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Pediatrics

A STUDY OF LEPROSY IN CHILDREN AND ITS CLINICO HISTOPATHOLOGICAL CORRELATION

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ABSTRACT

Background: Leprosy is one of the oldest diseases known to mankind and is still associated with stigma. A high child proportion signifies active and recent transmission of the disease.

Aim: To study the clinical pattern and its clinicohistopathological features of leprosy in children.

Methodology: All (n=22) children in the age group 1-18 years with signs and symptoms suggestive of leprosy who attended the outdoor of pediatrics and dermatology and children admitted in our hospital in the period of January 2011 and august 2012 were included in the study. All subjects and their attendants were interviewed thoroughly for history, in depth clinical examination of patients was done and all patients were investigated with skin biopsy and slit skin smear.

Results: Majority of patients belonged to age group of 10 to 18 years (72.7%), with male preponderance. 40.91 % patients gave family history of leprosy. 72.27 % of patients belonged to PB type, 22.73 % MB type. Slit skin smear was positive in 36.36 %. According to clinical characteristics, majority of patients belonged to BT (40.91 %) followed by BB (31.81%). According to histopathological characteristics majority of patients belonged to BT followed by BB. Clinicohistopathological correlation in TT Hansen's is 100%, in BT 88 %.Deformities were observed in 18.18 % patients.

Conclusion: Despite statistical elimination of leprosy, childhood leprosy still remains public health problem. Early detection, treatment and contact tracing are important for reducing the burden of leprosy in the community.

KEYWORDS : Childhood leprosy, Clinicohistopathological correlation.

INTRODUCTION

Leprosy is an ancient disease, which still carries some social stigma worldwide. Leprosy was earliest described in Asia (India & China) around 6th century B.C. and is believed to have spread from India to Europe in 4th century B.C. [2].

Leprosy was described as Kustha-Roga (in Sanskrit it means eating away) in *Susruth Samhita*, which was written around 600 B.C. It was believed to be a punishment, or curse of God [1]. It was believed as a wrath of God on those who had done some evil deeds (paap) in their present or past life, as a result of which they were abandoned by the family and society.

AIMS AND OBJECTIVES

To study the clinical pattern and its clinico histopathological features of leprosy in children.

MATERIAL AND METHODS

The study was conducted in the department of paediatrics and Dermatology, G.S.V.M Medical College, Kanpur. The study population was selected from the children aged 1 to 18 years suffering from Leprosy. All (n=22) children in the age group 1-18 years with signs and symptoms suggestive of leprosy who attended the outdoor of pediatrics and dermatology and children admitted in our hospital in the period of January 2011 and august 2012 were included in the study. All subjects and their attendants were interviewed thoroughly for history, in depth clinical examination of patients was done and all patients were investigated with skin biopsy and slit skin smear. Children with immuocompromised status ,Diabetic mellitus, congenital deformities and children having treatment for TB or Leprosy or any drug which change the histopathological picture of Leprosy are excluded from study.

RESULTS:

TABLE 1 : CLINICAL CATEGORIZATION OF CASES

Variables		N (%)
Type	Borderline Tuberculoid	9 (40.91)
	Borderline border line	7 (31.81)
	Borderline leprosy	4 (18.18)
	Indeterminate leprosy	1 (4.55)
	Tuberculoid leprosy	1 (4.55)
Age	1-9 yrs	6 (27.27)
	10-18yrs	16 (72.73)
Sex	Male	14 (63.64)
	Female	8 (36.36)
Duration illness	<6 month	6 (27.27)
	6-12 month	9 (40.91)
	>12 month	7 (31.82)
Skin lesions	1	6 (27.27)
	2-5	11 (50)
	>5	5 (22.73)

TABLE 2 CORRELATION BETWEEN CLINICAL FEATURES AND HISTOPATHOLOGY

Clinical Types	No of Cases	Clinico Histopathologic Correlation	%
Borderline Tuberculoid	9	8	88.88
Borderline borderline	7	4	57.14
Borderline leprosy	4	3	75
Tuberculoid leprosy	1	1	100
Indeterminate leprosy	1	1	100
Total	22	17	77.27

DISCUSSION

Leprosy is a slowly progressive, chronic infectious disease caused by the bacillus Mycobacterium leprae.

The proportion of children among newly detected cases of leprosy is a strong indicator of disease transmission in the community. Globally, this ratio has shown a considerable variation. As per World Health Organisation (WHO) estimates in beginning of 2009, child proportion has ranged from 0-·52% in Argentina to 10.14% in India to as high as 39·50% in the Federated States of Micronesia [4].

