DELAY IN DIAGNOSIS AND SANATORIUM TREATMENT OF PHTHISIS

BY

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It is generally accepted that delay occurs before the diagnosis of pulmonary tuberculosis is established. Most authors are agreed that part of this delay is due to the development of tuberculosis in the absence of symptoms. For this reason mass radiography has been advocated for the detection of the early asymptomatic case (N.A.P.T., 1942, and others). Following this period of early or latent disease there is a phase in which the signs or symptoms may or may not suggest phthisis. Indeed, there is such a wide variety of non-specific symptoms that the condition may often be erroneously diagnosed as anaemia, debility, bronchitis, influenza, atypical pneumonia, etc. It is with this latter phase—the phase of partially defined signs and symptoms—that this paper is concerned.

The Investigation

A total of 300 patients, consisting of 165 males and 135 females, were investigated. A careful history was noted, with especial emphasis on haemoptysis, pleurisy with and without effusion, a recent history of contact (two years) associated with debility, and a loss of weight of over 4 lb. associated with debility. These symptoms and signs were taken as criteria because, while not pathognomonic, they can be regarded as strongly suggestive of phthisis. In each case the total period of delay from the time those "suggestive" signs or symptoms occurred until the date of admission for sanatorium treatment was analysed under three headings. (1) Time-lag elapsing between suggestive signs or symptoms occurring and the patient's seeking medical advice from his practitioner; (2) time-lag elapsing between the patient's seeking medical advice and being referred by his doctor for consultant or dispensary opinion (or notified by the practitioner himself); (3) time-lag elapsing between the patient's first dispensary consultation and his admission to sanatorium for treatment.

In this way some attempt was made to ascertain statistically where the principal delays in final diagnosis took place after it could *reasonably* have been established. The average total delay between suggestive symptoms occurring and admission to sanatorium was found to be 9.27 months. Of this, 3.64 months was the average delay before the patient with suggestive symptoms consulted his practitioner. A further average of 3.28 months occurred before the patient was referred for dispensary or consultant opinion; and a final delay averaging 2.35 months took place before treatment was initiated in sanatorium.

Those time-lags were then classified according to age and sex groups, with the following results.

TABLE I

Age Group (years)	Males		Females	
	No.	Average Time-lag before Patients consulted Practitioner (months)	No.	Average Time-lag before Patients consulted Practitioner (months)
5-9	1	0	0	0
10-14	0	0	1	0.75
15-19	14	1.58	18	2.097
20-24	25	2.5	33	3.0
25-29	31	2.92	28	3.95
30-34	26	3.26	21	3.88
35-39	19	4.17	17	5.12
40-44	17	3.63	8	6.55
45-49	9	3.56	5	7.33
50-54	11	3.27	1	7.0
Over 55	12	8.0	3	4.66
Totals	165	3.42	135	3.90

There was an average delay of 3.9 months in females and 3.42 months in males before consulting their own practitioner. In almost every age group this delay was more prolonged in

females. Furthermore, there was a progressive increase in the period of delay shown by every female age group up to 50-54 years of age. A similar delay in seeking medical advice was noted in males up to 39 years of age.

Results

Haemoptysis.—In the course of investigating 300 histories, haemoptysis was found to be present on 101 occasions—i.e., 33.6%. Fishberg (1919) in this regard says: "Happy, then, is that patient who suffers an early haemoptysis, for this usually ensures early examination. It is doubtless on account of its startling character that an initial haemorrhage has earned a reputation as a good prognostic sign." A somewhat more cautious attitude is taken by Ellman (1940), who states that haemoptysis is "a fortunate accident from the patient's point of view in that a dramatic manifestation enforces him to undergo early treatment . . . or at some period of the tuberculous course." Lloyd (1940) goes even further, and suggests that haemoptysis "occurs as the earliest symptom in only a small percentage of cases, but each case calls for the fullest investigation." The average time-lag in the 101 cases showing haemoptysis was 3.64 months before such patients consulted their own practitioner. A further delay of 2.64 months occurred before the patient was referred by his own doctor for consultant opinion or before a final diagnosis was made. Thus, on the whole, haemoptysis does not appear to suggest to the patient an earlier visit to his doctor, and the patient's practitioner sends a case only 0.6 month earlier than the "ordinary" case (i.e., a case revealing any of the four significant signs or symptoms taken as suggestive of phthisis) for dispensary investigation.

