



ORIGINAL RESEARCH PAPER

Pathology

CLINICO-HISTOPATHOLOGICAL CORRELATION IN HANSEN DISEASE : A TERTIARY CARE HOSPITAL BASED STUDY.

KEY WORDS: Leprosy, Tuberculoid leprosy, skin biopsy

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ABSTRACT

Introduction: Leprosy is also known as Hansen's disease & it is one of the oldest disease of mankind. The spectrum of the presentation of the leprosy is very wide. The present research work was carried out to study the correlations between the clinical and histological diagnosis and to evaluate the importance of skin biopsy as an important diagnostic and spectrum defining tool.

Method: A retrospective hospital based study was conducted in the department of pathology at Shri Ram Murti Smarak Institute, Bareilly over a period of one year (January 2019 to December 2019). Clinically suspected patients of both sexes & all age groups were included in the study. A detailed clinical history and examination was carried out and skin biopsies were taken from the most active part of lesions. Sections were stained with Hematoxylin & Eosin stain and Fite-Feracco stain. Histopathological findings were compared with clinical diagnosis.

Result: This study included 238 patients diagnosed clinically as leprosy. Skin biopsy revealed evidence of leprosy in 220 cases. Their age ranged from 7 to 90 yrs with majority of them in the age group of 20-40 yrs (Figure 1). There was a male preponderance, with a male to female ratio was 2.6:1. The histopathological diagnosis of leprosy was established in 92.4% of clinically diagnosed cases. The concordance between the clinical and histopathological diagnosis for subtype of leprosy was found to be TT (75.00%), BT (76.84%), BB (66.67%), BL (65.22%), LL (100%) and IL (51.72%).

Conclusion: Clinical diagnoses of Leprosy still pose a significant problem. The spectrum of presentation of leprosy is very wide. Histopathological examination still remains the gold standard for the early diagnosis and subtype of leprosy.

INTRODUCTION:

Leprosy is one of the oldest disease known to the man. Leprosy is a chronic infectious disease that primarily affects the skin & the peripheral nerves; it also involves muscles, eyes, bones, testis and internal organs caused by Mycobacterium leprae. It is one of the leading causes of physical disabilities contributing to intense social stigma resulting in human discrimination. 2

The leprosy is endemic in many countries with approximately 211,000 new cases reported every year. In India the overall prevalence of leprosy has declined from 5.27/10000 in year 2000 to 0.66/10000 in year 2016. India represent approximately 60 % of the global burden. 3

Ridley & Jopling were the first to suggest a subdivision of leprosy on immunological basis into five types ; Tuberculoid (TT), borderline Tuberculoid (BT), mid borderline (BB), borderline lepromatous (BL) & lepromatous leprosy (LL). [4] Later they further developed this idea and correlated it with clinical & bacteriological in each group with respective immunological & histopathological findings. [5] It is widely accepted by pathologist & leprologist.

The study was undertaken to see the correlation between clinical & histopathological diagnosis from clinically suspected patients & to evaluate the importance of skin biopsy as an important tool in diagnosing leprosy.

MATERIAL & METHODS

A retrospective hospital based study was conducted in the department of pathology at Shri Ram Murti Smarak Institute, Bareilly over a period of one year (January 2019 to December 2019). Clinically suspected patients of both sexes & all age groups were included in the study.

Exclusion Criteria :

Cases with inadequate biopsies, and biopsies which did not reveal histology of the leprosy.

A 3 mm skin lesional skin punch biopsies obtained by dermatologist. These biopsies were fixed in 10% formalin,

processed routinely and stained with Hematoxyline& eosin followed by Z N staining. The Ridley & Jopling classification was followed in both clinical & histopathological lesion and graded as Tuberculoid (TT), borderline Tuberculoid (BT), mid borderline (BB), borderline lepromatous (BL) & lepromatous leprosy (LL). A new variant of leprosy was described by wade, known as Histoid leprosy.

Details of clinical features and examination findings were collected along with age, gender & clinical diagnosis from the requisition forms. Reports were cross checked with the corresponding paraffin sections and analyzed for any kind of mismatch.

