

Original Research Article**Study of Clinico-Histopathological Spectrum of Leprosy who Attend to a Teaching Institute of Coastal Andhra Pradesh****Vallamreddy Siva Kota Reddy^a, Vaheda Begam Korrapadu^b**^{a,b}Assistant Professor, Department of Pathology, Narayana Medical College, Nellore, Andhra Pradesh 524003, India.**Abstract**

Introduction: Leprosy caused by Mycobacterium Leprae is an important public health problem. It is a chronic granulomatous disease involving skin and peripheral nerves. Histopathological examination of skin provides confirmatory diagnosis in suspected cases and gives indication of progression and regression of disease under treatment. The aim of this study is to identify the clinical pattern of leprosy and its clinico-histopathological correlation.

Methods: Clinico Pathological study of 35 leprosy patients was undertaken in the Department of Pathology. Biopsies were taken from most active skin lesions by Department of Dermatology and fixed in 10% formalin. The tissue section stained with Hematoxylin and Eosin and Fite Faraco staining for identifying the bacilli. Histopathological findings were graded according to Ridley and Jopling scale. Clinico-Histopathological correlation was done.

Results: Maximum numbers of patients were in their 3rd Decade (28.57%). Males were contributing to majority of the patients (72.5%). One case that we received of LL type was a male. In the clinical spectrum of 35 cases, IL was not contributing to any clinical diagnosis, TT was in 1 (2.85%) case, BT in 19 (54.28%) cases, BB in 5 (14.28%) cases, BL in 5 (14.28%) cases, and LL in 5 (14.28%) cases. Common type of skin lesion observed was Macule (54.28%). Commonest site of lesion was Trunk and Upper Limbs (22.85%). Most of the cases were presented as Hypopigmented Lesions (65.71%). Most of the patients showed Anesthetic Lesion (48.57%). In the histopathological spectrum IL cases were contributing to 48.57% of cases, TT cases were 2.85%, BT cases were 25.71%, BB cases were 2.85%, BL cases were 17.14%, LL cases were 2.85%. Overall concordance between Clinical and Histopathological diagnoses was 20%.

Conclusions: Clinical examination or histopathological examination alone may not stand as ideal diagnostic tools in diagnosing and classifying leprosy. There are factors like interobserver variation, overlap between different types of leprosy. Clinico histopathological disparity may be reduced by following the criteria strictly both clinically and histopathologically there by providing the patient early and adequate treatment to prevent morbid disabilities.

Keywords: Leprosy; Histopathology; Ridley-Jopling.

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(Received on 30.11.2017,**Accepted on 18.01.2018)****Introduction**

Leprosy is one of the leading causes of physical disabilities contributing to intense social stigma resulting

in human discrimination [1]. Leprosy or Hansen's disease is a slowly progressive infection caused by Mycobacterium leprae that mainly affects the skin and peripheral nerves and resulting in disabling deformities [2]. Leprosy is

known, since ancient times as “Kusta roga” [3]. The causative agent of leprosy was discovered in 1873 by G.H.Armauer Hansen in Norway [4]. Mycobacterium leprae is likely to be transmitted from person to person through aerosols from asymptomatic lesion in the upper respiratory tract [2,5]. Leprosy expresses itself in different clinicopathological forms depending on immune status of the host [6,7]. Clinical classification gives recognition only to gross appearances of the lesions [6]. Due to its clinical diversity as well as its ability to mimic other diseases sometimes leprosy is difficult to diagnose clinically [8]. Histopathological study of leprosy is very important in understanding the disease, its varied manifestation and complications [9]. Parameters used for the histopathological classification are well defined and precise [6].

A reliable diagnosis hinges around a good histopathological diagnosis and demonstration of bacilli in histopathological sections [6,7,10]. Histopathology provides confirmatory information for suspect cases which can be missed in clinical practice or epidemiological studies [6]. Histopathological classification takes into account the immunological manifestations which enable it to successfully bridge the pitfalls in leprosy diagnosis [6,7]. Clinicopathological correlation is extremely important in patient care and management [9]. This study was undertaken to know the histopathological features of leprosy in skin biopsies, to categorize these into various types based on microscopy, and to correlate with clinical presentations.

