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Clinical Profile of Leprosy in Post-elimination Era in a Tertiary Care Hospital

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ABSTRACT

Introduction

Leprosy is a chronic disease that primarily affects peripheral nerves and skin. It has a long incubation period and clinical presentations are variable leading to deformities and social stigma. Leprosy was eliminated in Nepal in 2010 AD. This study was undertaken to determine the demographic and clinical profile of Leprosy in the past three years.

Methods

A retrospective observational study was conducted in the Department of Dermatology and Venereology, Tribhuvan University Teaching Hospital. Records of all the newly diagnosed leprosy patients attending the Out-Patient Department from April 2021 to March 2023 were reviewed retrospectively and analyzed.

Results

There were 109 newly diagnosed leprosy cases among which majority were males. The maximum clinical diagnosis was lepromatous leprosy and 100 (91.74%) cases were multibacillary. Type 1 lepra reaction was seen in 11 (10.09%) patients and 12 (11%) patients had type 2 lepra reaction. Slit skin smear was positive in 75 (68.80%) patients. On clinical examination, peripheral nerves were palpable in 92 (84.4%) patients with ulnar nerve being the most common palpable peripheral nerve. Type 1 deformity was present in 55 (50.45%) patients and 18 (16.51%) patients had type 2 deformity. Claw hand was the most common type 2 deformity observed.

Conclusion

Though leprosy has been eliminated in Nepal, there are still considerable cases of Leprosy. Higher number of cases with multibacillary disease and increasing number of Lepra reaction is an alarming sign.

Keywords

Lepra reaction; leprosy; multibacillary

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INTRODUCTION

Leprosy is a chronic granulomatous disease that primarily affects peripheral nerves and skin.[1] It is caused by Mycobacterium leprae, an acid-fast bacillus. The incubation period of leprosy can vary from 3 to 5 years in tuberculoid leprosy and 9 to 12 years in lepromatous leprosy.[2] The clinical presentations of leprosy are variable depending on the cell-mediated immunity of the host. Early diagnosis is vital as it can lead to significant morbidity and social stigma by causing various deformities and disabilities.[3]

Leprosy is classified by WHO as one of the twenty neglected tropical diseases.[4] A total of 174 087 new cases were still detected in 182 countries globally in 2022 AD.[5] Post-elimination of Leprosy in Nepal, the prevalence of leprosy has been decreasing but the trends of changes in demographic profile, clinical presentations and prevalence of complications are varying over time.[6]

This study was undertaken to determine the clinical profile of Leprosy and to identify the common complications of leprosy.

METHODS

This was a retrospective observational study conducted in the Department of Dermatology and Venereology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. The study was approved by the Institutional Review Committee of Institute of Medicine. All the leprosy patients diagnosed based on WHO classification from April 2021 to March 2023 AD were included in this study.

Data was collected from the records maintained at the Out-Patient Department of Dermatology. Data regarding demographic profile, clinical presentation of leprosy, nerve involvement, bacillary Index on slit skin smear, WHO classification, histopathological findings, deformities and reaction at the time of presentation were collected from the records and analyzed with IBM SPSS Statistics software using proportions and percentages. Patients with incomplete data in the records were excluded.

Table 1. Age group of patients with leprosy

Age group	Number (%)
<=14 years	1 (0.92%)
15-29	40 (36.69%)
30-44	34 (31.19%)
45-59	12 (11%)
>=60	22 (20.18%)

RESULTS

There were total of 109 newly registered patients with diagnosis of Leprosy among 1,09,345 patients attending the Dermatology out-patient department during the study period making a prevalence of 0.1%. Among them, 68.8%(n=75) were males and 31.19%(n=34) were females.

The mean age of presentation was 39.25±17.58 years with majority of patients (36.69%) in 15-29 years age group (Table 1).

More than ten skin lesions were present in majority of patients(n=52). The most common presenting feature was erythematous normoesthetic plaques or patches (Table 2). The duration of illness ranged from 15 days to 10 years. Among the patients, 40.36% had the symptoms of leprosy for 1-6 months.

