

POLIOMYELITIS IN AMRITSAR

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ANTERIOR poliomyelitis is an ancient disease, yet it was first described by Underwood towards the close of the 18th century 1784. Shaw (1823) and Goodeve (Birch, 1879) mentioned about paralysis in India; latter reporting paralysis occurring in English children. Kini (1948) could collect only 2 cases from Punjab. The present study is undertaken to find out if the disease is as rare as described by him. In this series cases who attended the Orthopaedic Clinic of the V. J. Hospital, Amritsar, from February 14, 1949 to February 13, 1952 have been analysed.

Incidence of paralysis:—98 per cent of cases of acute anterior poliomyelitis are not followed by paralysis (McAlpine, 1951). Virus was first cultivated from these non-paralytic cases by Paul and Trask (1932) whereas Caverly invited attention to this form of disease as early as in 1896. During the period under review 292 cases of paralytic phase reported treatment. 2205 cases might have suffered from non-paralytic form besides them. The problem enlarged to the whole country must become phenominally big. It is suggested that many cases of P. U. O. occurring all over the country may be cases of non-paralytic and abortive cases of polio.

Age:—The disease is common in children—89.72 per cent occurring below the age of 10 in the present series. In infants it is not rare. 29.10 per cent occurred during the first year of life (Table I and Chart IV). The incidence falls with age. Only 7.53 per cent occurring after the age of 15. During the polio epidemic of 1947 in England 1/3rd of the cases occurred above the age of 15. It looks early infection is commoner in our country than in the west because of over-crowding in small homes. Immunity from sub-clinical doses of the virus or previous infections may account for lower incidence in adults.

TABLE I.

Showing incidence of Paralysis according to age groups.

Age.	No.	Percentage
Below 1 year	85	29.10
1-5 years	137	46.84
5-10 years	40	13.68
10-15 years	8	2.73
Above 15 years	22	7.53

Sex:—Males are affected more commonly than the females. 63.5 per cent in this series were males (Table II).

TABLE II.
Showing Sex distribution of Paralysis.

Sex	No.	Percentage.
Male	185	63.35
Female	107	36.65
TOTAL :	292	100

Distribution of the disease:—The disease shows but slight preponderance in urban population. 56.16 per cent occurred in urban individuals (Table III). This is in contrast to tuberculosis of bones and joints which is predominantly an urban disease

TABLE III.
Showing urban vs. rural distribution of Paralysis.

Locality..	No.	Percentage.
Urban	164	56.16
Rural	128	43.83

Seasonal Incidence:—In 1950 and 1951 August and September show the highest incidence whereas 1949 showed the highest incidence in December. Yearly distribution, however, shows practically no difference (Charts I, II and III and Table IV).

TABLE IV.
Showing cases with the history of Paralysis of less than 1 year duration with seasonal incidence.

Month	1949	1950	1951	Season	No. of cases
March ..	1	3	3	Spring	30
April ..	4	2	4		
May ..	3	4	6		
June ..	4	2	5	Summer	39
July ..	4	1	5		
August ..	5	4	9		
September	3	9	6	Autumn	39
October ..	7	3	3		
November	3	3	2		
December	7	3	1	Winter	28
January	1	2	6		
February	2	4	2		
TOTAL ..	44	40	52		136

Mode of Spread:—Luckily large epidemics of polio do not occur in our country but endemic cases are frequently seen. Where the infection lurks and how it spreads is not clearly understood, though it must be from case to case as throats of patients in acute phase show virus upto 14 days and their excreta is positive upto 3 weeks and occasionally upto 6 months. In epidemic areas even flies have been found to harbour polio virus. They probably have been infected from excreta of acute cases.

History of Illness:—In the present series the mode of onset could be reliably assessed in 271 cases out of which large majority developed paralysis after a fever of 2 days' to 2 weeks' duration. Paralysis followed trauma in 5.53 per cent of cases whereas in 14.35 per cent of cases paralysis descended like a bolt from the blue (Table V).

TABLE V.

Showing mode of onset of Paralysis.

Onset	No.	Percentage
Fever ..	216	79.60
Trauma ..	15	5.53
Sudden ..	40	14.35

History of fever preceding paralysis could be relied upon in 150 cases; quite 23.33 per cent gave history of fever of more than 2 weeks (Table VI).

TABLE VI.

Showing duration of fever before Paralysis.

Duration of fever before paralysis	No.	Percentage
Upto one week ..	80	53.33
1-2 weeks ..	35	24.33
Above 2 weeks ..	35	23.33

Extent of Paralysis:—Lower limbs are more frequently involved than the rest of the body musculature. Lumbar enlargement of the spinal cord lies close to the intestinal tract and lymphatic spread may be an important factor (Table VII).

TABLE VII.

Showing extent of Paralysis.

Left upper limb	23
Right upper limb	17
Both upper limbs	1
Left lower limb	96
Right lower limb	70
Both lower limbs	51
Left upper+Left lower	6
Left upper+Left lower	1
Left upper+Both lower	4
Right upper+Left lower	4
Right upper+Right lower	4
Right upper+Both lower	1
Both upper+Left lower	0
Both upper+Right lower	0
Both upper+Both lower	2
Both lower+Ant abdominals+back	2
Rt. upper+Right lower+Ant abdominal+face	1
Left upper+Both lower+Right abdominal	1
Left lower+Left fact	1
Right upper+Right lower+face	1
Both upper+Both lower+neck	1
Both lower+Ant abdominals	1
Right lower+Right spinal muscles	1
Both upper+Both lower+back	1
Both lower+Right upper+Right abdominals	1
Pack	1
TOTALS:—	292

Summary

1. 292 cases of paralytic form of poliomyelitis have been analysed as to their incidence regarding age, sex, climate, locality of occurrence and history of symptoms, mode of onset and extent of the paralysis etc.

2. It is suggested that disease is not at all unknown in India and many cases of P. U. O. occurring all over the country may be cases of abortive and non-paralytic forms of poliomyelitis.

3. Endemic nature of the disease has been brought out. No marked seasonal or local preference has been noted.

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REFERENCES

- BIRCH, E. A. (1879) .. *Goodeve's Hints for the Management and Medical Treatment of Children in India*. London.
- CAVERLY, C. (1896) .. *J. Amer. Med. Assoc.*, **26**, 1.
- KINI, M. G. (1948) .. *Indian J. Surg.*, **10**, 213.
- MC ALPINE, D. (1951) .. *J. Bone and Joint Surg.*, **33B**, 457.
- PAUL, J. R., and TRASK, J. D. (1932). *J. Exper. Med.*, **56**, 319.
- SHAW, J. (1823) .. *On the Nature and Treatment of the Distortions to which the Spine and the Bones of the Chest are Subject*. Longmans, London.