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LEPROSY A CHANGE IN PROFILE?

Pathology

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ABSTRACT

Leprosy has been officially eliminated from India since December, 2005; still there are districts and blocks reporting high prevalence indicating ongoing transmission. Thepresent study aimed at determining the current situation/scenario of leprosy in a tertiary level hospital in Kolkata.It is a cross-sectional observational study carried out on patients diagnosed and registered in the leprosy clinic (May 2018-May 2020).Data regarding clinical features, histopathological diagnosis and treatment, reactions was analyzed. Skin biopsies were taken in all cases and slit skin smear was done. The biopsies and slit skin smear were evaluated for the type of pathology and acid fast bacilli (AFB) status. A total of 58 patients were registered over 8months period, with M: F (4.8:1). 5child cases were reported, 44 (75.86%) were new cases, 14 (24.14%) were defaulter. Slit skin smear showed 37 (63.79%) cases were multibacillary (MB). Lepromatous leprosy (LL) 28 (48.28%) was the most frequent morphologic type followed by borderline tuberculoid (BT) 12 (20.69%) andtuberculoid leprosy 9 (15.52%) borderline lepromatous(BL) 4 (6.89%) cases, 5 (8.62%) case of histoid leprosy. 9 (15.51%) presented with each type 1 and 5 (8.62%) cases with type 2Erythema NodosumLeprosum (ENL) reaction.Our studyoffers insight into the current status of the disease in the area of otherwise low prevalence. It is seen that despite statistical elimination, lepromatus leprosy, leprosy reactions are commonly seen as presenting features. It highlights the need for continuation of targeted leprosy control activities and active case detection.

KEYWORDS

Lepromatous leprosy, histoid leprosy, leprosy reaction, multibacillary, child case

INTRODUCTION

Leprosy is caused by *Mycobacterium leprae*, a slow growing mycobacterium, manifesting as damage to skin and peripheral nerves. Despite the fact that India has been declared eliminated as a disease of public health importance since December 2005, but one of the major challenges faced by India is the continued occurrence of new leprosy cases, as evidenced by static new case detection rate (NCDR) over past decade. These effects are evidenced by world health organization (WHO) weekly epidemiological report of 2020 which states that out of 2,02,189 new cases reported globally, 1,14,451 (57%) are contributed by India[1] Leprosy continues to retain a prevalence rate (PR) higher than 1/10,000 population in parts of the country namely, Dadar and Nagar Haveli (3.61), Chhattisgarh (2.13), Bihar (1.20), Maharashtra (1.09) and West Bengal (1.05)[2]. The aim of our study was to find out clinical presentation histopathological, bacteriological features of leprosy patients in a tertiary care hospital in West Bengal from May 2018-May 2019 and to interpret this data with respect to different epidemiological variables like age, sex, clinical presentation, type of disease, reactions etc.

MATERIALS AND METHODS

This study was carried out at our tertiary care hospital in Kolkata in patients who were clinically suspected as leprosy. Their age, sex, and clinical findings were recorded. In all cases, slit skin and scrape smears were examined with Ziehl-Neelsen method and punch biopsies were stained by Haematoxylin and Eosin stain and Fite-Faraco stain for morphological assessment and identification of leprae bacilli respectively, and grouped histopathologically as per the Ridley-Jopling scale.

Patient with clinical sign of leprosy who had not received multi drug therapy previously was called a "New" case. Any patient with leprosy, who had received MDT previously but had not completed the therapy was called "Defaulter".

Sudden appearance of erythematous and raised plaques in pre-existing lesion or appearance of new lesions, development of neuritis while under chemotherapy was categorized as type 1 (reversal) reaction. Development of crops of painful erythematous papules along with fever and other systemic manifestations was categorized as Erythema NodosumLeprosum or type II lepra reaction.

