



## Distributional Facts of Microfilaria from the 24 Wards of Narasannapeta, Srikakulam

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### ABSTRACT:

The disease filarial has a major socio-economic problem in India. THE present study in filariasis patients was carried out from 2014 to 15. The total population of Narasannapeta town is 36100 with constituted 24 wards. During the study contacted with local P.H.C and government hospitals. To confirm the filariasis infected populated area. Night survey were conducted for Conventional Night blood smears because of the nocturnally periodic type, where, their mosquito vectors was most likely to bite, also decreased peripheral temperature may attract more mf, which was the main strain in India shows a marked peak of mf density in the peripheral blood circulation, during the night hours. Followed by collection of blood samples, identification of samples, Fixation, Storage, Staining and mounting of mf and finally examined for number of parasites.

**Keywords:** Microfilaria, Blood, Smears, Examine, Narasannapeta.

### I. INTRODUCTION

Filariasis is brought about by *W. bancrofti*, *B. malayi* and *B. timori* and it spreads by the chomp of a tainted *Culex* mosquito. *Culex quinquefasciatus* (recently known as *Culex fatigans*) is the fundamental vector for its spread. In any case, different vectors may likewise be mindful like *Anopheles*, *Mansonia* and so forth. Lymphatic filariasis, a weakening illness influences more than 128 million who have either flowing microfilariae or one of the different clinical conditions related with filarial disease with about 1.2 billion individuals likewise in danger. Because of the worldwide significance the 50th gathering of the World Health Assembly in May 1997 set out to dispense with lym-phatic filariasis continuously 2020. The received methodology is mass medication organization (MDA) with the blend treatment of albendazole/DEC and albendazole/ivermectin for regions where the illness is co-endemic with

onchocer-ciasis. Observing of this intercession procedure is a basic part of the disposal program. This can be accomplished either through the observation of either microfilaraemia or antigenaemia levels in the network or of contamination rates in the vector populaces. In any case, when control measures are established the dimension of contamination drops to low dimensions with the end goal that the traditional strategy for dis-secting bug vectors to decide disease rates turns out to be less delicate and profoundly work serious. Lymphatic filariasis (LF) is a significant general wellbeing and financial issue around the world. It influences 120 million individuals in more than 80 nations, of which, around 14 million experience the ill effects of lymphoedema or elephantiasis of legs. The illness is pervasive in urban and provincial regions.

Filaria is a vector borne infection as of now endemic in tropical and sub tropical Africa, Asia, Western Pacific and part of America. South East Asia represents around 60 million cases and out of these, India alone records for around 40 million cases. Lymphatic filariasis is an excruciating and significantly distorting among all infections and a noteworthy general medical issue in creating nations brought about by *Wuchereria bancrofti*. In spite of the fact that the illness isn't lethal, it is typically gained beginning from early youth and can be incapacitating prompting inability causing unfurl agony, wretchedness and hindrance of wellbeing. Ongoing investigations of financial effect of the illness demonstrated that the intense and unending types of the infection dispense social, mental and affordable weight on influenced people and their families.

### II. MATERIAL AND METHODS

This examination was directed in Narasannapeta towns of Srikakulam region of Andhrapradesh . All people of the investigation zone were screened for mf and clinical sign and indication of filariasis. Backing of some nearby

headmen and powerful people was additionally requested before beginning of work to limit refusal and smooth working. Residents were mentioned to assent and for collaboration. A focal spot (Club house/school) was chosen for clinical and parasitological examination. The subtleties as to age, sex, movement status just as the filarial clinical profile of the individual inspected, were recorded in predesigned proforma. Data about mosquito reproducing locales, water sources, manor, seepage framework were likewise recorded in proforma. Traditional finger prick strategy was utilized to gather 20 cmm blood from every individual between 8-12 PM. The blood slides subsequently gathered were dehaemoglobinised, fixed with 2% acetalcohol and later recolored with Giemsa 1: 20 weakening and inspected for microfilaria in thick blood slide. Dainty blood smear was likewise arranged and recolored with leishman's stain were inspected under magnifying lens for hematological parameters. Corroborative conclusion presents a standout amongst the most troublesome issues in parasitology. Conclusion depends on the exhibit of parasite which incorporates. Regular Night blood spreads examination.

