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Original Article

Dissecting the Annals of Leprosy with a Quasi-observational Analysis of NLEP Trends in the Largest District of Maharashtra – an 11 - year Retrospective Study at a Tertiary Care Institution

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After eliminating leprosy as a public health problem in 2005 at national level, the National Leprosy Eradication Programme (NLEP) of India has evolved itself across various measurable parameters and continues to be the backbone of the campaign against the age-old disease for India. Although multi-drug therapy (MDT) has emerged as a game-changer for treating leprosy, knowing the disease's profile in specific geographical locations is crucial for managing it effectively and identifying areas that require more research. This retrospective study was done to analyze the leprosy trend over an eleven-year period at a tertiary care centre catering to rural population in Maharashtra›s largest district i.e Ahilyanagar. An attempt was made to compare it with the earlier corresponding reported trends of the district. Complete clinical case records of 236 newly diagnosed patients across the last 11 years were analysed and data pertaining to age, gender, domicile, caste, below- poverty- line (BPL) category status, type of leprosy, child cases of leprosy, occurrence of lepra reaction, presence of deformities and their grade was obtained. The age group of 31-40 years (57.3%) was the most commonly affected age-group. 34 (14.4%) patients were below poverty line (BPL) while 17 (7.2%) patients were migrants. Paucibacillary patients were 124 (52.12%). The most common morphology of leprosy lesions in our study was plaque, seen in 54.66% of the patients. Borderline tuberculoid leprosy 109 (46.19%) comprised the major portion of clinical spectrum in our study. 25/236 (10.59%) patients had grade 2 deformities and out of these 8/25 (32%) patients had trophic ulcers, 4(16%) patients had clawing of hands, 3 (12%) had leonine facies, 2 (8%) patients had foot drop, another 2 (8%) patients had palatal ulcer, while

Introduction

स्पर्शहानि: स्वेदनत्वमीषत्कण्डूश्च जायते ।
वैवर्ण्य रूक्षभावश्च कुष्ठे त्वचि समाश्रिते ॥

The above verses from Sushrut Samhita written in the 6th century Before Common Era (BCE)- clearly describe the key clinical features of leprosy like loss of tactile sensation, deranged perspiration, discolouration and dryness of skin (Sushruta Samhita). With the oldest reference in the hymns of Atharva Veda, for a disease as old as leprosy,

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the remaining 5 (20%) patients had oedema of upper and lower limbs. Type 2 reaction was the most common reaction seen in 18 patients while 6 patients showed type1 reaction. While the number of newly diagnosed cases has risen for Ahilyanagar especially in the post-Covid era, there is a huge scope for improvement. Robust hunt for new cases via community screenings, awareness campaigns in conjunction with local welfare organizations and early treatment after the diagnosis is expected to be of help in stopping the transmission and in preventing the complications and disabilities amongst patients.

Keywords: Leprosy, MDT, Paucibacillary, Deformities, Maharashtra

India has made significant progress in eliminating leprosy as a public health problem, which is testified by the notable drop in prevalence from 57.8 in 1983 to 0.45 in 2021-22 (National Strategic Plan and Roadmap for Leprosy - 2023-2027). In 2021, WHO labeled leprosy as a neglected tropical disease (NTD) for which the Global Leprosy Strategy (2021–2030) was developed as constituent of the NTD road map 2021–2030 which called for accelerating action to reach the goal of zero leprosy (zero disease, zero disability and zero stigma and discrimination) (WHO 2021). The Leprosy Elimination Framework, released by the WHO in 2023, provided a lucid way-out for the countries afflicted with leprosy through 3 phases, i.e. interruption of transmission, elimination of leprosy disease and post-elimination surveillance, defined in terms of epidemiological milestones. A total of 1,82,815 new cases of leprosy were reported globally in 2023, which was 5% higher than in 2022 (1,74,094) (WHO 2023). India alone accounted for 75,394 i.e. 59% of the new leprosy cases detected worldwide in 2023 (WHO 2023). Also, 54% of globally reported childhood leprosy cases (below 15 years) and 24% of new cases with grade 2 disabilities were reported from India (WHO 2023). This clearly indicates that despite progressive strides in tackling the disease, it is now imperative to assess the clinico-epidemiologic spectrum of leprosy across the multiple endemic areas of India which have seen an increase in the number of cases esp. after the Covid19 pandemic. In 2014-15, the leprosy prevalence rate in Maharashtra was 0.95, which increased to 1.16 per 10,000 people in 2023-24 (Steffy Thevar TOI). Maharashtra & its districts are aggressively working to ameliorate the impact of leprosy by putting the National guidelines into practice across all districts. However, early cases with incipient lesions are a diagnostic challenge due to myriad clinical presentations, esp. in cases having no lesion or those having single or indiscrete lesions (Sharma et al 2023). This is where skin and nerve biopsies for histopathological evaluation can be important for early detection and care of some cases missed by our healthcare workers (Atram et al 2020). This study was undertaken at our rural tertiary care centre, which is the only major tertiary care hospital dealing with leprosy cases apart from the District Civil Hospital- Ahilyanagar. Our study was conducted not only to analyze the clinico-epidemiological spectrum, but also to scrutinize the current shifting trends of leprosy by having a comparative yet pragmatic glance at the vital indicators of the disease in the last 11 years for the district of Ahilyanagar, which is the largest district of Maharashtra. This would ultimately help in gaining better insight into planning studies to assess the unmet needs of control measures at the ground level, thereby enabling a better understanding of this chronic disease

and developing / implementing appropriate interventions for eradication of disease.

