International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Residual Challenges in Leprosy: A Study of Post-RFT Phenomena at a Tertiary Care OPD in Eastern India

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Abstract: ***Background: Despite completion of multi-drug therapy (MDT), many leprosy patients in high-burden regions like Eastern India continue to suffer from lepra reactions, neuropathy, and Grade 2 disabilities (G2D). These complications are often under-recognized in post-treatment surveillance. Objective: To assess the spectrum of post-RFT phenomena in treated leprosy patients, including clinical presentation, disability profile, relapse evaluation, and therapeutic outcomes. Methods: A cross-sectional observational study was conducted over 12 months at a tertiary care dermatology outpatient department in Eastern India. Adults with prior MDT who presented with post-RFT complaints were evaluated for clinical and functional morbidity, smear results, and management outcomes. Results: Among 150 RFT patients, 118 (78.6%) were male. Persistent hypoesthesia or skin lesions were reported in 27.5% and lepra reactions in 24% with Type 2(16%) reactions being more frequent than Type 1(8%)lepra reaction. Grade 2 disabilities were seen in 20% of patients, most commonly plantar and hand ulcers, claw hand, joint resorptions. MDT was restarted in five patients (3.3%) with bacteriological index (BI) ≥2. Psychological support was provided to 12% of the patients. Conclusion: This study highlights that post-RFT complications remain clinically significant. Structured surveillance and multidisciplinary rehabilitation services are essential, particularly in endemic zones.***

Keywords: Leprosy, Post-RFT, Grade 2 Disability, Lepra Reaction, Nerve Damage

1. Introduction

Leprosy, though declared eliminated as a public health problem in India, remains a chronic challenge in Eastern states such as Jharkhand, Bihar, and Odisha, which continue to report high new case detection rates. While multi-drug therapy (MDT) effectively reduces bacterial load, patients often continue to experience post-treatment complications including lepra reactions, progressive nerve damage, deformities, relapse and psychological sequelae. These undermine the notion of 'cure' and contribute to significant functional disability and stigma.[1]

The National Leprosy Eradication Programme (NLEP) includes post-treatment disability prevention in its Disability Prevention and Medical Rehabilitation (DPMR) strategy and uses Nikusth for reporting. However, structured and uniform post-RFT surveillance is lacking on the ground, especially in resource-limited areas. Existing literature on the clinical trajectory of such patients is also limited. This study was conducted to evaluate the clinical profile and management needs of post-RFT patients attending a tertiary care OPD in one such endemic region.

2. Materials and Methods

This cross-sectional observational study was carried out in the outpatient department (OPD) of Dermatology at Rajendra Institute of Medical Sciences (RIMS), Ranchi — a tertiary care referral center in Eastern India. The study was conducted over a period of one year, from October 2023 to October 2024.

The study population consisted of adult patients aged 18 years and above who had previously completed multidrug therapy (MDT) for leprosy in accordance with WHO guidelines. Patients who had been classified as paucibacillary (PB) were treated for a minimum of 6 months, while those identified as multibacillary (MB) had received MDT for 12 months. Only those patients who had been declared "released from treatment" (RFT) and subsequently presented to the Dermatology OPD with new complaints or residual symptoms were eligible for inclusion. Patients with conditions that could clinically mimic the manifestations of leprosy were excluded to avoid diagnostic ambiguity.

After obtaining informed verbal consent, a semi-structured proforma was used to capture detailed information including age, sex, type and duration of MDT received, duration since RFT, presenting symptoms, WHO disability grade at the time of visit, and the results of slit-skin smears (if performed). In addition, the form recorded any therapeutic interventions provided during the current visit and referrals for other departments. All patients underwent a complete dermatological and neurological examination. Slit-skin smears were performed in selected patients with suggestive clinical features or recurrence of nodules or plaques, using the modified Ziehl–Neelsen staining. Management decisions were based on clinical judgment and institutional protocol, with supportive therapy offered as needed.

3. Results

A total of 150 post-RFT leprosy patients were included in the study, comprising 118 males (78.6%) and 32 females

(21.3%). The age distribution revealed that the majority of patients were between 31–59 years (54%), followed by 18–30 years (28.6%) and ≥60 years (17.3%). This indicates that leprosy-related complications in the post-RFT phase are most prevalent in the economically active adult population, with nearly 83% of patients falling within the 18–59 age bracket. Elderly patients (≥60 years) formed a smaller group but were more likely to report long-standing disabilities. The majority of patients 125(83.3%) had received multibacillary (MB) treatment, while 25 patients (16.6%) had received paucibacillary (PB) therapy suggesting higher bacterial load and ongoing community transmission in this region. Most patients, 109 in total (72.6%), presented within two years of RFT, reflective of early post-treatment morbidity and the likelihood of unresolved symptoms or complications in the initial post-therapy period.

