

Fatal but clinically undiagnosed tuberculosis

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SUMMARY. Forty-one instances of active tuberculosis first identified after death by a coroner's autopsy are reported. These constituted 0.3 per cent of the coroner's postmortem examinations and 31 per cent of all deaths from tuberculosis in Birmingham during the five years 1977-81. Many of the deceased in this series had been attended by a general practitioner shortly before death without the true nature of the disease being recognized. The value of a coroner's autopsy in establishing the actual cause of death is emphasized, especially when death might have been prevented by treatment as in many cases of tuberculosis.

Introduction

THE coroner orders an autopsy when a medical practitioner cannot give the cause of death and almost always when the death is thought to be unnatural. The coroner's enquiries help to provide accurate epidemiological data and thereby may reveal the presence of an unsuspected and potentially treatable disease. The purpose of this study was to explore this possibility as it applied to tuberculosis.

Method

During the five years 1977-81 in Birmingham (population approximately one million) 14,001 autopsies were performed on behalf of the coroner in order to discover or confirm the exact cause of death. The examinations were carried out by a special panel of experienced pathologists either at one of seven hospitals or at the Central City Mortuary. Gross observations were frequently supported by histological or bacteriological investigations. The detailed reports form the basis of this paper.

Inactive disease or other evidence of past disease was ignored. Postmortem examination was avoided where possible if it was already known that the person had tuberculosis; such cases are not included in this report. Only three deaths were the subject of an inquest. In Birmingham all general practitioners are notified of the cause of death after autopsy and they may apply for a copy of the full pathology report without any charge.

© *Journal of the Royal College of General Practitioners*, 1983, 33, 343-345.

Results

The coroner's 41 cases of posthumously diagnosed tuberculosis formed 31 per cent of all the 132 deaths from tuberculosis in Birmingham during the five years of the survey. In 29 instances (71 per cent) tuberculosis was the direct or antecedent condition leading to death, equivalent to part 1 of the Medical Certificate of Cause of Death. On 12 occasions (29 per cent) active tuberculosis was an unrelated but significant finding (part 2 of certificate). Pulmonary tuberculosis was the commonest type (31 cases, or 76 per cent). The remainder (24 per cent) were described as renal (four cases), miliary (three cases), abdominal (two cases) and osteomyelitis (one case). The ages of the deceased ranged from 20 to 80 years. Virtually half of the deceased (20) were over 65 years of age. The majority (29, or 71 per cent) were male. About half (22) were born in England or Wales. Seven were of Irish birth, six were Asian-born, two were Scottish, one was a Kenyan Asian, and for three the place of birth was unknown.

Most deaths (34, or 84 per cent) had occurred either at home (22 deaths) or within less than 24 hours after the patient's admission to an acute hospital (12 deaths), and before a diagnosis was made. Six deaths, cause undiagnosed, occurred after a longer period of hospitalization for the patient. The most prolonged interval between admission to hospital and death was 84 days for a 74-year-old man who died unexpectedly from extensive pulmonary disease during treatment for alcoholism in a general practitioners' unit. One other person was found dead in a canal.

Many of the deceased (27, or 66 per cent) were unmarried (15 single, 10 widowed, two separated). Thirteen (32 per cent) were married, and for one the marital status was uncertain. Only 11 (27 per cent) were recorded as living alone although six others resided in hostels or a lodging house, and two were long-stay psychiatric patients. In some cases there were recognized associations suggesting the possibility of tuberculosis and these were recorded; for example, there were three instances of diabetes, three of alcoholism and two persons had had partial gastrectomy. Significantly, 10 (24 per cent) of the deceased were believed to have had a past history of tuberculosis.

The interval between the last medical contact and death was noted for the 34 persons who either died at home or in a general practitioner hospital or within 24

hours after admission to a general hospital. Thirteen had been attended by a general practitioner (including one consultant physician son-in-law who lived with the deceased) within seven days of death without a correct diagnosis being made. These cases amounted to a third of this particular group. Five were last seen between a week and a month prior to death, and for six it was more than a month. The interval was uncertain in three cases, and for seven people the evidence suggests that treatment had never been sought for their condition. It is impossible to comment over what period treatment had been given, but it is clear that several of those who died had other chronic respiratory disorders.

General practitioners were not alone in failing to recognize active tuberculosis. Of those patients who died in hospital, one with caseating pulmonary tuberculosis was an epileptic from a psychiatric unit and another died from tuberculous peritonitis after 23 years residence in hospital with mental and physical retardation. Two patients had recently been treated in hospital and discharged, one and three weeks respectively, before death, without any diagnosis of active tuberculosis. Particularly poignant was the death of a man with widespread pulmonary disease who was discovered drowned in a canal. He had had no chest radiograph despite having sought treatment for his deteriorating condition at a hospital emergency department the day before his disappearance. Three-and-a-half weeks previously he had undergone investigations at a hospital outpatient department as a newly diagnosed diabetic with chest pains. The diabetes physician stated at the inquest: 'There are not enough cases of tuberculosis to justify the trouble and expense of x-raying all cases of diabetes.' Unfortunately, this patient had two conditions, either of which might have explained his weakness and weight loss.