Most of the clinical diagnoses were of Lepromatous Leprosy (Table 3). According to WHO classification (2018 update), 91.74% cases were assigned as Multibacillary Leprosy and 8.25% cases as Paucibacillary Leprosy. Slit skin smear was positive in 68.80%(n=75) patients. On clinical examination, peripheral nerves were palpable in 84.4% (n=92) patients. Single nerve was palpable in 17.43% patients while in the rest, multiple peripheral nerves were palpable. The most common palpable peripheral nerve was ulnar nerve(83.48%) followed by radiocutaneous nerve(55.96%) and common peroneal nerve (45.87%).

On initial presentation, 50.45% patients had type 1 deformity and 16.51% patients had type 2 deformity.

Table 2. Presenting clinical features of leprosy

Presenting feature	Number (%)
Hypopigmented hypoesthetic/anesthetic plaques/patches	17 (15.59%)
Erythematous hypoesthetic/anesthetic plaques/patches	21 (19.26%)
Hypopigmented normoesthetic plaques/patches	7 (6.42%)
Erythematous normoesthetic plaques/patches	22 (20.18%)
Asymptomatic papules and nodules	21 (19.26%)
Tender nodules	11 (10.09%)
Painless ulcer	6 (5.5%)
Tingling sensation	4 (3.66%)

Table 3. Slit skin smear results according to clinical diagnosis

Clinical diagnosis	Slit skin smear results								%
	Neg	1+	2+	3+	4+	5+	6+	Total	
Indeterminate	3	0	0	0	0	0	0	3	2.75%
TT	2	1	1	0	0	0	0	4	3.66%
BT	22	1	1	1	1	0	0	26	23.85%
BB	2	2	0	4	8	1	0	17	15.59%
BL	1	0	3	4	10	7	0	25	22.93%
LL	0	0	0	1	7	14	8	30	27.52%
Pure neuritic	4	0	0	0	0	0	0	4	3.66%

BB = borderline borderline; BL = borderline lepromatous; BT = borderline tuberculoid; LL = lepromatous; TT = tuberculoid.

Claw hand was the most common type 2 deformity observed (5.5%) followed by wasting of thenar and hypothenar eminences (4.58%). Foot drop was seen in two patients and wrist drop in only one patient. Lepra reaction was present in 21.1%(n=23) patients of leprosy. Type 2 lepra reaction, seen in 11% of patients, was more common than Type 1 lepra reaction (10.09%). Type 1 reaction were equally seen in Borderline tuberculoid, Mid-borderline and Borderline Lepromatous leprosy patients. In contrast, Type 2 lepra reaction was mostly observed in patients with Lepromatous leprosy.

Biopsy was done in 32.11%(n=35) of the patients among which 18 histopathology reports confirmed Borderline Tuberculoid Leprosy, 6 biopsy diagnosed Borderline borderline leprosy and 3 confirmed Borderline Lepromatous leprosy. Radiocutaneous nerve biopsy was done in 2 cases which confirmed Pure Neuritic Leprosy.

DISCUSSION

The prevalence of leprosy in our study period was found to be 0.1%. Two studies in Nepal by Paudel et. al[7] and Joshi et al[8] observed the hospital based prevalence to be 0.24% and 0.2% respectively. There was male predominance of cases in our study which was also observed in other studies.[7–11] Most of the patients in the present study were in the age group of 15-29 years which is similar to the finding observed in a study by Joshi et al[8] where most patients were of age group 19-28 years. However, in a study by Paudel et al[7], maximum patients were in 45-59 years age. In a study in India[10], majority of patients were in the age group of 20-40 years. The most common presenting feature in the present study was erythematous normesthetic plaques or patches followed by erythematous hypoesthetic/ anestheic plaques or patches and asymptomatic papules and nodules. In contrast, a study by Paudel et al[7] found hypoesthetic patches/plaques and erythematous anesthetic /hypoesthetic patches to be the most common clinical presentation.