RESULT

A total of 58 cases of leprosy were registered during the study period of 1 year. 48 cases were male and rest were females (M: F= 4.8:1). The age group of the patients varied from (5yrs-68yrs) with majority in the age group of 31-40years 16 cases , 5(8.62%) child cases (aged <15yrs) were detected, age wise distribution of cases given in Table 1. The clinical features in our study were hypopigmented anesthetic patches 20 (34.49%), nodular lesions 24 (41.38%), weakness in limbs 8 (13.79%), punched out lesions 2 (3.45%), ulceration over hands and fingers 4 (6.89%). Among these 34 (58.62%) cases were clinically diagnosed as lepromatous type, 3 (5.17%) were borderline lepromatous, 12(20.68%)cases were tuberculoid type, 9 (15.51%) cases borderline tuberculous type. The most common histological type was found to be lepromatous (LL) 29 (50%) [fig 1], followed by borderline tuberculoid (BT) and tuberculoid (TT) [fig 2] 9 (15.52%) cases each followed by borderline lepromatous (BL) 7 (12.07%). Special type of leprosy, histoid leprosy was recorded in 4 (6.89%) [fig 3]. Type of leprosy cases diagnosed clinically versus diagnosed histopathologically is given in table 2. Depending upon slit skin smear report 37 (63.79%)cases were multibacillary leprosy [fig 4].

During the course of chemotherapy 9 (15.51%) developed type I reaction and 5 (8.6%) developed type II reaction.

Leprae reaction (both type I and II) occurred in multibacillary (MB) type of leprosy rather than paucibacillary type (PB).

Among the 58 cases, 44 (75.86%) were new cases and 14 (24.14%) were defaulter. All the defaulter cases had a history of receiving chemotherapy. All the 14 defaulter cases were histologically found to be LL type and all of them are multibacillary type.

DISCUSSION

According to a recent report by the National Leprosy Elimination Programme, a total of approximately 135,485 new cases of leprosy were detected in India, among which 8.7% were children [3]. In our study also 5 cases amounting to 8.62% were aged <15years. Leprosy in children indicates strongly of recent transmission of disease and

limitations of leprosy control program[4]. In our study a male preponderance was noted 82.75%. Similar results were obtained by a study conducted by Thakkar and Patel[5].This might be due to the fact that they have a greater outdoor activity, and their increased opportunities for health care and contact with big population. In our study clinically most common type diagnosed was lepromatous type (58.62%) followed by borderline lepromatous type. This is discordant with findings of other studies[5]. The most common histological subtype found in our study was lepromatous type 50%. The percentage of lepromatous leprosy in our study is quite high as compared to studies conducted by Thakkar and Patel[5] where the percentage found was 20%. Histoid leprosy, a rare variant was recorded in 4 (6.89%) cases. Histoid leprosy which is considered as a variant of lepromatous leprosy[6] is considered by others as a distinct entity [7] **.** The reported incidence of histoid leprosy in India vary from 2.79 - 3.60% among total leprosy patients [6]. Male preponderance has been found and the average age at diagnosis is between 21 and 40 years [8].In our study also all the 4 cases were male. Histoid leprosy has been reported to occur in patients of long-term dapsone monotherapy[8,9] or irregular/inadequate therapy[10]**.** But, reports of disease developing as relapse after successful treatment has also been noted [7] **.**There also has been cases reported where histoid leprosy has manifested de novo without a prior history of any anti-leprosy treatment [11]. In our study none of the four cases received prior anti-leprosy drugs.44 (75.86%) cases were found to be new cases in our study. There has been a rising trend of ANCDR (annual new case detection rate) recently as demonstrated from 9.71/100,000 in 2016 to 10.12/100,000 in 2017 [12]. High NCDR appears to be due to continued transmission of the disease, as evidenced by >50% new multibacillary cases detected in 11 states/ union territories of India. This indicates that despite successful implementation of multidrug therapy, transmission of leprosy is still a matter of concern in India [13]. In our study 37 (63.79%) cases were multibacillary leprosy. With the reduction in number of leprosy cases, there has been a significant shift in the leprosy profile in India, with a steep increase in multibacillary leprosy percentage. There were 73149 (45%) multibacillary cases out of 161457 new cases in the country in 2005. Where as in 2019, there were 62119 (54%) multibacillary cases out of 114451 new cases detected.[1,14]

9 (15.51%) cases developed type I reaction and 5 (8.6%) developed type II reaction in our study and both type I and type II reactions occurred in multibacillarycases. This is discordant with studyconducted by Salodkar and Kalla[15] where 80.1% belonged to type II reaction and study conducted by Thakkar and Patel[5] where 6.4% developed type II reactions and 3.2% developed type I reaction.

