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(CASE REPORT)

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Hidden challenges in clinical management of leprosy with multiple complications: A case report

Themistocles L. Nyeme * and Adam Miraj Gembe

Department of Internal Medicine, Tumbi Regional Referral Hospital, Coast, Tanzania.

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Abstract

Leprosy is a neglected tropical disease which still occur rarely in African and South-East Asia regions with multiple and fatal complications. This report highlighted the case of a 54-year-old man who was diagnosed with Leprosy of multiple complications including leprosy nephropathy, nasal myiasis, leprosy associated anemia and visual impairment. This case reported in order to remind healthcare providers the existence of leprosy despite of being considered eliminated.

Keywords: Leprosy; Clinical management; Leprosy complications; Hidden challenges

1. Introduction

Leprosy is a chronic infectious disease caused by Mycobacterium leprae. The disease primarily affects the skin, peripheral nervous system and mucous membrane of the upper respiratory tract and the eyes. The diseases results into peripheral neuropathy and associated long-term consequences, including deformities and disabilities (1). Leprosy can cause permanent damage to the skin, nerves, limbs and eyes if left untreated. Mycobacterium leprae are transmitted by prolonged and frequent contact with respiratory droplets from the nose and mouth of untreated cases through coughing and sneezing. The disease is transmitted from person to person and has a long incubation period varying from 5 to 20 years depending on clinical subtypes (2).

Leprosy is diagnosed by finding at least one of the following cardinal signs: (1) definite loss of sensation in a pale (hypopigmented) or reddish skin patch; (2) thickened or enlarged peripheral nerve, with loss of sensation and/or weakness of the muscles supplied by that nerve; (3) microscopic detection of bacilli in a slit-skin smear. The WHO classifies leprosy as Paucibacillary leprosy (PB) and Multibacillary (MB) leprosy based on number of skin lesions, number of nerves involved and identification of bacilli on slit-skin smear. PB leprosy includes all smear-negative cases with asymmetrical 1 to 5 lesions, definite loss of sensation and only one nerve is involved. MB leprosy includes all smear-positive with > 5 symmetrical lesions, loss of sensation and multiple nerve involvement (3).

Globally, the prevalence of leprosy is approximately 0.34 per 10,000. The disease still occurs in more than 120 countries, with more than 200 000 new cases reported annually (4). According to the WHO, most countries with high rates of new leprosy cases are in the WHO African and South-East Asia Regions. About 105 countries qualify as endemic for the diseases. India has the highest prevalence rates (64 percent) of all new cases in the world followed by Brazil and Indonesia reported more than 10,000 new cases (1,5).

Elimination of Leprosy remains a public health problem in most WHO African and South-East Asia Regions despite the ambitious goals and targets set towards Zero Leprosy by 2030 (6). In Tanzania Leprosy still causes death and permanent disabilities. The national prevalence has dropped to 0.3 cases per 10 000 people as the WHO had been supporting

* Corresponding author: Themistocles L. Nyeme

multidrug therapy through National Tuberculosis and Leprosy Programme. Here we report the hidden challenges for clinical management of leprosy related complications including leprosy nephropathy, Nasal myiasis, leprosy associated anemia and visual impairment.

2. Case report

A 54-year-old male was admitted at our Hospital 23rd July, 2024. He is a known diabetic type 2 patient on combination therapy with Glimepiride 2mg and Metformin 500mg for past 10 years. He was diagnosed with Leprosy at National hospital 7 months ago by positive skin test and treated by multidrug combination therapy consisting of Rifampicin 600mg+Clofazimine 300mg+Dapsone 50mg. Despite of being on treatment the patient reported progressive increase in number hypopigmented skin lesions with loss of sensation and progressive loss of vision in past 7 months.

Upon admission this patient presented with 2 weeks history of gradual onset and progressive difficulty in breathing due to progressive nasal blockage with some blood clots and nodules which easily bleed upon removal. The difficulty in breathing was accompanied with on and off dry cough with no history of night sweating, chest tightness, chest pain or fever. However, after one week the patient started to experience episodes of vomiting, body weakness and decreased amount of urine.

