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Endemic Onchocerciasis in the Ulanga Area, Tanzania.

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Introduction.

From July to September 1964 a screening among patients of the Department for Lung Diseases of the St. Francis Hospital, Ifakara (M.O. in charge: Dr. J. Colas) has been performed. Among 96 unselected adults, skin scarifications have been found positive for *Onchocerca volvulus* in 13 subjects. These cases were confirmed by skin snips. Thus the infection rate was of 13.5% among the patients of this ward. These 13 infected cases were coming from: Sali (5), Mahenge (3), Ruaha (1), Limandola (1), Irunga (1), Ifinga (1) and Malinyi (1). As most of these cases came from the highlands of Sali-Ruaha-Mahenge (Malinyi being on the opposite slope of the mountain), a quick survey of the epidemiological conditions was performed in this region.

A single mention of this disease for the Ulanga Area has been found in the literature: M. J. GABATHULER and A. W. GABATHULER (1947) working at Mahenge from 1942 to 1946 observed 686 cases of Onchocerciasis at the hospital. Most of these cases came either from the Mahenge Plateau itself or from the South side of the great Ruaha River (Kichangani, Iragua, Itete, Mtimbira, Sofi, Ngombo, Malinyi) and also from the upper Ruaha River and Luhombero Valley (Ruaha, Mbinji, Ilonga, Sali). This paper has been mentioned by H. VOGEL and W. MINNING (1952).

The vector. The breeding possibilities for *Simulium* in the highlands of Sali-Ruaha-Mahenge are especially good because of the very numerous quickly flowing rivers. Referring to GABATHULER (1947) in the dry season, when the water level of the rivers are lower and the current slower, eggs can be detected only with great difficulty; whereas in the rainy season eggs, larvae and pupae are found in all streams of the Mahenge Plateau, and also imagos in the vicinities. It seems that the end of the dry season is the worst moment for studying the biology of the vector. Even so, on 28th September 1964, in the middle of the dry season, a good number of mainly larvae, but only some pupae of *Simulium* could be found in the still important Mbesi river where it flows through the Mission Station of Sali and below a great waterfall near a bathing place of the inhabitants of this region. But only three imagos were seen and one *Simulium* could be captured in the fringing forest along this river. Dr. R. W. Crosskey from the Commonwealth Institute of Entomology in the British Museum of Natural History was kind enough to identify the material and we express to him here our thanks. He found that the larvae belonged to the two species *S. unicornutum* Pomeroy and *S. alcocki* Pomeroy, both very common in Africa, but not known as vectors of Onchocerciasis. The imago was a female of probably *S. nyasalandicum* de Meillon belonging to the *Simulium neavei* group and therefore probably able to transmit *Onchocerca*. A project for a further detailed entomological survey during the rainy season is on the way, and we intend also to study control measures.

The disease in the population of Sali (see table). On 5th October, 1964, more than 300 adults among 800 inhabitants of Sali and environs came to our control station. This means that nearly all adults were present. An unselected series of 125 men and women was questioned, examined clinically, and

Clinical examination of 185 adults in Sali and Ruaha.

| | SALI | | RUAHA | |
|--|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | Percent of 100 positive cases | Percent of 25 negative cases | Percent of 43 positive cases | Percent of 17 negative cases |
| <i>Past history</i> | | | | |
| pruritus | 22 | 28 | 19 | 18 |
| eye troubles | 46 | 40 | 37 | 36 |
| headache | 54 | 52 | 51 | 41 |
| arthralgia | 54 | 36 | 29 | 24 |
| chronic cough | 9 | 12 | 29 | 36 |
| hematuria | 0 | 8 | 8 | 24 |
| restlessness night | 28 | 20 | 26 | 18 |
| other symptoms | 44 | 64 | 47 | 36 |
| <i>Clinical examination</i> | | | | |
| scratch lesions | 10 | 4 | 17 | 18 |
| pyodermatitis | 13 | 0 | 72 | 18 |
| skin atrophy | 22 | 8 | 63 | 29 |
| lichenification of skin or ichthyosis | 15 | 4 | 2 | 29 |
| splenomegaly | 12 | 24 | 5 | 18 |
| important lymphadenopathies | 68 | 48 | 49 | 36 |
| other clinical signs | 17 | 20 | 17 | 18 |
| <i>Subcutaneous nodules</i> | | | | |
| absent | 40 | 88 | 23 | 82 |
| few present | 25 | 4 | 16 | 12 |
| many | 24 | 4 | 47 | 6 |
| very abundant and big size | 11 | 4 | 14 | 0 |
| <i>Eye examination</i> | | | | |
| negative | 67 | 92 | 42 | 65 |
| discrete lesions | 23 | 8 | 32 | 12 |
| severe disease / blind | 10 / 7 | 0 | 26 / 16 | 24 / 24 |