Materials & Methods

This is a prospective and retrospective study. Information about retrospective cases was collected from histopathology records of department of pathology Narayana Medical College and Hospitals, Nellore from April 2012 to October 2012. Prospective study included skin biopsies of clinically diagnosed leprosy patients attending the department of Dermatology and Veneriology Narayana Medical College and Hospitals, Nellore during the period of October 2012 to April 2014.

Total number of 35 cases were studied. Clinical data

was collected including age, sex, distribution of lesion, type of lesion. Skin biopsies for the study were obtained by punch biopsy which was performed by the dermatologist. These biopsies were sent to the department of pathology in 10% formalin. After adequate fixation for about 8-12 hours, the biopsies were submitted in toto for routine processing, following which the paraffin embedded sections of 5µ thickness were stained with H and E for morphological analysis and Fite Faraco staining for identifying the bacilli. The sections which were stained with the above modifications were observed under oil immersion using 100x objective. The bacteriological index was assessed in exactly the same way as the one followed for smear. The entire dermis was observed to assess the logarithmic index of bacilli. After studying the histopathological features and noting the bacteriological status, the diagnosis of leprosy was done according to Ridley and Jopling classification and clinico-pathological correlation was done.

Results

The present study was undertaken in the department of pathology, Narayana Medical College and Hospitals, over a period of 2 years from April 2012 to April 2014. Information about retrospective cases was collected from histopathology records of department of pathology, Narayana Medical College and Hospitals Nellore. During the total study period of 2 years, 35 cases of leprosy were studied.

Distribution of Lesions in Clinical Spectrum

According to clinical types of cases; 1 (2.85%) case was diagnosed as TT, 19 (54.28%) cases of BT, 5 (14.28%) cases of BB, 5 (14.28%) cases of BL, 5 (14.28%) cases of LL& no cases of IL type.

Distribution of Lesions in Histopathological Spectrum

Among the 35 biopsies, 17 (48.57%) were of IL type, 9 (25.71%) were BT, 6 (17.14%) were BL type, 1 (2.85%) was TT, 1 (2.85%) was LL and 1 (2.85%) was of BB. In the present study Paucibacillary cases were 27 (77.14%), multibacillary cases were 8 (22.85%).

Table 1: Distribution of cases according to WHO classification

Type	No. of Cases	Paucibacillary Type	Multibacillary Type
IL	17	17(100%)	0
TT	1	1(100%)	0
BT	9	7(77.78%)	2(22.22%)
BB	1	0	1(100%)
BL	6	2(33.33%)	4(66.66%)
LL	1	0	1(100%)
Total	35	27(77.14%)	8(22.85%)

Age Distribution

In the present study patients' age ranged from 15 years to 60 years. Among them 10 (28.57%) of the patients were in 3rd decade, 0 (0%) patient was in 1st decade, 2 (5.71%) patients were in 2nd decade, 9 (25.71%) patients were in 4th decade, 9 (25.71%) patients were in 5th decade.

Age Distribution of Cases in The Histopathological Spectrum of Leprosy

Out of the 2 cases in 2nd decade, 1(50%) case was IL, 1 (50%) case was BL. Out of 10 cases in 3rd decade 5 (50%) cases were IL type, 4 (40%) cases were BT type, 1 (10%) case was BB type. Out of 9 cases in 4th decade 4 (44.44%) cases were IL type, 2 (22.22%) cases were BT type, 3 (33.33%) cases were BL type. Out of 9 cases in 5th decade 5 (55.55%) cases were IL type, 1 (11.11%) case was BT type, 2 (22.22%) were BL cases, 1 (1.11%) was LL case. Out of 5 cases of 6th decade 2 (44%) cases were IL type, 1 (20%) case was TT type, 2 (40%) cases were BT type.

Mean Age of Cases according to Who Classification

Paucibacillary –BI-0 was 36.6 years (3rd decade) and Multibacillary – BI ≥ 1+ was 41.57 years (4th decade).

Mean Age of Cases according to who Classification

Paucibacillary cases are occurring in earlier age group (3rd decade) than multibacillary cases (4th decade).

Sex Distribution

There were 27 (77.14%) male patients and 8 (22.85%)

female patients, with male to female ratio (M: F) of 3.3:1.

Sex Distribution in Tuberculoid Group and Lepromatous Group

When cases were studied as tuberculoid group (TT+BT) and lepromatous group (BL+LL) for the purpose of analysis the following observations were made: Lepromatous group of leprosy were more common in Males than in Females with a Male: Female ratio of 2.5:1. Tuberculoid group also showed Male predominance with Male: Female ratio of 9:1.