Physical examination revealed enlarged nose which appear red, bumpy and round in shape with inner blackish nodules and turbinate hypertrophy. Also the patient had generalized flat skin patches distributed all over the body with loss of sensation, stiffness of pharyngeal joints and moderate visual impairment < 6/18. Other systemic examination were unremarkable.

Laboratory investigations revealed elevated serum urea (68.4 umol/l) and creatinine (1884.4 mmol/L), low haemoglobin (4.66 g/dl), and decreased serum sodium (131 mmol/l). Other investigations including random blood glucose, fasting blood glucose, glycated hemoglobin, serum aspartate aminotransferase, serum alanine aminotransferase, sputum for AFB and Gene X pert, Serological testing for HIV, hepatitis B and C were essential normal.

The patient was diagnosed with: (1) Leprosy associated nephropathy (2) Nasal myiasis, (3) mild hyponatremia and (4) Severe anemia of chronic illness. Nasal nodules were manually evacuated with some clots and the patient was treated with oxygen therapy 4L/min, 0.9% saline nasal drops, 0.9% sodium chloride (20meq), blood transfusion (2 units), IV furosemide, injection erythropoietin and broad spectrum antibiotics. After four days of treatment the patient condition was deteriorating, hence he was referred to national hospital for possible hemodialysis, dermatological review and further evaluation.

3. Discussion

Despite the achievement in elimination of leprosy as a public health problem globally, Leprosy is a neglected tropical disease which still significantly occur rarely with fatal multiple complications highlighted in this case scenario including leprosy nephropathy, Nasal myiasis, leprosy associated anemia and visual impairment.

3.1. Leprosy associated nephropathy

Renal failure in leprosy is the potential cause of death and has been extensively described in patient with lepromatous leprosy with high quantity of bacilli (7). Our patient presented with renal failure manifested by decreased of urine output and revealed by laboratory findings of elevated serum urea (68.4 umol/l) and creatinine (1884.4 mmol/L). Renal lesion has been linked to presence of amyloidosis, glomerulonephritis, nephrosclerosis, tubulointerstitial nephritis, granulomas, and other lesions caused by Mycobacterium leprae (7).

These acute injury may progress to chronic renal failure, which is one of the causes of death in leprosy patient. Renal involvement has been reported in all forms of leprosy but it is more frequent in multibacillary forms. Prednisone and non-steroidal anti-inflammatory drugs may be used to control acute immunological episodes. It is important to do serial renal evaluation in order to detect and treat early renal abnormalities caused by Leprosy (7–9).

3.2. Nasal myiasis in leprosy

Nasal myiasis is a rarely and fatal complication of leprosy results from infestation of nasal cavity by M. leprae larvae (maggots). Our patient presented with features of nasal myiasis, including epistasis, nasal obstruction, and nasal enlargement with turbinate hypertrophy. The nose acts as a reservoir for M. leprae to enter inside the body. Nasal obstruction is common observed as results of granulomatous infiltration of the nasal mucosa. It is common in Lepromatous leprosy and the patient presents with epistaxis, foul-smelling and blood-tinged nasal discharge, nasal obstruction, hyposmia and facial pain. These acute presentation may complicate to cellulitis, nasal perforation, deformities, meningitis, and cavernous sinus thrombosis (10). Manual extraction and topical application of turpentine in swabs has been used as a treatment modalities for nasal myiasis in leprosy (10).

3.3. Anemia in leprosy.

Anemia in Leprosy is due to underlying disturbances in iron metabolism and patterns of erythropoiesis and other cytomorphological changes in the bone marrow induced by dapsone or leprae reaction. Our patient presented with severe anemia revealed by low haemoglobin level of 4.66 g/dl. Mild anemia has been observed in paucibacillary (PB) leprosy and severe anemia in multi bacillary (M B) leprosy (11).

Dapsone therapy cause the reduction of the ability of the red blood cells (RBCs) to tolerate oxidative stresses in the presence of diaminodiphenylsulphone-hydroxylamine (DDS-NOH). DDS-NOH being a strong oxidative agent quenches the glutathione stores of the RBC. RBCs accumulate excess oxidative compounds which damage the cellular membrane leading to haemolysis and reduction of haemoglobin level (12). Taking Iron, folic acid, and vitamin C might reduce the risk of anemia. In severe form, withholding dapsone in treatment regime may be considered (12).

