of these (48%) were in Anambra State, out of which, Abakaliki zone contributed 181,498 or about 60.8 percent.^{5b}

The number of ponds which are potential sources of the disease in the then Anambra State was estimated at about 2000, out of which 1,727 (80%) were in Abakaliki zone where they are popularly known as "Okpuru" by the local communities.

Transmission of the disease usually occurs seasonally during the dry season and early part of the rainy season (between September and May) which coincides with the harvesting and planting seasons, hence the impact of the disease on the productivity of agricultural workers in the affected areas.

There was therefore a compelling need to control the disease in view of the economic potential of the endemic area and the human suffering caused by the disease.



A guinea worm emerging from anterior surface of the wrist.

ERADICATION APPROACH

Given the seriousness of the problem and the prevailing socio-economic conditions in the area, four intervention models or options were adopted, namely epidemiological surveillance, community health education, vector control by chemical treatment of the surface ponds which formed the main source of domestic water supply for the villagers and provision of potable water.

Epidemiological Surveillance

The first step was a survey to identify all endemic villages and communities and number of cases occurring annually. The objective of this was to collect base-line data for planning, monitoring and evaluation of the eradication programme. An active surveillance was adopted rather than passive reporting of cases from rural health centers, as the latter could lead to under-reporting in view of the fact that incapacitated guinea worm cases might not be able to travel to distant health centers for treatment.

The house - to - house search was organized by trained enumerators in each of the endemic LG.As.

At the same time, Identification and enumeration of the water points ("Okpuru") was carried out in all the endemic villages. Prior to the above measures, several mobilization visits to the chiefs, village heads and community leaders in the areas had been carried out.

Health Education

The primary objective of the health education was to secure the active participation of the population at risk, and emphasis was placed on filtration or boiling of drinking water, bandaging of guineaworm ulcers, and the use of posters and their distribution in schools, churches and public places.

Treatment of guineaworm cases was used as an adjuvant to health education and served as very useful incentive for cases to turn up for health education. Filters were also distributed during the health education campaign.

Vector Control

Chemical treatment of water sources with a larvicide, temephos (Abate) was extensively carried out. The aim was to kill the cyclops (the intermediate vector of guineaworm) that live in the ponds.

A concentration of 1 part per million (ppm) or 2 grams per cubic metre of pond water was applied regularly at intervals of six weeks, the volume of water being determined by the formula length x width x depth, for rectangular ponds, or $\pi \times \text{radius}^2 \times \text{depth}$, for a rough, round, circular or spherical/elliptical ponds.

Water Supply

Provision of bore holes and water tanks was aggressively pursued by the programme. By 1991, a total of about 250 bore holes had been constructed in the six LGAs with the assistance of the Japanese International Co-operation Agency (JICA) and UNICEF through its water and sanitation (WATSAN) Project. In addition, the Rotary International during the same period constructed over 20 rain water harvestation tanks in Abakaliki and Ezza LGAs.

It is interesting to note that the WATSAN project which took off some years ago in adjoining Ohaozara LGA in the then Imo State (now part of Ebonyi State) had succeeded in sinking numerous boreholes in the area, although not necessarily targeted for guineaworm, but rather for diarrhoeal diseases control.

External assistance

Apart from JICA, UNICEF and Rotary International which assisted the eradication efforts in the area of water supply, organisations like Global 2000 of the Jimmy Carter Center in U.S, El Dupont of France and American Cyanamide Company, all supported the intervention efforts in different ways, including supply of Abate, monofilament filters, drugs and bandages for treatment of guineaworm cases.

ACHIEVEMENTS

When the fight to eradicate guineaworm started fifteen years ago in the then Anambra State, many saw it as a "mission impossible". To such persons the Anambra eradication initiative was regarded as merely an obsession of a few guineaworm fanatics.