Types of Skin Lesion

Macule is the commonest type of skin lesion observed 19 (54.28%), followed by plaques 14(40%), Nodules, Tropic ulcer each (1) [2.85%].

Distribution of Lesions according to Primary Site

Most common site of lesion was Trunk & lower Limbs 8(22.85%), followed by upper limbs, and all over Body 7(20%), and least common site was Back 2 (5.71%).

Distribution According to Colour of Lesion

Most of the cases presented as Hypopigmented Lesions 23 (65.71%). Least common presentation was Tropic ulcer 1 (2.85%).

Sensation Status of the Lesions

Most of the patients 17(48.57%) showed Anesthetic lesions. Tenderness was present in 2 (5.71%) patients. Intact Sensation was observed in 45.71% of Patients.

Table 2: Age distribution of cases in the histopathological spectrum of leprosy

Age	Histopathological Types						Total Cases
	IL	TT	BT	BB	BL	LL	
10-19yr	1	0	0	0	1	0	2
20-29yr	5	0	4	1	0	0	10
30-39yr	4	0	2	0	3	0	9
40-49yr	5	0	1	0	2	1	9
50-59yr	2	1	2	0	0	0	5
Total	17	1	9	1	6	1	35

Table 3: Histopathological changes in dermis

Features	IL	TT	BT	BB	BL	LL
Epithelioid Granuloma	0(0%)	01(100%)	5(55.55%)	1(100%)	01(16.66%)	0(0%)
Giant Cells	0(0%)	0(0%)	07(77.77%)	0(0%)	0(0%)	0(0%)
Peri Appendageal Lymphocytes	13(76.47%)	0(0%)	02(22.22%)	0(0%)	04(66.66%)	0(0%)
Peri Neurovascular Bundles Lymphocytes	03(17.64%)	0(0%)	01(11.11%)	0(0%)	01(16.66%)	0(0%)
Peri Appendageal Lympho Histiocytes	05(29.41%)	0(0%)	03(33.33%)	01(100%)	01(16.66%)	01(100%)
Peri Neurovascular Lympho Histiocytes	04(23.52%)	01(100%)	0(0%)	01(100%)	0(0%)	0(0%)
Macrophages	0(0%)	0(0%)	0(0%)	0(0%)	06(100%)	01(100%)
Grenz Zone	0(0%)	0(0%)	0(0%)	0(0%)	06(66.66%)	01(100%)

Histopathological Changes in Epidermis

Out of 17 cases IL-100% cases are showing normal epidermis. 100% of TT cases are showing normal epidermis. In BT cases 8(88.88%) are showing normal epidermis remaining 1 (11.11%) showing hyperkeratosis epidermis. 100% LL cases showing hyperkeratotic epidermis. 100% BB cases showing normal epidermis. In BL cases 4 (66.66%) showing normal epidermis, 1 (16.66%) showing focal thinning, 1 (16.66%) showing Hyperkeratosis.

Histopathological Changes in Dermis

Out of 17 cases of IL type 13 cases (76.47%) showed Peri appendageal lymphocytic collection, 3 (17.64%) showed Peri neurovascular lymphocytic collection, 4 (23.52%) showed Peri neurovascular bundle lymphohistiocytic collection, Epithelioid granuloma, Giant cells, Macrophages, Grenz zone were absent.

100% of TT cases (1) showed Epithelioid granuloma, Peri neurovascular lymphohistiocytic collection.

Out of 9 cases of BT 5(55.55%) cases showed epithelioid granuloma, 7 (77.77%) cases showed giant cells, 2 (22.22%) cases showed peri appendageal lymphocytic collection, 1 (11.11%) cases showed peri neurovascular bundle lympho

histiocytic collection, 3 (33.33%) cases showed peri appendageal lymphohistiocytic collection.

In BB cases epithelioid granuloma, Peri appendageal & peri neurovascular bundle lymphohistiocytic collection were present.

Out of 6 BL cases 1 (16.66%) case showed epithelioid granuloma, 4 cases (66.66%) showed Peri appendageal lymphocytic collection, 1 case (16.66) showed peri appendageal collection of lymphohistiocytes. Macrophages were present in 100% (all 6 cases) cases. Grenz zone present in 66.66% of cases.