3.4. Visual impairment in leprosy

Visual impairment in leprosy patient occur due to chronic uveitis, keratitis, iritis and trigeminal nerve palsies. These conditions may results into long term complications including lagophthalmos, entropion, ectropion, trichiasis, corneal hypesthesia, corneal ulcer, glaucoma and cataract development which results into permanent blindness (13). Timely ophthalmology detection and management by inclusive eye care in the general health system will prevent irreversible blindness caused by leprosy (14).

4. Conclusion

This report demonstrated multiple complications of a very rarely case of leprosy to remind healthcare providers the existence of leprosy despite of being considered eliminated. Due to the presented multiple and fatal complications of leprosy, we recommend multidisciplinary approach in management of Leprosy by physician, haematologists, ophthalmologist, otolaryngologist, nephrologist and dermatologists.

Although dapsone is considered to be a relatively safe drug, we recommend more attention on its haematological adverse effects of anemia and should be administered with prophylactic of iron, folic acid, and vitamin C to reduce the risk of anemia in Leprosy patient.

Serial renal evaluation and ophthalmology review should be done in patient with leprosy to detect early kidney and eye complications.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval for this case was granted by Tumbi regional referral hospital.

Statement of informed consent

Written and verbal consent was obtained from the patient. Patient information was kept confidential and anonymized.

Author contributions

- Writing – original draft: Themistocles L. Nyeme.
- Writing – review and editing: *Adam Miraj Gembe.*

References

[1] WHO. Treatment and Prevention of Leprosy.2022

[2] Küstner EC, Dansis CP, Iglesias HV, Ro- ME. Lepromatous leprosy : A review and case report. 2006;474–9.

[3] WHO. Classification of Leprosy 1 . Paucibacillary Leprosy (PB) 2 . Multibacillary Leprosy (MB).2023.

[4] WHO. Treatment and Prevention of Leprosy.2022

[5] Küstner EC, Dansis CP, Iglesias HV, Ro- ME. Lepromatous leprosy : A review and case report. 2006;474–9.

[6] WHO. Classification of Leprosy 1 . Paucibacillary Leprosy (PB) 2 . Multibacillary Leprosy (MB).2023

[7] National Leprosy Eradication Program (NLEP) Leprosy. 2022;

[8] Jariyakulwong N, Julanon N. Lepromatous leprosy with a suspected 30-year incubation period : A case report of a practically eradicated area. J Taibah Univ Med Sci [Internet]. 2022;17(4):602–5. Available from: https://doi.org/10.1016/j.jtumed.2021.12.005

[9] Sheeja A**.** Leprosy Control Program. 2022;

[10] Bezerra G, Daher EDF. Renal Involvement in Leprosy : Retrospective Analysis of 461 Cases in Brazil. 2006;10(I).

[11] Bezerra G, Daher EDF, Pires J, Delgado E, Pereira B. Review leprosy nephropathy : a review of clinical and histopathological features. 2015;57(1):15–20.

[12] Committee E, Paller M, Tomas MN, Editor CO, Dallas W, Tx H, et al. Disease : 1995;5(8).

[13] Editor D. ScienceDirect. Lepromatous Leprosy with nasal myiasis presenting as epistaxis in postleprosy elimination era. 2005;8:9–11.

[14] Rev L. Patterns of erythropoeisis and anaemia in leprosy R SEN , S S Y ADAV , UMA SINGH , P SEHGAL & V B DIXIT Departmen ts of Pathology , Dermatology and Venereology , Medical College , Roh tak 124001 (Haryana) , India.

[15] Sing A, Tang O, Pao I, Ting L, Chew LP. Challenges in Managing a Lepromatous Leprosy Patient Complicated with Melioidosis Infection ,. 2021;1–5.

[16] Adriono GA, Nadhira AM, Kurnia KH, Irawati Y. Posterior Segment Pathologies in Leprosy Patients with Visual Impairment : A Case Series Patologi Segmen Posterior Mata Pasien Lepra dengan Gangguan Penglihatan : Sebuah Serial Kasus. 2022;10(1):71–6.

[17] Shyamala A. Integrating ‘ ocular ’ NTDs. 2024;1–3.