



**DETECTION OF *WUCHERERIA BANCROFTI* INFECTION USING SURVEY METHOD OF SELECTED VILLAGES IN NANDED REGION**

SurveP.R.<sup>1\*</sup> and Chavan D.B.<sup>2</sup>

<sup>1</sup>Department of Zoology Arts, Commerce and Science College Gangakhed.431514 India

<sup>2</sup>Department of Microbiology Arts, Commerce and science college Gangkhed.431514 India

**ARTICLE INFO**

*Article History:*

XXXXXXXXXX

*Key words:*

*Wucheriabancrofti*, elephantiasis, NFCU, Survey method, biochemical study

**ABSTRACT**

Filaria worms (*wucheriabancrofti*) cause the elephantiasis that leads to swelling to the body parts where the parasite resides. This worms transfer by biting of mosquitoes to humans. This study was carried out by conducting survey and collecting blood sample of Nanded region, including Bhokar, Kinwat, Kandahar, selu, jalkoat, wanjarwadi, petwadajetc, this study revealed that about 58.16% people were found positive for the parasite. The chronic condition of lymphatic filariasis, namely elephantiasis (lymphedema) and hydrocele was prevalent in the study population. Pathological studies of affected people showed that in all cases haemoglobin, leucocytes counts are normal whereas ESR is found to be increase in all studied patients, Biochemical analysis revealed that blood urea(mean=26.4mg/dl), blood glucose( mean=73.28mg/dl), serum albumin (mean=0.15mg/dl),serum creatinine (mean=0.68mg/dl), cholesterol (mean 1.36mg/dl), albumin (mean=2.6 mg/dl), globulin (mean=2.3mg/dl), alkaline phosphate (mean=153.22U/l) found to be normal. This study showed that there is no much effect of the lymphatic filariasis on haematology and biochemistry of studied patient. This data was shared with the National Filariasis controlling Unit Nanded and it helped NFCU unite to control the epidemic of Filariasis.

Copyright©2017 SurveP.R and Chavan D.B. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**INTRODUCTION**

Lymphatic filariasis is a parasitic disease caused by microscopic, thread-like worms. The adult worms only live in the human lymph system. The lymph system maintains the body's fluid balance and fights infections. Lymphatic filariasis is spread from person to person by mosquitoes [1]. Lymphatic filariasis is a leading cause of permanent disability worldwide. Communities frequently shun and reject women and men disfigured by the disease [2]. Affected people frequently are unable to work because of their disability, and this harms their families and their communities [3].The filarial worm is a dreaded human parasite human blood and lymph. It is a diagenetic parasite completing its life cycle in two host's man and mosquitoes [4].This disease is very common to the tropical region and Africa. When the mosquito bites to human the L3 larvae enter and the process of disease starts [5.6.7]

The adult worm live coiled up in the lymph gland and lymph passage of human where they often obstruct the flow of lymph and cause People with the disease can suffer from lymphedema and elephantiasis and in men, swelling to the scrotum, called hydrocele[8.9.10].

The objective of our study was to study survey and detection of elephantiasis cases in Nanded region as well as pathological changes in the human host of selected population in the region.

**MATERIALS AND METHODS**

*Selected research area*

In Nanded region, Hottal, HippargaRao, Gudsoor, Dhondi are selected. And a sample was collected by providing questionnaires' to the patients, a sample collected in EDTA tubes and was put in an ice pack and transported to laboratory for analysis.

*Parasitological examination*

It includes detection of Microfilaria in the blood sample. For this screening, 20 cm of finger –prick blood can be dried on slid, stained and examination under a microscope in accordance with the standard procedure.

*Pathological studies*

The pathological parameter was estimated by Clinical Blood Testing Analyzer CBC Machine and result was recorded.

*Biochemical analysis*

Biochemical analysis such as urea, creatine, bilirubin, cholesterol, alkaline phosphate test was carried out as

\*Corresponding author: SurveP.R

Department of Zoology Arts, Commerce and Science College Gangakhed.431514 India

# Detection of *Wuchereria bancrofti* Infection Using Survey Method of Selected Villages in Nanded Region

described by Mackie and McCartney practical medical Microbiology manual.

