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'A STUDY ON SPECTRUM OF DISEASE AND CLINICOHISTOPATHOLOGICAL CORRELATION IN HANSEN'S PATIENTS ATTENDING DERMATOLOGY OPD IN A TERTIARY CARE HOSPITAL'

Dermatology

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ABSTRACT

Background And Objectives : The present study was undertaken to study the clinical profile of patients and their histopathological correlation with clinical presentation. **Materials And Methods:** Prospective Longitudinal study from January 2019 to June 2021 at Department of Dermatology Venereology and Leprosy,Chengalpattu Medical College& Hospital,Chengalpattu of 100 patients.Detailed history taken and classified clinically on the basis of Ridley Jopling and WHO classification.Slit skin smear and biopsy performed in all cases at the time of diagnosis and clinicohistopathological correlation made. **Results:** The higher number of patients belongs to Borderline Tuberculoid Hansen's disease because these patients come early for treatment because of its neurological symptoms and reactions.SSS-AFB positivity is found in 44% of patients and gives indication about the level of contagion in the community.Histologically, the common classification made was Borderline tuberculoid.Clinico-histopathological correlation is seen in 84.48% of the patients. Maximum correlation was observed in Lepromatous leprosy. **Interpretation And Conclusion:** The correlation of clinical and histopathological features along with bacteriological index is more useful for accurate typing of leprosy than considering a single parameter alone. Clinical improvement of skin lesions and the mean fall of bacteriological index can be used for followup of patients.

KEYWORDS

Hansen, clinical profile, biopsy, clinicohistopathological correlation, AFB.

INTRODUCTION

Leprosy, a chronic disease which, if not treated appropriately, can lead to physical and psychological impairment. The development of Multidrug therapy has enhanced significantly the effectiveness of treatment and the cure of patients and health professionals have redirected their attention to the rehabilitation of the physical, psychological and social disabilities that persist even after eradication of the causative bacillus Mycobacterium leprae. Of late, many centers in India are observing a subset of MB patients not responding satisfactorily (clinically and microbiologically) to the current fixed duration of WHO-Multidrug therapy[1].This study is done to look at the clinical profile of patients in the present era seeking care at a tertiary care centre and their clinic histopathological correlation[2].

AIMS & OBJECTIVES OF THE STUDY

1) To study the clinical profile of patients with Hansen's disease, accessing a tertiary care centre .
2) Clinicohistopathological correlation.

MATERIALS AND METHODS

Design Of Study:

Prospective Longitudinal study FROM January 2019 to June 2021 at Department of Dermatology Venereology and Leprosy,Chengalpattu Medical College& Hospital,Chengalpattu.

Sample Size: 100 patients

Inclusion Criteria:

- All newly registered patients diagnosed to have leprosy.
- Patients willing to give a written informed consent.

Exclusion Criteria:

- Patients who had been diagnosed and / or treated earlier.
- Patients of Pure Neuritic Hansen's Disease.
- Patients on irregular treatment.
- Patients on immuno suppressive therapy and associated systemic diseases.
- Any patients for whom MDT was contraindicated.
- Pregnant and lactating women.
- Patients or parent of paediatric patients who did not give consent to be enrolled in the study.

Detailed history of age, sex, occupation and socioeconomic status (based on kuppusamy's scale)was taken.

Clinical Examination:

A detailed examination was carried out in all the patients. Local examination of skin lesions was carried out with respect to the number, shape, size, surface, margins, satellite lesions, supplying nerves, sensation, sweat loss, hair loss and trophic changes.All the peripheral nerves were palpated for enlargement and tenderness. The patients were clinically diagnosed as Tuberculoid leprosy(TT), Borderline tuberculoid leprosy(BT), Midborderline leprosy(BB), Borderline lepromatous leprosy(BL), Lepromatous leprosy(LL)[3]. Data were recorded using semistructured questionnaire. Patients were classified clinically on the basis of Ridley Jopling and WHO classification.SSS and biopsy performed in all cases at the time of diagnosis.

