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Clinico-Pathological Profile of Leprosy Cases in an Institutional Setting

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ABSTRACT

Patients (121) with leprosy admitted for institutional treatment in the leprosy centre of a mid-zonal hospital during a space of two and half years (from Jan 2011 to Jun 2013) were studied. Predominant clinical and histopathological type was borderline tuberculoid. Most of the patients were in the age group 20-30 years. Predominant clinical presentations were single or few hypopigmented/erythematous hypoaesthetic macules/plaques and multiple thickened nerves. Deformities were present in 12 (10%) cases. Clinico-histopathological correlation was more than 80%. Three cases of lepromatous leprosy presented with erythematous nodules. Skin smears were AFB positive in all lepromatous (LL) cases but paraffin embedded sections gave a low yield of AFB positivity. The full spectrum of clinicopathological types of leprosy patients is presented in this study.

INTRODUCTION

Leprosy (Hansen's disease) is a chronic infectious disease affecting mainly peripheral nerves but also affecting skin, muscles, eyes, bones, testis and internal organs. Major clinical manifestations include hypopigmented patch with partial or total loss of cutaneous sensations, presence of thickened nerve, hypoaesthesia in distribution of thickened nerve. The disease manifests itself into two polar forms, mainly lepromatous and tuberculoid with many intermediate forms depending on the immunological status of the patient. Various classifications of leprosy exist, the most widely used for clinical purpose is Indian classification[1]. Job Chacko classification[2] is mostly used for histopathological analysis. Ridley-Jopling classification[3] which is based on clinical, histopathology and immunological status of the patient is mainly used for research purpose.

Leprosy still remains a major public health problem in India. Prevalence rate of leprosy in India during mid-nineties was 6.7 per 1000 population[4]. Proportion of infectious cases varies between 15-20 % and equal numbers suffer from deformities[5]. India accounts for one-third of leprosy cases in the world and have highest number of registered cases among individual countries[6]. There are very few published reports of the prevalence of the disease and its clinical presentations among patients undergoing institutional therapy. This leprosy centre is the referral centre of southern India for institutional leprosy treatment. We admitted 121 new cases of leprosy treated with multi-drug therapy (MDT) from Jan 2011 to June 2013. Their varied clinical manifestations bacteriological findings and histopathological features are presented in this study.

MATERIAL AND METHODS

121 patients with leprosy admitted in the leprosy centre in southern India from Jan 2011 to Jun 2013 were included in the study. Only fresh cases were taken into consideration. All old cases of Leprosy admitted at centre were excluded from the study. A computerised database was maintained for each leprosy case. Database included bio-data of the patient (name, age, sex, marital status, job profile and place of residence) family history if any, history of contact with known extra familial leprosy case, details of previous treatment and clinical features.

3 skin smears, 1 from active lesion and 1 each from earlobe were taken by slits and scrape method[7] and sent for AFB staining to lab. Result of bacteriological exam was noted for each patient and was made according to WHO guideline[8]. Skin biopsy was taken for each patient

by standard method[7] and sent for HP exam. Paraffin embedded sections were stained by Haematoxylin-Eosin (H & E) and Fite Faraco method[12]. Skin biopsy was not done for patients with clinical features of primary neuritic leprosy.

RESULTS

A total of 121 fresh cases of leprosy were included. All patients were in the age range of 20-60 yrs with max no. in age grp 20-30 yrs. Age group 50-60 yrs accounted for least number (3.3%) of cases (Table-1). Maximum number of cases belonged to Bihar (30.5%), followed by Tamil Nadu (21.48%), Uttar Pradesh (14%) and Maharashtra (13.2%). Only three patients gave history of leprosy among close relatives. None of the patients admitted had any history of prolonged contact with extra familial case. Clinically, borderline tuberculoid (BT) was the preponderant type of leprosy (55.3%) followed by indeterminate type.

Skin lesions were present in all except primary neuritic type. In all lepromatous cases and some borderline lepromatous cases multiple, bilateral asymmetrical hypopigmented/erythematous hypoaesthetic patches were present. Lesions were hypoaesthetic with impairment of sensations.

Multiple tender sub-cutaneous nodules with fever and malaise were present in 3 cases of lepromatous leprosy. Skin lesions were single or only few in most cases of borderline tuberculoid, tuberculoid[22] and indeterminate leprosy. Skin lesions were hypopigmented/erythematous and definitely hypoaesthetic in these cases. Skin lesions of tuberculoid pole of leprosy were situated mostly on upper limb followed by lower limb, trunk and face. Peripheral nerve thickening was present in all types of leprosy except the indeterminate variety. Predominant nerve involved was ulnar nerve (80%) followed by common peroneal nerve. In most of the cases (92%), there were multiple nerve thickenings. Deformities were present in 6 neuritic and 6 borderline tuberculoid cases. Deformities were foot drop (6 cases), claw hand (5 cases) and lagophthalmos (1 case). AFB positivity in skin smears was 12.3%. All the lepromatous and most of the borderline lepromatous (5 cases) were AFB positive. All the lepromatous cases were multibacillary.

