



CLINICOPATHOLOGICAL DISCORDANCE AMONG THE HYPOPIGMENTED LESIONS SUSPECTED OF LEPROSY: A RETROSPECTIVE STUDY

Dermatology

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ABSTRACT

INTRODUCTION: Hypopigmented skin lesions form a major bulk of the patient strata in a dermatology outpatient department, among these leprosy still remains the most stigmatized and one of the common diseases to manifest as a hypopigmented patch or macule. Leprosy is a chronic granulomatous disease caused by *Mycobacterium leprae*, principally affecting peripheral nerves and skin. The classification of Ridley and Jopling describes five groups based on the immunological response of skin tissue, which is designated Tuberculoid, borderline tuberculoid, borderline, borderline lepromatous and lepromatous, each one having a varied histopathological picture.

Aim: The aim of the present study is to analyze hypopigmented skin lesions and establish the level of discordance between clinical diagnosis and conclusive histopathological opinion of hypopigmented lesions in clinically suspected cases of leprosy.

Materials and Methods: A retrospective study of all clinical cases of patients presenting with hypopigmented lesions with provisional clinical diagnosis of leprosy attending the outpatient department of Dermatology at a teaching tertiary care hospital in Navi Mumbai over a period of two years from June 2016 to June 2018. All the patients with provisional diagnosis of leprosy are made to undergo skin biopsy. A four-millimetre skin was taken from lesions under aseptic conditions and the skin biopsy specimens were preserved 10 percent buffered neutral formalin.

Results: Out of 43 patients presenting with hypopigmented skin lesions with a provisional clinical diagnosis of leprosy, 22 patients showed conclusive findings of leprosy on histopathological examination; 16 cases with hypopigmented skin lesions showed non-specific histological findings; three had other hypopigmented dermatoses and two cases showed histological signs of a treated leprosy lesion.

Conclusion: Correlation between clinical, bacteriological, and morphological features is required for accurate classification of Hansen's disease. Clinical detection and morphological diagnosis of early lesions remain challenging, and the histological findings should always be interpreted in correlation with clinical findings.

KEYWORDS

Leprosy, Hypopigmented, Macule, Lesion, Histopathology.

INTRODUCTION

Leprosy is a chronic granulomatous disease caused by *Mycobacterium leprae*, principally affecting peripheral nerves and skin. India dominates the global picture with 60% of the world's leprosy cases. The classification of Ridley and Jopling describes five groups on the immunological spectrum designated TT, BT, BB, BL and LL, each one having a varied histopathological picture. The aim of our study was to analyze and study the discordance in the histopathological features among hypopigmented lesions in leprosy suspected patients.

MATERIALS AND METHODS

This study was done in the Department of Dermatology and Department of Pathology MGM Medical College and Hospital, Kamothe, Navi Mumbai. A retrospective study was done on patients presenting with hypopigmented lesions clinically suspected of leprosy. The period of study was from June 2016 to June 2018. 46 patients were analyzed. The clinical features and histopathological findings were studied and results compiled.

RESULTS

In our study out of 43 patients presenting with hypopigmented skin lesions with a provisional clinical diagnosis of leprosy, 22 patients showed conclusive findings of leprosy on histopathological examination; nine cases with hypopigmented skin lesions showed no histopathological signs suggestive of leprosy; seven cases showed non-specific histological findings; three had other hypopigmented dermatoses and two cases showed histological signs of a treated leprosy lesion.

DISCUSSION

Leprosy is a slowly progressive, chronic infectious disease which can express itself in different clinicopathological forms depending on immune status of the host. It primarily affects the skin and the peripheral nerves. It can be progressive and can cause permanent damage to the skin, nerves, limbs, and eyes. In the present study, the cases were classified according to Ridley-Jopling classification into indeterminate leprosy (I), TT, BT, mid-borderline (BB), BL, and LL. Cases of histoid leprosy, lepra reactions, and ENL were also included in the study. The male preponderance for leprosy noted in our study was also been shown in other studies like Manandhar et al. and Vargas-Ocampo. This might be attributed to increased chances of exposure

due to increased job-related mobility. In the present study, clinico-histological correlation was observed in 51% of cases.

The concordance percentage for clinico-histological correlation was almost similar to the studies conducted by Moorthy et al. and Kalla et al. The cellular characteristics in leprosy lesions are related to the immunological modulation of the patient. Hence, different grades of modulation affect the host defensive response and result in different types of clinicopathological pictures. Selection of the site for biopsy plays an important role in histopathological diagnosis since clinically dissimilar lesions biopsied from the same patient can show different types of histopathology. In our study, the most common histological subtype was BT followed by BL. BT has been reported to be the most common histological type of leprosy in other studies as well.

The excellent clinico-histological correlation was observed for the polar spectra of leprosy. Since borderline lesions are clinically and immunologically unstable, clinico-histological correlation was not found to be as impressive for cases clinically diagnosed as BT or BL.

In the present study, 21 cases of clinically diagnosed leprosy were discordant. In most of these cases (16/43), the findings on histopathological examination were nonspecific. However, confirmed diagnosis was established in 7/43 cases comprising of granulomatous lesion, (3/43) other dermatoses, (2/43) showed signs of treated leprosy. Despite specific histopathological findings in different forms, there occurs an overlap of features between different types. Immunologically mid-borderline leprosy is the least stable and variety of clinical lesions may be found in the same patient. Hence, it is necessary to relate the histological features with the clinical characteristics presented by the particular morphological lesion subjected to biopsy. Cases of indeterminate leprosy are also difficult to diagnose due to the nonspecific histology of the lesions. It also depends on factors such as nature and depth of biopsy, the acid-fast-stained sections examined, and the interobserver variation in both clinical and histopathological examinations.

Clinico-histological correlation in leprosy is also required for monitoring the response to treatment and for assessing relapse or reactivation of the disease. Although there has been a substantial decrease in the number of leprosy patients after the implementation of

MDT for leprosy, we are yet to achieve the goal of leprosy eradication. It is known that inactive bacilli may persist in nerves of borderline or indeterminate cases for years even after complete treatment.

Only when all proven cases of Hansen's disease undergo regular follow-up after treatment and are diligently screened for bacillary load before labeling them as disease free, we shall be able to realize our dream of making our country free from the scourge of leprosy.

Table 1. Demographic profile of patients with hypopigmented lesions suspected of leprosy.

Characteristic	Subgroup	Number of cases	Total
Age Group	0-17 years	6	43
	18-40 years	26	
	41-60 years	6	
	61-80 years	5	
Sex	Male	30	43
	Female	13	

Table 2. Clinicopathological correlation in leprosy patients.

Clinical diagnosis	No of cases	Histopathological diagnosis						Discordance With clinical type	Concordance with clinical type
		IL	TT	BT	BB	BL	LL		
IL	0	0	0	0	0	0	0	-	-
TT	1	0	0	0	0	0	0	100%	0%
BT	26	0	0	10	0	0	0	62%	38%
BB	4	0	0	0	2	0	0	50%	50%
BL	10	0	0	0	0	8	0	20%	80%
LL	2	0	0	0	0	0	2	0%	100%
Total									

CONCLUSION

Correlation between clinical, bacteriological, and morphological features is required for accurate classification of Hansen's disease. Clinical detection and morphological diagnosis of early lesions remain challenging, and the histological findings should always be interpreted in correlation with clinical findings. Since the impact of finding one new case of leprosy is huge, such diligence is warranted both by the dermatologist as well as by the pathologist.

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