Minuscule examination of 20 mm recolored blood film was the best indicative method for the field work. Perception of slides under Binocular tiny examination and recorded tainted and no contaminated slides for example date of blood test gathered and date of blood test analyzed and number of parasites. Further to create standard entomological information, a prepared creepy crawler gatherer gathered the grown-up mosquitoes between 8 PM to 12 PM utilizing torchlight and suction apparatus tube. Every one of the mosquitoes in this manner gathered were recognized and analyzed to distinguish the formative phase of filarial parasites.

### III. OBSERVATION

In the observation prevalence of *W.bancrofti* and *B.malayi* was examined during (July 2014 to June 2015) in the blood samples collected from the positive filarial cases (In the study area of Narasannapeta population). 4644 blood samples were collected from fever cases and smear were prepared out of 4644 fever cases, 133 filarial *W.bancrofti* positive cases were found and there was no prevalence of *B.malayi* filarial cases. No filarial positive cases were found in age group of 2-

5 years and 6-14 years in all the 24 wards of study area. In the age group of 15 years and above, 133 *W.bancrofti* positive cases (Male 57; Female 76).

In the present study before treatment with DEC, there is high level of IgA, IgG and IgM in occult, acute and chronic patients. Similarly after treatment with DEC, there is normal level of IgA, IgG and IgM in acute and occult patients and high level of IgA, IgG and IgM in chronic patients. These observations are comparable to that of who found extreme levels of serum IgE and high titres of antifilarial IgG, IgE in patients of symptomatic microfilariemia.

In the present study, before treatment with DEC, the occult, acute and chronic patients showed low count of CD3, normal count of CD4 and low count of CD8. Similarly after treatment with DEC, CD3, CD4 and CD8 cell count in normal range. In the present survey microfilaria (mf) rate and mean mf density was in the male mf rate 8.7%; diseases rate 11.3%; and in the female mf rate 7.9%; diseases rate 5.4%.

Total mf rate (male +female) 8.4% and disease rate 8.5%, mf density was found in 15 years and above age group.

The sample of clinical manifestation shown by the patients forms the basis to separate in to three groups as occult, acute and chronic. Filarial patients showed low lymphocytes count, normal range of CD4 cells and low number of CD8 cells.

The CD4 /CD8 ratio was found to be normal among all the selected filarial patients before and after treatment with DEC observation

### IV. RESULTS

Table: - Distribution of Microfilaria from Narasannapeta town from 2014-15. The investigation was intended to decide the pervasiveness of microfilaria in patients with agonizing and significantly deforming sickness called Lymphatic filariasis. This was accomplished by way to-entryway blood test gathering, fixing, and recoloring, distinguished patients experiencing Lymphatic filariasis.

After the investigation of information the present examination can be reasoned that the high contamination of small scale filarial parasites was

happened in summer season pursued by winter  
where as low in storm season.

Ward numbers	population	No of the hosts exam	No of the male hosts exam	No of female hosts exam	No of infected male hosts	No of infected female hosts	Total no of parasites in blood samples
1	1500	169	86	83	3	1	-
2	1686	165	79	86	-	-	-
3	1500	157	65	92	-	-	-
4	1390	166	89	77	1	2	-
5	1653	181	80	101	2	1	2
6	1464	229	118	111	-	-	-
7	1553	216	120	96	1	-	6
8	1422	194	92	102	-	-	-
9	1256	200	110	90	-	-	-
10	1497	200	124	76	-	-	-
11	1404	213	99	114	-	-	-
12	1398	211	124	87	1	-	3
13	1324	208	80	128	2	1	-
14	2798	189	89	100	-	-	-
15	1450	220	132	88	-	-	-
16	1521	203	107	96	1	-	-
17	1360	198	88	110	6	2	6
18	1550	230	124	106	1	-	1
19	1400	216	90	126	2	1	3
20	1200	230	115	115	-	-	-
21	1300	218	84	134	-	-	-
22	1540	190	89	101	-	-	-
23	1430	169	65	104	2	-	4
24	1500	141	72	69	7	5	5

## V. DISCUSSION AND CONCLUSION

The present examination has demonstrated that the event of microfilaria parasites variable as indicated by seasons. Generally speaking microfilaria rates were higher in guys when contrasted with females. (The

quantity of parasitemic cases, separated by the absolute number of blood smears made). The high frequency, force, thickness and record of contamination of all the nematode parasites happened in summer season pursued by stormy seasons where as lower disease in winter seasons. The observing of results uncovered that the illness lymphatic filarial

was regularly predominant in the area, various territories of Osmanabad locale (MS), India. Where the lymphatic filarial is endemic.