In LL cases peri appendageal lymphohistiocytic collection, macrophages, grenz zone were present.

Modified Fite-Faraco Stain Status in Biopsies

Paucibacillary-BI-0

Multibacillary-BI- ≥ 1+

In the present study Paucibacillary cases were 27 (77.14%), multibacillary cases were 8 (22.85%).

Out of 35 clinically diagnosed spectrum of cases, only 7 cases correlated with respective spectral type. Therefore overall parity is 20%.

Table 4: Modified fite-faraco stain status in biopsies

Type	No. of Cases	Paucibacillary Type	Multibacillary Type
IL	17	17(100%)	0
TT	1	1(100%)	0
BT	9	7(77.78%)	2(22.22%)
BB	1	0	1(100%)
BL	6	2(33.33%)	4(66.66%)
LL	1	0	1(100%)
Total	35	27(77.14%)	8(22.85%)

Table 5: Clinico histopathological correlation

Clinical Type	Number of Clinically Diagnosed Cases	Histopathological Distribution Among Clinically Diagnosed Cases						Percentage of Parity (%)
		IL	TT	BT	BB	BL	LL	
IL	0	-	-	-	-	-	-	
TT	1	-	1	-	-	-	-	100
BT	19	12	0	5	1	1	0	26.3
BB	5	2	0	2	0	0	1	0
BL	5	2	0	2	0	1	0	20
LL	5	1	0	0	0	4	0	0

Table 6: Comparison of parity in intermediate group (bt+bb+bl)

Type	Clinically Diagnosed	Histopathological Diagnosis
BT	19	5
BB	5	0
BL	5	1
Total	29	6

Maximum percentage of parity between clinical diagnosis and histopathological diagnosis is observed in TT cases as 100%. Least parity is observed in LL cases and BB cases 0%.

Comparison of Parity in Tuberculoid Pole

In tuberculoid pole Clinico pathological correlation was 100%.

Comparison of Parity in Lepromatous Pole

In lepromatous pole Clinico pathological correlation was 20%.

Comparison of Parity in Intermediate Group

As compared to individual groups parity, when BB, BT, BL were taken into a single intermediate group, percentage of concordance has decreased. When cases were

segregated as tuberculoid cases that include TT & BT, lepromatous cases that includes BL & LL for the purpose of analysis of clinicopathological concordance the following results were obtained.

Clinicopathological Concordance in Tuberculoid and Lepromatous Groups Percentage of concordance increased in BL-LL group.

Discussion

Leprosy is a chronic granulomatous infectious disease caused by Mycobacterium leprae. It is a slowly progressive, chronic infectious disease which mainly affects peripheral nerve and skin which can express itself in different clinicopathological forms depending on immune status of host [11].

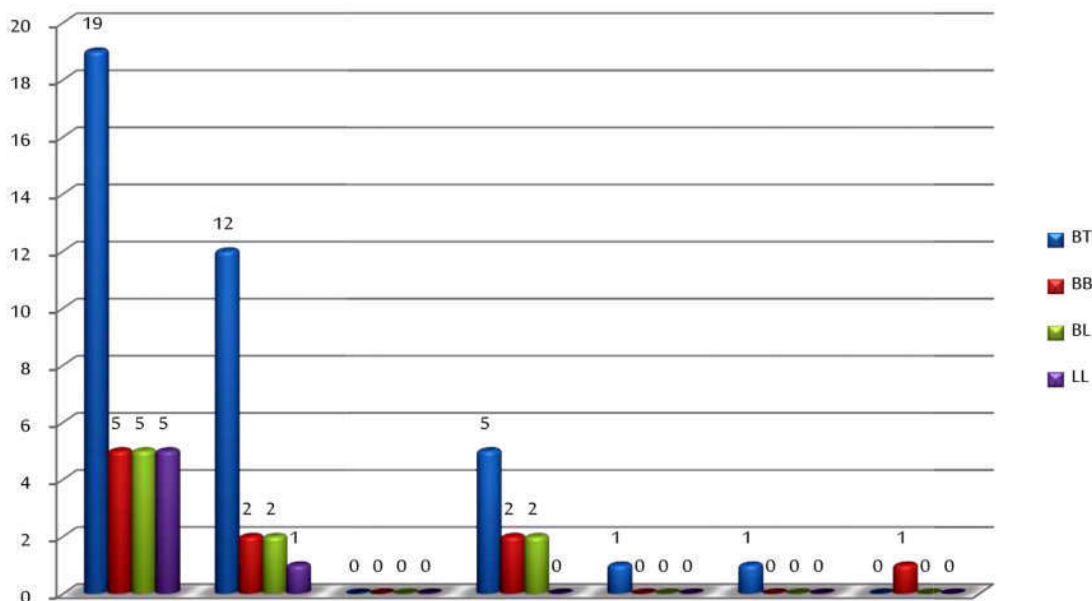


Fig. 1: Clinico histopathological correlation

■ Number of Cases 0 ■ Complete Parity 0 ■ Minor Disagreement - ■ Major Disagreement -