Pleurisy.—A history of idiopathic pleurisy was noted in 129 cases (43%). This compares with Fishberg's figures of 30-40%, Pierce's 35% and 52% in two series of investigations, and Meachen's (1941) 13.8%. In 92 out of the 129 patients there was definite evidence of effusion, which was confirmed by radiological findings or aspiration. The remaining 37 had a history of "dry pleurisy," which diagnosis had been made by the practitioner in charge. In this condition the average time-lag before the patient attended the doctor for investigation was 3.07 months, and before being referred to the dispensary for consultant opinion a further 3.3 months elapsed. Thus in pleurisy both patient and doctor appear to have called for earlier examination than in the case of all the other symptoms or signs here considered as suggestive of pulmonary tuberculosis.

Sputum.—An analysis was made of the 300 cases with special reference to the frequency with which sputum examination was carried out by the patient's own doctor. The results are noted in Table II.

TABLE II (300 Cases)

No sputum present for examination	..	..	50
Sputum sent by practitioner for examination	..	..	54
Sputum not forwarded by patient for examination	..	..	1
Sputum present but not examined by practitioner	..	..	195

Thus, in only 22% of cases was sputum sent for examination by the patient's own doctor.

Family or Contact History associated with Debility.—In 99 cases there was a history of contact associated with general debility. Of this total, "exposure" outside the intimate family circle—viz., father, mother, brother, sister—occurred in 14 cases. In the remaining 85 contact took place in the same household. Beal (1940) noted 30% of his cases as showing a contact or family history, and Lloyd and Macpherson (1936) in a series of 1,000 young adults found that 39.6% had a history of contact.

Loss of at least 4 lb. in Weight associated with Debility.—Of the 300 cases 206 gave a history of a loss of at least 4 lb. in weight associated with debility.

Discussion

The object of the present survey was to determine the duration of the delay before patients suffering from symptoms "suggestive" of phthisis received sanatorium therapy. The reasons for the patient's delay before seeking medical advice are not difficult to appreciate. Antagonism to the medical profession born of ignorance and fear pervades almost all sections of society. There appear to be immense possibilities

for education and intelligent propaganda among the public on the lines indicated by the N.A.P.T., with especial emphasis on the education of females in the middle-age group of the population. How far the possibilities of propaganda have been neglected is seen in the tardiness with which patients with haemoptysis or pleurisy consult their own practitioners.

So far as the general practitioner is concerned there is room for more rapid diagnosis. According to Varrier-Jones (1933) the reason is because "in the first place the vast majority of students qualify and enter practice without seeing possibly a single early case of infiltration. They are thus unable to detect tuberculosis at its onset." This view is held also by Gregory Kayne *et al.* (1939). There seems to be a strong case for better education in tuberculosis in both the undergraduate and the postgraduate stages of medicine. A student residency in a sanatorium is advocated by Nelson (1939), but it would appear preferable that such a period of time should be spent examining the early cases of phthisis which are to be seen at the dispensary.

In patients with a history of haemoptysis there should be no further delay by the practitioner before the case is notified or is referred for specialist examination. In a number of instances "streaks" of blood in the sputum were not regarded as "suggestive" of phthisis.

Again, after an attack of pleurisy, there should not be a further delay before the case is satisfactorily diagnosed. This delay is needless, because, as Burrell (1937), Wynn (1940), Maxwell (1941), and others have suggested, in all cases in which acute pleurisy appears to be "primary" it is well to assume that the cause is tuberculosis unless definite proof of some other cause is forthcoming. There is much to be said for the opinion which urges that "primary" or idiopathic pleurisy should be made a non-specific notifiable disease which could be referred to a chest or tuberculosis dispensary for observation and final diagnosis. This would avoid the danger of branding some non-tuberculous pleurisies as phthisis and would close the avenues whereby such cases escape consultant opinion. At the same time the general practitioner would have the satisfaction of having been instrumental in finding a potential case of pulmonary tuberculosis.