Histopathological Examination

Skin Biopsy specimen was obtained from all clinically diagnosed cases of Leprosy and was subjected to staining by Hematoxylin and Eosin stain.Hematoxylin and Eosin stained sections of skin biopsies were examined for epidermal atrophy,epitheloid and macrophage granuloma, number and distribution of lymphocytes, histiocytes and foam cells,infiltration of nerves, blood vessels and adnexa,Grenz zone.Histopathological findings were graded into Polar Tuberculoid(TT), Borderline Tuberculoid(BT), Mid-Borderline(BB), Borderline Lepromatous(BL), Polar Lepromatous(LL) based on Ridley and Jopling Scale and clinico- histopathological correlation noted[4].

Statistical Analysis :

Data were entered using MS Excel 2016 and analysed using SPSS 17 . Normal test for difference of proportions (Z test) was used for statistical analysis. A P value of 0·05 or less was taken as statistically significant.

OBSERVATION AND RESULTS:

AGE DISTRIBUTION:

100 patients were enrolled for study. Maximum number of patients were in 21-50 age group(59%).Lowest age of the patient recorded was 10yrs. Highest age of the patient was 89 yrs.

Table 1 Showing Age Distribution

Age	Frequency(%)
<20 years	11
21-30	15
31-40	16
41-50	28
51-59	11
>=60	19
Total	100

SEX DISTRIBUTION:
67% of patients were males.33 % patients were Females.Male to Female ratio was 2:1.

Table 2 Showing Gender Distribution

Sex	Frequency
Male	67
Female	33
Total	100

CLINICAL DIAGNOSIS:
Majority of the patients belonged to borderline type(76%), both in males and females.

Out of 100 cases,
- 4% were diagnosed as Tuberculoid leprosy(TT)
- 48% were diagnosed as as Borderline Tuberculoid leprosy (BT)
- 3% were diagnosed as as Mid borderline Leprosy(BB)
- 25% were diagnosed as as Borderline Lepromatous Leprosy (BL)
- 20% were diagnosed as as Lepromatous leprosy(LL)
- 90% patients were in the MB spectrum and 10 % patients in the PB spectrum according to WHO classification.

Table 3 Showing Clinical Diagnosis

Clinical Diagnosis	Frequency
Mid Borderline leprosy	3
Borderline Lepromatous leprosy	25
Borderline Tuberculoid leprosy	48
Lepromatous leprosy	20
Tuberculoid leprosy	4
Total	100

SLIT SKIN SMEAR-ACID FAST BACILLI:
44 patients were smear positive at the start of the study(n=44%).

Table 4-SLIT Skin SMEAR – AFB

SSS-AFB	Frequency	Percentage
POSITIVE	44	44%
NEGATIVE	56	56%
Total	100	100

In our study, 8% of smear positive patients had BI less than 3+ and 36% of patients had more than 3+ of BI.

Table 5: SSS- BI

BACTERIOLOGICAL INDEX	Frequency(n)	Percentage(%)
<3+	8	8
>3+	36	36
NEGATIVE	56	56

Table6: SSS-AFB And Clinical Diagnosis

SSS – BI	TT	BT	BB	BL	LL	Total
POSITIVE	0	2(4.16%)	3(100%)	23(92%)	16(80%)	44%
NEGATIVE	4(100%)	46(95.8%)	0	2(8%)	4(20%)	56%
TOTAL	4%	48%	3%	25%	20%	100%

HPE Diagnosis:
Through histopathological examination were done and patients were categorised. Out of 100 cases for which biopsy were done, 4 cases turned out to be negative.2% cases reported as Mid Borderline Hansen,5 % cases as Tuberculoid Hansen,24% cases as BL Hansen,45 % cases as BT Hansen,20% cases as LL hansen's disease.

Table 7: HPE Diagnosis

Histopathological Diagnosis	%
Tuberculoid leprosy	5
Mid Borderline leprosy	2
Borderline Lepromatous leprosy	24
Borderline Tuberculoid leprosy	45
Lepromatous leprosy	20
Negative	4
Total	100

CLINICOHISTOPATHOLOGICAL CORRELATION:
Clinicohistopathological correlation were noted in 100 % of patients in Tuberculoid leprosy .Maximum disparity were noted in borderline group especially mid borderline group(66.66%) .Overall ,clinico histopathological correlation were noted in 84.48% of patients.

