

Leprosy in Sukkur region: A series of 143 cases from 2001-2011 at leprosy centre Sukkur, Sindh

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Abstract *Objective* To document the clinical characteristics of newly diagnosed leprosy patients in Sukkur Region, Sindh.

Methods A total of 143 new leprosy cases referred and registered in leprosy centre, Sukkur from 2001-2011 were studied. Diagnosis was based on clinical grounds, and supported by acid-fast bacilli on slit-skin smear.

Results Out of 143 new cases 73 (51%) were males and 70 (49%) females. The peak age of disease onset was second decade. The most common form of the disease was borderline tuberculoid (BT) seen in 76 (53%) cases. Ulnar nerve was the most frequently affected nerve seen in 30 (21%) cases.

Conclusion Although in urban cities the cases of leprosy are in decline but still it exists in rural areas of Sindh. It is important for the practitioners to be aware of its diagnosis and management to prevent the deformities

Key words

Leprosy, lepromatous, borderline tuberculoid, ulnar nerve.

Introduction

Leprosy is a granulomatous disease affecting the skin and peripheral nerves caused by *Mycobacterium leprae*.¹ There were 407,791 new cases diagnosed and reported to World Health Organization in 2004.² It is more prevalent in India, Brazil, Republic of Congo, Pakistan and central African Republic.^{3,4}

The WHO recommends classifying leprosy according to the number of lesions and the presence of bacilli on a skin smear. Paucibacillary leprosy is characterized by 5 or

fewer lesions with absence of organisms on smear and lesions are typically anesthetic and hypopigmented. It generally includes the tuberculoid and borderline tuberculoid categories from the Ridley-Jopling system. Multibacillary leprosy is marked by 6 or more lesions with possible visualization of bacilli on smear, disseminated and minimally hypopigmented. Lepromatous leprosy, borderline lepromatous leprosy and mid borderline leprosy are included in the multibacillary types.⁵ The 2 common types of leprosy reactions, type 1 or reversal reaction is mediated by an upgrade in cellular immune response to the bacterium and type 2 is a type III hypersensitivity reaction characterized by erythema nodosum leprosum.^{6,7} Nerve damage may occur early in tuberculoid disease but tends to be more insidious in lepromatous leprosy.

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The present study aimed to document the clinical features of 143 newly diagnosed cases of disease presenting to Leprosy Center, Sukkur, Sindh.

Methods

This study comprised 143 patients who visited Leprosy Centre, Sukkur, from 2001 to 2011. Descriptive information was recorded which included patient's age, gender and place of birth, type of skin lesions (macule, papule, nodules, patches etc.), distribution of lesions, ocular lesions, cranial nerve involvement, peripheral neuropathy, eyebrow hair loss, involvement of nose or pinna, type of disease and histopathologic diagnosis of biopsy specimen. Diagnosis was made clinically, by finding a cardinal sign of leprosy and supported by acid-fast bacilli in slit-skin smears or typical histology on skin biopsy.

Results

Out of the 143 patients studied, 73 were males and 70 females (equal male to female ratio). Age of patients varied from 5 to 70 years and most of cases seen were of 15 to 24 year age group (**Table 1**). Amongst the clinical characteristics, the patches were common presentation seen in 103 (76%) cases (**Table 2**). Borderline tuberculoid leprosy was the common type seen in 76 (53%) cases, significantly higher prevalence in females 46 (32%) cases (**Table 3**). Bacterial index was positive in 31 (22%) cases. Out of 31 cases 22 (15%) had borderline lepromatous leprosy (**Table 4**). Most cases of peripheral nerve involvement were seen in borderline tuberculoid 31 (22%) cases (**Table 5**). Ulnar nerve was the most commonly involved peripheral nerve seen in 30 (21%) cases.

Table 1 Age and sex distribution of the study population (n=143).

Age group (years)	Male (n=73)	Female (n=70)	Total
1-14	08 (11.0%)	08 (11.4%)	16 (11.2%)
15-24	21 (28.8%)	16 (22.9%)	37 (25.9%)
25-34	18 (24.6%)	08 (11.4%)	26 (18.2%)
35-44	09 (12.3%)	10 (14.3%)	19 (13.2%)
45-54	08 (11.0%)	12 (17.2%)	20 (14.0%)
55-64	06 (8.2%)	11 (15.7%)	17 (11.9%)
Above 65	03 (4.1%)	05 (7.1%)	08 (5.6%)

Table 2 Clinical characteristics of patients, lesions and deformities (n=143).