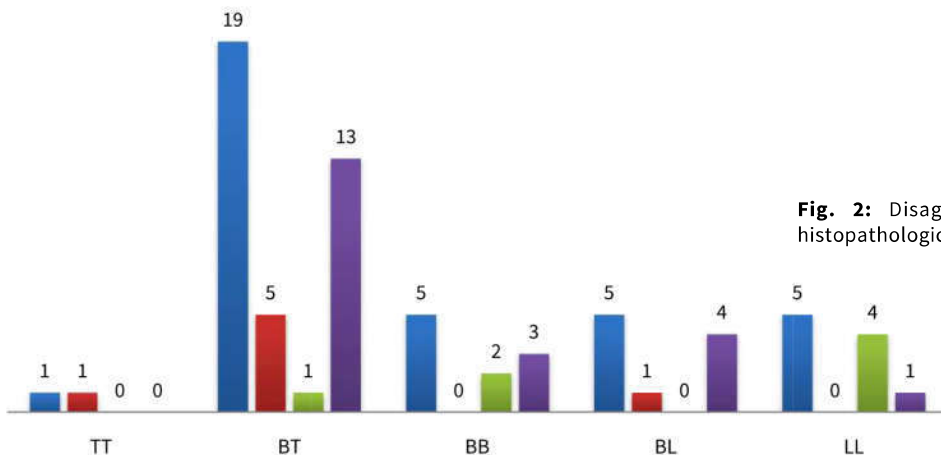


Fig. 2: Disagreement in clinical and histopathological diagnosis

Exact typing of leprosy is sometimes clinically not possible [1]. Histopathological examination continues to be an important tool in accurate diagnosis and classification of leprosy and still remains the gold standard [9].

The most commonly accepted classification by research workers is that of Ridley and Jopling [6].

Early accurate diagnosis is required for the correct and adequate treatment. So, Clinico-Histopathological correlation is extremely important in management [1].

In the present study clinically majority of the patients 19 (54.28%) belonged to Borderline tuberculoid group. Incidence of BB, BL & LL are same (14.28%) each. Tuberculoid leprosy group consisting 1 (2.85%) of cases.

Similar predominance of Borderline tuberculoid cases was observed by S. Bijjaragi et al [12]. (2012) (New Delhi), and Anuja Sharma et al [6] (2008) (Jammu Kashmir).

In the present study none of the cases were classified as indeterminate leprosy clinically. Similar observation was done by Manandhar U et al (Nepal) (2013).

Most common clinical type of leprosy was tuberculoid group of leprosy i.e. (TT & BT), 20 (57.14%). Similar observation was done by Manandhar U et al (2013). In his study 58.66% cases were of tuberculoid group.

The most commonly encountered histopathological type of leprosy was IL (48.57%). The studies conducted by other authors most commonly encountered type of leprosy was border line of group constituting BT, BB & BL group.

In the border line groups, most commonly seen lesions are of BT type constituting 72.5%, 27.86% and 23.4% in the studies of Shivamurthy V et al [13] (2013), Mathur MC [14] (2011) et al and Pandya AN [7] (2008) et al respectively.

A sizable portion of leprosy patients will be in a continuously changing immunological spectrum, i.e., BT, BB and BL [13].

Increased awareness of the people to leprosy owing to national programmes makes them present at an earlier stage to leprosy clinics, which may contribute to increased number of borderline group of leprosy.

A non specific histopathological picture called indeterminate can be seen in Indeterminate, Macular, Border line or a healing lesion of any type in the Indian consensus classification [15,16]. This fact may explain the higher incidence of indeterminate leprosy in the present study. Indeterminate type of leprosy was diagnosed more on histology than on Clinical evaluation. This observation is correlating with that of Giridhar et al (2012) [17] study and Manandhar et al (2013) [6].