Table 26 showing clinicohistopathological correlation

Clinical Type	No of cases	Histopathological type					Negative cases	% of parity
		TT	BT	BB	BL	LL		
TT	4	3	--	--	--	--	1	75%
BT	48	2	45	--	--	--	1	93.75%
BB	3	--	--	2	--	--	1	66.66%
BL	25	--	--	--	23	1	1	92%
LL	20	--	--	--	1	19	-	95%
TOTAL	100	5	45	2	24	20	4	84.48%

Clinical Pictures

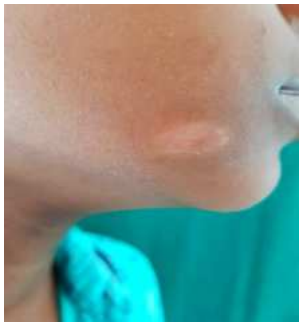


Figure 1 Showing Tuberculoid Hansen

Figure 2 Showing Borderline Tuberculoid Hansen

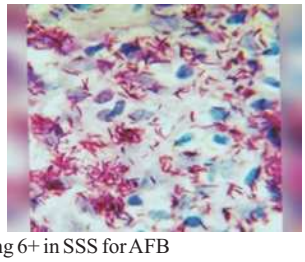


Figure 3 Showing 6+ in SSS for AFB

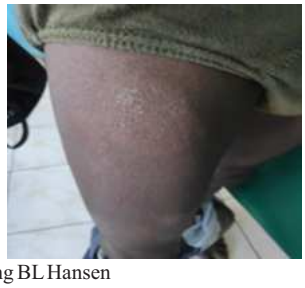
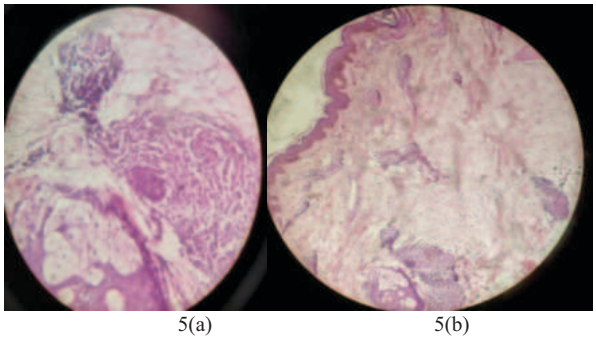


Figure 4 Showing BL Hansen



5(a) 5(b)

Figure 5 a and 5 b showing HPE:Tuberculoid Leprosy

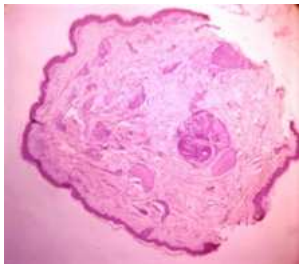


Figure 6(a) Tuberculoid Granuloma

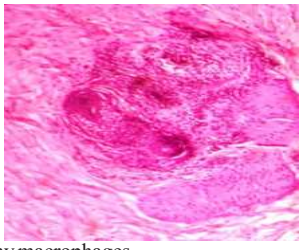


Figure 6 b - foamy macrophages

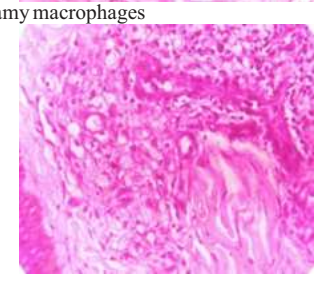


Figure 6(c) globi

Figure 6 d-globi
Figure 6(a-d) showing Lepromatous Leprosy

DISCUSSION:
In the present study, Ridley Jopling classification was used to classify Hansen's Disease clinically and Histopathologically in all cases and WHO classification for treatment purposes.

Age distribution[5]
In the present study , 31% of patients belong to the age group of 21-40 years.

Sex distribution:
In the present study ,67% of patients were males and 33% were females.

SSS-Acid fast bacilli:
In the present study 44% of patients showed smear positivity and 56% of patients showed smear negativity.

Histopathological diagnosis:
In our study, 45% of patients histopathologically diagnosed as BT patients, 20% as LL, 24% as BL, 2% as BB , 5% as TT,4% were biopsy negative. histologically, the common classification made was Borderline tuberculoid.

