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Case Report

Type 2 Lepra Reaction Presenting as Pyrexia of Unknown Origin: A Case Report

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ABSTRACT

Background: Type 2 lepra reaction, also known as erythema nodosum leprosum (ENL), is an immune complex–mediated complication of multi bacillary leprosy [1]. Rarely, it may present predominantly with prolonged fever, leading to diagnostic delay and presentation as pyrexia of unknown origin (PUO) [5].
Case Presentation: A 37-year-old male presented with intermittent high-grade fever and recurrent painful subcutaneous nodules for eight months. Clinical examination revealed multiple tender nodules, peripheral nerve thickening, and cervical lymphadenopathy. Laboratory evaluation showed leucocytosis and elevated erythrocyte sedimentation rate. Split-skin smear from multiple sites demonstrated abundant acid-fast bacilli with a high bacillary load and a morphological index of 40%. A diagnosis of lepromatous leprosy with Type 2 lepra reaction was made. The patient showed significant improvement following WHO-recommended multidrug therapy and systemic corticosteroids [3,9].
Conclusion: Type 2 lepra reaction should be considered in the differential diagnosis of PUO, particularly in leprosy-endemic regions [5,7].

Keywords: *Lepromatous leprosy; Type 2 lepra reaction; erythema nodosum leprosum; pyrexia of unknown origin; multidrug therapy.*

INTRODUCTION

Leprosy continues to be a major public health problem in several endemic regions of India [3]. Type 2 lepra reaction, also termed erythema nodosum leprosum (ENL), is a systemic inflammatory complication predominantly affecting patients with lepromatous (LL) and borderline lepromatous (BL) leprosy [1,4]. It is mediated by immune-complex deposition and elevated levels of pro-inflammatory cytokines, especially tumour necrosis factor-alpha (TNF-α) and interleukin-1β [2].
ENL usually occurs after initiation of multidrug therapy (MDT), but may also occur before treatment or at any stage during the disease course [6]. The condition is characterized by fever, painful subcutaneous nodules, neuritis, arthritis, lymphadenitis, and systemic involvement [4]. Rarely, prolonged fever may dominate the clinical picture, leading to presentation as PUO and subsequent diagnostic delay [5]. We report a rare case of Type 2 lepra reaction presenting as PUO.

CASE REPORT

A 37-year-old male, native of Jharkhand and currently residing in the Andaman and Nicobar Islands for six months, presented with intermittent high-grade fever associated with painful subcutaneous nodules over the limbs, back, and face for eight months. The nodules appeared during febrile episodes and subsided spontaneously within 7–10 days, recurring every 2–3 weeks.

There was no history of chronic cough, weight loss haemoptysis, joint swelling or prior treatment for leprosy. The patient had received multiple courses of antibiotics without improvement.

On examination the patient was febrile (101°F), pulse rate 112/min, blood pressure 130/80 mmHg, with mild pallor. Cervical lymph nodes were enlarged (2–3 cm), firm, non-tender, and non-matted. Multiple tender subcutaneous nodules were present over extensor surfaces of the upper limbs, thighs, lower back, and face. Peripheral nerve examination revealed thickening and tenderness of bilateral ulnar, greater auricular, and lateral popliteal nerve. No hypo pigmented patches or sensory loss were noted.

Laboratory investigations showed leucocytosis and elevated erythrocyte sedimentation rate. FNAC of cervical lymph node revealed reactive lymphadenitis. FNAC from a subcutaneous nodule showed granulomatous inflammation. Split-skin smear from multiple sites including the skin overlying the nodule, stained by modified Ziehl–Neelsen stain demonstrated abundant acid-fast bacilli with a high bacillary load with a morphological index of 40%, confirming multi bacillary leprosy.

Based on clinical, bacteriological, and cytological findings, a diagnosis of multi bacillary leprosy with Type 2 lepra reaction (erythema nodosum leprosum) presenting as PUO was made. The patient was initiated on WHO-recommended MDT along with oral prednisolone, the standard treatment for moderate to severe ENL. Significant clinical improvement was observed within three weeks of initiation of treatment.

DISCUSSION

Type 2 lepra reaction is an immune complex–mediated Type III hypersensitivity reaction occurring in patients with LL and BL leprosy [1,4]. It may develop before, during, or after MDT initiation [6]. The hallmark features include painful nodules, fever, lymphadenitis, neuritis, arthritis, and systemic involvement [4].

Cytokines, particularly TNF-α, play a central role in the pathogenesis of ENL, explaining the systemic inflammatory manifestations [2]. In rare cases, prolonged fever may overshadow dermatological and neurological features, leading clinicians to pursue extensive evaluation for PUO and delaying diagnosis [5,7]. ENL may follow a chronic or recurrent course and is often under-recognized, contributing to morbidity [7,8].

Systemic corticosteroids remain the cornerstone of treatment for moderate to severe ENL [9]. In recurrent or steroid-dependent cases, immunomodulatory agents such as methotrexate or thalidomide have shown benefit [8,10].

CONCLUSION

Type 2 lepra reaction can rarely present as pyrexia of unknown origin. A high index of suspicion, thorough clinical examination, and appropriate microbiological investigations are essential for early diagnosis, particularly in endemic regions [5,7]. Prompt initiation of MDT and corticosteroids leads to favourable clinical outcomes [3,9].

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