In the present study maximum numbers of patients were in their 3rd decade (28.57%).

This is well correlating with the studies of other authors also with the values of 27%, 32.8% and 30.77% in studies of Kaur et al [18] (1982), and Mathur MC et al [14] (2011) respectively. No cases were observed in 1st decade.

Study of the age of onset of leprosy is merely subjective information based upon the memory, awareness and intelligence of the patient and his attendants, it is an important epidemiological tool to study the incubation period of this disease [20].

Disease occurrence in leprosy is often related to age at detection rather than age at the onset of disease. It is known to occur at all ages ranging from early infancy to very old age [21]. In the present study youngest age affected was 15 years.

In the study of Manandhar et al (2013) , youngest age affected was 11 years.

Although exact reason cannot be given for this age distribution, variable and long incubation period may be considered²².

In the present study Males were contributing to majority (77.14%) of patients. While female were accounting for 22.85% with a male to female ratio of 3.3:1. It is coinciding with the results of Moorthy N B et al²³ (2001) studies.

In general, leprosy is believed to be more common in males than in females [13,24].

The main factors causing the sex difference is the opportunity for contact [13].

Practically no difference is noted when the opportunity for contact remains same [25].

When patients are segregated into Tuberculoid Group (TT and BT) and Lepromatous group (BL and LL) for the purpose of analysis the following results were obtained.

Lepromatous Group of leprosy was more common in Males than in Female. Tuberculoid Group also showed male predominance in the present study.

Vargas- ocamp OF et al [26] found that Males were predominantly affected in Lepromatous Leprosy and Tuberculoid Leprosy was only form of Leprosy more common in Females than in Males. Males are approximately twice as likely to contract lepromatous disease as Females [26].

Macule was the commonest type of skin lesion observed in the present study as compared to the study of Vargas-ocamp OF et al (2004) [26]. In a study conducted by Manandhar U et al [11] plaque was the commonest skin lesion followed by Macule.

In the present study most common site of the lesion was trunk and lower limbs (22.85%) followed by Upper Limbs and allover body (20%). Least common site was back (5.71%).

Certain zones such as scalp, palms and soles, genitalia, groins, axillae, eyelids, transverse band of skin over lumbosacral area, and midline of back and perineum have been described to be immune to the development of lesions in leprosy [27].

The reason for sparing of these zones has been attributed to the relatively high local temperature, but clinical, histological, and bacteriological evidence of involvement of these so called immune zones though infrequent has been documented [28].

Hence these immune zones should be termed as relatively immune, rather than absolutely immune zones of leprosy [29]. Most of the cases in the present study presented with hypopigmented lesions. Least common presentations was Tropic ulcer, correlating with the study of Shivamurthy V et al [13].

In the present study 48.57% patients showed Anesthesia over the lesions. 2 cases (5.71%) showed nerve thickening. Since skin and nerves are the commonest site of *M. Leprae* infection, signs and symptoms related to skin and nerves were common.

In the present study 88.57% biopsies revealed unremarkable epidermis, followed by hyperkeratosis in 8.5% cases, focal thinning with flat reteridges was observed in 2.85% (1) case. Atrophy, ulceration, basement membrane erosion was absent.

The location of the granuloma mostly in relation to the deep and mid dermal nerves and neurovascular complexes would account for the somatosensory and autonomic neuropathic manifestations of the disease [1,19].

Also the granuloma situated in mid dermis or in deep dermis and/or small granuloma, is unlikely to cause epidermal changes and hypopigmented skin lesions. When it reaches the superficial dermis and extends to the epidermis, atrophy of epidermis and development of hypopigmented lesions occur.

In the study done by Suri SK et al 2014, atrophic epidermis was observed in 66.7% of cases and the normal epidermis was observed in 31.1% cases. This observation is not correlating with the present study.

Grenz zone was the commonest feature observed in 100% biopsies of LL cases. In 66.86% cases of BL grenz zone is present. It is absent in TT and BT cases. It is widely recognized as a characteristic of non tuberculoid leprosy [30]. It is not diagnostic of leprosy, but helps in considering the diagnosis of leprosy and its types [1].

In the present study most of the patients were of Paucibacillary type 27 (77.14%). Remaining belongs to multibacillary type 8 (22.85%).