A total of 108 paraffin embedded sections were stained by H & E stain. Majority (53.7%) were borderline tuberculoid, followed by indeterminate (16.5%). Except for 3 lepromatous cases, all the paraffin embedded sections were negative for AFB. Clinico-histopathological correlation was excellent for lepromatous (100%) and borderline tuberculoid (97%).

TABLE No. 1: AGE WISE DISTRIBUTION OF LEPROSY CASES (n=121)

Sr. No.	Age Group	Total No of cases	Percentage
1.	20-30	57	47.1%
2.	31-40	42	34.7%
3.	41-50	18	14.8%
4.	51-60	04	3.3%
TOTAL		121	100%

TABLE No. 2: STATE WISE DISTRIBUTION ACCORDING TO PLACE OF RESIDENCE

Sr. No.	State	No. of cases	Percentage
1.	Bihar	37	30.5%
2.	Tamil Nadu	26	21.48%
3.	U.P.	17	14%
4.	Maharashtra	16	13.2%
5.	Others(Orissa, AP, WB, Haryana, Assaam, Kerala)	25	26.6%
TOTAL		121	100%

TABLE No. 3: CLINICAL TYPES OF LEPROSY (N=121)

Sr. No.	Types	No. of Cases	Percentage
1.	Lepromatous Leprosy(LL)	08	6.6%
2.	Borderline Lepromatous (BL)	07	5.7%
3.	Borderline Tuberculoid (BT)	67	55.3%
4.	Tuberculoid (TT)	08	6.6%
5.	Indeterminate (Ind)	18	14.8%
6.	Primary Neuritic	13	10.7%

TABLE No. 4: CLINICAL PRESENTATION OF LEPROSY

Sr. No.	Clinical Manifestation	LL (8)	BL (7)	BT (67)	IND (18)	TT (18)	Neuritic (13)
1.	Bilaterally Symmetrical hypoasthetic, hypo pigmented/ erythematous macules/plaques	08	02	-	-	-	-
2.	Bilaterally assymmetrical hypoasthetic, hypo pigmented/ erythematous macules/plaques	-	05	-	-	-	-
3.	Erythematous Tender Nodules	03	-	-	-	-	-
4.	Thickened Peripheral Nerves	08	07	67	-	08	13
5.	Single/few hypoasthetic or anesthetic hypo pigmented macules/paques	-	-	67	08	08	-
6.	Deformities	-	-	06	-	-	06

TABLE No. 5: HISTOPATHOLOGICAL TYPES OF LEPROSY (N = 108)

Sr. No.	Histopathological Types	No. of Cases	Percentage
1.	Lepromatous Leprosy (LL)	08	7.4%
2.	Borderline Leprosy (BL)	05	4.13%
3.	Borderline Tuberculoid (BT)	65	53.7%
4.	Tuberculoid (TT)	10	8.2%
5.	Indeterminate (Ind)	20	16.5%

DISCUSSION

There are very few published reports on the clinicopathological profile of institutionalized patients. Apart social stigma attached to it and consequent psychological debilitation leprosy contributes a lot to 'sick list' due to prolonged institutional therapy. Younger age group (0-30Yrs) is mostly affected. Demographic profile of leprosy in the service persons is at variance with state wise endemicity pattern[10]. Early case detection and registering them is an important part of leprosy [11] defines a 'case of leprosy' is a person who shoes clinical signs of leprosy with or without bacteriological confirmation. Examination for thickened peripheral nerve is of paramount importance in this regard. We had observed presence of thickened peripheral nerve in al cases except indeterminate types.

WHO recommended different regimen of multidrug therapy for multibacillary and paucibacillary leprosy. These divisions, based on bacteriological index (B.I.) was calculated by AFB positivity from seven sites. Recently WHO Expert Committee 12 has advised to limit the number of sites examined to essential minimum since all skin piercing methods have potential risk f transmitting HIV infection

Histopathological study, though not essential for starting multidrug therapy, is a useful adjunct to confirm the diagnosis where facilities are available. Value of histopathology in follow up of response to therapy or surveillance is doubtful. Conventional staining technique for finding acid fast bacilli in paraffin embedded sections yielded frustrating results even when slit skin smears are positive by Ziehl Nelson method. Probably new staining techniques advocated by Dr KV Desikon [13] will give a better result. Molecular technique like PCR not only helps in establishing the diagnosis but is of great help in assessing the bacillary load in the follow up of treatment [14].

CONCLUSION

Predominant clinical and histopathological type in our study was borderline tuberculoid. Most of the patients were in the age group 20-30 years. Predominant clinical presentations were single or few hypopigmented/erythematous hypoaesthetic macules/plaques and multiple thickened nerves. Deformities were present in 12 (10%) cases. Clinico-histopathological correlation was more than 80%.

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