Material and Methods

This retrospective cross-sectional study was carried out at Department of Dermatology, Venereology & Leprology, DVVPF's Medical College & Hospital, a tertiary care centre catering to rural population in the Ahilyanagar district of central Maharashtra, India. After obtaining the ethical clearance from institutional ethics committee (VIMS/IEC/C/2024/42), the study was started, the data was collected, observed, compiled and analyzed during the period from July 2024 to December 2024. All newly detected cases of leprosy in the last 11 years (January 2013 to July 2024) with complete clinical/diagnostic/ treatment records were included. Patients with incomplete clinical/ diagnostic/treatment records were excluded.

Complete clinical case records of 236 newly diagnosed patients were analysed for data pertaining to age, gender, domicile, caste, below poverty line (BPL) category status as defined by standard income criteria of government, type of leprosy, child cases of leprosy, occurrence of lepra reaction, presence of deformities and their grades (grade I / grade II) was obtained. Leprosy was diagnosed as per the standard criteria pertaining to the clinical, microbiological & histopathological findings (Eichelmann et al 2013). Further, we used the Ridley-Jopling classification (1966), Indian Association of Leprologists classification

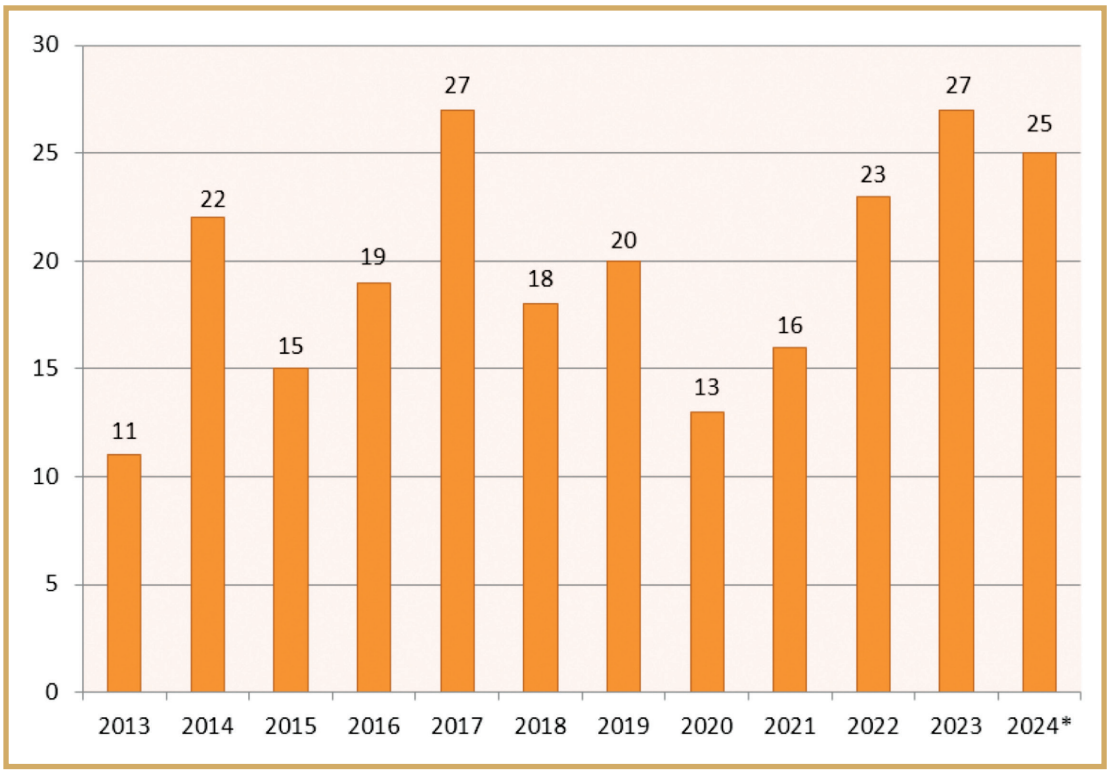

Fig. 1 : Number of Leprosy patients reporting to the Institute across the study period.

(IAL 1982), WHO criteria (2012), NLEP criteria (NLEP Annual Report 2015-2016) and WHO disability criteria (Brandsma & van Brakel 2003) for classifying our leprosy patients across the clinical and disability spectrums respectively. Further, data of leprosy patients w.r.t to vital NLEP indicators across the last 11 years was sought from the District Leprosy Office of Ahilyanagar district for a comparative analysis. Recording of data was done in Microsoft Excel worksheet and SPSS Software was used for the data analysis. Finally, descriptive statistics like mean, percentages and proportions were used wherever deemed fit.

Results

Year-wise distribution of 236 cases across 11 years is depicted in Fig. 1. Out of these total 236 patients, there were 165 males and 71 females. The male to female ratio in our study was 2.3:1. Amongst these, more than half i.e. 57.63% of the patients were between 21-50 years of age – 19.49% were in the age group of 31-40 years, while 19.07% were in the age group of 21-30 as well as 41-50 years each (Fig. 2). 0.84% were child cases (cases below age of 15 years). As far as the histopathological spectrum is concerned, on biopsy a big proportion of the patients 109 (46.19%) belonged to borderline tuberculoid (BT) group, followed by borderline lepromatous (BL) 59 (25%), lepromatous leprosy (LL) 42 (17.8%), tuberculoid (TT) 9 (3.81%), borderline borderline (BB) 6 (2.54%), pure neuritic 6 (2.54%), histoid 3 (1.27%), and lastly indeterminate form 2 (0.85%) (Fig. 3). The distribution of patients across the diagnostic spectrum has been represented in Table 1. Based on the WHO classification as well as NLEP criteria, the proportion of paucibacillary (PB) cases 123 (52.12%) was slightly more than the multibacillary (MB) cases 113 (47.88%) as shown in Table 2. The most common morphology

