



## Clinical pattern of multiple deformities in leprosy patients, a Retrospective analysis in a tertiary care centre in South India

Authors

**Ramya T<sup>1</sup>, Kaviarasan PK<sup>2</sup>, \*Poorana B<sup>3</sup>, Prasad PVS<sup>4</sup>, Kannambal K<sup>5</sup>, Abhirami C<sup>6</sup>**

<sup>1</sup>Post Graduate, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002.

<sup>2</sup>Head of the Department, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002.

<sup>3</sup>Assistant Professor, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002.

<sup>4</sup>Professor, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002.

<sup>5</sup>Associate professor, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002

<sup>6</sup>Lecturer, Department of Dermatology Venereology and Leprosy, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram, India – 608002

\*Corresponding Author

**Poorana B**

### Abstract

**Background:** *Leprosy is eliminated from India in December 2005. But still leprosy cases with deformities are reported in developing countries. Multiple deformities are the major economical, social, and psychological problems in our country. In this situation, this study is undertaken to retrospectively analyse the various multiple deformities in hands, feet, and eyes in leprosy cases registered in our departmental records.*

**Material and Methods:** *This study was an observational study, conducted in the department of Dermatology, Venereology and Leprosy of Rajah Muthiah Medical college and hospital. Ethical clearance was sought from institutional ethical committee. A retrospective analytical departmental record based study was done in leprosy patients, All cases of leprosy registered during Jan 2014 to Dec 2018 were evaluated in this study.*

**Results:** *Out of 342 cases 154 cases diagnosed to have grade 2 deformity. Among these 154 cases 86 had multiple deformities. In our study with multiple deformities trophic ulcer with claw hand deformities (65.1%) were most commonly observed.*

**Conclusion:** *Multiple deformities were found in more than 25% of cases, with more number of grade 2 deformities. This warrants early diagnosis, prompt referral and management, and also education of the affected patients regarding protection of eyes, anaesthetic foot, and insensitive hands, to prevent progression of grade 1 deformities to grade 2 deformities.*

**Keywords:** *leprosy, multiple deformity.*

## Introduction

Leprosy (Hansen's disease: Hanseniasis) is a chronic disease caused *Mycobacterium Leprae* which has a predilection towards the skin and peripheral nervous system. It can also affect muscles, eyes, bones, testes, and other internal organs<sup>1</sup>. Leprosy is considered as an ever challenging the world's oldest and the most dreaded disease of mankind because of the associated social stigma and various deformities and therapeutic challenges<sup>2</sup>. Among all the communicable diseases leprosy is the leading cause of permanent physical disabilities<sup>3</sup>. Since the introduction of multidrug therapy regimen in 1981, the prevalence has come down<sup>4</sup>. The World health organization (WHO) launched a year 'Global strategy 2016-2020' in April 2016 "accelerating towards a leprosy free world". This was built on the earlier 5 year strategy 2011-2015 which focused on leprosy detection to reduce disabilities<sup>5</sup>. The national leprosy control programme was launched in 1954 in India which was subsequently converted to National leprosy eradication programme (NLEP) in 1983 with the objective to eliminate the leprosy. WHO expects that, by focusing interventions on reducing grade 2 deformities, number of new cases can be reduced in population by early detection and treatment of leprosy<sup>6</sup>. The longer the duration of untreated active disease leads to more risk of deformities. In this situation this retrospective observational study was conducted in a tertiary care centre in South India for 5 years from Jan 2014 to Dec 2018.

## Aims and Objectives

To study the prevalence of multiple deformities in leprosy patients from Jan 2014 to Dec 2018 in our department registered cases.

## Material and Methods

This study was an observational study, conducted in the department of Dermatology, Venereology and Leprosy of Rajah Muthiah Medical college and hospital. Ethical clearance was sought from

institutional ethical committee. A retrospective analytical departmental record based study was done in leprosy patients, all cases of leprosy registered during Jan 2014 to December 2018 were evaluated in this study. The relevant epidemiological datas including age, sex were recorded, Leprosy patients with multiple deformities were graded as per WHO classification of disability system (Table 1). Detailed evaluation of distribution of deformities were done.

