

Tuberculous Manifestations in Children

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SUMMARY

An analysis of 110 cases of primary tuberculosis in Zambian children revealed that 47% of them had protein energy malnutrition. Of all pulmonary manifestations, simple primary tuberculosis was predominant followed by segmental lesions. A high incidence of extra pulmonary involvement mainly tuberculous lymphadenitis was observed. Previous BCG inoculation was not protective in 37 (33.6%) children.

INTRODUCTION

Tuberculosis is a chronic bacterial disease that still ranks high as a public health problem. It occupied the 13th position among the 21 communicable diseases considered as priority problems in Africa, (Bulla — 1977). Manifestations of primary tuberculosis occur mainly in children. There is a great paucity of data as to its various modes of presentation in children in this country. This paper records the pattern of tuberculosis observed in children, in the

University Teaching Hospital (UTH), Lusaka, and the same is compared with other countries.

PATIENTS AND METHODS

The observations were analysed from the case records of 110 children with definite evidence of tuberculosis who were seen in the paediatric clinic during the year 1979. These included the previously diagnosed children who were coming for follow-up and also newly diagnosed cases. All the cases had a complete clinical investigation including tuberculin test and appropriate radiological studies. Investigations like gastro lavage, sputum examination, biopsy, C.S.F. examination were done depending upon the clinical presentation of the cases.

OBSERVATIONS

Of 110 children with tuberculosis, 59 were under 5 years of age (53.9%) and 51 were between 5 and 12 years of age (46.5%). There were 56 boys (50.9%) and 54 girls (49.04%).

The most common symptoms observed were irregular and recurrent fever (72.7%) and cough (70.9%). This is followed by failure to thrive (33.6%). Lung findings such as crepitations and diminished air entry were present in 65% of cases. 47.2% (52) of children had concurrent protein energy (PEM) malnutrition. Cervical lymphadenopathy was present in 40% of cases. Significant hepatosplenomegaly was seen in 13.6% of cases. A complete check up was carried out on all the contacts of 45 children and in the rest, only history of tuberculosis was obtained. Tuberculosis was found in 29 cases (26.3%) of contacts. Tuberculin test was positive in 61.8% of cases, the criteria for a positive test being an induration of more than 10 mm in diameter in case of intradermal technique of mantoux of Grade II or more reaction in case of Heaf multiple puncture test. The pulmonary lesions were classified according to Bentley, Crysbuski and Benjamin (1954) and are shown in table I. The various manifestations of tuberculosis are shown in table II. Thirty-seven children had received BCG vaccination either immediately after birth or as a part of vaccination at school.

DISCUSSION

The age distribution is in conformity with the other studies from Africa (Tompkin 1963). The most common symptoms observed are fever and cough which are attributed to the predominant pulmonary involvement.

The co-existence of tuberculosis and malnutrition is a well established one which is again illustrated in our study. In a study from East Africa, 38.1% of children with PEM had tuberculosis. The diagnosis was based on positive X-rays and a history of contact (Okauhialam 1974). In fact the author had suggested a modified scoring system for the diagnosis of tuberculosis. In spite of earnest approach, the contact with tuberculosis was traceable in only 29 of cases. Tuberculin test possesses a high degree of specificity and a positive tuberculin test is one of the criteria for the diagnosis of tuberculosis in children. This is very well confirmed in a study from Tanzania where only less than 10% were tuberculin negative among 106 proved tuberculous patients (Vaughan et al - 1971). Our figures might have been more if we had used a uniform approach instead of two different techniques. Secondly malnutrition may have contributed to the low positive tuberculin test. Out of 52 children with PCM, 20 were tuberculin negative. Anergy to tuberculin test is very well demonstrated in a study from Uganda where only 11 out of 51 malnourished children with definite evidence of tuberculosis were tuberculin positive and the author suggested that higher doses of tuberculin are more likely to elicit positive reaction (Lloyd 1968).

