ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 01 | January - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

EVALUATION OF CLINICAL DIAGNOSED LEPROSY PATIENTS WITH HISTOPATHOLOGICAL FINDINGS AT JLN HOSPITAL & RESEARCH CENTRE, BHILAI, CG.

Dermatology

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ABSTRACT

Background: In India, Chhattisgarh state is having the highest prevalence rate of 2.33 per 10,000 populations presently. WHO adopted its 'Enhanced Global Strategy for further reducing the disease burden due to Leprosy (Plan period: 2011-2015)' in 2009. The aim of this study to evaluate of clinical diagnosed leprosy patients with histopathological findings. **Objective:** To find the strength of agreement between clinically diagnosed leprosy patients with histopathological finding. **Material & Methods:** This was a prospective study was carried out on 42 new cases of leprosy attending the outpatient department of dermatology and venereology of J. L. N. Hospital and Research Centre Bhilai Steel Plant Bhilai from March 2009 to December 2010 & all the patients were included after taking informed consent.. All the cases were subjected detailed history and through clinical examination & histopathological examination of skin tissue as per the structured pro forma. **Results:** The Male female ratio was 1:1. Majority of the patients were belonged to the age group between 41 to 60 years. Majority of the patients were found in the borderline tuberculoid leprosy in Clinically & Histopathological findings. The overall agreement was good between clinical spectrum and histopathological findings. **Conclusion:** In some early cases, clinical signs and symptoms may precede the presently known characteristic tissue changes or vice versa. If a biopsy is taken at an early stage, there is likely to be discordance between the clinical and histopathological observations.

KEYWORDS

Clinical Examination, Histopathological Examination, Leprosy, Strength of Agreement.

INTRODUCTION:

Leprosy continues to be a public health problem in India. (1) It is also known as Hansen's disease. (2) It is a chronic infectious disease caused by Mycobacterium leprae. (3,4,5) It mainly affects the skin and peripheral nerves, upper respiratory tract and testes, usually sparing warmer areas. The bacilli are found in large quantity in the nasal mucosa, skin of earlobes, face and buttocks (6), but has a wide range of clinical manifestation. (7) Leprosy is a leading cause of permanent physical disability which causes great fear and anxiety. (8,7) It is still a stigmatised disease in India leading to intense social discrimination and psychological scarring of the patient. (10) Timely diagnosis and treatment of the cases, before nerve damage, is the most effective way of preventing disability due to Leprosy. (7)

In India, Chhattisgarh state is having the highest prevalence rate of 2.33 per 10,000 populations presently. (11) WHO adopted its 'Enhanced Global Strategy for further reducing the disease burden due to Leprosy (Plan period: 2011-2015)' in 2009. (12)

Its elimination is not as straightforward as it seemed. (13) Leprosy expresses itself in different clinic-o-pathological forms depending on the immune status of the host. (14,15) Diagnosis of leprosy is based on different clinical parameters which involves detailed examination of skin lesions and peripheral nerves. (16) Demonstration of acid –fast bacilli in slit skin smears by Ziehl- Neelsen's staining also aids in diagnosis of leprosy. (17) A reliable diagnosis hinges around a good histopathological diagnosis and demonstration of bacilli in histopathological sections. (18,19) Clinical classification gives recognition only to gross appearances of the lesions, while the parameters used for the histopathological classification are well defined, precise and also bridge the pitfalls in leprosy diagnosis. Histopathology provides confirmatory information for suspected cases which can be missed in clinical practice or epidemiological studies and helps in exact typing. Histology also gives indication of progression and regression of disease under treatment. (20) Ridley and Jopling were the first to suggest a subdivision of leprosy on an immunological basis into five types; tuberculoid (TT), borderline tuberculoid (BT), mid borderline (BB), borderline lepromatous (BL) & lepromatous (LL). (21) A significant contribution of the 5th international congress at Havana in 1948 was the inclusion of “Indeterminate” leprosy and dimorphous leprosy in the classification. (22) Later they further developed this idea and correlated clinical and bacteriological findings in each group with respective immunological and histological findings. (21) Classification of leprosy is essential primarily for the purpose of communication at different levels and can be adjudged satisfactory only if it can be applied without much difficulty by different groups of workers i.e. clinicians, pathologists or immunologists. (23) The present study was carried out to assess the correlation between clinical and histopathological diagnosis of leprosy cases using Ridley- Jopling criteria.