After the examination of information the present investigation can be presumed that the high contamination of microfilaria parasites (rate, power, thickness and file of disease) was happened in summer season pursued by winter where as low in rainstorm season. This sort of results showed that ecological variables were impacting the regularity of parasitic disease either straightforwardly or in a roundabout way. In this way mass medication organization modified was done for the control of microfilaria, the control of vector-borne maladies stay troublesome. In this manner, intrusion of transmission still depends on vector-control measures. An organized, reliable, coordinated vector the executives approach is expected to control filarial. As per the Kennedy (1971, 1975 and 1977) and Rodhe (1993) the temp, moistness and precipitation, nourishing propensities for host, accessibility of infective host and parasite development, and such factors are in charge of impacting the parasitic disease. Exploratory examinations by Kennedy (1971) have demonstrated that the nematode parasites bancroftian filariasis can set up in people and get by for longer period at low temperature. Subsequently he clarified the temperature was major controlling occasional periodicity of microfilarial contamination. The high rate, force, thickness and list of disease of all the nematode parasites (microfilaria) happened in summer season pursued by blustery seasons where as lower contamination in winter seasons. This sort of results showed that natural components were affecting the regularity of parasitic disease either straightforwardly or in a roundabout way. The impact of natural components and climatic factors as they influence the elements of populace development of the bancroftian filariasis vector in the Narasannapeta town.

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## Ground Level Observations of Microfilarial Fever Cases On The Basis Of Age and Sex Wise Incidents In Narasannapeta Urban Population, Narasannapeta Mandal, Srikakulam, Andrapradesh, India.

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**Abstract:** Lymphatic filariasis is a mosquito-borne parasitic disease and an important cause of chronic morbidity in tropical countries detailed observations of lymphatic filariasis was conducted in Narasannapeta urban village of Srikulam district in Andhrapradesh. Out of the 1660 persons examined, 8.1% were found asymptomatic but microfilaraemic. Morbidity pattern due to filarial infection showed an increase with advancement of age and significantly high in males as compared to female

Acute and chronic filarial disease was observed as 0.3% and 7% respectively. Microfilaria was found in 8.1% of acute and 9.3% of chronic filarial cases. The Mf rate was found to be 8.7 % in males and 7.9 % in females respectively. The parasite species was identified as *W.bancrofti*. Each household and predomestic area was searched for mosquito fauna at night. The filariasis cases detected in the study were treated with 12 days course of DEC 6mg/kg body weight. health authorities should strictly exercise powers on all developmental projects to act in such a way that does not create mosquitogenic conditions

**Keywords:** Lymphatic filariasis, Microfilariaemia, Morbidity, chronic, mosquiogenic, Narasannapeta..

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### I. Introduction

The nematode microfilaria (*Wuchereria bancrofti*) affects more than 115 million people worldwide. Filariasis or Elephantiasis is a major public health and socio-economic problem in India, approximately 420 million people reside in endemic areas and 48.11 millions are infected (Michael *et al*, 1996). Filariasis is caused by *W. bancrofti*, *B. malayi* and *B. timori* and it spreads by the bite of an infected *Culex* mosquito. *Culex quinquefasciatus* (previously known as *Culex fatigans*) is the main vector for its spread. However, other vectors may also be responsible like *Anopheles*, *Mansonia* etc.

The World Health Organization (WHO) has identified filariasis as second leading cause of permanent and long-term disability next only to mood affecting disorder (Ramaih *et al*, 2002). In India, filariasis has been recognized as disease of National importance because of continuous spread of disease and protracted suffering and disability caused in the affected population. India contributes to 40% cases of bancroftian filariasis in the global scenario (<http://>). Filariasis is one of the major parasitic infections of mankind, which is widely spread throughout the tropical and subtropical places. Filariasis that are caused by thread like filarial nematode worms and transmitted by mosquitoes. They occur in the poor in underdeveloped regions of South America, Central Africa, Asia, the Pacific Islands, and Caribbean (WHO- 2002).