On seven occasions, failure to have the fatal tuberculosis diagnosed and treated seemed to be the responsibility of the individual rather than the doctor. Who were these people? Only one person appeared to have had a normal family life, and his symptoms were probably ignored because he was 'always chesty'. Alcoholism, self-neglect, vagrancy and refusal of medical treatment were features of the other six.

Discussion

Coroner's autopsies are continually revealing unsuspected active tuberculosis, with the risk of infection for pathologists, mortuary staff,¹ undertakers and coroners' officers. General practitioners should ensure that such patients in their care have regular chest radiographs and BCG immunization where appropriate.²

The order by a coroner for a postmortem examination is not always accepted readily by relatives or even by doctors. In this series, on two occasions the attending doctor was prepared to give an alternative though incorrect cause of death (diabetes mellitus and arterio-

sclerosis respectively) without recourse to further examination. Doctors should bear in mind the usefulness of an autopsy, which may make death certification more accurate, render mortality statistics more reliable and, in the case of tuberculosis, play a part in preventing further infection. Following correct postmortem diagnosis and because of the possibility of infection having spread in life, the environmental medical officer should always be notified and contacts should be traced and examined,³ even when the diagnosis was not established until after death.

Accurate diagnosis is made more difficult when the patient is well known to the general practitioner and suffers a chronic respiratory condition such as bronchitis, emphysema or asthma. It must be a salutary experience for a general practitioner to learn, after the postmortem examination, that his patient had died from tuberculosis, a condition which can usually be expected to respond to appropriate treatment.⁴ Of these 41 cases of unidentified tuberculosis, a significant proportion were treated by a general practitioner shortly before death. Furthermore, it is worth commenting that many general practitioners work in long-stay hospitals where their patients may be vulnerable to tuberculosis, as were two in this series.

The annual publication of local mortality statistics on tuberculosis ceased with the abolition in 1974 of the medical officer of health reports, and obtaining the current incidence of such deaths has therefore become more complex. This report points to the presence of a reservoir of active tuberculosis in Birmingham and no doubt elsewhere in the United Kingdom. Prompt diagnosis of tuberculosis must reduce the period of infectivity and the spread of the disease. To identify these individuals and then provide the necessary treatment is a challenge for general practitioners.

A national survey of tuberculosis mortality in 1968⁵ revealed certain risk factors, notably old age—particularly in men—immigration, vagrancy, mental illness, alcoholism, diabetes and partial gastrectomy. A similar pattern exists a decade and a half later. It must not be assumed, however, that these risk factors associated with deaths are the same for all new cases of tuberculosis. Thus of all 515 notifications of the disease in Birmingham in 1980, 53 per cent concerned persons who were Asian-born, 32 per cent were from England, Scotland or Wales, and only 6 per cent were from Ireland.⁶ The equivalent percentages for those who died with tuberculosis, diagnosed only after death, from 1977–81, were: Asian-born, 15 per cent; English, Scottish and Welsh, 54 per cent; and Irish, 17 per cent. The evidence from Birmingham suggests that those patients who escape detection are more likely to come from the indigenous white population including those of Irish stock. They are usually male, often elderly and unmarried. For some, there is the additional factor of social isolation or alcoholism. It would seem prudent to screen, where possible, occupants of hostels and lodging

houses where such men congregate. Chronic respiratory disease, partial gastrectomy and diabetes were also confirmed as associated factors. A quarter of those fatal cases diagnosed at autopsy concerned persons who had a history of previous tuberculosis, which should have highlighted the likelihood of relapse or reinfection. Patients' records, computerized or not, should be planned so that a history of tuberculosis is displayed prominently to keep the doctor alert to the problem.

In any poorly understood illness, tuberculosis must still be considered as a possible diagnosis and its presence can often be revealed by such simple investigations as a chest radiograph or sputum examination. A reminder to the doctor of first contact of the continuing existence of tuberculosis in the community may help to reduce the threshold of clinical suspicion and hence, with modern chemotherapy, the number of preventable deaths.

References

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Acknowledgements

I thank the pathologists attached to the Birmingham District Coroner's Court for their postmortem examinations and reports, and Dr H. E. Thomas of the Birmingham Chest Clinic for information regarding all deaths from tuberculosis.

Prevalence of tinnitus

In the 1981 General Household Survey, questions were asked to establish the prevalence of tinnitus among the adult population of Great Britain. Excluding those whose symptoms were brought on by external causative factors, 15 per cent of informants reported that they heard noises in the head or ears, although in some of these informants the condition might be considered trivial. Prevalence increased with age, and was higher in the manual than in the non-manual socio-economic groups.

Source: Office of Population Censuses and Surveys (1983). The prevalence of tinnitus 1981. OPCS Monitor, GHS 83/1, 8 February.

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