## Inclusion Criteria

1. Leprosy patients of all ages
2. Both males and females
3. Patients with multiple deformities

## Exclusion Criteria

Deformity due to other causes

World health organization (WHO) disability grading system analysis 1998<sup>7</sup>:(table 1)

**Table 1**

	<b>Hands and feet:</b>	<b>Eyes:</b>
Grade 0	No anaesthesia, no visible or damage is present	No eye problem due to leprosy, no evidence of visual loss
Grade 1	Anaesthesia present, no visible deformity or damage	Eye problem due to leprosy present, but vision not severely affected as a result of this (vision 6/60 or better, can count fingers at 6 meters distance).
Grade 2	Visible damage or deformity present	Severe visual impairment vision worse than 6/60, inability to count fingers at 6 meters distance), also includes lagophthalmos, iridocyclitis and corneal opacities.

## Results

On analysis of datas from 342 cases 237 cases (68.5%) diagnosed to have grade 2 deformities, Among these, 86 patients (36.3%) had multiple deformities involving more than one body parts. In these 86 patients males 69 and 17 females with male preponderance was observed (Table 2). The youngest patient with deformity was 12 years old with trophic ulcer and oldest was 75 years with claw hand. Among all spectrum of leprosy patients, pureneuritic type and tuberculoid spectrum had maximum deformities seen in

87.35% and 72.4% respectively. The most common combination of deformity observed in our study was trophic ulcer with claw hand. (Table 3). Out of 86 patients 75 persons had hand with foot deformities (Table 4.). Age and sex distribution of patients having multiple deformities is shown in Table 2.

**Table 2** Age and sex distribution in multiple deformities

Age group	Male	Female	Total	Percentage
1-20	1	0	1	1.2%
21-40	17	5	22	26%
41-60	37	11	48	55.8%
61-80	14	1	15	17%
>80	0	-	0	0
<b>TOTAL</b>	<b>69</b>	<b>17</b>	<b>86</b>	<b>100%</b>

**Table 3** Types of deformities

Types of deformity	No. Of patients	Percentage
Claw hand+trophic ulcer	56	65.1%
Claw hand+trophiculcer+resorption	17	19.8%
Claw hand+trophiculcer+foot drop	4	4.6%
Claw hand+trophiculcer+madarosis	7	8.1%
Foot drop+ trophic ulcer+madarosis	2	2.4%
<b>Total</b>	<b>86</b>	<b>100%</b>

**Table 4** Sites of involvement of deformity

Site of involvement of deformity	Total no of patients	Percentage
Hands and feet	75	87.2%
Hands, feet and eyes	8	6.9%
Hands,eyes	3	3.4%
Feet,eyes	2	2.5%
<b>Total</b>	<b>86</b>	<b>100%</b>

## Discussion

The moderate increase in percentage of deformity in our study may due to more number of labourers in our study group, who will more prone for injuries. Male predominate in our study concordance with study done by Kumar et al, Norman et al, Arora et al. Majority of patients having in the age group of 40 – 60 years, which is in concordance with study done by Girishkumar R Ambadi. The deformities observed in patients

aged more than 50 years may be due to ignorance of the disease by themselves and by family members. The deformities in young adult may be attributed to maximum outdoor activities. Most common multiple deformities noted in our study was clawing with trophic ulcer 65.1%. The least common combination observed was foot drop, madarosis, with trophic ulcer 2.4%.In our study observed that, hands and feet were most common site involved and claw hand with trophic ulcer was the commonest presentation of deformities which consistent to the study done by Girishkumar R Ambade<sup>7</sup>. There is paucity of studies and literature to compare multiple deformities.

## Conclusion

Trophic ulcer and absorption of toes were the most common deformities in lower limb, whereas claw hand was the most common deformity in upper limb. Global leprosy strategy 2016-2020 aims to achieve long term goal of ‘leprosy free world’, which can be achieved by only means of early case detection and early diagnosis of nerve damage and raising health awareness by health education .The early rehabilitation of existing deformities can improve the quality of life index.

## Limitation

This was a retrospective data analysis based on departmental records, hence bias cannot be ruled out. Community based surveys lacking in this study, as the study conducted in a tertiary care centre.

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