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Case Report

Experience of Diagnosing and Managing a Case of Lepromatous Leprosy with Complications at a Private Clinic in Central India

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A case of lepromatous leprosy was diagnosed in a male patient, age 40 years, suffering from type 2 diabetes at Sodani Diagnostic Clinic in Indore, Madhya Pradesh (MP), India, based on the dermatological and neurological symptoms and positive slit smear from the skin lesion, earlobe, nasal swab, and eyebrow. The patient had a hyperpigmented lesion and loss of sensation in the finger. After a positive slit smear test for acid fast bacilli (AFB), he was referred to a government hospital for treatment with multi-drug therapy (Dapsone, rifampin, and clofazimine). After 6 weeks the patient came with a complaint of abdominal pain. The patient was admitted to the hospital, and a routine health checkup and blood test investigation were done. He was diagnosed with jaundice as a result of a hypersensitive reaction to dapsone. The patient was managed for dapsone syndrome by immediately stopping dapsone. The patient was discharged as per his choice. In further clinical follow-up, the patient developed skin rashes. Therefore, a skin smear for KOH was done, which indicated the presence of a fungal infection dermatophytes and was treated with antifungal fluconazole. Later the patient was not coming for routine follow-up. Therefore, a telephonic communication was done. He communicated that he is not able to walk properly and his condition has deteriorated. Through further communication we came to know that patient had died. This experience underscores the opportunities and challenges of diagnosing and managing leprosy cases with complications and co-morbidities at private clinic level settings in partnership with government system and other institutions. It is apparent that various precipitating factors and complications like coexistence of inadequately treated diabetes mellitus with lepromatous leprosy, fungal infection and dapsone syndrome during treatment have possibly led to this adverse outcome. Socio-psychological factors that influence the difficulties/ attitudes of patients for not coming for institutional follow-up and treatment need to be investigated and addressed.

Keywords: Acid- fast bacilli, Lepromatous Leprosy, Skin Lesion, Challenges, Complications

Introduction

Leprosy is a chronic granulomatous disease caused by the obligate intracellular pathogen *Mycobacterium leprae*, affecting both skin and peripheral nerves. Th1- and Th2-mediated immune responses are respectively involved in the pathogenesis of the two clinical poles: tuberculoid and lepromatous leprosy (LL) with borderline types in between. Lepromatous leprosy is a severe, multibacillary form of leprosy

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is characterized by widespread skin involvement, nerve damage, and a high concentration of bacteria in the body. It is considered the most contagious form of leprosy. Individuals with lepromatous leprosy often have a weak or impaired cell-mediated immune response to leprosy bacillus, which allows the bacteria to thrive. Services to diagnose and treat leprosy are provided by National Leprosy Eradication Programme (NLEP) of Govt of India. Several non-governmental institutions also contribute. These patients also go to private clinics to consult dermatologists, other specialists due to varied presentations and also co-morbidities. This case report summarizes the experience of the diagnosis and management of leprosy as well as its complications and co-morbidities at a clinic level.

Case Report

This patient presented on 26 Nov 2024 with various skin and other complaints at Sodani Diagnostic Clinic, Indore, MP, India. He was a male patient with type 2 diabetes, aged 40 years with a history of skin lesions over his body accompanied by fever. Initially asymptomatic, he later developed multiple, raised, painless, skin-colored lesions on his lower limbs, which gradually spread to the upper limbs, back, abdomen, and hands. The patient had hyperpigmented lesions on his back, loss of sensation in his fingers and eyebrow, and infiltrated plaques on his earlobes (Figs. 1 and 2).