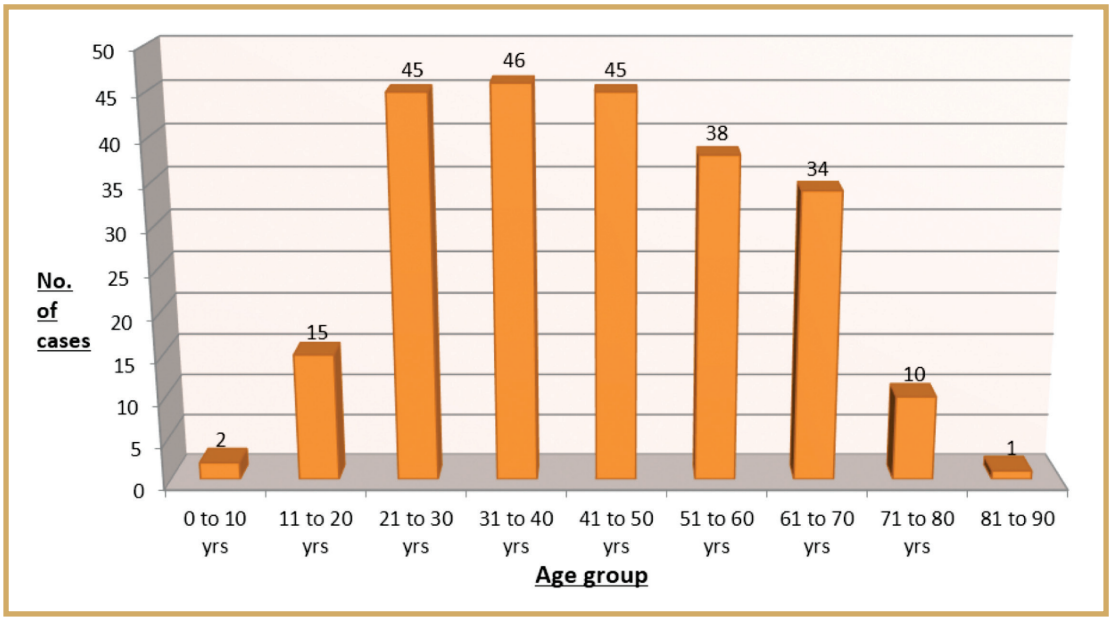

Fig. 2 : Age distribution of cases in our study.

Table 1: Distribution of patients across diagnostic – histopathological spectrum and slit skin smear positivity for acid fast bacilli.

Type	Histopathology	Slit-skin-smear
ID	2	0 (00.00 %)
TT	9	0 (00.00 %)
BT	109	34 (31.19 %)
BB	6	1 (16.66%)
BL	59	35(59.32 %)
LL	42	42 (100 %)
Pure neuritic	6	--
Histoid	3	3 (100 %)

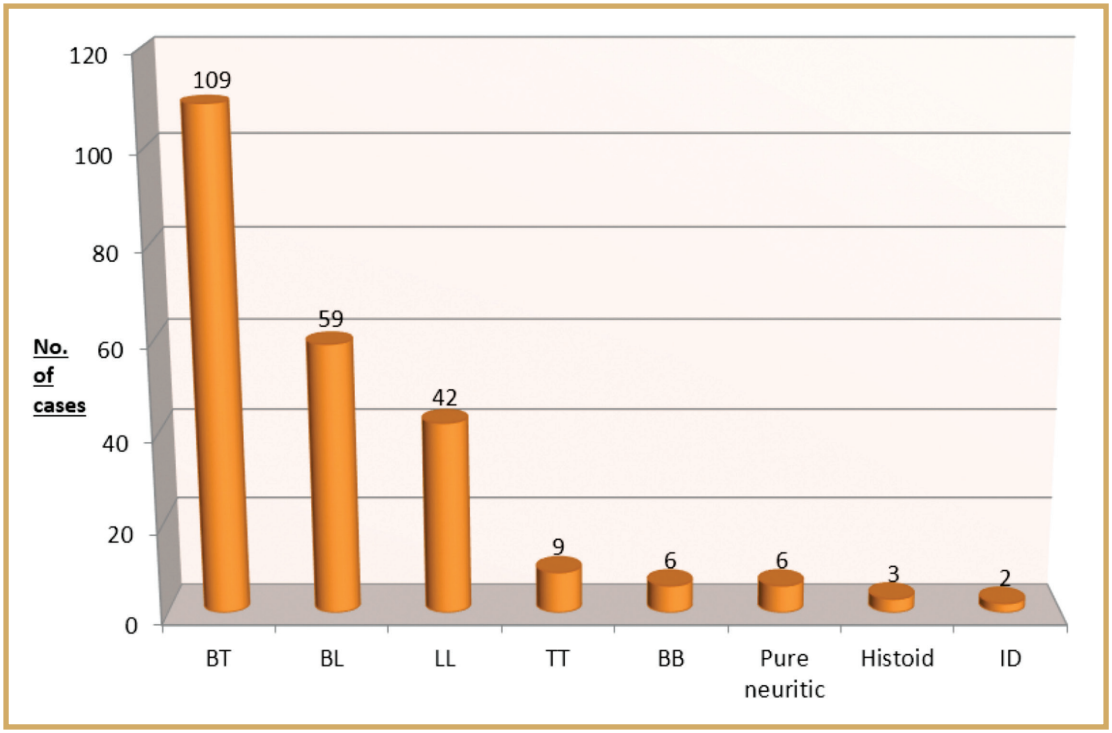

Fig. 3 : Histopathological spectrum of leprosy cases diagnosed in our study.

of clinical presentation in our study was plaque seen in 129/236 (54.66%) followed by patch seen in 67/236 (28.39%) of the patients

Histopathology spectrum of cases is shown in Fig. 3. The distribution of patients as per the clinical morphology of the lesions at the time of

Table 2 : Classification of cases (as per WHO) and morbidity/disability distribution.