CONCLUSION

Childhood leprosy, a strong indicator of recent transmission forms a significant group. A shift in leprosy profile from paucibacillary to multibacillary and histologically to lepromatous leprosy including histoid leprosy noted in our study. This tells us there is a strong need to strengthen contact screening, effective planning to bring down incidence of leprosy and its complications. In additions to continuing to administer MDT to patients, early case detection, newer preventive approaches are required to break the chain of transmission and reach zero disease state.

Table 1: Age Wise Distribution Of Cases

Age group	No of cases
<15years	5
15-30years	8
31-40years	16
41-50years	14
51-60years	7
61-70years	8
Total	58

Table 2: Type Of Leprosy Cases Clinical Vs Histopathology

Type of leprosy	No of cases Clinically	No of cases Histopathologically
Tuberculoid (TT)	12	9
Borderline tuberculoid (BT)	9	9
Borderline lepromatous (BL)	4	7
Lepromatous leprosy (LL)	34	28
Histoid leprosy	0	5
Total	58	58

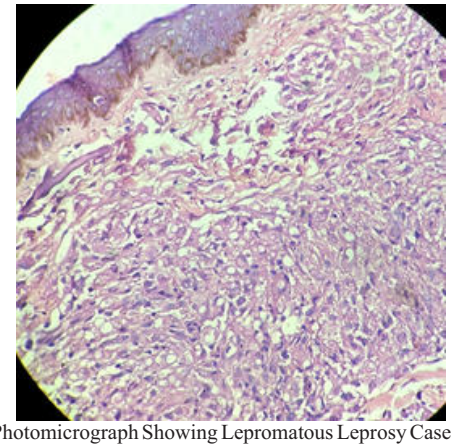

Fig 1: Photomicrograph Showing Lepromatous Leprosy Case (X40)

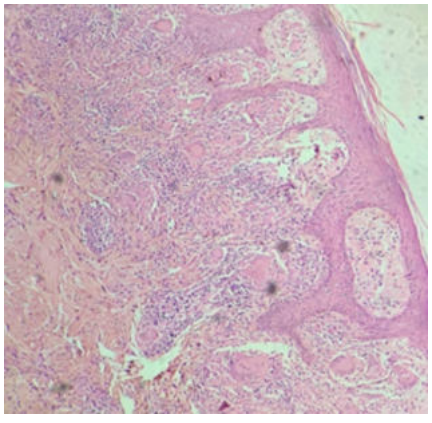

Fig 2: Photomicrograph Showing Langhans Giant Cell In Tuberculoid Leprosy In H & E Stain (X10)

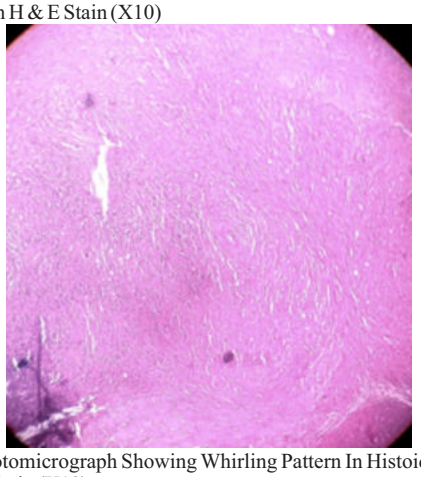

Fig 3: Photomicrograph Showing Whirling Pattern In Histoid Leprosy In H & E Stain (X10)

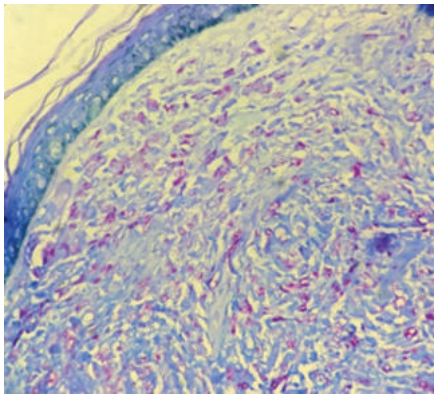

Fig 4: Photomicrograph Of Globi Of Lepromatous Bacilli In Fite Farraco Stain (X40)

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