Table 1: Demographic Profile of Post-RFT Patients

Variable	Number (%)
Total patients	150
Male	118(78.6%)
Female	32(21.3%)
Age 18–30	43(28.6%)
Age 31–59	81(54%)
Age ≥60	26(17.3%)
MB MDT received	125(83.3%)
PB MDT received	25(16.6%)

Table 2: Duration of Patient's Visit to Dermatologist After RFT

Duration since RFT	No. of Patients (%)
0–6 months	24(16.0%)
7–12 months	35(23.3%)
13–24 months	50(33.3%)
25–60 months	23(15.3%)
5-10years	10(6.7%)
>10years	8(5.33%)

The presenting complaints were grouped into six clinical categories for better analysis. Persistent hypoesthesia or residual lesions were the most common complaint, seen in 41 patients (27.5%). Lepra reactions were reported by 36 patients (24.2%), while 26 patients (17.4%) presented primarily with neuritis. Nine patients (6.0%) complained of a recurrence of symptoms such as numbness or reappearance of lesions. Seven patients (4.7%) had no new symptoms and sought consultation only for reassurance. Thirty patients (20.2%) presented with visible deformities or Grade 2 Disabilities. These data indicate that the majority of patients reported functional or immunological symptoms that extended beyond their treatment completion.

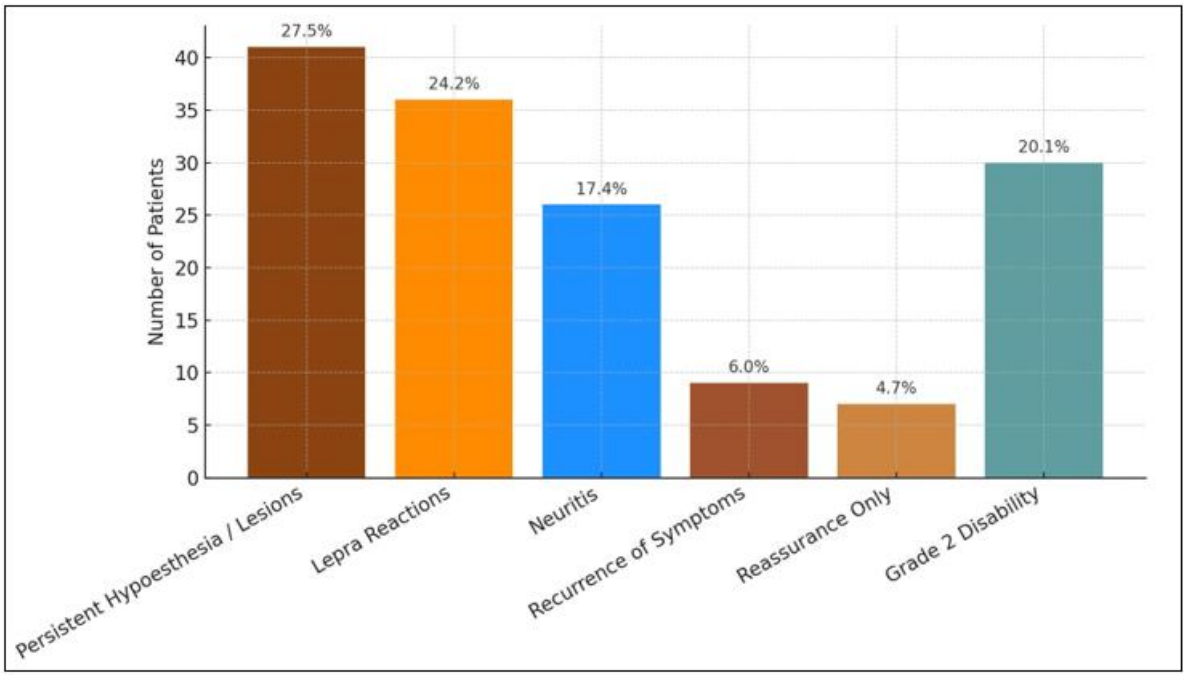

Figure 1: Distribution of Presenting Symptoms among Post-RFT Patients

Out of the 9 patients reporting recurrence of symptoms, only 5 (3.3%) were restarted on multidrug therapy (MDT) based on smear positivity with bacteriological index (BI) ≥2. These patients were labeled as bacteriological relapse in accordance with WHO criteria. The remaining 4 patients were managed conservatively. This raises concerns about under-treatment in the absence of bacteriological or histological confirmation.