Clinico-histopathological correlation:
In our study skin biopsy was done in all patients.4 patients biopsy turned negative.

Out of 4 patients clinically diagnosed as TT, 3(75 %) patients had histopathological correlation and one patient turned biopsy negative.

- Out of 48 patients clinically diagnosed as BT, 45(93.75%) patients had histopathological correlation and one patient turned biopsy negative
- Out of 3 patients clinically diagnosed as BB ,2(66.66%) patient had histological correlation and one patient turned biopsy negative
- Out of 25 patients clinically diagnosed as BL, 23(92%) patients had histopathological correlation and one patient turned biopsy negative
- Out of 20 patients clinically diagnosed as LL, 19(95%) patients had histopathological correlation.

There was complete agreement between the clinical and histopathologic diagnosis in 84.48% of the cases.in the present study, Maximum concordance was observed in LL.Different studies observed highest percentage of clinicopathological correlation of lepromatous leprosy in their studies and showed least clinico pathological correlationin midborderline lepomatous leprosy. Ridley and Jopling (106) found complete agreement between clinical and histopathological types in 68.3%.

Incidence Of Reactions:
20 patients presented with Lepra reactions at the start of study (20%). 13 patients with Type 1 reactions(10 patients of BT spectrum,1 in mid borderline,2 in BL spectrum). 7 patients with Type 2 reactions(5 patients of BL spectrum and 2 in LL spectrum).

WHO Disability grading:
17 % patients presented with grade 1 WHO disability grading and 13 % patients presented with Grade 2 WHO disability grading at the start of study.

Multi Drug Therapy[6]
Out of 100 patients, 90 % of patients were of Multi bacillary spectrum, 10% were of Pauci bacillary spectrum.

CONCLUSION:
1) The higher incidence of the disease in the reproductive age group of 21-40 years is because of their increased mobility and high contact with infective persons.
2) The incidence was noted to be higher in males because of their more outdoor activities and thus more chances of getting infection. Because of the hesitation and ignorance to come forward to treatment, low incidence is noted in females.
3) The higher number of patients belongs to Borderline Tuberculoid Hansen's disease because these patients come early for treatment because of its neurological symptoms and reactions.
4) SSS-AFB positivity is found in 44% of patients and gives indication about the level of contagion in the community.
5) Histologically, the common classification made was Borderline tuberculoid.
6) Clinico-histopathological correlation is seen in 84.48% of the patients. Maximum correlation was observed in Lepromatous leprosy. So, LL patients can be diagnosed clinically more accurately.
7) 20% patients presented with Lepra reactions on diagnosis.Type 1 reactions are common in Tuberculoid spectrum and Type 2 reactions common in Lepromatous spectrum.
8) 17 % patients presented with grade 1 grading and 13 % patients presented with Grade 2 WHO disability at the start of study.The high incidence of grade 2 disabilites at presentation warrants intensive leprosy control activities in the present era of elimination.
9) 90 % of patients were of Multi bacillary spectrum, 10% were of Pauci bacillary spectrum.

In conclusion, it can be said that Hansen's Disease still continues to be a domestic, national, global burden and is present in different clinical and pathological forms. Of late, many centers in India are observing a subset of MB patients not responding satisfactorily (clinically and microbiologically) to the current fixed duration of WHO-Multidrug therapy. Many cases can be diagnosed clinically especially Lepromatous pole of the disease, however, other types of Leprosy pose a significant problem in clinical diagnosis in which Histopathological examination of the lesions confirms the exact subtype of the disease and facilitate the initiation of accurate mode of therapy (PB/MB). So, the correlation of clinical and histopathological features along with bacteriological index is more useful for accurate typing of leprosy than considering a single parameter alone. Clinical improvement of skin lesions and the mean fall of bacteriological index can be used for

followup of patients. Attention must be paid to rehabilitation of the physical, psychological and social disabilities that persist even after eradication of the causative bacillus Mycobacterium leprae.

Limitations Of The Study:

Longer followup of patients after release from treatment is needed to know the incidence of relapse, reactions, disabilities, treatment response in these patients.

Nil conflict of interest

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