laboratory tests were performed: skin scarifications, skin snips, thick and thin blood films.

100 of these 125 adults were found to be infected by *Onchocerca volvulus* most of them (79%) abundantly. This means that the incidence is as high as 80% among the actual population of Sali. If we leave out the 23 individuals which arrived at Sali during the last 10 years (mostly in the Mission Station), the percentage of infected cases rises to 87.5% among people living in Sali since more than 10 years.

The cases at the dispensary of Ruaha (see table). In Ruaha, the population was not collected in the same way. 60 adult patients from the mission dispensary were sent to the control station for clinical examination and parasitological screening: skin snips and scarification, thick and thin blood films.

This group was not as homogeneous as the first, because all were suffering from different diseases, and therefore treated at the dispensary and chosen by the sister as "suitable" for medical examination. Furthermore, they were coming from different surrounding places or villages.

43 adults were found positive, so that the infection rate of the controlled persons is 71.6%. Positive were 17 patients from Ruaha, 5 from Mzelezi, 5 from Nkomko, 3 from Msingizi, 3 from Ngolo, 3 from Chirombola, 2 from Kituti, and respectively 1 from Lupanaga, Malonoka, Lunku, Sali, Ilonga. Negative were 7 from Ruaha, 3 from Chirombola, 3 from Ilonga, and respectively 1 from Nkomko, Msingizi, Mbuga, Ipegere.

Discussion.

Anamnestic information appears to be of little help in getting an idea about Onchocerciasis. Even subjective eye troubles do not mean eye disease, and important eye disease can be overseen by the patient himself. As long as a patient sees enough to walk alone, he may not complain about any eye trouble or loss of sight. The complaint would appear much earlier in a reading population.

The morphological skin changes and the appearance of subcutaneous nodules are much better symptoms. Important lymphadenopathies are often associated with Onchocerciasis. Not a single blood filaria has been encountered during the screening.

Nodules were seldom seen before 20 years of age and their abundance could be related to the age of the patient. The nodules were located most often on the iliac crest, in the trochanter and sacrum region. They were seldom found along the ribs and the vertebral column. More seldom they could be palpated at the shoulders, around the knee and in the pubic region. Only one nodule of the skull was found.

Eye diseases, especially keratitis, iritis, and synechia were also mostly connected with a heavy infection.

Splenomegaly and hematuria are symptoms more often encountered in people without Onchocerciasis. This can be explained by the fact that schistosomiasis and malaria are rare in the upper valleys where *Simulium* occurs.

The high incidence of blindness in Ruaha is bound up with the selection of patients done by the sister of the mission dispensary who was interested in showing us difficult and blind patients. Among these were two cases of cataract and one case of advanced lepromatous leprosy with blindness, but they were not found infected by *Onchocerca volvulus*.

The data collected in Sali have a statistical value because of the unselected, homogeneous adult population examined.

Conclusion.

There has been found a high incidence of Onchocerciasis among the patients of the Department for Lung Diseases of St. Francis Hospital in Ifakara (13.5%). This has shown to be an important endemic focus in the Sali-Ruaha region. 71% to 87% of the screened population has been found infected by *Onchocerca volvulus*.

Simulium larvae and one imago have been found breeding in the vicinity of habitations and bathing places. The high incidence of eye diseases in the

same region, and especially among the infected population means that this disease is an important health problem in this part of Tanzania.

1947 M. J. GABATHULER and A. W. GABATHULER recorded similar informations: 39% of a serie of 1763 patients at Mahenge were found to be infected by *Onchocerca volvulus*. These cases came from different valleys of the Ulanga Area.

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