Of the 36 patients presenting with lepra reactions, 24 (16%) had Type 2 reactions (ENL), while 12 (8%) had Type 1 reactions and were managed with systemic corticosteroids in 34 patients. Eleven of these patients, diagnosed with ENL, required a combination of thalidomide and steroids for symptom control. Pregabalin was prescribed in 29 patients (19.3%) for neuropathic pain, while 14 patients (9.3%) were referred for physiotherapy. Eighteen patients (12%) received psychological support for stress, anxiety, or social reintegration issues. Surgical referral was made in 6 patients (4%) with advanced deformities or chronic ulcers. These management patterns highlight the multidisciplinary needs of patients beyond bacteriological cure.

Table 3: Management Strategies and Outcomes

Intervention/Outcome	Number (%)
Oral corticosteroids alone	34(22.7%)
Thalidomide (ENL cases)+ Steroids	11(7.3%)
Pregabalin	29(19.3%)
Physiotherapy Referral	14(9.3%)
MDT reinitiated	5(3.3%)
Psychological counseling	18(12%)
Surgical referral	6(4%)

Grade 2 Disabilities i.e. visible deformities were observed in 30 patients (20%). The most frequently observed disability was plantar trophic ulcers, found in 24 patients, most commonly over the forefoot and metatarsal head region. Claw hand deformity was noted in 4 patients and digital resorption in 2. Most of these disabilities occurred within two years of RFT, underscoring the risk of continuing nerve damage and the need for regular nerve function monitoring even after treatment completion.

Figure 2A: Trophic ulcer on plantar surface of the foot with digital resorption

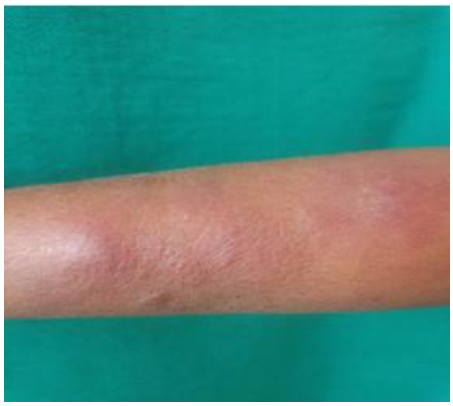

Figure 2B: Nodular ENL lesions occurring two months post-MDT

4. Discussion

In this cross-sectional evaluation of 150 post-RFT leprosy patients, it was evident that substantial clinical morbidity persists despite completion of WHO-recommended MDT. A clear male predominance (78.6%) and majority of multibacillary (MB) cases (83.3%) were observed. This gender disparity may reflect increased occupational exposure and earlier symptom recognition among males, while social stigma and limited autonomy may hinder timely healthcare access for females—an issue widely reported in NLEP field surveys and echoed by previous Indian studies. The MB predominance (83.3%) in our study reflects persistent diagnostic delays and likely missed PB cases, increasing the risk of disability and community transmission. The age distribution in our study showed that a majority of post-RFT patients were aged 31–59 years, highlighting the burden of residual leprosy morbidity in the economically active population. Elderly patients (≥60 years), though fewer, commonly presented with chronic ulcers and fixed deformities, suggesting cumulative nerve damage and delayed care. These findings emphasize the need for age-sensitive rehabilitation strategies, including footwear support for older adults and vocational reintegration programs for working-age individuals.

Notably, 72.6% of patients presented within two years of RFT, underscoring that this early post-treatment window remains a clinically vulnerable period. The lack of structured follow-up protocols during this particular phase likely contributes to diagnostic delays and progression of complications, particularly nerve damage.

The most commonly reported symptoms included persistent hypoesthesia or skin lesions (27.5%), lepra reactions (24.2%), and neuritis (17.4%). These findings suggest that even after Mycobacterium leprae clearance, immune-mediated pathology and nerve inflammation continue to afflict a significant subset of patients due to residual antigens, secondary axonal degeneration or vascular compromise. Similar patterns have been reported by Rao et al. and Kumar et al., who noted that MDT completion does not necessarily imply immunological quiescence or functional recovery.[2,3] The prominence of type 2 reactions (ENL), often severe and recurrent, further supports the need for extending immunosuppressive surveillance beyond treatment completion.

Grade 2 Disabilities (G2D) were present in 20% of our cohort, predominantly as plantar ulcers, claw hand, and digital resorption. Plantar trophic ulcers in our study were most commonly located over the forefoot and metatarsal head region, reflecting that pressure points innervated by the posterior tibial nerve in the forefoot are prone to injury due to sensory neuropathy reinforcing the need of foot care and protective footwear. Importantly, most disabilities manifested within two years of RFT, reflect on the concept of "silent neuritis" and delayed immune reactions as major contributors to ongoing nerve injury. Studies by van Brakel et al. and Ebenezer et al. have previously emphasized that nerve function impairment may progress silently and cumulatively unless monitored regularly with motor and sensory testing.[4,5] This highlights the inadequacy of disability-based outcome assessment and the urgent need for periodic functional evaluation post-RFT. A patient-held disability monitoring card or periodic remote check-ins through community health workers could be explored as sustainable models to bridge this post-RFT care gap.