All the IL cases were Paucibacillary 17 (100%), as observed in the study of Moorthy NB et al (2001) [23].

All the TT cases 1 (100%) were of Paucibacillary type similar to the observations done by Moorthy NB et al (2001) [23].

Out of 9 cases of BT, 7 (77.78%) were Paucibacillary type, rest 2 (22.22%) were multibacillary type similar to the observations done by Moorthy NB et al (2001) [23].

All the BB cases 1 (100%) were of multibacillary type similar to the study of Moorthy NB et al (2001) [23].

Out of 6 cases of BL, majorities were multibacillary type similar to the Moorthy NB study. The single case of LL was typically multibacillary type similar to the study of Moorthy NB et al 2001 [23].

The discordance between clinical and histopathological diagnosis was noticed because the clinical diagnosis was made on the lines of Ridley Jopling classification, even when a histopathological examination had not been done [15,23].

The histopathological features in leprosy indicate the accurate tissue response while the clinical features indicate only the gross morphology of the lesions caused by the underlying pathology. Since tissue response varies in the disease spectrum due to variability of cell mediated immunity, it is logical to expect some disparity between clinical and histopathological features [12,18].

In the present study 100% concordance between clinical and histopathological diagnosis was observed in TT cases, followed by BT (26.31%) cases. Least concordance was observed in BB & LL cases. Percentage of concordance was 20.68%. Such good collection in TT cases is noted by other authors also, Mathur MC et al, 2011 [14] & Pandya AN et al, 2008 [7].

Out of 19 clinically diagnosed BT type 5 cases (26.31%) correlated histopathologically 12 cases (63.15%) turned out to be IL type. Similar observation was done by Manandhar et al. Other authors also found features of indeterminate leprosy in clinically diagnosed tuberculoid group of leprosy. A non specific histopathological picture called indeterminate can be seen in indeterminate, macular, border line or a healing lesion of any type in the Indian consensus classification [16]. 1 case was diagnosed as BB, another is diagnosed as BL (5.2%) each.

IL is an early and transitory stage of leprosy found in persons, whose Immunological status is yet to be determined and it may progress to one of the other determinate forms of the disease. The IL type appears to be problematic due to the nonspecific histology of their lesion. The diagnosis of IL also depends on many factors such as nature and depth of the biopsy, the quality of sections and number of sections examined [31].

Indeterminate lesion is one which cannot be classified within the Ridley-Jopling spectrum due to lack of distinguishing features, and this happens more often

histologically (due to failure to find a granuloma) than clinically. In the present study the high percentage of "indeterminate" leprosy noted histologically in clinical BT - BB range and low percentage in BL group could have been due to immunological difference in the host responses [6]. Out of 5 clinical diagnosed BB cases, 2 (40%) turned to be IL histologically. 2(40%) turned to BT and 1(10%) turned to LL histologically.

Out of 5 clinically diagnosed LL cases 4 (80%) turned to be BL, 1 turned to be LL with concordance of (20%). When BL & LL cases are taken into one lepromatous group, percentage of concordance was increased to 50%. Tuberculoid and border line tuberculoid were taken into one tuberculoid group, percentage of concordance was 30%. Tuberculoid and borderline tuberculoid leprosy often overlap clinically, histologically and immunologically but differ only in degree and same is true for borderline lepromatous and lepromatous leprosy. Therefore, combining these two groups (TT-BT and BL-LL) does not affect the drug therapy and outcome of the disease [6].

On correlating clinical diagnosis with histopathological diagnosis only minor disagreement [difference of one group] was observed in TT and LL ranging from 0% to 20%. However major disagreement was seen in border line spectrum ranging from 60% to 80%. Similar observations were made in the study of Anuja Sharma et al, 2008. Clinical diagnosis of early leprosy lesions offer difficulties even to experienced dermatologists and leprologists. A definitive diagnosis may be possible by histopathological examination. The other important point to be considered is inter observer variation, both clinically and histopathologically.

Various factors also influence the histopathological diagnosis such as differences in sample size, choosing the biopsy site, age of the lesion, immunological and treatment status of the patient at the time of biopsy.

Conclusion

Clinical examination or histopathological examination alone may not stand as ideal diagnostic tools in diagnosing and classifying leprosy. Clinico histopathological disparity may be reduced by following the criteria strictly both clinically and histopathologically there by providing the patient early and adequate treatment to prevent morbid disabilities.

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