Indicator	No. of cases	Percentage
Paucibacillary (PB) cases	123	52.12 %
Multibacillary (MB) cases	113	47.88 %
Type I Lepra reaction	6	2.54 %
Type II Lepra reaction	18	7.63 %
Grade I deformity	20	8.47 %
Grade II deformity	25	10.6 %

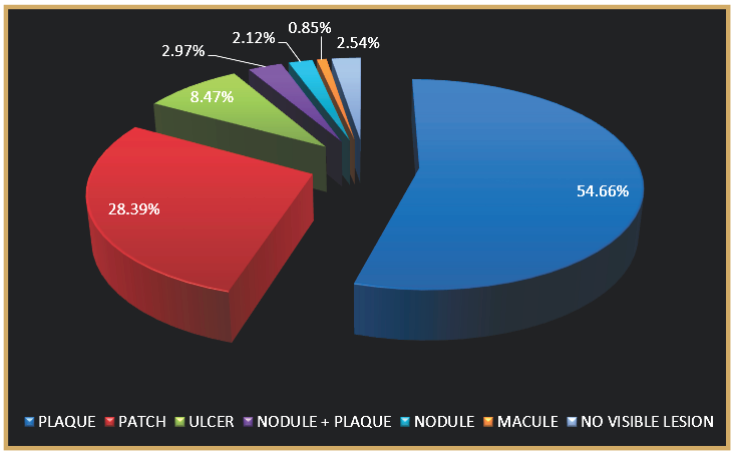

Fig. 4 : Clinical morphology of lesions.

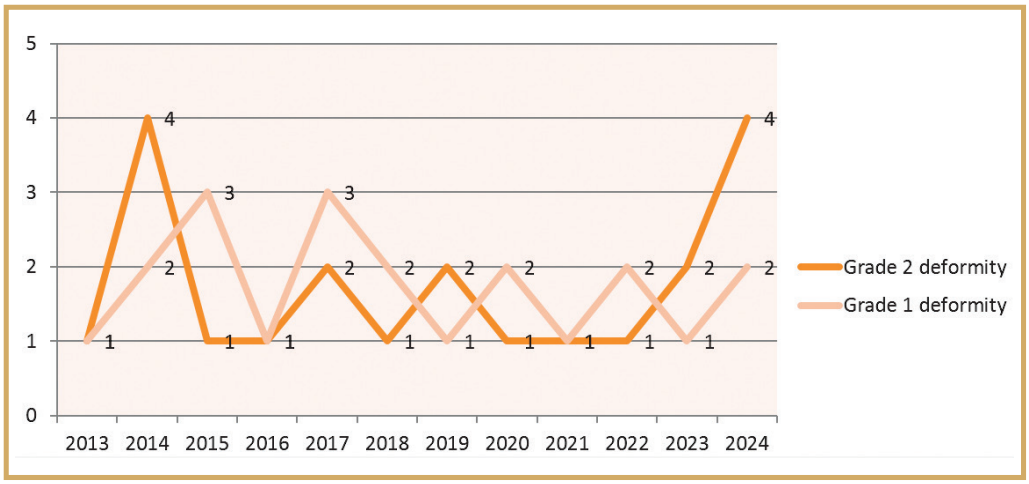

Fig. 5 : Trends in the disabilities across the study period.

presentation is depicted in Fig. 4.

Further, a total 45 (19.07%) patients had different types of the disabilities/deformities. In our study, the proportions of cases with grade II deformities (10.6%) (G2D) was slightly higher than those having grade I deformity (8.47%), the trends of which across the years are depicted in Fig. 5 where the horizontal axis denotes the year and vertical axis denotes the number of cases with respective deformities. Amidst the secondary disabilities, 8 (32%) patients had trophic ulcers, 4(16%) patients had clawing of hands, 3 (12%

Table 3 : Comparison of our data with trends of leprosy across other Indian studies.

Our Study			**Lathiya et al (2022)**	**Rathod et al (2020)**	**Jindal et al (2020)**	**Reyila et al (2019)**	**Mangala et al (2019)**	**Raghav-endra et al (2017)**
Total patients	**(n)**	236	102	200	206	76	113	50
Gender	**Male**	69.92 %	53.92 %	67 %	73.3 %	75 %	63.7 %	78 %
	Female	30.08 %	46.08 %	33 %	26.7 %	25 %	36.29 %	22 %
Type of Leprosy	**Most common type**	BT (46.19 %)	BT (27.45 %)	LL (30.5 %)	BT (46.19 %)	BT (49.5 %)	BT (38.05 %)	BT (34 %)
Type of lepra reaction	**Type I**	2.54 %	10.78 %	--	10.68 %	13.15 %	--	10 %
	Type II	7.63 %	10.78 %	--	29.61 %	1.31 %	--	14 %
Type of deformity	**Most common type**	Trophic ulcers (32 %)	Madarosis (10.78 %)	Trophic ulcers (29.34 %)	--	Claw hand (13.15 %)	Trophic ulcers (37.16 %)	Claw hand (38 %)
Grade of disability	**Grade I**	8.47 %	49 %	21.25 %	46 %	17.1 %	16.8 %	26 %
	Grade II	10.6 %	27.4 %	6.31 %	10.67 %	31.6 %	83.18 %	74 %

Table 4 : Comparison of our data about MB (%) and childhood leprosy with other Indian studies.