Of all the pulmonary manifestations, simple primary tuberculosis is predominant followed by progressive primary tuberculosis. Simple primary tuberculosis includes either a nodal shadow or nodal and parenchymal shadow. We have included segmental lesions in the progressive primary tuberculosis. A high incidence of segmental lesions has been reported from South Africa as well as Nigeria (Freiman et al 1975, Tompkin 1962). But the incidence is not so high in a study from Kampala (Lloyd 1969). Although there is no doubt that segmental lesions are frequent, it is difficult to determine their incidence at any given time.

The incidence of pleural effusion in our study is similar to studies in Kampala and Nigeria (Lloyd 1969, Tompkin 1962). The prognosis of pleural effusion is good in children as compared to adults who later may develop lesions (Lincoln and Sewell 1963). 11 children had miliary tuberculosis. The incidence is similar to the study from Kampala (Lloyd 1969). Higher incidence has been reported from Rhodesia (Gelfand et al 1973). The outcome of miliary tuberculosis has been completely reversed with the advent of chemotherapy. However 50% mortality has been reported among 44 children with

miliary tuberculosis in Nigeria (Aderele 1978). Chronic pulmonary tuberculosis was diagnosed in 6 of the children. The diagnosis was based on X-ray which showed cavitation and fibrosis. A higher incidence has been reported from South Africa (Freiman et al 1975). The evolution of cavitation lesions is from the parenchymal focus extending and involving the bronchi. We have included two children with bronchopneumonia who are sputum positive in the miscellaneous group. We have also included another girl who had shown calcification of hilar nodes and was symptomatic.

Non pulmonary lesions were seen in 20 children and combined pulmonary and extra pulmonary lesion was seen in 48 children. Extra pulmonary involvement had been high even in a previous study from Zambia (Gelfand et al 1973). However extra pulmonary tuberculosis accounted for only 12.1% in a study from Britain. (Davies 1961). Tuberculous adenitis was seen in 43 children, all confirmed by biopsy. Glandular lesions were predominant in some studies (Davies 1947, Tompkins 1962) whereas in other studies they were not very common (Olujimi 1962, Gelfand et al 1973).

There were only 3 cases of tuberculous meningitis in our group. Even in a previous study of meningitis in children from this institute only 6 were due to tuberculosis in a whole year (Chintu and Bathirunathan 1975). A high incidence has been reported from Uganda, especially under 2 years of age with a mortality of 52% (Bwibo 1972). The spine was the site of involvement in all our cases of skeletal tuberculosis. All of them presented with gibbus and none of them had any neurological involvement.

There were 3 cases of tuberculosis of liver, the diagnosis was on the basis of biopsy, which revealed caseous material. Liver involvement has been known to occur in congenital tuberculosis and also in miliary tuberculosis. Papulo-necrotic tuberculosis arises as bacteria are dissiminated during the active phase of primary infection and is uncommon. Twelve cases have been reported from Nigeria (Somorin et al 1978). We had only one girl who presented with miliary tuberculosis and papulo-necrotic tuberculosis. Only one boy had pericardial effusion with primary complex. He recovered completely with antituberculous treatment and a short course of steroids. 48 children in the study group were sputum positive. More positive cultures from laryngeal swab as compared to gastric lavage has been reported from Kampala (Lloyd 1976). We have not

attempted laryngeal swab in our children.

BCG vaccination was not protective in 37 of our children. An increasing incidence of tuberculosis among BCG vaccinated children has been reported from South Africa (Geethuysen and Freiman 1975). Though the BCG vaccination has a definite role in the prevention of tuberculosis, in a community where the infection rate is quite high, it is better to administer booster doses, at least every 5 years.

TABLE I

Radiological Classification of Primary Tuberculosis

Site	No. of Cases
Simple primary tuberculosis	39
Progressive primary tuberculosis	23
Pleural effusion	8
Miliary tuberculosis	11
Chronic pulmonary tuberculosis	6
Quiescent lesion	1
Miscellaneous	2
Normal	20
TOTAL	110

TABLE II

Site	No. of Cases
Pulmonary Tuberculosis alone	42
Non pulmonary tuberculosis	20
Pulmonary tuberculosis with extra pulmonary tuberculosis	48

Distribution of Non-Pulmonary Forms

Site	No. of Cases
Abdomen	11
Liver	3
Skeletal	6
Meningeal forms	3
Lymphadenitis	43
Skin	1
Pericarditis	1

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