Age distribution:

In our study, most of the patients were above 9yrs (10-18 yrs 16 (72.73%).1-9 yrs. 6(27.27 %).According to Singal et al[7], majority of childhood leprosy patients are above 11yrs (70.3%).According to Chaitra et al,[8] 75% of childhood patients were above 11yrs.Sachdeva et al also found majority of childhood leprosy patients above 11yrs. This may be due to relatively long incubation period of leprosy and also due to chance of misdiagnosing and delayed diagnosis of indeterminate skin patches in the initial stages.

Sex distribution:

In our study, 14 (63.64 %) patients were males and 8 (36.36 %) patients were females. According to Singal et al, Chaitra et al & Sachdeva et al there is male preponderance. Male preponderance in our study is consistent with other studies. This may be due to greater activity and

increased opportunities for contact in males and neglect of female child.

Family history:
In this study, H/O contact was present in 40.91 % of patients. In Singal et al study, H/O contact was present in 14.5% of patients. In Chaitra et al study, H/O contact was present in 58.33% of patients. In Sachdeva et al, H/O contact was present in 35% of patients. Van Beers et al. have shown that risk of a person developing leprosy is four times higher when there is a neighbourhood contact and up to nine times higher when the contact is intra familial. Further, the risk is higher if contact has MB form of the disease. Thus, it is important to take detailed contact history and screening of family members whenever possible [5].

WHO classification:
In our study, 17 (72.27 %) patients were Paucibacillary, 5 (22.73%) patients were Multibacillary.In Singal et al study, 48.3 % patients are paucibacillary, 51.7% patients are multibacillary.In Sachdeva et al study, 74% patients are paucibacillary, 26% patients are multibacillary. High incidence of Multibacillary cases is in contrast to most previous studies and is most likely due to the use of a different set of criteria for disease classification by previous workers such as the 1988 WHO classification, where they included the number of lesions as a criteria without considering the number of Involved nerves as a differentiating factor. In our series too, a significant number of patients with BT leprosy were qualified as MB disease due to more than one nerve trunk involvement.

AFB status:
In our study, slit skin smear was positive in 36.36 % patients. Singal et al found smear positivity in 19.8% patients, which was less compared to our study. Chaitra et al found smear positivity in 8.33% patients, which was less compared to our study. The risk of disease transmission to contacts was higher with AFB positive patients than AFB Negative patients.

Clinical types of leprosy:
In our study, most common type was 9 patients of Borderline Tuberculoid leprosy (BT) (40.91%), followed by 7 patients of Borderline Borderline (BB) (31.81%), 4 patients of Borderline lepromatous leprosy (BL) (18.18%) and one patient of Tuberculoid leprosy(TT) (4 .55%). Clinically, no patient of histoid leprosy and pure neuritic leprosy was detected. According to Singal et al, Borderline tuberculoid leprosy was the commonest clinical type (70.3%) followed by Tuberculoid leprosy (5.8%), mid-borderline leprosy (BB) (1.2%), borderline lepromatous leprosy(BL) (9.9%), lepromatous leprosy (LL) (4.1%), pure neural leprosy (PNL) (4.6%) and indeterminate leprosy (4.1%).[7]According to Chaitra et al, Tuberculoid leprosy (TT) was the commonest clinical type (50%) followed by borderline tuberculoid (38.89%), indeterminate (5.56%), and borderline lepromatous (2.78%) types. No patient of childhood pure neural leprosy was registered during their study period.

Clinico- Histopathological correlation:
In our study clinico histopathological correlation was seen in 77.27 %. Singal et al study showed 86.1% and Chaitra et al showed 85.16% clinic histopathological correlation. The selection of optimum lesion for biopsy might have been responsible for the high percentage of correlation.

Deformities:
Incidence of deformities was 18.18% according to our study.Singal et al found deformities in 12.8% of childhood leprosy patients.Chaitra et al found deformities in 13.89% patients. The fewer incidences of deformities in our study may be due to early detection of childhood patients. Occurrence of deformities is associated with the following factors: increasing age, high bacillary load, multiple nerve thickening and presence of reaction at the time of presentation [9, 10]. Leprosy was observed in HIV patients, because of reduced cell mediated immunity [6].

CONCLUSION
Despite statistical elimination of leprosy, childhood leprosy remains a public health problem and bears a significant social impact. Early detection, treatment and contact tracing are important for reducing the burden of childhood leprosy in the community. Though lot has been achieved at national level much need to be done in pockets of high prevalence in terms of case detection, patient education and counselling, in addition to MDT coverage. Because of broad clinical spectrum of disease, patients may present with different morphological varieties, so it is quite difficult in making a diagnosis by the treating physician, where Slit skin smear and histopathological examination may help in confirmation of diagnosis. As our study is based on data obtained from outpatient department of a tertiary hospital it may not represent the actual problem in the society. So there is need for house to house epidemiological survey to detect hidden cases of childhood leprosy.

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