RESULT

This study included 238 patients diagnosed clinically as leprosy. Skin biopsy revealed evidence of leprosy in 220 cases. Their age ranged from 7 to 90 yrs with majority of them in the age group of 20-40 yrs (Figure 1). There was a male preponderance, with a male to female ratio was 2.6:1 (Figure 2). The most common histopathological subtype of Hansen's disease was Borderline Tuberculoid (43.19%). AFB positivity was seen maximum in lepromatous leprosy.

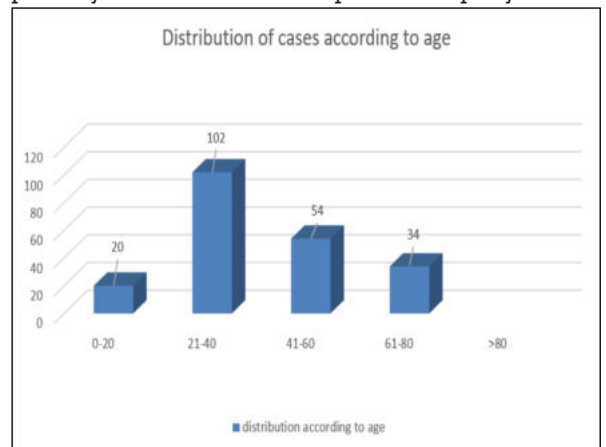


Figure 1 : Distribution According To Age

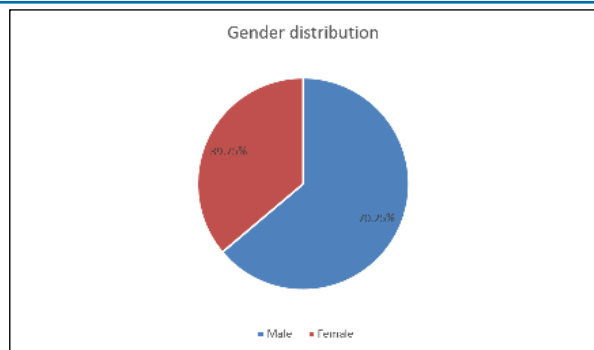


Figure 2: Gender Distribution

Table 1: Distribution Of Cases Of Leprosy On Basis Of Histopathological Diagnosis

Histological diagnosis	No. of cases	%
Tuberculoid leprosy	24	10.90
Borderline Tuberculoid leprosy	95	43.19
Mid borderline leprosy	09	4.09
Borderline lepromatous leprosy	23	10.45
Lepromatous leprosy	36	16.37
Indeterminate leprosy	29	13.19
Histoid leprosy	04	1.81
Total	220	100

Table 2 : AFB Positivity In Different Types Of Leprosy

Histological diagnosis	No. of positive cases	%
Tuberculoid leprosy	0	00
Borderline Tuberculoid leprosy	18	17.65
Mid borderline leprosy	07	6.86
Borderline lepromatous leprosy	23	22.56
Lepromatous leprosy	36	35.29
Indeterminate leprosy	14	13.72
Histoid leprosy	04	3.92
Total	102	100

Table 3 : Correlation Between Clinical & Histopathological Diagnosis.

Histological type	CLINICAL DIAGNOSIS							% of concordance
	TT	BT	BB	BL	LL	IL	Histoid	
TT (24)	18	06	-	-	-	-	-	75.00
BT (95)	04	73	-	11	07	-	-	76.84
BB(09)	-	03	06	-	-	-	-	66.67
BL (23)	-	03	01	15	04	-	-	65.22
LL(36)	-	-	-	-	36	-	-	100
IL(29)	01	12	02	-	-	15	-	51.72
Histoid(02)	-	-	-	-	-	-	02	100

DISCUSSION

A disease like leprosy needs an appropriate classification because of its varied manifestations. The most commonly accepted classification by research worker Ridley & Jopling which is primarily based on immunity but has been correlated with clinical, histopathological & bacteriological findings. In the present study clinical findings & histopathological findings were compared.[5]

In the present study , most of the patients were in the age group 1-40 years with 220 cases (46.36%) and least affected cases were in the age group 0-20 (9.09%). Similar result were seen in study conducted by Nandkarni & Regethe[6], Kalla et al.[7] & S Sanya et al.[8] in all of these studies majority of patients were found in the age group of 21-40.

