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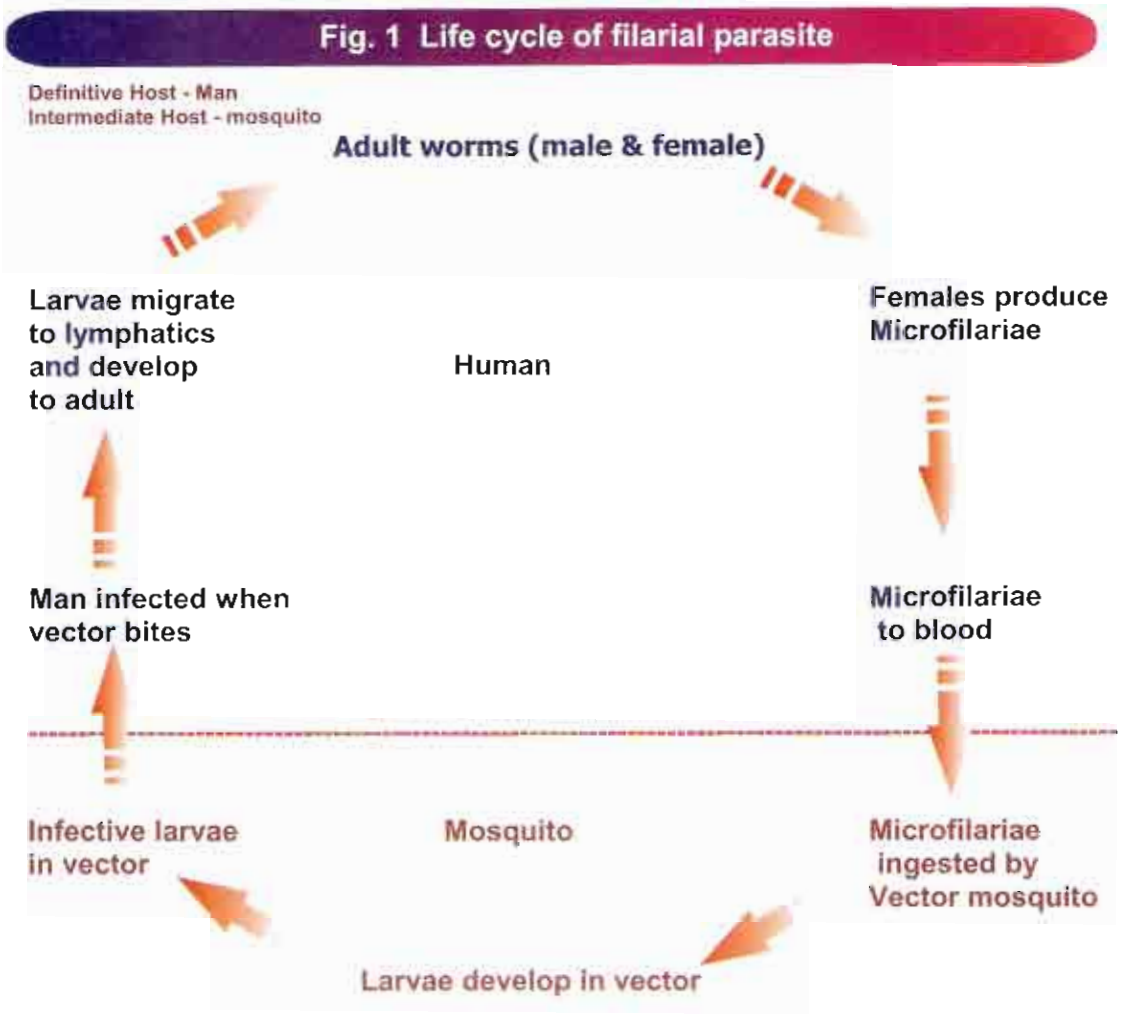
Lymphatic Filariasis in Madhya Pradesh

INTRODUCTION

Lymphatic filariasis is a parasitic disease caused by three closely related filarial nematodes namely *Wuchereria bancrofti, Brugia malayi* and *Brugia timori.* The adult worms reside in the human lymphatic system. The lymphatic system of the body maintains fluid balance and fights infections.

