



ORIGINAL RESEARCH PAPER

Pathology

HISTOPATHOLOGICAL AND CLINICAL STUDY OF LEPROSY CASES IN SEMI URBAN AND RURAL INDIA

KEY WORDS: Mycobacterium leprae, Leprosy, Wade Fite stain

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ABSTRACT

Introduction: Leprosy, the most dreaded disease of mankind still continues to be major challenge to bio medical and social sciences Leprosy also known as Hansen's Disease, is a chronic infectious, caused by MYCOBACTERIUM LEPRAE (M.Leprae).
AIM: To study the histopathological and clinical correlation leprosy cases in rural and semi urban india.
Materials and Methods: 136 patients including previously diagnosed cases of Hansens disease, and suspected cases of Leprosy were included in the study. Skin biopsy for histopathological study was done in all the patients. Special stain with Wade Fite stain was carried out in all the cases.
Conclusion: The distribution of 50 cases on the clinical leprosy spectrum based on Ridley – Jopling scale revealed maximum cases in Lepromatous leprosy 27 (54%) cases out of 50 cases.

Introduction:

Leprosy also known as Hansen's Disease, is a chronic infectious, caused by Mycobacterium leprae (m.leprae), primarily affects the peripheral nervous system, the skin and certain other tissues such as reticulo endothelial system, bones and joints, mucous membranes, eyes, testis, muscles, adrenals'. Leprosy expresses itself in different clinicopathological forms, depending on the immune status of the host. Diagnosis of leprosy is based on different clinical parameters, which involves detailed examination of skin lesions and peripheral nerves. Demonstration of acid – fast bacilli in slit skin smears by Wade fite staining also aids in diagnosis A reliable diagnosis is based on demonstration of bacilli in histopathological sections..Ridley and Jopling were the first to suggest a subdivision of leprosy on an immunological basis into five Tuberculoid (TT), Borderline Tuberculoid (BT), Mid Borderline (BB), Borderline Lepromatous (BL) & Lepromatous Leprosy (LL)²..

Material and methods:

The present study had been carried out from the patients attending the outpatient and inpatient of department of dermatology – Government Mohan Kumaramangalam Hospital Salem, for a period between January 2014 to November 2015.A minimum of 136 patients – belonging to all the age groups, and both sexes were selected and included in the study, after taking their consent. 136 patients including previously diagnosed cases of Hansens disease, and suspected cases of Leprosy were included in the study.Skin biopsy for histopathological study was done in all the patients.Special stain with AFB stain was carried out in all the cases. The histopathology specimens were fixed in 10% formalin. The entire small biopsy specimens were embedded. The tissues were processed, paraffin blocked, 5 microns thin sections were cut and stained with Haematoxylin and Eosin (H&E) and examined for (a) epidermal atrophy, epithelioid granulomas, number and distribution of lymphocytes, histiocytes and foam cells. (b) infiltration of nerves and blood vessels and adnexa. (c) Grenz zone. Sections stained with Ziehl neelsen's stain and modified Fites stain were examined for lepra bacilli in all the cases. Histopathological findings were graded into TT, BT, BB, BL and LL according to Ridley and Jopling Scale.

Table No; 1 Wade –Fite stain in leprosy cases

| Clinical diagnosis | Negative | Positive | Non contributory | Total |
|--------------------|----------|----------|------------------|-------|
| TT | 0 | 9 | 0 | 9 |
| BT | 3 | 4 | 2 | 9 |
| BB | 1 | 0 | 0 | 1 |
| BL | 2 | 1 | 1 | 4 |
| LL | 13 | 13 | 1 | 27 |
| Total | 19 | 26 | 4 | 50 |

Wade fite stain correlates with 62% of cases

Results:

This study was done on skin biopsies of 136 clinically diagnosed cases including treated cases and new cases of leprosy, of which

37 were males and 13 were females. Their age ranged from 6 to 85 years with the majority of them in the age group of 41 to 50 years. Histopathological features of leprosy were observed only in biopsies of 50 cases. while other cases which showed histopathological features of non specific dermatitis, or with inadequate biopsy were excluded from clinico histopathological correlation.