Our study		**Thyvalap-pil et al 2019**	**Arif et al 2019**	**Tegta et al 2019**	**Gupta et al 2019**	**Kilikdar et al 2018**	**Kulkarni et al 2016**	**Muthu-vel et al 2016**	**Rao & Moodal-giri et al 2015**
MB Cases (%)	47.88 %	57.9 %	73.2 %	85.5 %	80.17 %	58.62 %	63.9 %	47 %	45 %
Childhood Leprosy (%)	0.84 %	14.3 %	0.9 %	2.3 %	5.6 %	0.0 %	8.1 %	10 %	15.5 %

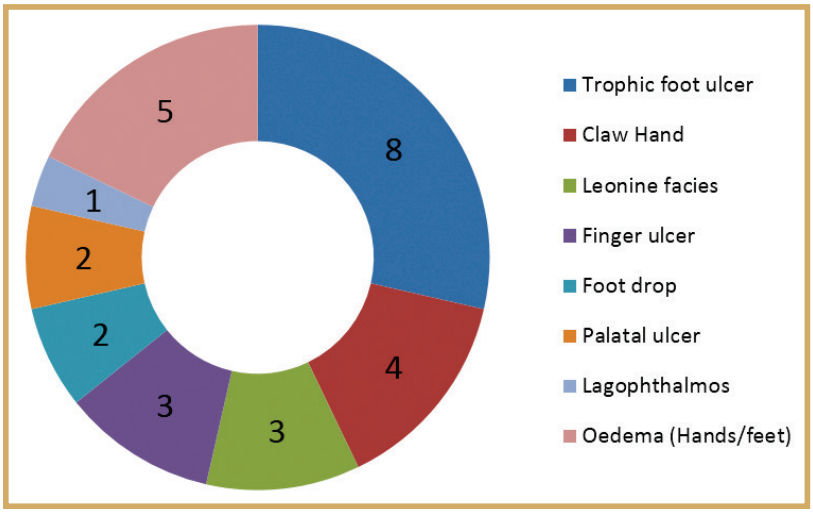

Fig. 6 : Distribution of secondary deformities/disabilities.

Fig. 7A : Histoid lesions on the body.

Fig. 7B : Histoid lesions on face.

Fig. 7C : Thickened visible greater auricular nerve in a case.

Fig. 7D : Rare keloidal presentation of LL.

Table 5 : Comparison of this study with data of Ahilyanagar (2013 – 2024).*

Indicators	State figures of Ahilyanagar District	Our study
Proportion of Females in New Leprosy cases	42.37 %	30.08 %
Male : Female ratio	1.36 : 1	2.32 : 1
Proportion of Child cases in New Leprosy cases	6.23 %	0.84 %
Proportion of Grade II deformities in New Leprosy cases	1.98 %	10.6 %
Proportion of scheduled caste (SC) patients in New Leprosy cases	16.54 %	8.47 %
Proportion of ST patients in New Leprosy cases	15.94 %	6.36 %

*District state figures of Ahilyanagar were collected from District leprosy Office at Ahilyanagar

had leonine facies, 2 (8%) patients had foot drop, another 2 (8%) patients had palatal ulcer, while the remaining 5 (20%) patients had oedema of upper and lower limbs (Fig. 6). Some interesting clinical presentations important for teaching and training of staff are shown in Fig. 7.

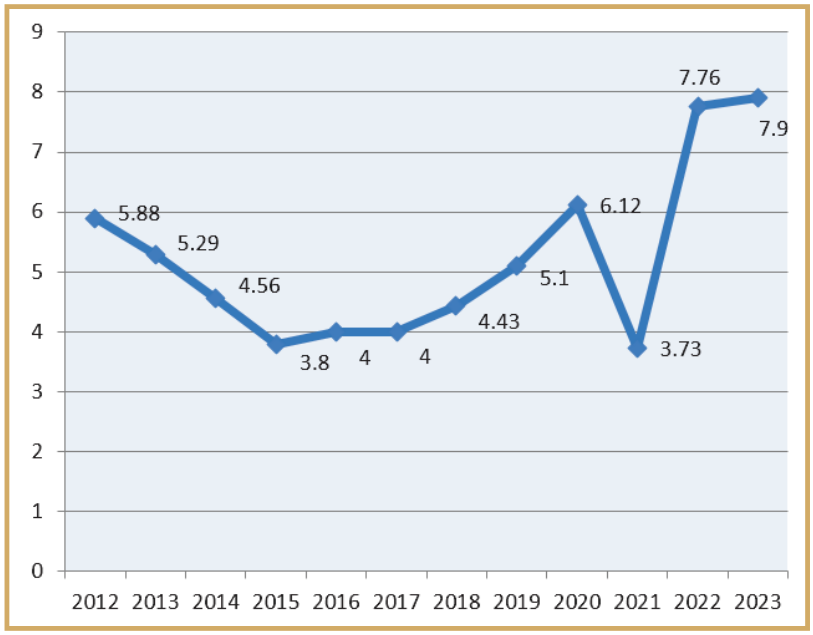

Fig. 8 : The ANCDR for Ahilyanagar district showing a sharp dip in the year 2021 which corresponds to the year of second wave of COVID19 pandemic.

Morbidity in the form of lepra reactions was observed in 10.17% of the patients wherein the proportion of patients having type II lepra reactions was way higher than those having type I lepra reaction. A brief summary of the morbidity/ disability distribution of cases long with MB/ PB bifurcation as per WHO criteria is given in Table 2. Lastly, apart from the consideration of Scheduled Caste/Scheduled Tribe (SC/ST) category proportions of patients as per the usual NLEP norms, we went a step ahead to observe the existence of any economic angle (if any) to the multifactorial causation of the disease using below poverty line (BPL) status and found that out of the total new 236 leprosy patients in our study, 34(14.4%) of the patients belonged to the BPL category.