Today the story is different. A national recognition was accorded one year after to the fight against guineaworm when in 1988 it was made a reportable disease by the Nigerian health authority, and a national Task Force formed and mandated to delineate the distribution of the disease and design national intervention strategies. This was later followed by tremendous national and international mobilization of financial and logistic resources in the Nigerian national programme for the eradication of dracunculiasis.

Fifteen years after, the number of cases has decreased by more than 98.6% as compared to 1987. (A total of 2092 cases were reported in Ebonyi State in 2001 down from 153,601 cases in 1987). Provision of water supply has been vigorously pursued by the state government with the support of collaborating agencies such as the Global 2000, UNICEF, WHO, and UNDP. In 2001 alone, a total of 167 bore holes and 80 hand dug wells were recorded in the state, and 599 ponds were treated with Abate. Filter distribution has been sustained and a total of 200,000 filters were distributed to families, schools and farmers in the endemic areas of the state in 2001.

Finally, and perhaps most importantly, awareness about the disease has improved significantly and guineaworm is no longer quite so obscure in Ebonyi State.

DISCUSSION

The earliest evidence of guineaworm is found in ancient Egypt where an account of how to properly extract the worm is included in the Ebers Papyrus, one of the oldest known collections of medical texts dating about 1550 BC. Interesting historical accounts of the parasite have been given by several authors.⁸⁻¹³ Some of these accounts suggest that the "serpent" entwined about the symbolic healing staff of the Greek-Roman god of medicine, Asclepius, in fact depicts the mode of treating

Guineaworm. The symbol is also the logo chosen by the World Health Organization to stand for its global commitment to the highest level of health care for all peoples.

It is obvious that any people living in a guineaworm highly endemic area, such as was Ebonyi State, cannot achieve appreciable level of health care or lead socially and economically productive life since guineaworm causes a serious impediment to health¹⁴⁻¹⁷, leads to loss of agricultural productivity^{15, 16, 18-22}, and disrupts socio-economic activities.^{18, 23, 24}

Guineaworm has always remained a major public health problem in Ebonyi State where it has been known by several names, (e.g. Eh-hu, akwara, itorogu, idorobvu, ariri, etc).

Some of these names derive from the perceived etiology of the disease by the local people and lend credence to the ignorance or lack of awareness about the disease. Today, awareness about guineaworm in Ebonyi State is high, supporting previous experience from elsewhere that health education is an effective strategy for reducing the incidence of guineaworm²⁵⁻²⁷. In fact, health education was the bedrock of the success of guineaworm eradication in Ebonyi State, and has resulted in a high level of awareness of the causes of the disease and high level of interest in the use and acceptance of filters.

Vector control and chemical treatment of water sources to kill Cyclops has also been recognized as an effective control method and Abate has been used effectively in India²⁸ and Ghana.²⁹ The Ebonyi experience was not different; it also showed a high acceptability of the chemical, Abate by the local people. Apart from offering a variety of other health and economic benefits to the community, improved water supply, properly maintained, offers the most straightforward, long-term solution to guineaworm disease control. The most effective reported use of this method includes experience in Nigeria^{13, 30, 31} and Ivory Coast.³²

Fortunately, the major draw-backs of community water supply, namely high cost and capital intensiveness did not constitute major impediments in the early eradication campaign in Ebonyi State owing to the assistance and support from donor agencies. The need for extensive community participation associated with water supply, both in the design and implementation stage, as well as for long-term operation, financing and maintenance, was well taken care of in Ebonyi State at the beginning of the campaign through intensive health education and community mobilization. This we consider very important in view of the fact that provision of clean water supply by itself is not enough to prevent transmission unless it is backed up by health education to stop the villagers from casual use of contaminated sources in the fields, or when the boreholes are not

CONCLUSION

The fight against guineaworm will in fact be difficult to sustain if the population is not involved in the struggle. Health education should therefore be seen as a very important tool if we must chase guinea worm out of Ebonyi State once and for all.

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