Relapse, defined by WHO as the re-emergence of symptoms with a bacteriological index (BI) ≥2 after treatment completion, was confirmed in five patients (3.3%) in this study. Notably, two of these relapsed patients had originally been treated with PB-MDT, raising valid concerns about misclassification at baseline. In peripheral settings lacking

smear or biopsy support, clinical classification errors may lead to under treatment and subsequent bacterial reactivation. Sales et al. and Penna et al. have similarly emphasized the importance of accurate diagnosis and the potential for relapse in previously "cured" patients .[6,7] Thus, incorporating routine smear or histopathological confirmation, particularly for suspected PB cases, could substantially reduce the risk of under treatment.

Management strategies required a multidisciplinary approach. Corticosteroids alone were used in 22.7% of reaction patients, while 7.3% with severe or recurrent ENL required combination therapy with thalidomide. Pregabalin was prescribed in 19.3% of cases for chronic neuropathic pain- a distressing but overlooked aspect of post leprosy morbidity. Fourteen patients (9.3%) were referred for physiotherapy to prevent joint contractures and maintain muscle strength, six (4%) for surgical management for fixed deformities and chronic ulcers to prevent secondary complications.18 patients (12%) required psychological support for issues like stigma-driven isolation, loss of employment, disfigurement and uncertainty about cure which contribute to anxiety, depression, and social withdrawal in post-RFT patients. These data align with Lockwood et al. and Walker et al., who advocate for integrated post-MDT care pathways that combine immunological, neurological, rehabilitative, and mental health services. [8,9]

Although this study was limited by its single-center design and the absence of pre-treatment functional baselines in many cases, it offers critical insights into post-RFT morbidity patterns. The findings highlight the inadequacy of "release from treatment" as a marker of true recovery and call for policy-level changes to mandate structured follow-up programs. Emphasis must be placed on nerve function monitoring, relapse surveillance, physiotherapy access, and community-based disability rehabilitation. Only through such comprehensive and longitudinal care can the hidden burden of leprosy be addressed in the post-MDT era.

5. Conclusion

This study highlights that a significant proportion of post-RFT leprosy patients continue to experience active symptoms, lepra reactions, disabilities, and psychosocial needs, particularly within the first two years after treatment completion. The presence of bacteriological relapse, neuritis, and Grade 2 Disabilities despite RFT status reinforces the need for structured post-treatment surveillance. Integrating nerve function monitoring, psychological counseling and rehabilitation services into national leprosy programs is essential for sustaining elimination gains and improving long-term outcomes.

References

[1] Rao PN, Suneetha S, Rathod SP, et al. Dermlep Study Part 3: Post-RFT Events. Indian Dermatol Online J. 2022;13(3):340-345.
[2] Rao PS, Sugamaran DS, Richard J, Smith WC. Multi-centre, multi-country study of the effectiveness of MDT for leprosy. Int J Lepr Other Mycobact Dis. 2002;70(3):174–180.
[3] Kumar B, Dogra S. Leprosy: a disease with diagnostic and management challenges! Indian J Dermatol Venereol Leprol. 2009;75(2):111–115.
[4] Van Brakel WH, Nicholls PG, Das L, Barkataki P, Suneetha S, Jadhav RS, et al. The INFIR Cohort Study: investigating prediction, detection and pathogenesis of neuropathy and reactions in leprosy. Lepr Rev. 2005;76(1):14–34.
[5] Ebenezer GJ, Andrews P, Timothy M, Solomon S, Kumar D, Edward J, et al. Reversal reaction with upgrading of nerve histology in leprosy: report of three cases. Indian J Lepr. 2010;82(3):147–152.
[6] Sales AM, Nery JA, Sampaio EP, et al. Progression of leprosy disability after discharge: is multidrug therapy enough? Trop Med Int Health. 2013;18(9):1145–1153.
[7] Penna ML, Buhrer-Sékula S, Kerr LRS, et al. Relapse in leprosy patients treated with MDT: a systematic review. PLoS Negl Trop Dis. 2009;3(2):e365.
[8] Lockwood DNJ, Suneetha S. Leprosy: too complex a disease for a simple elimination paradigm. Bull World Health Organ. 2005;83(3):230–235.
[9] Walker SL, Sales AM, Butlin CR, Lambert SM, Saunderson P, Wilder-Smith EP, et al. A review of research priorities in leprosy. Lancet Infect Dis. 2022;22(10):e355–e364.

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