Discussion

More than a century ago, Dr. Gerhard Henrik Armauer Hansen remarked in 1901 that "there is already too much literature on leprosy." But till date, despite so much research work, the disease continues to remain a public-health challenge in many countries across the world including India. From chaulmoogric acid to sulphones and now MDT, India has built its own path in rolling out the best therapeutic way forward to deal with the disease for its people (Dogra et al 2013). The evolution of National Leprosy Control Programme (NLCP-1955) into National Leprosy Eradication Programme (NLEP) now marching on the roadmap towards the dream of 'Leprosy Mukt Bharat', is the quintessential testimony of the intricate health-planning which

diligently considered the epidemiological needs of a humongous population spread across a diverse geography like India. However, although the prevalence rate (PR) of India has gone down, the same isn't true for certain states like Maharashtra where the PR of leprosy has risen up as per the recent statistical reports. It was for this very reason, we conducted this retrospective study to understand the significant nuances of this public-health problem in the largest district of Maharashtra i.e. Ahilyanagar. Some clinical presentations still being reported as observed in the study have been shown in Fig. 7 (A-D) which are relevant to train the clinicians to diagnose the disease early.

Though leprosy affects all genders & age groups, a specific predominance for certain group has been reported in multiple studies. In our study, the percentage of affected males (69.92%) was considerably higher than the females & this finding was consistent with the studies conducted by Raghavendra et al (2017), Mangala et al (2019), Rathod et al (2020), Lathiya et al (2021) & many other studies. Further in our study, there was almost an equal proportion of patients affected in the age groups of 21-30, 31-40, & 41-50 years, that form the productive working-class in Ahilyanagar mostly comprising of farmers & workers employed in various sugar-mills & industrial units of Maharashtra Industrial Development Corporation (MIDC). In toto, the greater incidence in males as well as the economically productive middle age group (21-50 years) can be attributed to higher chances of acquiring the infection during working hours at workplaces where large number of people assemble together for work. Further, speaking from a cultural angle, even today in rural areas, females are hesitant to approach medical services when compared to males (Joshi et al 2022, Verma et al 2022) mostly due to the associated social stigma, which in turn mandates health education via ASHAs & door to door surveys for active case detection. Also, although most cases in our study were the native locals of Ahilyanagar, 17 cases (7.2%) were migrants and all were from high-endemic regions, which has been observed by Rathod & Mistry (2017), Tegta et al (2019), & Mahajan et al (2021) in their studies too from other parts of India.

As per WHO, 5.6% of new leprosy cases in 2023 worldwide were children & the percentage proportion was nearly same for India (5.18%). However, our study showed a much lower proportion of childhood-leprosy cases (0.84%) when compared with state figures for the Ahilyanagar district and other studies. Childhood leprosy being a marker of active transmission in the community, its detection in cases below 15 years is a critical finding as the disease can spread to other susceptible children and contacts in school. A possible reason could be lack of awareness about the disease in mothers from rural areas or the inability of children to express/ notice the early sensory disturbance over smaller and inconspicuous lesions. Finally, proportions of different types of disease cannot always be representative of exact situation in the community.

As far as the spectrum of the disease is concerned, a big proportion of the patients 109 (46.19%) belonged to borderline tuberculoid (BT) group, which was similar to the observations made by Raghavendra et al (2017), Mangala et al (2019), Reyila et al (2019), Rathod et al (2020) and Jindal et al (2020). However, Lathiya et al (2022) found lepromatous leprosy(LL) and Adil et al (2018) found borderline lepromatous(BL)

to be the most commonly involved spectrum in their studies (Table 3). The most common clinical morphology of lesions at the time of presentation in our study was erythematous plaque (54.66%), which was in accordance with the study by Khan et al (2023) but different from the observations of Joshi et al (2022) and Giridhar et al (2012) who reported hypopigmented patch as the more common lesional morphology. More importantly, unlike majority of studies i.e. Kulkarni (2016), Kilikdar et al (2018), Gupta et al (2019), Tegta et al (2019), Arif et al (2019), and Thyvalappil et al (2019) where MB cases exceeded PB, our study had a slightly higher proportion of PB cases in comparison to MB, which was consistent with the results observed by Rao & Moodalgiri (2015), Muthuvel et al (2016) & Patil et al (2020) (Table. 4). In some studies like Joshi et al (2022), a significant proportion were indeterminate. A comparative greater proportion of PB cases instead of MB, indicates lower bacillary load and lesser shedding, in turn lesser infectivity in the community. There were around 45 cases having deformities, amongst which 25 (10.6%) had G2D wherein Trophic ulcer constituted the most common secondary disability. A similar observation was seen in studies by Mangala et al (2019) & Rathod et al (2020). Any proportion of patients with deformities is undesirable and G2D like trophic ulcer is a clear cut sign of gross delay in seeking prompt diagnosis and timely initiation of MDT. This ultimately is an indicator of lack of awareness about the disease which leads to such cases going undetected for a very long time. Lepra reactions further add to the morbidity & even deformities, thereby causing a great physical as well as psychological distress amongst leprosy patients. In our study, the proportion of patients in Type II lepra reaction (7.63%) was higher than those in Type I (2.54%), & this was similar to the findings in other studies done by Raghavendra et al (2017) & Jindal et al (2020) (Table 3). There is huge variation in case of MB proportion (%) as well as child rates among various studies (Table 4) indicating that such comparisons of figures alone may not be meaningful.