The most common clinical diagnosis in our study was Lepromatous Leprosy (27.52%). However, the study by Paudel et al[7] observed maximum clinical diagnosis to be Borderline Tuberculoid (29.5%) with Lepromatous leprosy of only 13.6%. Borderline tuberculoid leprosy was the most common type observed in a study in India.[9] Results similar to our study were seen in studies by Arif et al and Chen X et al where Borderline Lepromatous and Lepromatous leprosy were the most common types.[12,13] This indicates that more number of leprosy patients are presenting in lepromatous pole than in tuberculoid pole over the years. It is an alarming sign as there is higher risk of transmission to the contacts of the lepromatous patients.

We observed 91.74% cases were multibacillary leprosy and 8.25% cases were paucibacillary leprosy. Higher number of multibacillary cases (65.73%) were also seen in a study in Nepal by Joshi et. Al[8] , in India by Mushtaq et al (84.4%),[9] in China by Chen et al[13] and in Indonesia by Prakoeswa et al (86.2%).[14] A study by Arif et al also showed majority of multibacillary leprosy (73.2%).[12] Slit skin smear was positive in 68.80%(n=75) patients which is more than that in a study by Paudel et al,[7] where slit skin smear was positive in 50% patients. In a study by Mushtaq et al,[9] slit-skin smear results were positive in 29.6% patients. In our study, peripheral nerves were palpable in 84.4% (n=92) patients where majority had multiple peripheral nerves palpable. Similar finding was found in a study in India by Mushtaq et al[9] where 74% patients had multiple nerve enlargement with the ulnar nerve being the most commonly thickened nerve like in our study.

Type 2 lepra reaction (11%) was more common than type 1 lepra reaction (10.09%) in our study. This observation was different from the study by Paudel et al[7] where type 1 reaction (15.9%) was more common than type 2 reaction(6.8%) and also from the study by Joshi et. al,[8] where 10.78% patients developed type 1 reaction. In a study conducted in India,[9] 14.2% of patients developed lepra reactions,

with Type 1 reaction being more common. A study by Arif T et al[12] and Prakoeswa et al[14] showed results similar to our study with type 2 lepra reaction being more common.

Out of 109 cases, deformities were observed in 66.96% among which grade 1 deformity was present in 50.45% patients and grade 2 in 16.51% patients. This was higher than other studies where deformities was observed in 11.36% and 11.8% in Nepal and India respectively.[7,12] Our finding was consistent with Prakoeswa et al in Indonesia where majority had grade 1 deformity.[14] A study in India observed deformity in 47.2% of Leprosy patients among which 27.1% had grade 1 and 20.1% patients had grade 2 deformity.[9] Contradictory to our result, grade 2 deformity was found to be more common than grade 1 deformity in China.[13] In a study by Sarkar J et al, out of 244 leprosy patients, deformity was present in 20.1%, 11.5% had grade 1 deformity and 8.6% had grade 2 deformity.[15] Claw hand was the most common grade 2 deformity observed similar to our study. Tuberculoid leprosy was diagnosed in histopathology in 16.5% of cases in contrast to the study by Paudel et.al[7] where 33% of Tuberculoid leprosy were diagnosed histopathologically.

CONCLUSION

There are still many cases of leprosy detected in our country even after its elimination. Increasing incidence of cases of multibacillary leprosy and increasing occurrence of lepra reaction is a matter of great concern. Awareness and education should be emphasized for early diagnosis and proper management to prevent the disabilities and social stigma associated with leprosy. National Leprosy control programs and disability prevention programs should be implemented effectively to achieve Leprosy free Nepal.

