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Associated Cases in the Families of School Children with Leprosy

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The screening of 190 families in which children suffering from leprosy discovered through school surveys were present, yielded a total of 41 cases. Though the prevalence rate among the contacts was 44 per thousand, only in 14% of the families visited, another associated case could be found, and only in 2 instances out of 27 families, the associated case belonged to L type. The school surveys as well as contact examination yielded predominantly cases belonging to non-lepromatous type mostly with single lesions whose contribution to the pool of infection in the community is questionable.

Introduction

In recent times school surveys have come to be given an important place in several urban leprosy control projects. Even in rural areas where the proportion of school going children is comparatively small, screening of pupils regularly has been looked upon as an effective method of controlling leprosy, (Kurian *et al.*, 1975).

Working under constraints of limited resources and personnel, the exact order of priority which school surveys should be given in relation to other techniques of case detection and case holding in a leprosy control programme is not quite clear.

Views have been expressed (Noordeen, 1975*a*) that school survey may prove to be an important means of source case detection in the community, if examination of household contacts of school-detected cases is done methodically. This presupposes that a large number of intrafamilial "source cases" may be found through this means. Though school surveys are carried out extensively, no data are available from any of the projects proving the utility of this technique to detect source cases in the household. Ganapati *et al.* (1977), working on a small sample of children attending schools situated in the

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midst of a well demarcated and somewhat isolated slum showed that although school and family contact examination may be more economical with time, money and personnel, it may not result in the disclosure of a significant proportion of the cases in the community, and, more importantly, of infectious cases.

Subsequent to the above study larger samples were available from a few leprosy control projects in Bombay, and it was thought that the material could be pooled to assess the following features.

(i) prevalence rate of leprosy among household contacts of school-detected cases,
(ii) relation of the types of associated cases with those of index cases and
(iii) extent of yield of "progressive types" of leprosy from the school as well as contact samples.

Material and Methods

The children found to be suffering from leprosy through school surveys derived from the following 3 sources were considered as index cases.

(i) Vimala Dermatological Centre (schools in Versova and Andheri).
(ii) Bombay Leprosy Project (schools in Khar-Danda).
(iii) R.R.E. Society of Acworth Leprosy Hospital (schools in Janata Colony, Chembur) (Ganapti *et al.*, 1977).

The families of index cases were screened in order to detect the "source cases" if any. The material from the 3 sources was pooled for analysis.

The surveys of schools as well as families were conducted by trained para-medical workers, and case confirmation was done by medical persons experienced in leprosy after bringing the patients for examination at the clinic.

The simple field classification of N (non-lepromatous), L (lepromatous) and N?L (intermediate forms) as recommended by the National Leprosy Control Programme of India was followed. (Operational Guide and Guidelines of Assessment of Leprosy Control Work in India, 1969.) Bacteriological examination was done in the lepromatous type of cases.

Results

The following tables show the types of index cases and those of associated cases in the families.

TABLE 1
Cases in relation to families visited

No. of families visited	Proportion of coverage of family contacts	No. of leprosy cases in family contacts	Prevalence rate in contacts
190	930/1196 (77.7%)	41 (including 2 lepromatous cases)	44/1000

TABLE 2
Types of index cases and associated cases

Sr. no.	School case (index)		Contact case (associated)	Sr. no.	School case (index)		Contact case (associated)
1	N	—	N	14	N	—	N
2	N	—	N + N	15	N	—	N
3	N	—	N	16	N	—	N
4	N?L	—	N + N + N	17	N	—	N
5	N?L	—	N	18	N	—	L
6	N	—	N	19	N	—	N
7	N	—	N + N	20	N	—	N
8	N	—	N	21	N	—	N + N
9	N	—	N + N	22	N	—	N
10	N	—	N + N?L	23	N	—	N + N
11	N	—	N + N + N	24	N	—	N + N
12	N	—	N + N	25	N	—	N
13	N	—	N	26	N	—	L + N
				27	L	—	N + N

(1) Out of a total pool of 312 index cases (from school surveys), 190 families could be visited. A total of 1196 household contacts were identified, out of whom 930 were available for examination, representing a coverage of 77.7%.

(2) Forty-one cases were detected among these contacts, the prevalence rate among contacts being 44 per 1000.

(3) These 41 cases were actually found in 27 families owing to the existence of multiple cases in many families.

(4) In 14% of the families (27 out of 190) a single and multiple associated cases were found.

Discussion

(1) A prevalence rate of 44 per 1000 among contacts (taken as a group) is strikingly higher than the prevalence rate generally obtained from whole population surveys. This is to be expected and stresses the value of contact examination in general. Where facilities for whole population survey are limited, this technique may therefore be recommended.

(2) However only in a small proportion of cases i.e. 14% (27 out of 190) was another associated case found and only 2 instances were associated with L cases (Table 2; nos 18 and 26). So if our object is to unearth infectious sources in the whole community and bring them under treatment as an effective control measure in the community, this technique is poor as compared to mass surveys.

(3) Among the highlights were 2 instances, in which 4 case-families were present including the index case (Table 2; nos 4 and 11) and in 12 instances (Table 2), there were 3 or more cases in the family (including the index school case).

(4) The fact should be stressed that out of 190 families carefully searched, there were only 2 instances where associated lepromatous cases were found. In the remaining 25 instances only non-lepromatous cases were unearthed.

(5) Also the school survey itself yielded only 1 lepromatous case and 2 N?L cases; the remaining 24 were non-lepromatous mostly with single lesions and hence probably not of great public health significance. Studies by Browne (1974) and Noordeen (1975*b*) indicate the benign and non-progressive nature of single lesions belonging to the tuberculoid type.

(6) From Table 2 it is seen that in 3 instances (nos 4, 5 and 27) among the multiple case-families index cases were of N?L and L types, whereas family contact cases belonged to N type. The significance of this association in a larger sample of multiple case-families is being studied and will form the subject of a future communication.

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References

Browne, S. G. (1974). Self-healing leprosy; report on 2749 patients. *Lepr. Rev.* **45,** 104.

Ganapati, R., Pandya, S. S., Naik, S. S., Dongre, V. V. and D'Souza, N. G. A. (1977). An assessment of school surveys as a method of case detection in an urban area endemic for leprosy. *Ind. J. Med. Res.* (in press).

Kurian, P. V., Vasundhara, V. and Devanbu, D. (1975). School survey as an effective method for leprosy control in rural areas. *Lep. Ind.* **47,** 75.

Noordeen, S. K. (1975*a*). Seminar on leprosy, urban leprosy—case detection and case holding. *Lep. Ind.* **47,** 232.

Noordeen, S. K. (1975*b*). Evolution of tuberculoid leprosy in a community. *Lep. India.* **47,** 85.

Operational Guide and Guidelines of Assessment of Leprosy control work in India. (1969). Govt of India Publication, p. 61.