Further, as per the departmental protocols, all newly diagnosed cases of leprosy in our tertiary care centre, were counselled & advised to follow up with the family members who were close contacts for screening. Also according to the Government guidelines, all newly diagnosed cases of leprosy were notified & informed to concerned Government Primary Health Centre/ Subcentre/Rural Hospital/District hospital and the respective local health worker of that locality (viz. ASHA/MPW) carried out door-to-door screening to trace the remnant close contacts in that locality. In our study, only 2 patients who were family-members living in the same household were diagnosed to have leprosy post screening. Both were males aged 16 & 20 years respectively, and had borderline tuberculoid leprosy. This epidemiological situation indicates possible transmission from cases present in the community which are other than house-hold or close contacts. Community level screenings and trainings of all general health care workers including ASHAs are essential to address this problem.

In our study, there were 34 patients(14.4%) who belonged to the BPL category, and 14(41.17%) out of these patients were in the lepromatous spectrum (BL+LL). Lockwood (2004), Bhat & Prakash(2012) and Oktaria et al(2018) have clearly outlined in their studies that unsanitary living conditions, lack of access to potable safe drinking water , and inadequate diet arising due to poverty may predispose

poor people to contract *M. leprae* infection. Although a brief summarized comparison of vital NLEP indicators in our study with those of Ahilyanagar district has been depicted in Table 5, speaking epidemiologically the trends may not be comparable as ours is a tertiary care centre where the cases with advanced/ late disease are likely to come.

If one looks carefully at trends of leprosy in Ahilyanagar, as observed in multiple endemic regions, there was a sharp dip in the number of fresh leprosy cases during the Covid-19 pandemic followed by a sharp rise post pandemic because screening as well as surveillance were badly hit during this period. This is evidently represented by the Annual New Case Detection Rate for Ahilyanagar district across the last 11 years. (District denominator = 47,44,898*) (Fig.8).

Now although this observation may seem alarming at outset, we have a positive perspective about it. The increased number of freshly detected new leprosy cases after the Covid19 pandemic indicates the efficient unearthing of these cases by the ASHAs, MPWs,& other health workers at the grassroot level which went unnoticed till now in the hidden remote endemic pockets of Ahilyanagar. If aggressive screening programmes are coupled with frequent awareness campaigns at local levels, more cases can be brought out for early management which would not only help in halting the further spread of disease but would also significantly bring down the risk of deformities/disabilities in the patients. The best example is the detection of over 3.59 lakh suspected and 6,200 confirmed leprosy cases by the Government of Maharashtra in just 17 days after screening over eight crore people during a special drive launched in September 2022. Such robust attempts provide impetus to the efforts aimed at realizing the target of "Zero-Leprosy".

Conclusion and future perspective

Accomplishing the dream of 'Leprosy Mukt Bharat' by 2027 is challenging but not impossible. Our study provides a quasi-observational analysis of the leprosy cases being reported from our tertiary care centre indicating delayed diagnosis resulting in advanced presentations and also high disabilities. While these trends from our centre from the largest district of Maharashtra are important, more multicentric studies from this district and other districts are needed, which will be important in understanding the clinicoepidemological dynamics in other parts of the state. This in turn will help in designing the strategies tailored as per the clinical needs of that specific region. In today's modern era where information is just few clicks away in the palm of one's hands, the use of social media and other online platforms can prove to be game-changer in creating awareness about this disease & its impact on our lives. Timely screening of population by conducting special drives for endemic pockets of the district, & prompt diagnosis of the disease followed by early appropriate management are the only measures to stop the chain of transmission. Once that is achieved, mitigation of the deformities already suffered by patients & adequate corrective/rehabilitative provisions for leprosy affected persons with these disabilities, will finally help in reducing the burden of leprosy in the affected population.