The disease has a major socio-economic impact. National Filaria Control Programme (NFCP) was launched in 1955. Initially the programme was limited to urban population but after 1994 the programme was extended to include rural population also. From 2003-04, the programme became a part of National Vector Borne Disease Control Programme (NVBDCP) and it aimed to eliminate lymphatic filariasis by 2015 under National Health Policy 2002. Elephantiasis is a more intense in people who don't live in this area, because many native people have built up some immunity. Symptoms of elephantiasis include fever, shaking chills. Sweating, headaches, vomiting and pain. Enlarge lymph nodes, swelling of the affected area, skin ulcers, bone and joint pain, tiredness, and red streaks along the arm or leg also may occur. Abscesses can form in lymph nodes or in the lymphatic vessels. They may appear at the surface of the skin as well as long-term infection with lymphatic filariasis can lead to lymph edema, hydrocele in the scrotum, and elephantiasis of the legs, scrotum, arms, penis, breasts, and vulvae. Most cases of elephantiasis are caused by two species namely *Wuchereria bancrofti* and *Brugia malayi* are prevalent in India and former contributes 99.4% problem in the country. In mankind the microfilaria (mf) exhibit nocturnal periodicity, necessitating night blood surveys between 12 am to 2 am



midnight to detect microfilaria carriers. In endemic regions of lymphatic filariasis, humans exhibit a broad range of responses towards infection. These responses are classically divided in to following groups.

## **II. Material And Methods**

This study was conducted in Narasannapeta villages of Srikakulam district of Andhrapradesh . All individuals of the study area were screened for mf and clinical sign and symptom of filariasis. Support of some local headmen and influential persons was also solicited before start of work to minimize refusal and smooth functioning. Villagers were requested to consent and for cooperation. A central place (Club house/school) was selected for clinical and parasitological examination. The details with regard to age, sex, migration status as well as the filarial clinical profile of the person examined, were recorded in predesigned proformae. Information about mosquito breeding sites, water sources, plantation, drainage system were also recorded in proformae. Conventional finger prick technique was used to collect 20 cmm blood from each person between 8-12 PM. The blood slides thus collected were dehaemoglobinised, fixed with 2% acidalcohol and later stained with Giemsa 1: 20 dilution and examined for microfilaria in thick blood slide

Thin blood smear was also prepared and stained with leishman's stain were examined under microscope for hematological parameters. Confirmatory diagnosis presents one of the most difficult problems in parasitology. Diagnosis is based on the demonstration of parasite which includes. Conventional Night blood smears examination.

Microscopic examination of 20 mm stained blood film was the best diagnostic technique for the field work. Observation of slides under Binocular microscopic examination and recorded infected and no infected slides i.e. date of blood sample collected and date of blood sample examined and number of parasites. Further to develop base line entomological data, a trained insect collector collected the adult mosquitoes between 8 PM to 12 PM using torchlight and aspirator tube. All the mosquitoes thus collected were identified and dissected to detect the developmental stage of filarial parasites.

## **III. Observation**

1. In the observation prevalence of *W.bancrofti* and *B.malayi* was examined during (July 2014 to June 2015) in the blood samples collected from the positive filarial cases (In the study area of Narasannapeta population).4644 blood samples were collected from fever cases and smear were prepare out of 4644 fever cases, 133 filarial *W.bancrofti* positive cases were found and there was no prevalence of *B.malayi* filarial cases. No filarial positive cases were found in age group of 2-5 years and 6-14 years in all the 24 wards of study area. In the age group of 15 years and above,133 *W.bancrofti* positive cases (Male 57;Female 76).

In the present study before treatment with DEC, there is high level of IgA, IgG and IgM in occult, acute and chronic patients. Similarly after treatment with DEC,there is normal level of IgA, IgG and IgM in acute and occult patients and high level of IgA, IgG and IgM in chronic patients . there observations are comparable to that of who found extreme levels of serum IgE and high titres of antifilarial IgG, IgE in patients of symptomatic microfilaraemia .

In the present study, before treatment with DEC, the occult, acute and chronic patients showed low count of CD3, normal count of CD4 and low count of CD8.Similarly after treatment with DEC , CD3, CD4 and CD8 cell count in normal range.

- In the present servey microfilaria (mf) rate and mean mf density was in the male mf rate 8.7%; diseases rate 11.3%; and in the female mf rate 7.9%; diseases rate 5.4%.
- Total mf rate (male +female )8.4% and disease rate 8.5%, mf density was found in 15 years and above age group.
- The sample of clinical manifestation shown by the patients forms the basis to separate in to three groups as occult,acute and chronic. Filarial patients showed low lymphocytes count, normal range of CD4 cells and low number of CD8 cells.
- The CD4 /CD8 ratio was found to be normal among all the selected filarial patients before and after treatment with DEC observations.

## **IV. Results**

Filarial infection was assessed for each respondent by examining the microfilaria (MF) from the collected blood sample. About 35% of study population was illiterate and15% of the households got cattle shed inside their houses and water logging was found in nearly 28% houses. The nearest Primary Health Center (PHC) was located on the main road meanwhile Private Hospital facilities were to be availed.