Objective:

To study the new cases of Leprosy attending our OPD under following headings:

1. The Clinic-Histopathological Evaluation.
2. To find the strength of agreement between Clinically diagnosed leprosy patients with Histopathological finding.

Materials & Method:

This is a prospective study was carried out on 42 new cases of leprosy attending the outpatient department of dermatology and venereology of J. L. N. Hospital and Research Centre Bhilai Steel Plant Bhilai from March 2009 to December 2010.

All the cases were subjected detailed history and through clinical examination as per the structured pro forma. All the patients were subjected to skin biopsies (punch biopsy of 5mm diameter) from the active part of the lesion after taking an informed consent.

Skin tissue was fixed in 10% formalin, serial sections of 5 micron thickness were stained with hematoxylin and eosin stain as well as by modified Fire - Faraco for acid fast bacilli (in specified cases).

Histological examination of the skin tissue section was performed and classified according to Ridley Jopling classification. Cases were analysed in the pre structured proforma.

RESULTS:

In this study out of the total cases the male female ratio was 1:1, Majority of the patients were belong to the age group between 41 to 60 years & there was no family history of skin lesions suggesting leprosy in the family members.

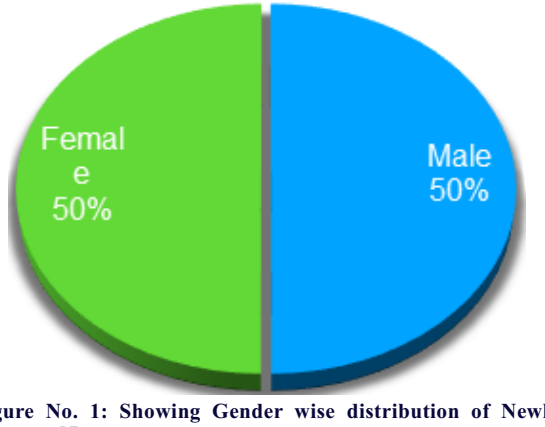

Figure No. 1: Showing Gender wise distribution of Newly Diagnosed Leprosy cases

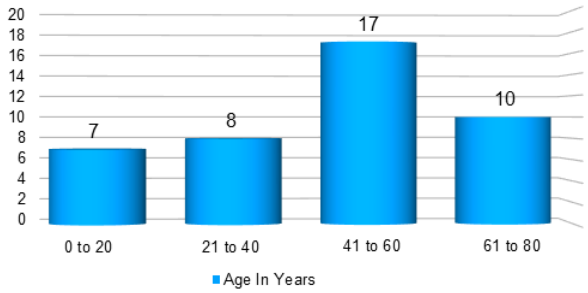

Figure No. 2: Age wise Distribution of Newly Diagnosed Leprosy Patients

Majority of the cases were reveal of clinical leprosy spectrum in the Borderline Tuberculoid group was 16 cases followed by the Tuberculoid was 13 cases, 7 cases were Indeterminate Leprosy, Borderline lepromatous leprosy was 5 cases & 1 was Lepromatous. (Table 1)

Table No. 1: Distribution of clinical & Histopathological leprosy spectrum in the study subjects.