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References

1. Adil M, Amin SS, Mohtashim M et al (2018). Clinico-epidemiological study of leprosy from a North Indian tertiary care hospital. *Int J Res Dermatol*. **4(4)**: 518-521.
2. Arif T, Amin SS, Adil M et al (2019). Leprosy in the post elimination era: a clinic-epidemiological study from a Northern Indian tertiary care hospital. *Acta Dermatovenerol Alp Pannonica Adriat*. **28 (1)**: 7-10.
3. Atram MA, Ghongade PV, Gangane NM (2020). A clinicohistopathological correlation of Hansen's disease in a rural tertiary care hospital of central India. *J Glob Infect Dis.* **12(4)**: 191-196.
4. Bhat RM, Prakash C (2012). Leprosy: An overview of pathophysiology. *Interdiscip Perspect Infect Dis*. **2012**: 181089. DOI: 10.1155/2012/181089
5. Brandsma JW, van Brakel WH (2003). WHO disability grading: Operational definitions. *Lepr Rev*. **74**: 366-373.
6. Dogra S, Narang T, Kumar B (2013). Leprosy-evolution of the path to eradication. *Indian J Med Res*. **137(1)**: 15-35.
7. Eichelmann K, González González SE, Salas-Alanis JC et al (2013). Leprosy. an update: definition, pathogenesis, classification, diagnosis, and treatment. *Actas Dermosifiliogr*. **104(7)**: 554-563.
8. Giridhar M, Arora G, Lajpal K et al (2012). Clinico histopathological concordance in leprosy – A clinical , histopathological and bacteriological study of 100 cases. *Indian J Lepr*. **84(3)**: 217-225.
9. Gupta R, Sinha R and Pradhan S (2019). Clinico-epidemiological profile of leprosy in post elimination era: A hospital based study. *Indian J Lepr*. **91**: 197-205.
10. Jindal R, Chauhan P, Roy S et al (2021). Trends of leprosy over a period of four years (2016-2019) at a tertiary care hospital in Uttarakhand (India) and comparison with last lustrum (2011-2015). *Indian J Lepr*. **93**: 53-61.
11. Joshi K, Rizvi G, Kaushik A et al (2022). A five year retrospective study of profile of leprosy patients in a teaching tertiary care centre in Uttarakhand. *Indian J Lepr*. **94**: 141-152.
12. Khan I, Gupta N, Kumawat K et al (2024). Clinico-epidemiological profile of 2000 leprosy cases treated at a tertiary care centre of Rajasthan, India from 2011 to 2020. *Indian J Lepr*. **96**: 1-7
13. Kilikdar M, Gedam D, Pisey A et al (2018). Leprosy profiles in post elimination stage: Experience at a tertiary care hospital. *Natl J Integr Res Med*. **9**: 64-67.
14. Kulkarni SK (2016). Epidemiological profile of leprosy patients attending in a tertiary care centre in post leprosy elimination era. *J Dental Med Sci*. **15**: 1-5.
15. Lathiya SL, Makwana VR, Patel ZR et al (2022). A study on clinical profile and disability and deformity among newly diagnosed leprosy patients attending a tertiary care institution. *Indian J Lepr*. **94**: 1-11.
16. Lockwood DNJ (2004). Commentary: Leprosy and poverty. *Int J Epidemiol.* **33(2):** 269–270.
17. Mahajan VK, Mehta KS, Chauhan PS et al (2021). Clinical and epidemiological characteristics of leprosy patients in the post elimination era: We need to be vigilant. *Indian J Lepr*. **93**: 63-75.
18. Mangala HC, Jeyaraman M, Chaudhari K et al (2019). A study on prevalence of deformities in leprosy in a tertiary care hospital at Davangere. *Mycobact Dis*. **9(2**). https://www.longdom.org/abstract/a-study-on-prevalence-of-deformities-in-leprosy-in-a-tertiary-care-hospital-at-davangere-45298.html
19. Muthuvel T, Isaakidis P, Shewade HD et al (2016). Leprosy trends at a tertiary care hospital in Mumbai, India, from 2008 to 2015. *Global Health Act*. **9**: 1, DOI: 10.3402/gha.v9.32962
20. NLEP Progress report for the year 2015-2016 ending on 31 March 2016. Central leprosy division, Directorate General of Health Services

Government of India, New Delhi.

21. Oktaria S, Hurif NS, Naim W et al (2018). Dietary diversity and poverty as risk factors for leprosy in Indonesia: A case-control study. *PLoS Negl Trop Dis*. **12(3)**:e0006317.
22. Patil A, Mishra M, Taiwade P et al (2020). A study of indices in smear positive leprosy in post elimination era: Experience at a teaching tertiary care centre. *J Med Sci.* **6**: 211-215.
23. Raghavendra BN, Aneesh S, Swetha Y et al (2017). Clinical pattern of deformities and disabilities in leprosy patients in rural Bangalore - A two year study at tertiary level hospital. *IP Indian J Clin Exper Dermatol*. **3(3)**: 101-109.
24. Rao KMS, Moodalgiri VM (2015). Leprosy in a tertiary care hospital, Bagalkot, India: Clinical study and a reappraisal in the post elimination era. *Medica Innovatica*. **4**: 23-28.
25. Rathod SP, Mistry AS (2017). Current scenario and challenges of urban leprosy in a tertiary care regional centre in western India - A 5 year observational retrospective study. *Indian J Lepr*. **89**: 1-7
26. Rathod SP, Jagati A, Chowdhary P (2020). Disabilities in leprosy: An open, retrospective analyses of institutional records. *An Bras Dermatol*. **95(1)**: 52-56.
27. Reyila VP, Betsy A, Riyaz N et al (2019). Clinicoepidemiological study of disability due to leprosy at the time of diagnosis among patients attending a tertiary care institution. *Indian J Dermatol*. **64**: 106–111.
28. Sharma L, Agarwal R, Tukaram C et al (2023). A Clinico-epidemiological retrospective study of Hansen's disease in a tertiary care hospital of northeast India . *Indian J Lepr*. **95**: 247-252.
29. Sushruta, Sushruta Samhita : Nidana Sthana, Kushtha Adhyaya, Page 498; Translation by Sharma A. Varanasi : Chaukhambha Surbharati ; 2022.
30. Thevar Steffy, Leprosy patients up since 2020, atleast 1 case per 10k population, Times of India – Pune, Jun 28, 2024, 06:50 IST. [Internet]. Available from : https://timesofindia.indiatimes.com/city/pune/increase-in-leprosy-cases-in-maharashtra-since-2020/articleshow/111327269.cms
31. Tegta GR, Verma GK, Verma K et al (2019). A clinico-epidemiological scenario of leprosy at a tertiary care centre in sub-Himalayan region: A seven year retrospective study. *Indian J Lepr*. **91**: 7-16.
32. Thyvalappil A, Pretty M, Anumod B et al (2019). Current trends of leprosy in a tertiary care centre in North Kerala: A 10 year observational retrospective study. *Indian J Lepr*. **91**: 175-83.
33. Verma GK, Kumari S, Negi AK et al (2022). Clinico-epidemiological trends of leprosy in 21st century and during COVID-19 pandemic. *Indian J Lepr*. **94**: 299-308.
34. World Health Organization (2021). Global leprosy (Hansen disease) update, 2021: Moving towards interruption of transmission [Internet]. Available from: https://www.who.int/publications/i/item/who-wer9736-429-450.
35. World Health Organization (2023). Global leprosy (Hansen disease) update, 2023: Elimination of leprosy disease is possible – Time to act! [Internet]. Available from: https://www.who.int/publications/i/item/who-wer9937-501-521.

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