Generally, leprosy is believed to be more common in males. In the present study there were 160 males (72.73%) and 60 females (27.27%). This is similar to other Indian studies undertaken by Gridhar M et al (77.6%)^[9] & Bhushan et al[10] (72.34%). Mathur MC et al.^[11] however observed 53.8% males

in their study while Moorthy et al. [12]observed 65.05% males.

In the present study the most common histologic subtype was BT. Similar findings were observed by Moorthy et al^[12], Sharma et al⁶, Nandkarni & Regethe⁶ while Kalyani mitra et al.¹³ & Muruganathan et al.¹⁴ observed TT as most common histologic subtypes.³

In the present study concordance between the clinical and histopathological diagnosis for subtype of leprosy was found to be TT (75.00%), BT (76.84%), BB (66.67%), BL (65.22%), LL (100%) and IL (51.72%). Maximum concordance was observed in the LL type of leprosy & Histoid leprosy, which was similar to the studies performed by Mathur MC et al.¹⁵, Gridhar M et al¹⁶ and Moorthy et al.¹² However, concordance differed variably when compared with the other types of Leprosy, which may be due to more precise diagnostic criteria laid down in histopathology with emerging microbiological and immunological techniques. The observations strongly suggest that histopathological diagnosis is an important tool in these cases, as lesions are easy to diagnose clinically towards Lepromatous pole of the disease.¹⁷

CONCLUSION

Leprosy is a chronic granulomatous disease widely prevalent in India and it is present in different clinico-pathological forms. Study of these lesions has contributed a great deal in the understanding the disease. Clinical detection and morphological diagnosis of the early lesions always remain challenging. Many cases can be diagnosed clinically, especially those towards the Lepromatous pole of the disease, however, other types of Leprosy pose a significant problem in the clinical diagnosis. Histopathological examination of the lesions is mandatory to confirm the exact subtype of the disease and should be done in all cases so as to facilitate the institution of accurate mode of therapy.

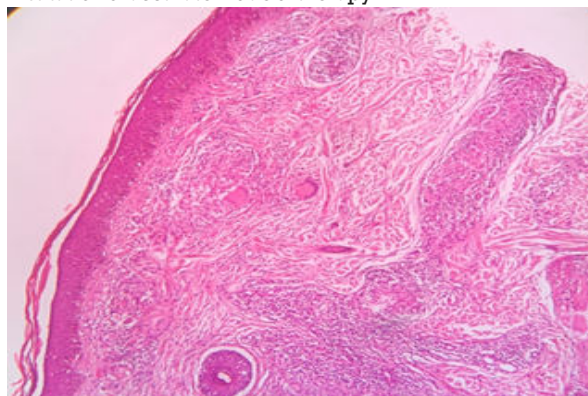


Fig 1: H & E(10x) Show Well Formed Granulomas With Multinucleated Giant Cells (BT)

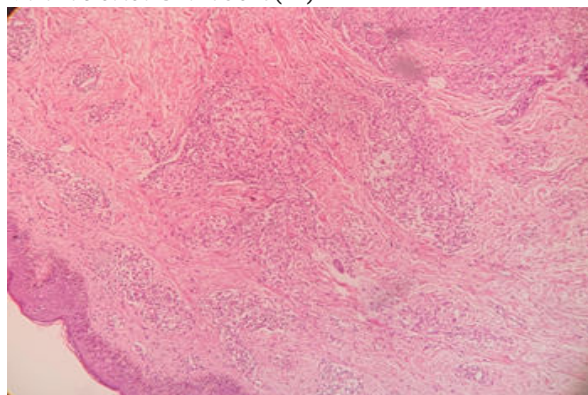


Fig 2: H & E (10x) Show Collection Of Macrophages & Lymphocytes (LL)

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