The patient had classical skin and neurological symptoms including skin lesions and loss of sensation. A physical examination and slit

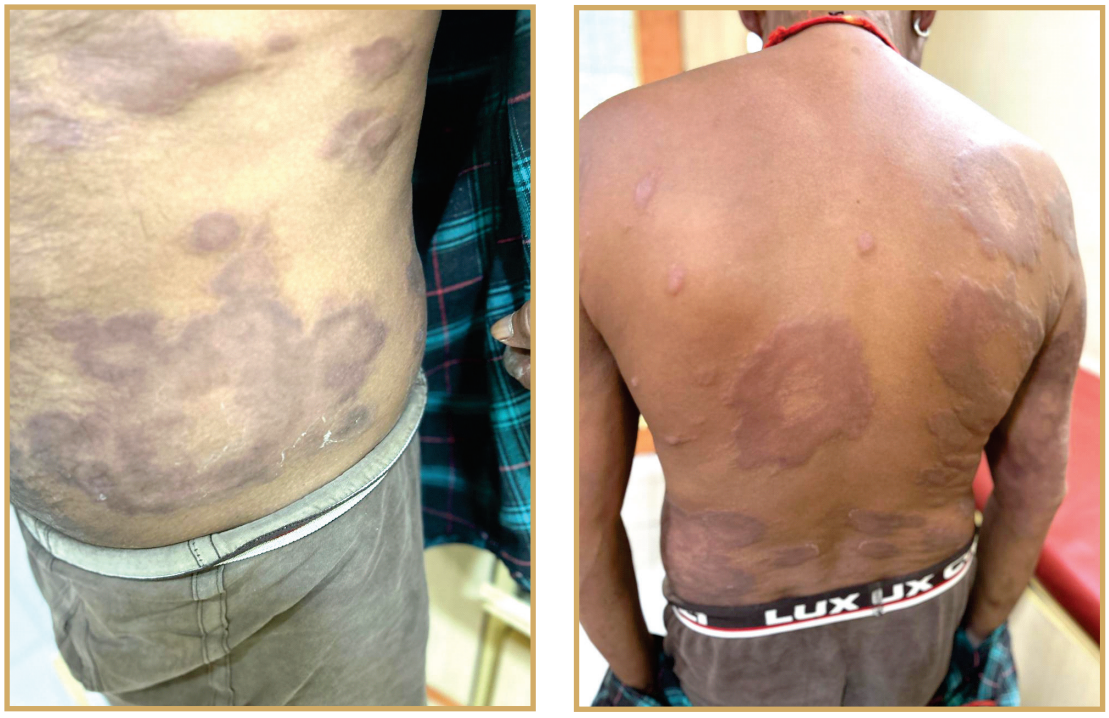

Fig. 1 : The gross image of skin lesions on the abdomen and back showing multiple hypo pigmented lesions.