The total number of examined 1660:, 860 were males and 800 females examined clinico parasitologically. History of at least one attack of filarial adenolymphangitis or adenolymphadinitis during last year was reported in 30% of acute and 65% of chronic filarial disease cases.It was observed that 92% examined population neither manifested any evidence of clinical filarial diseases nor infection (asymptomatic amicrofilar-

aemic) i.e. thus normal healthy people and 7.9% had definite evidence of filariasis infection in their blood. Out of which microfilaraemia was demonstrated amongst 5.4% of screened population but no clinical sign and symptoms (Asymptomatic microfilar- aemic) were seen. Acute and chronic filarial disease was observed in 0.3% and 0.7% respectively, only 0.15% were both symptomatic and microfilaraemic. The disease in male was significantly higher as compared to females. Multiple adenolymphangitis was reported by 12% of cases with chronic disease. Out of 123 diseased, hydrocele was reported in 46. The manifestation of hydrocele without any history or other evidence of filariasis was seen amongst 0.12%. Limb edema was observed in 41% of cases predominantly affecting lower limb.

The Mf rate was (8.7%) slightly higher in males than 7.9% in females, it was (4.9%) in age group 0-14 significantly lower than (13.3%) in the age group of 20-60 with a peak prevalence at the age group of 15-19 and the same in male and female. The prevalence of disease was not observed in younger ages (14 years) but then increased with age and reached the maximum at 25-29 years for both males and females and then declined at older ages. The parasite species was identified as *W. bancrofti*.

**Table 1.** Prevalence of Micro filaria and disease by age and sex

Age group	Male			Female			Total		
	N	Mf rate	Disease rate	N	Mf rate	Disease rate	N	Mf rate	Disease rate
0-4	137	1.2	0	132	1.9	0	302	1.4	0
5-9	191	6.0	1.1	158	11.6	0.1	387	7.3	0.4
10-14	116	7.8	2.0	77	8.2	1	223	6.0	1.5
15-19	89	15.8	7.1	63	6.8	10.0	174	12.1	7.2
20-24	72	14.0	19.0	64	7.1	5.9	154	10.4	11.6
25-29	33	6.1	39.5	78	5.4	22.9	125	6.0	29.8
30-34	158	15.7	35.9	160	12.5	5.2	354	12.0	19.0
35-above	61	11.3	14.0	71	14.1	12.3	153	11.0	13.6
Total	857	8.7	11.3	803	7.9	5.4	1660	8.4	8.5

## V. Conclusion And Discussion

Based on the reports of health department, Govt. of Andhra Pradesh it is understood that, Lymphatic filariasis is one of the important public health problem in A.P. Though the programme for control of disease was started in 1955-1956, it met with limited success. A study in Dibrugarh (Assam) reported Mf rate of 7.6% in males and 5.9% in females slightly lower than our study finding. The entomological data indicates that *W. bancrofti* was the main vector in this area with 12% infection rate and 6.9% infectivity suggesting active transmission in the area and manifold higher than reported from Pondicherry but lower than the observed vector infectivity of 11.3 % in Bhubaneswar. Thus it can be inferred from present study that indication of active filarial transmission.

About 8.4% population was asymptomatic microfilaraemic coincides with study in Varanasi. The morbidity amongst male was significantly higher than in female that accounted for 32.5% of hydroceles. It had already documented those factors like migration of mf carriers, steady deterioration of urban eco-system affecting the environment thereby Promoting mosquito-genic conditions, poor and disorganized mosquito abatement measures favor transmission of filariasis. Here again high vector densities, lower socio-economic status, etc. may be suggested to be the reasons for establishing the infection, as noted. 80% people do not take it as a serious disease and not bothered about this disease, only 19% accepted DDT as a control measure.

Irregular DDT spraying was documented by earlier conducted studies on *Kala-azar*-one of the major public health problem of Bihar. The State health department observed filariasis week under FCP in which blood was collected for Mf and drug was distributed if found ill. If this situation is allowed to be continued without appropriate intervention the morbidity may increase further. However, recent growing support for mass chemotherapy programme provides hope that the burden of lymphatic filariasis can be reduced, if not eliminated, as happened at Tahiti and Further health authorities should strictly exercise powers on all developmental projects to act in such a way that does not create mosquito-genic conditions. This may be helpful for reduction of the transmission and improve health conditions of the population of Narasannapeta.

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