## RESULTS AND DISCUSSION

Total collected 600 peoples from Nanded region for this test, out of this test 58.16% found be microfilariae positive while 41.84% found to be negative. Blood smeared for *wucheriabancrofti* showed in fig 1 was obtained by the labomade light microscope with 10 x eyepieces and 100x oil immersion objective lens.

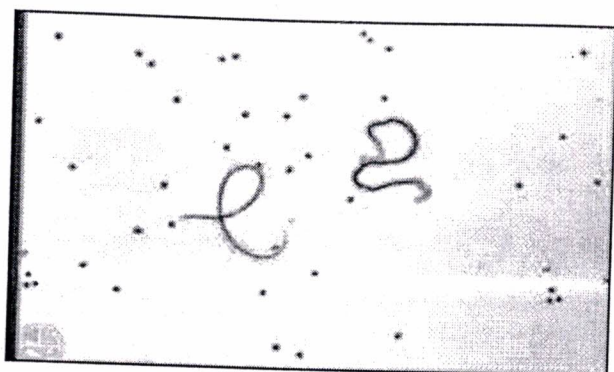


Fig 1 Microscopic image of *wucheriabancrofti*

Table 1 showed the pathological parameters. The ESR (erythrocyte sedimentation rate) is increased in all the positive samples of the range 0.7 to 20mm/hr.

Table 1 Table showing biochemical estimation of patients (n=10)

variable	Range	Mean	Median	SD	variance
Blood urea	18-30	22.4	21.2	70.5	2.3
Total serum bilirubin	60-82mg/dl	77.7	74.0	207	4.3
Serum creatinine	0.75-0.90mg/dl	0.83	0.83	0.03	0.06
Alkaline Phosphate	163-182 IU/L	178	103	65.2	2.6

This is an indication of inflammation in elephantiasis. Blood urea in the serum of the patient was found to be normal in all the studied sample of the range of 15-38mg/dl. serum bilirubin was found in the normal range of near about all filarial cases. Serum creatinine was found to be normal in all the individuals. Cholesterol level was increased in 5 cases. Alkaline phosphate enzyme test to measure the amount of the enzymes ALP in the blood. ALP produced primarily produced in the liver and in bone. it is also produced by the placenta of pregnant women and to the lesser extent by intestine and kidney, normally; the liver produces more ALP than the other organ.

Table 2 Haematological analysis of lymphatic filariasis patients

Variable	Range	Mean	Median	Variance	Standard deviation
	4.47-5.30				
RBC	mil/mm <sup>3</sup>	4.26	4.5	3.3	0.53
MCW	74.0-83.9 um <sup>3</sup>	78.16	77.3	15.11	3.8
RDW	9.7-11.2%	10.16	9.6	0.23	0.61
WBC	3.0-5.4	3.3	2.3	0.70	0.7
HGB	103/mm <sup>3</sup>	11.90	10.10	4.5	1.2
TLC	12.1-14.7 g/dl	470.3	467.3	3.4	0.6
Neutrophil	3600-5400/mm <sup>3</sup>	55.60	54.30	12.11	3.1
Lymphocytes	49-59%	40.23	38.40	12.84	1.2
Monocytes	34-43%	3.3	2.1	3.7	1.1
Eosinophils	03-04%	4.3	3.9	1.2	0.5
PVC	03-04%	38.40	37.60	12.32	0.67
	35.2-44.5%				

In this study, almost in all cases enzyme activity was found to be normal. Effect of parasite on the human host was studied by Stone *et al* [17] and showed the ESR was increased from their studies. DC [1] reports Lymphatic Filariasis reported the physiological data our finds is in accordance with [11, 13, 17] and the CDC data. ShenoyRK, Suma TK [8], *et al* reported the certain pathological changes in filariasis patients, our find is in accordance with their studies. Filariasis parasite only infects lymphatic system and accumulation in lymph that leads to swelling of the affected area like hydrocele. This research data was shared with NFCU. The record of NFCU showed that in 1985 the rate of causes was 11.87% and now is it found to around 0.8%, this study helped NFCU to lower the incident of Filariasis in prevalent area and they distributed drug to the area to control the epidemics of the disease. Hence this research study is the importance of the managements of Filaria disease in Nanded region.

## CONCLUSION

This survey study studies to conclude that in the selected region 58.16 % of people are affected by the disease and the male are more as compared with the female. This data revealed that with certain (ESR) exception all other studied parameter is in the normal range.