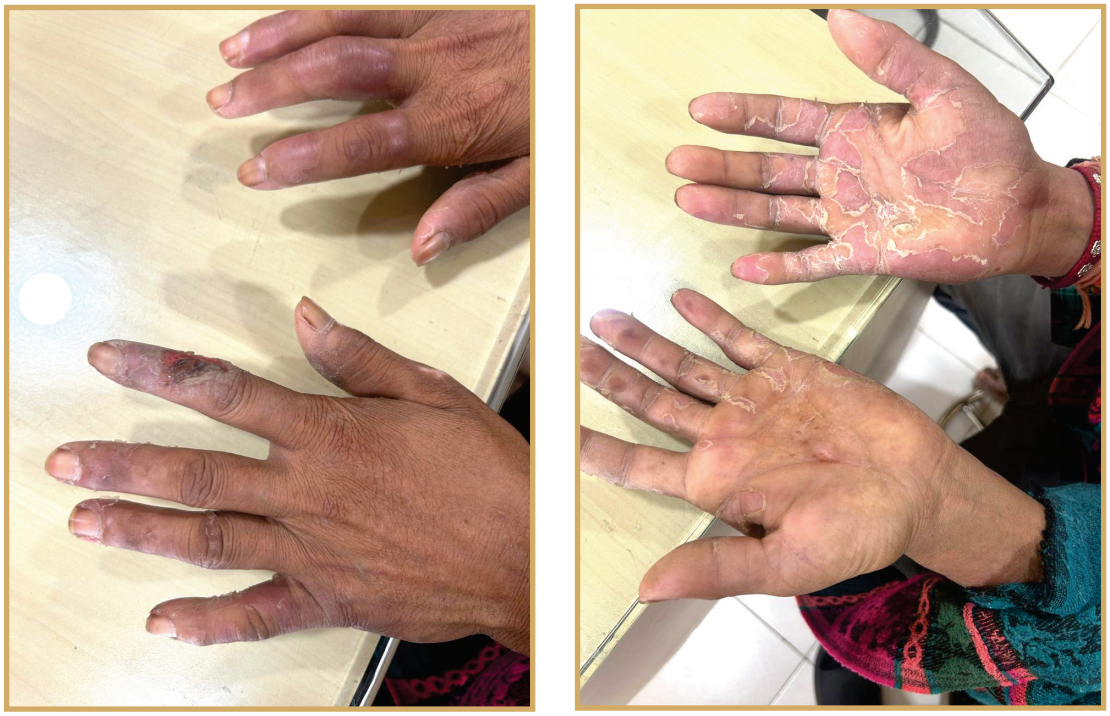

Fig. 2 : The gross image of lesions on the hand

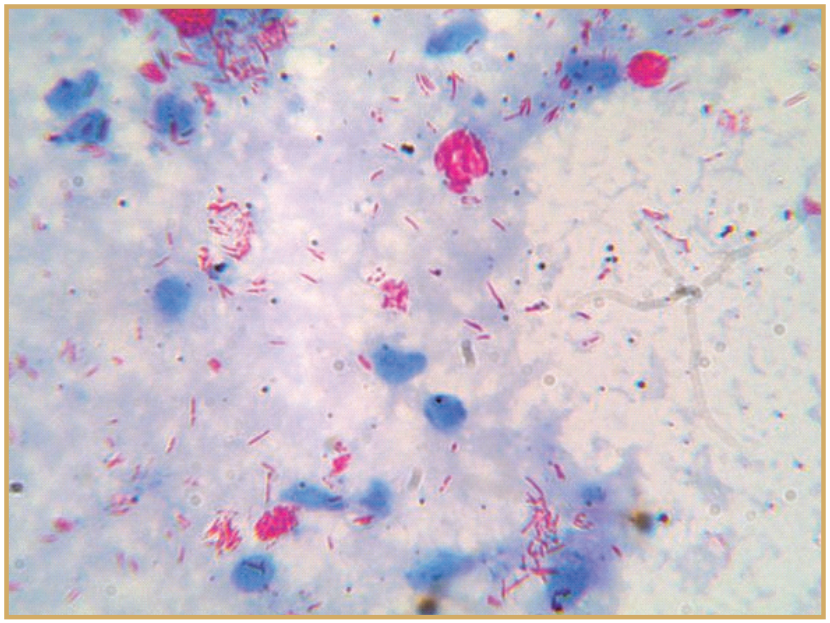

Fig. 3 : Slit smear showing multiple rod shaped acid fast bacilli (AFB).

smear preparation with acid-fast staining were performed to fulfill the diagnostic criteria of WHO (World Health Organization 2018). Slit smear was taken from eyebrow, earlobe, nasal swab, and skin lesion. Other tests performed are chest x-ray, CBC, urine routine, skin scraping for fungus, and HBA1c.

He was diagnosed with leprosy given that all cardinal signs as per WHO diagnostic criteria were fulfilled after both physical and microscopic examination. Physical examination of the skin lesion revealed the lepromatous type - thickened skin, peripheral nerve damage leading to weakness. Slit skin smear (SSS) preparation of the lesions revealed abundant acid- fast- bacilli (AFB) from ear lobes, right eyebrow, left eyebrow, and right nasal swab, left nasal swab, and skin lesions. These AFB were present as single, paired, beaded globi in some fields. SSS from ear lobes revealed solid acid-fast bacilli in the Ziehl- Neelsen stain, with a bacteriological index (BI) of 6+ (Fig. 3).