Type of Leprosy	No. Of Cases in Clinical Spectrum	No. Of cases in Histopathological Leprosy
Indeterminate Leprosy (IL)	7 (16.6%)	7 (16.6%)
Tuberculoid (TT)	13 (30.9%)	6 (14.2%)
Borderline Tuberculoid (BT)	16 (38.0%)	22 (52.3%)
Borderline lepromatous (BL)	5 (12.1%)	4 (9.5%)
Lepromatous (LL)	1 (2.3%)	2 (4.7%)

Also Histopathological leprosy were observed in 41 cases. Out of these, maximum 22 cases were found in Borderline Tuberculoid followed by 7 cases were found in Indeterminate Leprosy, 6 cases were Tuberculoid, 4 cases were Borderline lepromatous & 2 cases were found in Lepromatous. (Table 1)

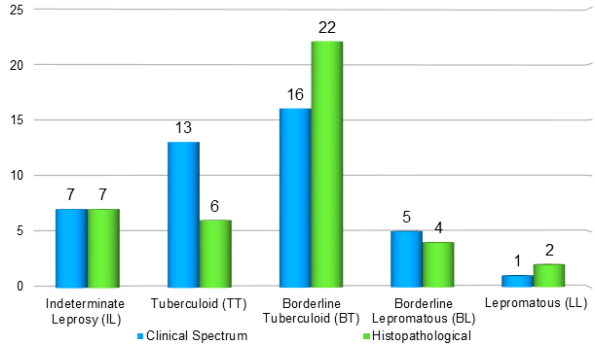

Figure No. 3: Distribution of Clinical & Histopathological features in Leprosy cases

Table No. 2: Showing the Agreement between Clinical and Histopathological Leprosy Spectrum in the study subjects.

Type of Leprosy	Kappa Value	Strength of Agreement
Indeterminate Leprosy (IL)	0.82	Very Good
Tuberculoid (TT)	0.54	Moderate
Borderline Tuberculoid (BT)	0.43	Moderate
Borderline lepromatous (BL)	0.62	Good
Lepromatous (LL)	0.65	Good
Overall	0.64	Good

In this study found that the agreement between Clinical Spectrum and histopathological feature in newly diagnosed leprosy cases. In the above table shows that the clinical spectrum and histopathological feature was good strength of agreement. In the Indeterminate Leprosy cases was found very good agreement between Clinical spectrum and Histopathological features. (Table 2).

DISCUSSION:

This was a protective study involving total 42 untreated clinically suspected cases of leprosy attending the dermatology and Venereology department of J. L. N. Hospital & Research centre, bhilai from March 2009 to December 2010.

In this study found the male female ratio was 1:1. Although leprosy, males are affected more often as compared to females generally in the proportion of 2:1. Similarly Mc. Daugall & Ponnighaus have reported a statistically significant preponderance of females in their study in Northern Malawi. (24)

In our study found that the majority of the cases were belong to the age group between 41 to 60 years & the patients age ranged from 14 to 75 years. This observation is consistent with the age distribution of leprosy on prevalence data.

In the clinical spectrum majority 16 of the cases were found in the Borderline Tuberculoid & 13 of the cases were found in the Tuberculoid. Also Histopathological features, majority 22 of the cases were found in the Borderline Tuberculoid.

The overall Clinico histopathological correlation of leprosy cases in our study was 69%. Similar results were obtained by Jerath and Desai (25), Bhatia et al. (26) & Kar et al. (27) which was 68.5%, 69% & 70% respectively. The Overall statistical correlation i.e. kappa coefficient was found to be 0.64, which denotes good strength of agreement between Clinical and Histopathological diagnosis.

CONCLUSION:

The disparity between the clinical and histopathological observation was anticipated because the parameters used for the histopathological classification are well defined, precise and also take into account the immunologic response of the tissue, while clinical classification gives recognition only to the gross appearance of the lesions which is due to the underline pathological change. Moreover a sizeable proportion of cases of BB, BB, & BL continuously change immunological spectrum and histological classification gives a better indication for any recent shift of a case position in the spectrum. In some early cases, clinical signs and symptoms may precede the presently known characteristic tissue changes or vice versa. If a biopsy is taken at an early stage, there is likely to be discordance between the clinical and histopathological observations. As false negative result may occur if biopsy is taken from non lesions site, biopsy from the lesion which is morphologically suggestive of clinical diagnosis, serial biopsies from the same lesion or from the paired lesions should be studied for better clinics histopathological correlation.

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