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTIONS

TDG and UP: research concept, research design, literature review, data collection, data analysis, manuscript preparation; LD: research design, literature review, data collection, manuscript preparation

REFERENCES

1. Maymone MBC, Laughter M, Venkatesh S, et al. Leprosy: Clinical aspects and diagnostic techniques. J Am Acad Dermatol. 2020 Jul;83(1):1–14. https://doi.org/10.1016/j.jaad.2019.12.080
2. Reibel F, Cambau E, Aubry A. Update on the epidemiology, diagnosis, and treatment of leprosy. Médecine Mal Infect. 2015 Sep;45(9):383–93. https://doi.org/10.1016/j.medmal.2015.09.002
3. Sarode G, Sarode S, Anand R, et al. Epidemiological aspects of leprosy. Dis Mon. 2020 Jul;66(7):100899. https://doi.org/10.1016/j.disamonth.2019.100899
4. World Health Organization.Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030 [Internet]. Available from: https://www.who.int/publications/i/item/9789240010352
5. World Health Organization. The Global Health Observatory, Neglected Tropical Diseases, Leprosy (Hansen's disease) [Internet]. Available from: https://www.who.int/data/gho/data/themes/topics/leprosy-hansens-disease
6. Singh R, Singh B, Mahato S. Community knowledge, attitude, and perceived stigma of leprosy amongst community members living in Dhanusha and Parsa districts of Southern Central Nepal. Ekpo UF, editor. PLoS Negl Trop Dis. 2019 Jan 11;13(1):e0007075. https://doi.org/10.1371/journal.pntd.0007075
7. Paudel U, Parajuli S. Leprosy in Post Elimination Period: An Experience in a Single Tertiary Care Centre in Kathmandu, Nepal. Nepal J Dermatol Venereol Leprol. 2019 Mar 31;17(1):63–5. https://doi.org/10.3126/njdvl.v17i1.23388
8. Joshi S, Jha AK, Shrestha S et al, . Leprosy before and after national elimination at Nepal Medical College teaching Hospital. A 12 year audit. Nepal. Med COll J. 2017;19(3):142-6.
9. Mushtaq S, Dogra N, Dogra D, et al. Trends and patterns of leprosy over a decade in a tertiary care hospital in Northern India: A retrospective analysis. Indian J Dermatol Venereol Leprol. 2020;86(2):141. https://doi.org/10.4103/ijdvl.IJDVL_377_18
10. Jindal N, Shanker V, Tegta GR, et al. Clinico-epidemiological trends of leprosy in Himachal Pradesh: a five year study. Indian J Lepr. 2009;81(4):173–9.
11. Hazarika N, Bhatia R, Divyalakshmi C. Leprosy in North India in Post-Elimination Era: A Retrospective Study. J Med Evid. 2024;5(1):18–22. https://doi.org/10.4103/JME.JME_40_23.
12. Arif T, Amin SS, Adil M, et al. Leprosy in the post-elimination era: a clinico-epidemiological study from a northern Indian tertiary care hospital. Acta Dermatovenerol Alp Pannonica Adriat. 2019 Mar;28(1):7–10. https://doi.org/10.15570/actaapa.2019.2
13. Chen X, Zha S, Shui TJ. Presenting symptoms of leprosy at diagnosis: Clinical evidence from a cross-sectional, population-based study. Franco-Paredes C, editor. PLoS Negl Trop Dis. 2021 Nov 23;15(11):e0009913. https://doi.org/10.1371/journal.pntd.0009913
14. Prakoeswa CRS, Lubis RS, Anum Q, et al. Epidemiology of Leprosy in Indonesia: a Retrospective Study. Berk Ilmu Kesehat Kulit Dan Kelamin. 2022 Mar 30;34(1):29–35. https://doi.org/10.20473/bikk.V34.1.2022.29-35
15. Sarkar J, Dutt D, Dasgupta A. Disability among new leprosy patients, an issue of concern: An institution based study in an endemic district for leprosy in the state of West Bengal, India. Indian J Dermatol Venereol Leprol. 2012;78(3):328. https://doi.org/10.4103/0378-6323.95449