Lymphatic filariasis is a wide spread tropical disease that affects more than 120 million people in tropical & sub-tropical areas in Asia, Africa, America, Sub-Saharan Africa and the Western Pacific[1]. In India, 22 states are affected due to filariasis. In 1955, with the initiation of National Filarial Control Programme, a unit was allotted to M.P. to carry out filarial survey and to locate filarial disease, type of infection, vectors of transmission, their habits and habitats to institute measures for the control of the disease. The study reported filariasis prevalence in 7 of the 8 districts namely Panna, Chhattarpur, Satna, Rewa, Datia, Tikamgarh and Shahdol[2]. The NFCP data in 2001 states that 26.87 million people in Madhya Pradesh are at risk of filariasis with 0.63 million microfilaria carriers and 0.09 million individuals with filarial disease. By the year 2002, the state was having 4 filariasis control units, 3 survey units and 8 filariasis clinics. Presently eleven districts are affected due to filariasis where the State Government is implementing the filariasis elimination programme by Mass Drug Administration (MDA) of Diethyl Carbamazine Citrate (DEC). The first round of MDA was carried out on 5th June 2004 while the second, on 11th November 2005.

The disease spreads from person to person by mosquito bites. When a mosquito bites a person who has lymphatic filariasis, microscopic worms circulating in the person's blood enter and infect the mosquito. The infected mosquito biting a healthy individual transfers the infection to him.



The third-stage infective larvae (L3) enter the blood through the wound in the skin made by the mosquito during blood feeding. They then migrate to the nearest lymph vessels and mature into the thread like adult worms in about 6-9 months. An adult worm lives for about 7-10 years. Once male and female nematodes mate, the female produces viviparous microfilariae, which then move through the circulatory system and collect in arterioles of the lung during the day and emerge at night (if nocturnally periodic) when night biting mosquitoes are most active. In Madhya Pradesh, the predominant mosquito vector responsible for Bancroftian filariasis is *Culex quinquefasciatus*[3,4].

Who is at risk of infection?

People living or staying for a long time in tropical or sub-tropical areas where the disease is common are at the greatest risk for infection. In Madhya Pradesh, filariasis is caused by nocturnally periodic *Wuchereria bancrofti*. The prevalence data available so far in M.P. was based on night blood slide surveys. In recent surveys, the night blood smear test was replaced by Circulating Filarial Antigen assay by Og4C3 ELISA in Panna[5] and Chhatarpur. The test can detect infection even in amicrofilaraemic individuals having adult worms and can be performed at any point of time[6,7].

Impact of the disease

Lymphatic filariasis is a leading cause of permanent and long-term disability worldwide. People with the disease can suffer from pain, disfigurement, and sexual disability. Affected individuals are unable to work due to their disability. Poor sanitation and rapid population growth in tropical and subtropical areas, where the disease is common, has created more places for mosquitoes to breed and have led to more number of infected individuals. At first, most people don't know that they have lymphatic filariasis. They usually don't feel any symptom until after the adult worms die. The disease usually is not life threatening, but can permanently damage the lymph system. Due to the damage in the lymph system fluid collects and causes swelling in the arms, breasts, legs and genital area in males. The entire leg, arm, or genital area may swell to several times their normal size. The swelling and the dysfunction of the lymph system make it difficult for the body to fight infections. Secondary bacterial and fungal infections in the affected areas prolong this swelling and over period of time, develop to massive swellings

Table 1: Filariasis prevalence in Panna district

Study Year	Population Examined	Microfilaria rate (%)	Disease rate (%)	(References)
1955-58	2730 Urban 2091 Rural	331 (12.1) 10 (0.5)	60 (2.1) 1 (0.04)	NFCP[1]
1991-92	3262 Rural	254 (7.8)	112 (3.9)*†	RMRCT[8,9]
2002-2004	460 Rural	84 (18.3) 177 (38.5) (CFA+)**	108 (23.8)*	RMRCT

† Estimated from 2873 individuals

* Filarial disease having lymphoedema and/or hydrocele

** Circulating Filarial Antigen (CFA) estimated by Og4C3 ELISA

Table 2: Filariasis prevalence in Chhatarpur district

Study Year	Population Examined	Microfilaria rate (%)	Disease rate (%)	References
1955-58	2770 Urban 2668 Rural	170 (6.1) (0)	62 (2.5) (0)	NFCP[10]
2004-05	83 Rural	15 (18.1) 22(26.5) (CFA+)**	10(12)*	RMRCT, Jabalpur

* Filarial disease having lymphoedema and/or hydrocele

** Circulating Filarial Antigen (CFA) estimated by Og4C3 ELISA.

INDIVIDUAL AND GOVERNMENT ROLE FOR CONTROL OF FILARIASIS

Individual level control programmes include avoidance of mosquito bite by using mosquito net, mosquito repellent, knowledge about the disease and taking the annual dose of DEC distributed under MDA.