Types of lesions/deformity	Male (n=73)	Female (n=70)	Total
Macules	08 (11.0%)	05 (7.1%)	13 (9.1%)
Papules	06 (8.2%)	05 (7.1%)	11 (7.7%)
Plaques	12 (16.4%)	13 (18.6%)	25 (17.5%)
Nodules	03 (4.1%)	02 (2.6%)	05 (3.5%)
Patches	39 (53.4%)	64 (91.4%)	103 (69.9%)
Ulcers	07 (16.3%)	04 (5.7%)	11 (7.7%)
Clawing of fingers	04 (5.5%)	05 (7.1%)	09 (6.3%)
Foot drop	01 (1.4%)	01 (1.4%)	02 (1.4%)
Gynecomastia	04 (5.5%)	-	04 (2.8%)
Hanging ear lobes	05 (6.8%)	03 (4.3%)	08 (5.6%)
Depressed nose	01 (1.4%)	01 (1.4%)	02 (1.4%)
Madarosis	02 (2.7%)	02 (2.9%)	04 (2.8%)

Table 3 Types of leprosy seen in the study population (n=143).

Types	Male (N=73)	Female (N=70)	Total
Lepromatous leprosy (n=02)	01 (1.4%)	01 (1.4%)	02 (1.4%)
Tuberculoid leprosy (n=29)	19 (26.0%)	10 (14.3%)	29 (20.3%)
Borderline leprosy (n=09)	06 (8.2%)	03 (4.3%)	09 (6.3%)
Borderline tuberculoid leprosy (n=76)	30 (41.1%)	46 (65.7%)	76 (53.1%)
Borderline lepromatous leprosy (n=27)	17 (23.3%)	10 (14.3%)	27 (18.9%)

Tuberculoid (TT), borderline (BB), borderline tuberculoid (BT), borderline lepromatous (BL), lepromatous (LL)

Table 4 Bacterial Index in the study population (n=143).

Types	Positive, N (%)	Negative, N (%)
Lepromatous leprosy (n=2)	02 (100%)	0
Tuberculoid leprosy (n=29)	0	29 (100%)
Borderline leprosy (n=09)	05 (55.5%)	04 (44.5%)
Borderline tuberculoid leprosy (n=76)	02 (2.6%)	74 (97.4%)
Borderline lepromatous leprosy (n=27)	22 (81.4%)	05 (18.6%)

Table 5 Peripheral nerve involvement in leprosy patients (n=143).

Peripheral nerve enlarged	LL, (n=2) N (%)	TT, (n=02) N (%)	BB, (n=11) N (%)	BT, (n=31) N (%)	BL, (n=15) N (%)	Total, (n=61) N (%)
Ulnar	0	02 (100%)	03 (27.3%)	21 (67.7%)	04 (26.7%)	30 (49.2%)
Median	0	0	02 (18.2%)	02 (6.5%)	03 (20.0%)	07 (11.5%)
Radial nerve	0	0	03 (27.3%)	06 (19.3%)	03 (20.0%)	12 (19.7%)
Lateral popliteal	01 (50%)	0	02 (18.2%)	01 (6.5%)	03 (20.0%)	06 (9.8%)
Posterior tibial	01 (50%)	0	01 (9.0%)	0	02 (13.3%)	06 (9.8%)

Tuberculoid (TT), borderline (BB), borderline tuberculoid (BT), borderline lepromatous (BL), lepromatous (LL)

Discussion

In our study most of cases were between 15 to 24 year of age and borderline tuberculoid leprosy was the most common type. It was more common in females than males which is consistent with studies by Chattervedi *et al.*⁸, Caldwell *et al.*⁹ and Soomro *et al.*¹⁰ This can be due to long incubation period of leprosy, significant physical and emotional changes in puberty and possibly impending early marriages cause leprosy in adolescence especially in females. Our study differs from Golfurshan *et al.*¹¹ done in Iran which found 131 out of 195 cases having lepromatous leprosy and most common presentation was eyebrow hair loss. In our study the ulnar nerve involvement was seen in 30 cases and 21 cases had borderline tuberculoid leprosy which is similar to the studies done by Mahajan *et al.*¹², Soloman *et al.*¹³ and Reddy and Prabhudass¹⁴ showed that ulnar and posterior tibial were the most commonly

affected nerves in borderline tuberculoid leprosy and during MDT therapy.

Similarly, deformities rate was around 6% which shows the undesired delay in the diagnosis and management of leprosy patients.

Conclusion

New cases of leprosy are in decline in urban cities but still exist in rural areas of Sindh. It is important for general practitioners to exclude the leprosy in any cutaneous disease, which presents with nerve involvement.

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