An X-ray of the chest revealed a lung field with mild accentuation. The patient was a type II diabetic with an HbA1c of 9.3%. Urine routine revealed the presence of leukocyte esterases and amorphous crystals. Skin scraping also showed the presence of fungal spores in the KOH preparation. After discharge from the hospital, he could not turn up for follow-up. We had a telephonic communication where he said that he is not able to walk properly. Later he developed severe joint pain in his limb. In further telephonic communication we came to know that the patient had died because of the infection.

Discussion

In India, a total of 135,485 new cases were detected during the year 2016-17 which gave an Annual New Case Detection Rate (ANCDR) of 10.17 per 100,000 population. (National Leprosy Eradication Programme, Annual report, 2016-2017). In one of the studies from central India during 2016-2017, 400 cases were studied, out of which 30% of the cases had lepromatous leprosy. These indicate a huge number of cases of leprosy patient in central India (Shah et al 2021). A similar number of cases had been seen in our clinics also (10 samples). During a 6 -month period Jan 2024 to Dec 2024 10 samples were received for SSS, out of which 3 samples came to be positive.

Hutahaean et al (2023) reported that lepromatous leprosy is a form of leprosy characterized by pale macules in the skin. In our case report also, the patient also had multiple lesions (on hand backside of body and legs with slit smears positive with bacteriological index 6+ and loss of the sensation in the finger and eyebrow which corresponds to the lepromatous form of leprosy published earlier (Hutahaen et al 2023, Neema & Battula 2022).

This patient was suffering from type II diabetes, and he was having the symptoms of lepromatous leprosy, which was confirmed by SSS and lesions on the skin, hand, legs hand legs eye, which are clearly visible in the figures. The patient was referred to a government hospital for treatment. He was put on multibacillary MDT (multidrug therapy) regimen. After 6 weeks, the patient came with a complaint of abdominal pain. He said that after medication his condition got worse. The patient was admitted to the government hospital, and a routine checkup and blood test investigation were done. He was diagnosed with jaundice due to hypersensitivity reaction to dapsone which also may be due to viral infection such as hepatitis B (Jayashankar et al 2024). The same has been reported by Bucaretchi et al (2004) and Sawlani et al (2016). The patient was properly managed for dapsone syndrome. Dapsone was stopped immediately. The patient was discharged as per his choice. Therefore, physicians, mainly in geographical

areas with high prevalence rates of leprosy, should be aware of this severe, and probably not so rare hypersensitivity reaction to dapsone. Simultaneously there was an occurrence of fungal infection, which was confirmed to be due to dermatophytes by KOH stain. His immunocompromised might have contributed to this fungal infection getting established which are otherwise also common. Our experience shows that LL can be detected and worked up nicely at clinic settings like ours. There are reports of simultaneous presence of other skin conditions like psoriasis (Li et al 2022), co-infection with bacterial, fungal and viral infections as reported by Fróes et al (2023) and Poondru et al (2023). Clinicians need to keep these in mind when investigating leprosy patients.

Sequelae of various precipitating factors and complications like coexistence of inadequately treated diabetes mellitus with lepromatous leprosy, fungal infection and dapsone syndrome during treatment appears to have possibly resulted in adverse outcome. Socio-psychological factors that resulted in patient not coming for institutional follow-up needs to be investigated and addressed.

Leprosy is not a disease of the past, and a careful surveillance programme for leprosy remains necessary to completely eradicate it. The present case report shows that new cases are still occurring in who will approach different types of health centres for their diagnosis and management. A positive slit smear is the early diagnostic marker for leprosy for its timely diagnosis and management of the patient with a proper drug regimen. Further, keeping in view the hypersensitive reactions to drugs, is of utmost importance to prevent the sequelae of reaction and physical deformities in the patients so that it will not affect the social and working life of an individual.

Conclusion

Leprosy is not a disease of past and continued surveillance is necessary for its complete eradication. The case report highlights that new cases are still occurring which can be diagnosed in private clinics by having an index of suspicion, proper clinical examination and slit-skin smear examination.

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