Filariasis is now regarded as one of the few infectious diseases that are potentially eliminable. In the year 1998, WHO in Health Assembly set a target to eliminate filariasis by 2020. The new strategy aims both at transmission control through community-wide (mass) treatment programmes and at disease control through individual patient management. Annual single-dose administration of DEC reduces blood microfilariae by 99% for a full year. Field studies confirm that such reduction of microfilarial loads and prevalence can interrupt transmission. New approaches to disease control is based on preventing bacterial super infection, by emphasizing foot care in affected individuals, which can halt or even reverse the lymphoedema and elephantiasis sequelae of filarial infection.

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Das, D., Kumar, S. & Dash, A. P.*
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PUBLICATIONS

(April – October 2005)

PAPERS PUBLISHED/ IN PRESS/ ACCEPTED:

1. Singh N. (2005). Malaria in Pregnancy. **PREMA News Letter** No.4.
2. Singh N., Awadhia S.B., Dash A.P., Shrivastava R. (2005). Malaria during pregnancy: A priority area of malaria research and control in South East Asia. **WHO Regional Health Forum** 9(1): 7-18.
3. Singh N., Saxena A. (2005). Usefulness of rapid on site *Plasmodium falciparum* diagnosis (Paracheck®Pf) in forest migrants and among indigenous population at the site of their occupational activities in central India. **American Journal of Tropical Medicine & Hygiene** 72(1): 26-29.
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12. Kumar D. Prevalence of Infertility and its socio-economic factors in Tribal communities of central India. **International Electronic Journal of Rural and Remote Health** (accepted).

CONFERENCES / WORKSHOPS/ MEETINGS ATTENDED:

1. Prof. A. P. Dash participated in the Indo-German workshop on Recent Advances in Global Research on Infectious Diseases held at Braunscheig, Germany from 16th to 18th June 2005.
2. Prof. A. P. Dash chaired the scientific session on Infection in Immunocompromised hosts & host response at the Indo German Workshop at Braunschweig, Germany on 18th June 2005.
3. Prof. A. P. Dash, Dr.V.G.Rao & Dr. T.Chakma attended Forum-9 meeting of the Global Forum for Health Research held at Mumbai during 12th to 16th September 2005.
4. Prof. A. P. Dash & Dr. Neeru Singh attended a meeting in on National Consultation on Drug Resistance in Malaria, Tuberculosis and HIV/AIDS in Mumbai from 19th to 21st September 2005.
5. Prof. A. P. Dash attended SAC meeting of DMRC Jodhpur on 15th & 16th April 2005.
6. Prof. A. P. Dash participated in the Epidemiology week held at NIE Chennai from 24th to 27th July 2005.
7. Dr. Neeru Singh delivered a lecture on Diagnosis of malaria in a workshop at Bhubaneshwar organized by NVBDCP for Medical Colleges of Orissa State on 14th to 17th July 2005.
8. Dr. Neeru Singh attended the International conference on malaria at Washington, USA on 22nd to 28th August 2005.
9. Dr.V.G.Rao attended WHO-NIV Workshop on 'Molecular Surveillance Network for Measles in India' at NIV, Pune during 17th and 18th October 2005.
10. Dr.T.Chakma delivered a lecture on Tribal Health a Refresher Course at Rani Durgawati University, Jabalpur on 7th September 2005.
11. Mr. Gyanchand delivered a lecture on Vector and Control of Dengue under EMCP held at MRC FS, Jabalpur on 27th September 2005.
12. Dr. D. Das delivered a Radio talk on the prospects of biotechnology in August 2005.
13. Dr. D. Das delivered a lecture on Filariasis at a training programme under EMCP held at MRC FS, Jabalpur on 26th September 2005.
14. Dr. Anup Anvikar attended a meeting on task force on Yaws Eradication at the Ministry of Health on 26th July 2005.
15. Dr. Anup Anvikar attended the master trainers workshop on AIDS and Workplace at M.P. State AIDS Control Society, Bhopal on 30th and 31st August 2005.
16. Dr. Anup Anvikar delivered a lecture on laboratory diagnosis of communicable diseases at Integrated Disease Surveillance Programme for Medical Officers on 25th September 2005.
17. Dr. Kalyan B. Saha attended workshop on HS-PROD at Institute of Pathology, New Delhi on 24th and 25th August 2005.
18. Dr. Kalyan B. Saha delivered a lecture on tribal demography a Refresher Course at Rani Durgawati University, Jabalpur on 9th September 2005.

