



Figure 2 Computed tomographic scan section showing concurrent aneurysmal dilation of the brachiocephalic (BC) and left common carotid (LCC) arteries producing tracheal compression.

their use in airways compression due to vascular aneurysms. A potentially fatal complication of stenting in this situation might be pressure necrosis leading to a bronchoarterial fistula. Medical management aimed at optimal control of blood pressure would seem the most appropriate course wherever possible.

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## Childhood tuberculosis in Leeds, 1982-90: social and ethnic factors and the role of the contact clinic in diagnosis

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### Abstract

**A retrospective analysis of childhood tuberculosis in Leeds over a nine year period (1982-90) was performed which showed that the contact clinic is important for the early detection and treatment of disease in children. Two thirds of the cases of tuberculosis in children under 15 years were diagnosed and treated at the clinic. The incidence of tuberculosis was greater in Asian than in white children and, independent of race, was greater in the most deprived area of the city.**

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We have analysed the contribution of the

screening services to the control of tuberculosis in children over the nine year period from the beginning of 1982 to the end of 1990. The opportunity has also been taken to extend and strengthen our previous analysis of the ethnic and social factors influencing childhood tuberculosis.<sup>1</sup>

### Methods

In Leeds all tuberculosis notifications are forwarded to the chest clinic. In addition, copies of reports of positive microbiological and histopathological examinations are sent from laboratories within the city, allowing reminders about notification to be sent to clinical colleagues. Health visitors visit source cases, identify close contacts, and administer Heaf tests. All contacts then attend the chest clinic for reading of Heaf tests and chest radiographs if Heaf tests are positive.

In this survey all cases notified between January 1982 and December 1990 have been reviewed. Patients with atypical mycobacterial infections were not included in the analysis.

The population of Leeds is approximately 710 000 including 19 000 originating from the Indian subcontinent and 19 000 belonging to other ethnic minority groups.<sup>2</sup> The proportion of the population aged 0-14 years was estimated as 34% people from the Indian subcontinent, 26% for other ethnic groups, and 18% for the white population.<sup>2,3</sup> The urban priority area of the city (population 200 000) contains 60% of those claiming supplementary benefit,

Number of cases of childhood tuberculosis, child population (aged 0–14 years), and mean annual rates by place of residence and ethnic origin in Leeds during the nine year period 1982–90

Ethnic group	Place of residence		Totals
	UPA	Non-UPA	
Indian subcontinent	7/4900(15.8)	3/1600(20.8)	10/6500(17.1)
	11/4900(24.9)	6/1600(41.7)	17/6500(29.1)
Other non-white*	3/3600(9.3)	0/1300	3/4900(6.8)
	0/3600	0/1300	0/4900
White	30/31500(10.6)	20/89600(2.5)	50/121100(4.6)
	37/31500(13.0)	15/89600(1.9)	52/121100(4.8)
Totals	40/40000(11.1)	23/92500(2.8)	63/132500(5.5)
	48/40000(13.3)	21/92500(2.5)	69/132500(5.8)

UPA = urban priority area.

\* Two Afro-Caribbean, one Vietnamese.

Figures in parentheses are annual rate per 100 000.

Figures in the upper row refer to active cases, those in the lower row to children receiving chemoprophylaxis.

60% of the unemployed, 75% of the ethnic minority population, 50% of the single parent families, and 40% of the elderly residing alone, but only 28% of the total city population.

### Results

Sixty three children under 15 years were diagnosed as having active tuberculosis (table). Over all age groups the contact clinic in Leeds diagnosed 9% of the active tuberculosis, a figure which has not changed significantly in the last 20 years.<sup>4</sup> For children under 15 years, however, 41 of 63 cases (65%) with active disease were diagnosed by the contact tracing procedure. Nineteen of the remainder were diagnosed as hospital inpatients, and three who were not contacts were diagnosed in other clinics. All the cases diagnosed in the contact clinic had abnormal chest radiographs. Only five children out of the 63 with active disease had a history of BCG immunisation. In a further five children the BCG history was not known.

Sixty nine children in contact with tuberculosis received chemoprophylaxis for positive Heaf tests with normal chest radiographs (Heaf grade 3 or more, or grade 2 in the absence of a history of BCG immunisation). Two infants were given chemoprophylaxis because their mothers had sputum positive tuberculosis.

### ETHNIC AND SOCIAL FACTORS

Children from families originating in the Indian subcontinent have an incidence of tuberculosis 3.7 (95% confidence interval 1.9 to 7.3) times higher, and a chemoprophylaxis rate in contacts 6.1 (3.5 to 10.5) times higher, than white children. In agreement with our earlier findings,<sup>1</sup> residence in the urban priority area is associated with an increased risk of tuberculosis with an incidence of tuberculosis 4.0 (2.4 to 6.7) times higher, and a chemoprophylaxis rate in contacts 5.3 (2.6 to 7.2) times higher, than in the more affluent parts of the city. For white children living in the urban

priority area the incidence of tuberculosis is 4.3 (2.4 to 7.5) times higher, and the chemoprophylaxis rate in contacts 7.0 (3.8 to 12.8) times higher, than for white children living in the rest of the city. The probability of any of these results arising by chance is  $<0.001$  ( $\chi^2$  analysis with Yates' correction). Analysis of this larger number of cases strengthens our earlier conclusion that social deprivation is an important risk factor which is independent of ethnic background. The incidence of tuberculosis in deprived white children approaches that of the ethnic minority from the Indian subcontinent.

### Discussion

The proportion of active cases of tuberculosis diagnosed by contact procedures is very similar in different centres, being 9% currently in Leeds and varying from 7.5% to 12% in other published surveys.<sup>4–7</sup> Although yields of screening (active cases as a proportion of those screened) are small – 0.63% currently in Leeds, 1.25% in our earlier study,<sup>4</sup> 0.8% in Edinburgh,<sup>8</sup> and 1.8% in Harrow<sup>7</sup> – two thirds of the cases of active childhood tuberculosis are detected in this way with a similar number of children identified as requiring chemoprophylaxis.

Our initial finding<sup>1</sup> that tuberculosis in Leeds is equally common in white and Asian children is now shown not to be true. However, the incidence in the two groups is similar in the socially deprived urban priority area. Our earlier finding<sup>1</sup> that social deprivation and poverty are important factors for tuberculosis in children is strengthened by our current study, and again it emerges that at least 84% of the children with tuberculosis had not had BCG immunisation. More effective control might be achieved by extending neonatal immunisation from Asian children, as currently practised, to include other vulnerable groups within the white population. However, a more detailed index of child deprivation based on smaller area statistics than the urban priority area would be desirable.

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