## References

1. Durrheim DN, Wynd S, Liese B, Gyapong JO (2004) Editorial: Lymphatic filariasis endemicity—an indicator of poverty? *Trop Med Int Health* 9: 843-845.DN
2. DurrheimS. WyndB.LieseJO Gyapong 2004 Editorial: Lymphatic filariasis endemicity—an indicator of poverty? *Trop Med Int Health* 9:843845
3. Weil GJ, Ramzy RM (2007) Diagnostic tools for filariasis elimination programs. *Trends in Parasitol* 237882
4. Gad AM, Farid HA, Hammad RE, Hussein MA, Kaschef AH (1996) Host-parasite relationships of *Wuchereriabancrofti* and mosquito hosts, *Culexpiapiens* L. and *Aedescaapiuspallas*. *J Egypt Soc Parasitol* 26: 93-104. AM GadHAFaridREHammadMAHusseinAH Kaschef1996Host-parasite relationships of *Wuchereriabancrofti* and mosquito hosts, *Culexpiapiens* L. and *Aedescaapiuspallas*. *J Egypt Soc Parasitol* 2693104
5. Lymphatic filariasis: the disease and its control. Fifth report of the WHO Expert Committee on Filariasis. World Health Organ Tech Rep Ser 821: 1-71.1992Lymphatic filariasis: the disease and its control. Fifth report of the WHO Expert Committee on Filariasis. *World Health Organ Tech Rep Ser* 821171
6. WHO, "Annual report on lymphatic filariasis," [October 2005], <http://www.filariasis.org/>. J. O. Gyapong, V. Kumaraswami, G. Biswas, and E. A. Ottesen,(2013) "Treatment strategies underpinning the global programme to eliminate lymphatic filariasis," Expert Opinion on Pharm
7. A. Hoerauf (2006), "New strategies to combat filariasis," Expert Review of Anti-Infective Therapy, vol. 4, no. 2, pp. 211-222, View at Publisher · View at Google Scholar · View at Scopus
8. Das P.K, Pani S.P(1999) Towards elimination of Lymphatic Filarias in India problem,challenge,

- opportunities and new initiative. *Journal of International Medical and Academy Special Issue*.
9. Shenoy R.K (2002) Management of disability in Lymphatic filariasis and up date. *J. commun dis* 34.1.14
  10. McMahon J, Marshall TF, Vaughan JP, Abaru DE (1979): Bancroftian filariasis: a comparison of microfilariae counting techniques using counting chamber, standard slide and membrane (nucleopore) filtration. *Ann Trop Med Parasitol* 1979, 73:457-464.
  11. Dye C(1992): The analysis of parasite transmission by bloodsucking insects. *Annual review of entomology*, 37:1-19
  12. Ghosh SK, Yadav R(1995): Naturally acquired concomitant infections of bancroftian filariasis and human Plasmodia in Orissa. *Indian J Malariol*, 32:32-36
  13. Simonsen P, Meyrowitsch DW (2002): Bancroftian filariasis infection, disease, and specific antibody response patterns in a high and low endemicity community in East Africa. *Am J Trop Med Hyg*, 66:550-559.
  14. Pedersen E, Mukoko DA (2001): Impact of insecticide-treated materials on filaria transmission by the various species of vector mosquito in Africa. *Ann Trop Med Parasitol*, 96:S91-S95.
  15. Kar SK, Dwibedi B,[2017]... Horton J. Lymphatic pathology in asymptomatic and symptomatic children with *Wuchereriabancrofti* infection in children from Odisha, India and its reversal with DEC and albendazole treatment
  16. de Souza DK, AhorluCS,... Boakye DA[2017] Community-based trial of annual versus biannual single-dose ivermectin plus albendazole against *Wuchereriabancrofti* infection in human and mosquito populations: study protocol for a cluster randomised controlled trial.
  17. Al-Aloust, T. I., Latif, B. M. A. and Al-Shenawi, F. A. (1980) *Ann. Trop. Med. Parasitol.*, 74, 503. Avrameas, S. (1969) *Immunochemistry*, 6, 4
  18. VinodSutaone 2012. Studies on problems, challenges, Drugs, New Intitative and Elimination of *Wucheriabancrofti* in Nanded Region.