19. Dr. Surendra Kumar attended a short Course of Basic Epidemiology and Biostatistics at PGIME 22nd June to 6th July 2005.
20. Mrs. Savinder Rao & Mr. Mahendra Ukey underwent a training on Pulmonary and extra Pulmonary specimens for culture and drug susceptibility testing at TRC, Chennai from 10th to 24th June 2005.
21. Mr. S.K.Yadav attended the training on 'Managing Radical Performance Improvement' at Solan from 30th April to 2nd May 2005.

SEVENTH NATIONAL TECHNOLOGY DAY

Regional Medical Research Centre For Tribals (ICMR), Jabalpur

National Technology Day was celebrated at the centre on 12th May 2005. Dr. T. Chakma welcomed the guests. Prof. S. M. Paul Khurana, Vice Chancellor, Rani Durgavati University was the chief guest, while Dr. V.K. Raina, Professor of Pediatric Surgery, NSCB Medical College, Jabalpur was the guest of honour.

In his introductory speech, Dr. Raina talked on new cheap disposable devices. Prof. Khurana talked on the role of science and technology in weed science, computer technology, synthesis biology, human genome programme and their impact on human life. He emphasized that India has a good opportunity to become a developed country. To end the programme, Dr. V. G. Rao delivered the vote of thanks.



National Technology Day Celebration
(On the dias, Dr. T. Chakma, Prof. Khurana, Dr.Raina & Dr. V.G.Rao)



Prof. S.M. Paul Khurana
delivering his speech

RAJBHASHA FORTNIGHT CELEBRATIONS

Rajbhasha Fortnight was observed at RMRCT from 1st to 15th September 2005. On this occasion, an appeal was made to all officers and staff members of the Centre to do their official work in Hindi. To mark the fortnight, different competitions were organized for staff members like Hindi typing, Hindi Noting and Drafting and Hindi Essay writing. The list of winners of these Hindi Competitions is as under:-

Name of thecompetitions	Prize	Name of the winner
Hindi Typing	First Second Third	Shri S.K. Sahai, U.D.C. Smt.Filomina Lakra, U.D.C. Shri Subhash Chandra Muduli, Steno
Hindi Noting/Drafting	First Second Third	Shri P.K.Choubey, Lab. Attendant Shri K. Venu Gopal Rao, Store Attendant Shri S.K. Sahai, U.D.C.
Hindi Essay Writing	First Second Third	Shri Jagdish Prasad Mishra, Field Asst. Smt. Reena Shome, Lab. Recorder Shri P.K.Choubey, Lab. Attendant



Dr. Neeru Singh, Officer-in-Charge distributing prizes on the occasion of Hindi Day celebration

The following employees won cash prizes under "Incentive Scheme for doing noting/drafting originally in Hindi " for the year 2004-05 :-

First Prize (Two) Rs. 800/- each	Shri Bhagwani Prasad, U.D.C. Shri R.K.Handa, U.D.C.
Second Prize (Three) Rs. 400/- each	Smt. Filomina Lakra, U.D.C. Shri S.K. Sahai, U.D.C. Smt. Reena Shome, Lab. Recorder

In a prize distribution function organized on "Hindi Day" on 14-09-2005, Officer-in-Charge Dr. Neeru Singh, Dy.Director(SG) distributed cash prizes and certificates to the winners. Shri H.S.Thakur, Jr. Hindi Translator of the Centre convened all the programmes in the guidance of Official Language Implementation Committee of RMRCT.



Dr. M. A. Ansari, Director addressing the staff of RMRCT

Dr. Ansari joins RMRCT as Director

Dr. M. A. Ansari took over the charge of the centre as Director on 23rd February 2006. He was welcomed by the scientists and staff of the centre. In his address to the staff, he emphasized the importance of hard work in growth of the institute. He explained the importance of extramural funding in progress of the centre.