Sputum.—As already observed, sputum was sent for examination by the patients' doctor in only 22% of the 250 cases in which it was present. This suggests that practitioners fail to make use of the existing free public health facilities for the examination of sputa—a failure that may in some measure be responsible for the delay in diagnosis.

Sanatorium.—The time-lag which elapsed between a patient's being notified or referred to the tuberculosis dispensary and his admission to sanatorium is to some extent a reflection on wartime conditions. In part these deficiencies appear to be due to the inadequacy of both nursing and domestic personnel in fulfilling the needs of the sanatoria (Heaf and Rusby, 1942; Snell, 1942). The corollary is that serviceable wards in satisfactory condition are out of use because of staff difficulties while patients clamour for admission. Another factor is the lack of sanatorium beds in certain areas of the country owing to "blocks" being reserved exclusively for the boarding of troops. Moreover, the existing problems have been accentuated by the wartime rise in the incidence of phthisis.

History of Contact associated with Debility.—Of the investigated cases 99 (33%) were noted to have a history of phthisis associated with debility. Thus the field of contact examination appears to provide an early and very fruitful means of finding cases.

General.—It should here be stressed that such measures as are suggested for the limitation of delay in the diagnosis of pulmonary tuberculosis and the initiation of sanatorium therapy are on no account an alternative to mass radiography. They merely re-emphasize certain well-established principles in case-finding, with a plea for their application to the public and all branches of the medical services.

Summary

Three hundred cases of phthisis were investigated with special reference to the time-lag occurring before treatment at sanatorium was started and after symptoms "suggestive" of phthisis had been established. The delays were classified according to age and sex. Particular note was taken of the delay in diagnosis following pleurisy and haemoptysis. The number of

sputa sent for examination by practitioners was the subject of analysis. The following reforms are advocated.

1. A more generous plan of public education on tuberculosis on the lines pursued by the National Association for the Prevention of Tuberculosis.
2. A revision of existing undergraduate and postgraduate medical teaching, with greater emphasis on the "early" case.
3. The notification of pleurisy (primary or idiopathic) as a non-specific disease, with facilities for the reference of such cases to the tuberculosis or chest dispensaries for a more adequate and final diagnosis.
4. The more extensive employment of existing public health facilities for sputum examination.

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LYMPHADENOMA AND LEUKAEMIA

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There are many evident clinical similarities between lymphadenoma and the leukaemias, and the suggestion has been made that a close relationship exists between these diseases. This suggestion is supported by the observation that occasionally both may occur in the same patient. The case now described appears to have been such an example.

Case History

A girl aged 18, unmarried, was first seen in April, 1940, complaining of general weakness, enlarged glands on both sides of the neck, in the right axilla and the left groin, with attacks of suffocation and dyspnoea at night suggesting mediastinal involvement. The spleen was not palpable. A blood count showed: Hb, 82%; R.B.C.s, 4,450,000; C.I., 0.92; W.B.C.s, 9,375—polymorphs 58%, lymphocytes 38%, monocytes 1%, eosinophils 3%. The family history disclosed that the patient's two sisters had died in infancy from unknown causes, and the mother suffered from anaemia of undetermined type.

Radiographs of the patient's chest revealed a mass surrounding the aorta in the upper mediastinum. A supraclavicular gland was removed. This showed the histological features of lymphadenoma. There was reticulum-cell hyperplasia with the formation of numerous Sternberg-Reed giant cells. Eosinophil leucocytes were scattered throughout the gland, and occasional plasma cells were seen. Some areas of the gland were replaced by dense collagen, and in the more cellular areas there was a fine reticular fibrosis.

Treatment by deep x rays (Dr. C. Bellamy) resulted in rapid disappearance of the superficial glands, considerable diminution of the intrathoracic mass, and complete relief of all symptoms. Other blood counts revealed no significant alteration. Further irradiation was given at intervals during the next two years, during which period the general health remained excellent.

In March, 1942, a sudden and dramatic change was evident. Extreme anaemia developed. Blood counts were as follows:

April 18, 1942.—Hb, 34%; R.B.C.s, 1,650,000; C.I., 1.03; W.B.C.s, 49,800—polymorphs 2.5%, lymphocytes 94.5%, mono-