The distribution of 50 cases on the clinical leprosy spectrum based on Ridley – Jopling scale revealed maximum cases in Lepromatous leprosy 27 (54%) cases out of 50 cases. Least number of cases were classified as Borderline Borderline (2) 4%. Maximum clinicopathological correlation was seen in lepromatous leprosy, followed by TT (9) 18% and BT(8) 16%, BL 4(8)% On correlating clinical diagnosis with histological diagnosis only minor disagreement difference of one group was observed in T.T and LL cases.

Table 2 Histological type of leprosy

| Type | No of cases | % age |
|-------|-------------|-------|
| TT | 9 | 18% |
| BT | 8 | 16% |
| BB | 2 | 4% |
| BL | 4 | 8% |
| LL | 27 | 54% |
| Total | 50 | 100% |

Discussion

Sex Ratio

In our study Out of the 50 cases, 47 cases are adults and 3 are children and 37cases were in males and 13 cases in females with the male to female ratio of 2.84:1.This observation was similar to those of Boggild and colleagues showing that of 184 new cases of leprosy they studied in Toronto, Canada (from 1979 to 2002)122 (66.3%) patients were male.

Presentation:

Among the 50 cases studied, 49 were presented with various types of Skin lesions, and the rest one presented with enlarged neck node with the most common presentation of the disease being hypopigmented skin lesions In this study sensation is preserved in 20cases, diminished or anesthetic in 21 cases and tender in 7cases.

Table 3 Nerve involvement

| Sensation | | | | | | | |
|---------------|-----------|------------|------------|----------------|--------|-----------------|-------|
| HPE diagnosis | Preserved | Diminished | Anesthetic | Gloves & stock | Tender | Not appreciated | Total |
| TT | 1 | 3 | 2 | 0 | 1 | 2 | 9 |
| BT | 1 | 3 | 4 | 0 | 1 | 0 | 9 |
| BB | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| BL | 2 | 0 | 0 | 1 | 1 | 0 | 4 |
| LL | 16 | 5 | 0 | 2 | 4 | 0 | 27 |
| TOTAL | 20 | 12 | 6 | 3 | 7 | 2 | 50 |

In this study sensation is preserved in 20 cases, diminished or anesthetic in 21 cases and tender in 7 cases, Deformity: In this study madarosis is the most common deformity observed followed by ear lobe infiltration which correlates with F. Golforoushan et al Azerbaijan⁴

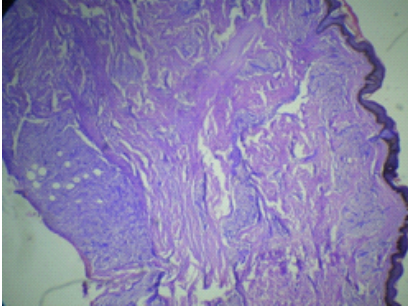


Fig.1 Lepromatous Leprosy: shows thin epidermis, foamy histiocytes, lymphocytes in dermis

Among the 50 cases lepromatous leprosy (LL) constitute 27 (54%), Borderline leprosy (BL) 4 cases (8%), Mid borderline (BB) 1 case. Borderline tuberculoid (BT) and tuberculoid (TT) – each constitute 9 cases. In the present study the histopathological characteristics were consistent with the clinical diagnosis in 132 out of 247 (53.44%) cases. Clinical and histopathological diagnosis of lepromatous leprosy cases is also observed by Shenoi & Sidappa, Pandey & Tailor, Bhatia et al, Kalla et al and Shanker Naryan et al in their respective studies.

Conclusion:

Leprosy is a major health and social stigma in developing nations like India. Still a lot of undiagnosed cases in rural and semi-urban India. A disease like leprosy needs an accurate classification because of its various manifestations. The universally accepted classification by research workers is that of Ridley and Jopling (6) which is primarily based on immunity but to be correlated with clinical, histopathological and bacteriological findings. Despite having such an accurate classification, leprosy cases showed so many diversities between the clinical and histopathological features.

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